



United States of America
Department of Homeland Security
United States Coast Guard

Certification Date: 10 Mar 2022

Expiration Date: 10 Mar 2027

Certificate of Inspection

For ships on international voyages this certificate fulfills the requirements of SOLAS 74 as amended, regulation V/14, for a SAFE MANNING DOCUMENT.

| | | | | | | |
|---|---|----------------|------------|------------|-----|---------|
| Vessel Name | Official Number | IMO Number | Call Sign | Service | | |
| HFL 435 | 1236563 | | | Tank Barge | | |
| Hailing Port | Hull Material | Horsepower | Propulsion | | | |
| NASHVILLE, TN | Steel | | | | | |
| UNITED STATES | | | | | | |
| Place Built | Delivery Date | Keel Laid Date | Gross Tons | Net Tons | DWT | Length |
| ASHLAND CITY, TN | 20Jan2012 | 14Dec2011 | R-1619 | R-1619 | | R-297.5 |
| UNITED STATES | | | I- | I- | | I-0 |
| Owner | Operator | | | | | |
| HINES FURLONG LINE INC 4015 HILLSBORO PIKE STE 202 NASHVILLE, TN 37215 UNITED STATES | CHEM CARRIERS LLC 1237 HIGHWAY 75 SUNSHINE, LA 70780 UNITED STATES | | | | | |

This vessel must be manned with the following licensed and unlicensed Personnel. Included in which there must be 0 Certified Lifeboatmen, 0 Certified Tankermen, 0 HSC Type Rating, and 0 GMDSS Operators.

| | | | |
|----------------------------|----------------------|------------------------------|----------|
| 0 Masters | 0 Licensed Mates | 0 Chief Engineers | 0 Oilers |
| 0 Chief Mates | 0 First Class Pilots | 0 First Assistant Engineers | |
| 0 Second Mates | 0 Radio Officers | 0 Second Assistant Engineers | |
| 0 Third Mates | 0 Able Seamen | 0 Third Assistant Engineers | |
| 0 Master First Class Pilot | 0 Ordinary Seamen | 0 Licensed Engineers | |
| 0 Mate First Class Pilots | 0 Deckhands | 0 Qualified Member Engineer | |

In addition, this vessel may carry 0 Passengers, 0 Other Persons in crew, 0 Persons in addition to crew, and no Others. Total Persons allowed: 0

Route Permitted And Conditions Of Operation:

---Lakes, Bays, and Sounds---

Also, in fair weather only, coastwise, not more than twelve (12) miles from shore between St. Marks and Carrabelle, Florida.

This vessel has been granted a fresh water service examination interval in accordance with 46 CFR 31.10-21(a) (2). If this vessel is operated in salt water more than 6 months in any 12 month period, the vessel must be inspected using salt water intervals as per 46 CFR 31.10-21(a) (1), and the cognizant OCMI must be notified in writing as soon as this change in status occurs.

SEE NEXT PAGE FOR ADDITIONAL CERTIFICATE INFORMATION

With this Inspection for Certification having been completed at Houston, TX, UNITED STATES, the Officer in Charge, Marine Inspection, Sector Houston-Galveston certified the vessel, in all respects, is in conformity with the applicable vessel inspection laws and the rules and regulations prescribed thereunder.

| | | | | |
|-------------------------------|---------|-------|------------------|---|
| Annual/Periodic/Re-Inspection | | | | This certificate issued by: Joseph W. Morgans CDR, USCG, By Direction Officer in Charge, Marine Inspection Sector Houston-Galveston Inspection Zone |
| Date | Zone | A/P/R | Signature | |
| 23 MAY 23 | HOU-DAL | A | [Signature] CW02 | |
| 30 MAY 24 | MSU PA | A | [Signature] GS R | |
| 27 MAY 25 | SEC CC | P | [Signature] CW02 | |



Certificate of Inspection

Vessel Name: HFL 435

---Hull Exams---

| Exam Type | Next Exam | Last Exam | Prior Exam |
|--------------------|-----------|-----------|------------|
| DryDock | 31Mar2027 | 23Mar2017 | 20Jan2012 |
| Internal Structure | 28Feb2027 | 28Feb2022 | 23Mar2017 |

--- Liquid/Gas/Solid Cargo Authority/Conditions ---

Authorization: FLAMMABLE / COMBUSTIBLE LIQUIDS AND SPECIFIED HAZARDOUS CARGOES

| Total Capacity | Units | Highest Grade Type | Part151 Regulated | Part153 Regulated | Part154 Regulated |
|----------------|---------|--------------------|-------------------|-------------------|-------------------|
| 29500 | Barrels | A | Yes | No | No |

Hazardous Bulk Solids Authority

Not Authorized

Loading Constraints - Structural

| Tank Number | Max Cargo Weight per Tank (short tons) | Maximum Density (lbs/gal) |
|-------------|--|---------------------------|
| 1 P/S | 925 | 13.57 |
| 2 P/S | 939 | 13.57 |
| 3 P/S | 851 | 13.57 |

Loading Constraints - Stability

| Hull Type | Maximum Load (short tons) | Maximum Draft (ft/in) | Max Density (lbs/gal) | Route Description |
|-----------|---------------------------|-----------------------|-----------------------|-------------------|
| II | 4697 | 10ft 0in | 13.57 | R, LBS, LC 0-12 |
| III | 5567 | 11ft 9in | 13.57 | R, LBS, LC 0-12 |

Conditions Of Carriage

Only those cargoes named in the vessel's cargo authority attachment, serial # C1-1103918, dated November 09, 2011, may be carried and then only in the tanks indicated

As per 46 CFR 150.130, the Person In Charge of the vessel is responsible for ensuring that the compatibility requirements of 46 CFR, Part150, are met. Cargoes must be checked for compatibility using the figures, tables, and appendices of 46 CFR, Part 150, in conjunction with the reactive group numbers from the "Compat Group No" column listed in the vessel's Cargo Authority.

The maximum design density of cargo which may be filled to the tank top is 8.74 lbs/gal.

Note: per 46 CFR 151.10(c)(2) the maximum tank weights listed above reflect uniform (within 5%) loading at the deepest draft allowed. When carrying subchapter "O" cargoes at shallower drafts, the barge should always be loaded uniformly.

Vapor Control Authorization

In accordance with 46 CFR part 39, excluding part 39.4000, this vessel's vapor control system has been inspected to the plans approved by Marine Safety Center letter Serial #C1-1103918, dated November 09, 2011 and found acceptable for collection of bulk liquid cargo vapors annotated with "Yes" in the CAA's VCS column.

When the vessel is carrying cargoes containing greater than 0.5% benzene by volume, the person in charge is responsible for ensuring the provisions of 46 CFR Part 197, Subpart C are applicable.

In accordance with 46CFR Part 39.1017 and 39.5000(e), this vessel's VCS has been evaluated and approved for multi-breasted tandem loading with other vessels specifically approved to tandem load with this vessel.



Certificate of Inspection

Vessel Name: HFL 435

--- Inspection Status ---

Fuel Tanks

| Tank ID | Internal Examinations | | |
|----------------|-----------------------|-----------|------|
| | Previous | Last | Next |
| Machinery deck | - | 20Jan2012 | - |
| Aft slop tank | - | 20Jan2012 | - |
| Fwd slop tank | - | 20Jan2012 | - |

Cargo Tanks

| Tank Id | Internal Exam | | | External Exam | | |
|---------|---------------|-----------|-----------|---------------|------|------|
| | Previous | Last | Next | Previous | Last | Next |
| 1 P/S | 20Jan2012 | 23Mar2017 | 31Mar2027 | - | - | - |
| 2 P/S | 20Jan2012 | 23Mar2017 | 31Mar2027 | - | - | - |
| 3 P/S | 20Jan2012 | 23Mar2017 | 31Mar2027 | - | - | - |

Hydro Test

| Tank Id | Safety Valves | Previous | Last | Next |
|---------|---------------|----------|-----------|------|
| 1 P/S | - | - | 20Jan2012 | - |
| 2 P/S | - | - | 20Jan2012 | - |
| 3 P/S | - | - | 20Jan2012 | - |

---Conditional Portable Fire Extinguisher Requirements---

Required Only During Transfer of Cargo or Operation of Barge Machinery

--- Fire Fighting Equipment ---

Fire Extinguishers - Hand portable and semi-portable

| Quantity | Class Type |
|----------|------------|
| 2 | 40-B |

END



Department of Homeland Security
United States Coast Guard

Serial #: C1-1103918

Dated: 09-Nov-11

Certificate of Inspection

Cargo Authority Attachment

Vessel Name: HFL 435

Official #: 1236563

Shipyard: Trinity Marine

Hull #: 4859

46 CFR 151 Tank Group Characteristics

| Tank Group Information | | Cargo Identification | | | Hull Type | Tanks | | | Cargo Transfer | | Environmental Control | | Fire Protection Provided | Special Requirements | | Elec Haz | Temp Cont |
|------------------------|---------------------|----------------------|--------|-------|--------------|----------------------------|------|--------|-------------------|------|--------------------------|-------------------|--------------------------------|---|--|-------------|--------------|
| Tank Grp | Tanks In Group | Density | Press. | Temp. | | Type | Vent | Gauge | Pipe Class | Cont | Tanks | Handling Space | | General | Materials of Construction | | |
| A | #1P/S, #2P/S, #3P/S | 13.8 | Atmos. | Amb. | II | 1II Integral Gravity | PV | Closed | II | G-1 | NR | NA | Portable | .50-60, .50-70(a), .50-70(b), .50-73, .50-81(a), .50- 81(b), | .55-1(e), (e), (h), 56- 1(b), (c), (d), (e), (f), (g), | NR | No |

- Notes: 1. Under Environmental Control, Tanks, NR means that the tank group is suitable only for those cargoes which require no environmental control in the cargo tanks.
2. Under Environmental Control, Handling Space, NR means that the tank group is suitable only for those cargoes which require no environmental control in the cargo handling space. NA means that the vessel does not have a cargo control space, and this requirement is not applied.
3. Under Electrical Hazard Class, NA means that the tank group is suitable only for those cargoes which have no electrical hazard class requirement. NR means that the vessel has no electrical equipment located in a hazardous location.

List of Authorized Cargoes

| Cargo Identification | | | | | | Conditions of Carriage | | | | |
|----------------------|-----------|-----------------|-------------|-------|-----------|------------------------|----------------|--------------|---|--------------|
| Name | Chem Code | Compat Group No | Sub Chapter | Grade | Hull Type | Tank Group | Vapor Recovery | | Special Requirements in 46 CFR 151 General and Matls of | Insp. Period |
| | | | | | | | App'd (Y or N) | VCS Category | | |

Authorized Subchapter O Cargoes

| | | | | | | | | | | |
|--|-----|-----------------|---|-----|-----|---|-----|-----|-------------------------------------|---|
| Acetonitrile | ATN | 37 | O | C | III | A | Yes | 3 | No | G |
| Acrylonitrile | ACN | 15 ² | O | C | II | A | Yes | 4 | .50-70(a), .55-1(a) | G |
| Adiponitrile | ADN | 37 | O | E | II | A | Yes | 1 | No | G |
| Alkyl(C7-C9) nitrates | AKN | 34 ² | O | NA | III | A | No | N/A | .50-81, .50-85 | G |
| Anthracene oil (Coal tar fraction) | AHO | 33 | O | NA | II | A | No | N/A | No | G |
| Benzene | BNZ | 32 | O | C | III | A | Yes | 1 | .50-60 | G |
| Benzene or hydrocarbon mixtures (having 10% Benzene or more) | BHB | 32 ² | O | C | III | A | Yes | 1 | .50-60 | G |
| Benzene or hydrocarbon mixtures (containing Acetylene and 10% Benzene or more) | BHA | 32 ² | O | C | III | A | Yes | 1 | .50-60, .56-1(b), (c), (f), (g) | G |
| Benzene, Toluene, Xylene mixtures (10% Benzene or more) | BTX | 32 | O | B/C | III | A | Yes | 1 | .50-60 | G |
| Butyl acrylate (all isomers) | BAR | 14 | O | D | III | A | Yes | 2 | .50-70(a), .50-81(a), (b) | G |
| Butyl methacrylate | BMH | 14 | O | D | III | A | Yes | 2 | .50-70(a), .50-81(a), (b) | G |
| Butyraldehyde (all isomers) | BAE | 18 | O | C | III | A | Yes | 1 | .56-1(d) | G |
| Camphor oil (light) | CPO | 18 | O | D | II | A | No | N/A | No | G |
| Carbon tetrachloride | CBT | 38 | O | NA | III | A | No | N/A | No | G |
| Chemical Oil (refined, containing phenolics) | COD | 21 | O | E | II | A | No | N/A | .50-73 | G |
| Chlorobenzene | CRB | 36 | O | D | III | A | Yes | 1 | No | G |
| Chloroform | GRF | 36 | O | NA | III | A | Yes | 3 | No | G |
| Coal tar naphtha solvent | NCT | 33 | O | D | III | A | Yes | 1 | .50-73 | G |
| Creosote | CCW | 21 ² | O | E | III | A | Yes | 1 | No | G |
| Cresols (all isomers) | CRS | 21 | O | E | III | A | Yes | 1 | No | G |
| Crotonaldehyde | CTA | 19 ² | O | C | II | A | Yes | 4 | .55-1(h) | G |
| Crude hydrocarbon feedstock (containing Butyraldehydes and Ethylpropyl acrolein) | CHG | | O | C | III | A | No | N/A | No | G |
| Cyclohexanone, Cyclohexanol mixture | CYX | 18 ² | O | E | III | A | Yes | 1 | .56-1 (b) | G |
| Cyclopentadiene, Styrene, Benzene mixture | CSB | 30 | O | D | III | A | Yes | 1 | .50-60, .56-1(b) | G |
| Iso-Decyl acrylate | IAI | 14 | O | E | III | A | Yes | 2 | .50-70(a), .50-81(a), (b), .55-1(c) | G |
| 1,1-Dichloroethane | DCH | 36 | O | C | III | A | Yes | 1 | No | G |
| Dichloromethane | DCM | 36 | O | NA | III | A | Yes | 5 | No | G |
| 1,1-Dichloropropane | DPB | 36 | O | C | III | A | Yes | 3 | No | G |
| 1,2-Dichloropropane | DPP | 36 | O | C | III | A | Yes | 3 | No | G |
| 1,3-Dichloropropane | DPC | 36 | O | C | III | A | Yes | 3 | No | G |
| 1,3-Dichloropropene | DPU | 15 | O | D | II | A | Yes | 4 | No | G |
| Dichloropropene, Dichloropropane mixtures | DMX | 15 | O | C | II | A | Yes | 1 | No | G |

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Department of Homeland Security
United States Coast Guard

Serial #: C1-110391B

Dated: 09-Nov-11

Certificate of Inspection

Cargo Authority Attachment

Vessel Name: HFL 435

Official #: 1236563

Shipyard: Trinity Marine

Hull #: 4859

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| Cargo Identification | | | | | | | Conditions of Carriage | | | |
|--|-----------|-----------------|-------------|-------|-----------|------------|------------------------|--------------|---|--------------|
| Name | Chem Code | Compat Group No | Sub Chapter | Grade | Hull Type | Tank Group | Vapor Recovery | | Special Requirements in 48 CFR 151 General and Mat'l's of | Insp. Period |
| | | | | | | | App'd (Y or N) | VCS Category | | |
| Diethanolamine | DEA | 8 | O | E | III | A | Yes | 1 | .55-1(c) | G |
| Diethylamine | DEN | 7 | O | G | III | A | Yes | 3 | .55-1(c) | G |
| Diethylenetriamine | DET | 7 ² | O | E | III | A | Yes | 1 | .55-1(c) | G |
| Diisobutylamine | DBU | 7 | O | D | III | A | Yes | 3 | .55-1(c) | G |
| Diisopropanolamine | DIP | 8 | O | E | III | A | Yes | 1 | .55-1(c) | G |
| Diisopropylamine | DIA | 7 | O | C | II | A | Yes | 3 | .55-1(c) | G |
| N,N-Dimethylacetamide | DAC | 10 | O | E | III | A | Yes | 3 | .55-1(b) | G |
| Dimethylethanolamine | DMB | 8 | O | D | III | A | Yes | 1 | .55-1(b), (c) | G |
| Dimethylformamide | DMF | 10 | O | D | III | A | Yes | 1 | .55-1(c) | G |
| Di-n-propylamine | DNA | 7 | O | G | II | A | Yes | 3 | .55-1(c) | G |
| Dodecyl dimethylamine, Tetradecyldimethylamine mixture | DOT | 7 | O | E | III | A | No | N/A | .55-1(b) | G |
| Dodecyl diphenyl ether disulfonate solution | DOS | 43 | O | # | II | A | No | N/A | No | G |
| EE Glycol Ether Mixture | EEG | 40 | O | D | III | A | No | N/A | No | G |
| Ethanolamine | MEA | 8 | O | E | III | A | Yes | 1 | .55-1(c) | G |
| Ethyl acrylate | EAC | 14 | O | C | III | A | Yes | 2 | .50-70(a), .50-81(a), (b) | G |
| Ethylene cyanohydrin | ETC | 20 | O | E | III | A | Yes | 1 | No | G |
| Ethylenediamine | EDA | 7 ² | O | D | III | A | Yes | 1 | .55-1(c) | G |
| Ethylene dichloride | EDC | 36 ² | O | C | III | A | Yes | 1 | No | G |
| Ethylene glycol hexyl ether | EGH | 40 | O | E | III | A | No | N/A | No | G |
| Ethylene glycol monoalkyl ethers | EGC | 40 | O | D/E | III | A | Yes | 1 | No | G |
| Ethylene glycol propyl ether | EGP | 40 | O | E | III | A | Yes | 1 | No | G |
| 2-Ethylhexyl acrylate | EAI | 14 | O | E | III | A | Yes | 2 | .50-70(a), .50-81(a), (b) | G |
| Ethyl methacrylate | ETM | 14 | O | D/E | III | A | Yes | 2 | .50-70(a) | G |
| 2-Ethyl-3-propylacrolein | EPA | 19 ² | O | E | III | A | Yes | 1 | No | G |
| Formaldehyde solution (37% to 50%) | FMS | 19 ² | O | D/E | III | A | Yes | 1 | .55-1(b) | G |
| Furfural | FFA | 19 | O | D | III | A | Yes | 1 | .50-1(h) | G |
| Glutaraldehyde solution (50% or less) | GTA | 19 | O | NA | III | A | No | N/A | No | G |
| Hexamethylenediamine solution | HMC | 7 | O | E | III | A | Yes | 1 | .55-1(c) | G |
| Hexamethylenimine | HMI | 7 | O | C | II | A | Yes | 1 | .55-1(b), (c) | G |
| Hydrocarbon 5-9 | HFN | | O | C | III | A | Yes | 1 | .50-70(a), .50-81(a), (b) | G |
| Isoprene | IPR | 30 | O | A | III | A | Yes | 7 | .50-70(a), .50-81(a), (b) | G |
| Isoprene, Pentadiene mixture | IPN | | O | B | III | A | No | N/A | .50-70(a), .55-1(c) | G |
| Mesityl oxide | MSO | 18 ² | O | D | III | A | Yes | 1 | No | G |
| Methyl acrylate | MAM | 14 | O | C | III | A | Yes | 2 | .50-70(a), .50-81(a), (b) | G |
| Methylcyclopentadiene dimer | MCK | 30 | O | C | III | A | Yes | 1 | No | G |
| Methyl diethanolamine | MDE | 8 | O | E | III | A | Yes | 1 | .55-1(b), (c) | G |
| 2-Methyl-5-ethylpyridine | MEP | 9 | O | E | III | A | Yes | 1 | .55-1(a) | G |
| Methyl methacrylate | MMM | 14 | O | C | III | A | Yes | 2 | .50-70(a), .50-81(a), (b) | G |
| 2-Methylpyridine | MPR | 9 | O | D | III | A | Yes | 3 | .55-1(c) | G |
| alpha-Methylstyrene | MSR | 30 | O | D | III | A | Yes | 2 | .50-70(a), .50-81(a), (b) | G |
| Morpholine | MPL | 7 ² | O | D | III | A | Yes | 1 | .55-1(c) | G |
| Nitroethane | NTE | 42 | O | D | II | A | No | N/A | .50-81, .55-1(b) | G |
| 1- or 2-Nitropropane | NPM | 42 | O | D | III | A | Yes | 1 | .50-81 | G |
| 1,3-Pentadiene | PDE | 30 | O | A | III | A | Yes | 7 | .50-70(a), .50-81 | G |
| Perchloroethylene | PER | 36 | O | NA | III | A | No | N/A | No | G |
| Polyethylene polyamines | PEB | 7 ² | O | E | III | A | Yes | 1 | .55-1(c) | G |
| iso-Propanolamine | MPA | 8 | O | E | III | A | Yes | 1 | .55-1(c) | G |
| Propanolamine (iso-, n-) | PAX | 8 | O | E | III | A | Yes | 1 | .55-1(b), (c) | G |

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Department of Homeland Security
United States Coast Guard

Serial #: C7-110391B
Dated: 09-Nov-11

Certificate of Inspection

Cargo Authority Attachment

Vessel Name: HFL 435
Official #: 1236563

Shipyard: Trinity Marine
Hull #: 4859

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| Cargo Identification | | | | | | Conditions of Carriage | | | | |
|---|-----------|-----------------|-------------|-------|-----------|------------------------|-------------------------------|--------------|--|--------------|
| Name | Chem Code | Compat Group No | Sub Chapter | Grade | Hull Type | Tank Group | Vapor Recovery App'd (Y or N) | VCS Category | Special Requirements in 48 CFR 161 General and Mat'ls of | Insp. Period |
| Iso-Propylamine | IPP | 7 | O | A | II | A | Yes | 5 | .55-1(c) | 6 |
| Pyridine | PRD | 9 | O | C | III | A | Yes | 1 | .55-1(c) | 6 |
| Sodium chlorate solution (50% or less) | SDD | 0 1/2 | O | NA | III | A | No | N/A | .50-73 | 6 |
| Styrene (crude) | STX | | O | D | III | A | Yes | 2 | No | 6 |
| Styrene monomer | STY | 30 | O | D | III | A | Yes | 2 | .50-70(a), .50-81(a), (b) | 6 |
| 1,1,2,2-Tetrachloroethane | TEC | 36 | O | NA | III | A | No | N/A | No | 6 |
| Tetraethylenepentamine | TTP | 7 | O | E | III | A | Yes | 1 | .55-1(c) | 6 |
| Tetrahydrofuran | THF | 41 | O | C | III | A | Yes | 1 | .50-70(b) | 6 |
| 1,2,4-Trichlorobenzene | TCB | 36 | O | E | III | A | Yes | 1 | No | 6 |
| Trichloroethylene | TCL | 36 2 | O | NA | III | A | Yes | 1 | No | 6 |
| Triethylamine | TEN | 7 | O | C | II | A | Yes | 3 | .55-1(c) | 6 |
| Urea, Ammonium nitrate solution (containing more than 2% NH3) | UAS | 6 | O | NA | III | A | No | N/A | .55-1(b) | 6 |
| Vinyl acetate | VAM | 13 | O | C | III | A | Yes | 2 | .50-70(a), .50-81(a), (b) | 6 |
| Vinyl naodecanate | VND | 13 | O | E | III | A | No | N/A | .50-70(a), .50-81(a), (b) | 6 |

Subchapter D Cargoes Authorized for Vapor Control

| | | | | | | | | |
|--|-----|------|---|-----|--|---|-----|---|
| Acetone | ACT | 18 2 | D | C | | A | Yes | 1 |
| Acetophenone | ACP | 18 | D | E | | A | Yes | 1 |
| Alcohol(C12-C16) poly(1-6)ethoxylates | APU | 20 | D | E | | A | Yes | 1 |
| Alcohol(C6-C17)(secondary) poly(7-12)ethoxylates | AEB | 20 | D | E | | A | Yes | 1 |
| Amyl acetate (all isomers) | AEC | 34 | D | D | | A | Yes | 1 |
| Amyl alcohol (iso-, n-, sec-, primary) | AAI | 20 | D | D | | A | Yes | 1 |
| Benzyl alcohol | BAL | 21 | D | E | | A | Yes | 1 |
| Brake fluid base mixtures (containing Poly(2-8)alkylenes(C2-C3) glycols, Polyalkylene(C2-C10) glycol monoalkyl(C1-C4) ethers, and their borate esters) | BFX | 20 | D | E | | A | Yes | 1 |
| Butyl acetate (all isomers) | BAX | 34 | D | D | | A | Yes | 1 |
| Butyl alcohol (iso-) | IAL | 20 2 | D | D | | A | Yes | 1 |
| Butyl alcohol (n-) | BAN | 20 2 | D | D | | A | Yes | 1 |
| Butyl alcohol (sec-) | BAS | 20 2 | D | C | | A | Yes | 1 |
| Butyl alcohol (tert-) | BAT | | D | C | | A | Yes | 1 |
| Butyl benzyl phthalate | BPH | 34 | D | E | | A | Yes | 1 |
| Butyl toluene | BUE | 32 | D | D | | A | Yes | 1 |
| Caprolactam solutions | CLS | 22 | D | E | | A | Yes | 1 |
| Cyclohexane | CHX | 31 | D | C | | A | Yes | 1 |
| Cyclohexanol | CHN | 20 | D | E | | A | Yes | 1 |
| 1,3-Cyclopentadiene dimer (molten) | CPD | 30 | D | D/E | | A | Yes | 2 |
| p-Cymene | CMP | 32 | D | D | | A | Yes | 1 |
| Iso-Decaldehyde | IDA | 19 | D | E | | A | Yes | 1 |
| n-Decaldehyde | DAL | 19 | D | E | | A | Yes | 1 |
| Decene | DCE | 30 | D | D | | A | Yes | 1 |
| Decyl alcohol (all isomers) | DAX | 20 2 | D | E | | A | Yes | 1 |
| n-Decylbenzene, see Alkyl(C9+)benzenes | DBZ | 32 | D | E | | A | Yes | 1 |
| Diacetone alcohol | DAA | 20 2 | D | D | | A | Yes | 1 |
| ortho-Dibutyl phthalate | DPA | 34 | D | E | | A | Yes | 1 |
| Diethylbenzene | DEB | 32 | D | D | | A | Yes | 1 |
| Diethylene glycol | DEG | 40 2 | D | E | | A | Yes | 1 |
| Diisobutylene | DBL | 30 | D | C | | A | Yes | 1 |
| Diisobutyl ketone | DIK | 18 | D | D | | A | Yes | 1 |

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Cargo Authority Attachment

Vessel Name: HFL 435

Official #: 1236583

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Shipyard: Trinity Marine

Hull #: 4859

| Cargo Identification | | | | | | Conditions of Carriage | | | | |
|---|-----------|-----------------|-------------|-------|-----------|------------------------|----------------|--------------|---|--------------|
| Name | Chem Code | Compat Group No | Sub Chapter | Grade | Hull Type | Tank Group | Vapor Recovery | | Special Requirements in 48 CFR 161 General and Mails of | Insp. Period |
| | | | | | | | App'd (Y or N) | VCS Category | | |
| Dilseopropylbenzene (all isomers) | DIX | 32 | D | E | | A | Yes | 1 | | |
| Dimethyl phthalate | DTL | 34 | D | E | | A | Yes | 1 | | |
| Diethyl phthalate | DOP | 34 | D | E | | A | Yes | 1 | | |
| Dipentene | DPN | 30 | D | D | | A | Yes | 1 | | |
| Diphenyl | DIL | 32 | D | D/E | | A | Yes | 1 | | |
| Diphenyl, Diphenyl ether mixtures | DDO | 33 | D | E | | A | Yes | 1 | | |
| Diphenyl ether | DPE | 41 | D | {E} | | A | Yes | 1 | | |
| Dipropylene glycol | DPG | 40 | D | E | | A | Yes | 1 | | |
| Distillates: Flashed feed stocks | DFP | 33 | D | E | | A | Yes | 1 | | |
| Distillates: Straight run | DSR | 33 | D | E | | A | Yes | 1 | | |
| Dodecane (all isomers) | DOZ | 30 | D | D | | A | Yes | 1 | | |
| Dodecylbenzene, see Alkyl(C8+)benzenes | DDB | 32 | D | E | | A | Yes | 1 | | |
| 2-Ethoxyethyl acetate | EEA | 34 | D | D | | A | Yes | 1 | | |
| Ethoxy triglycol (crude) | ETG | 40 | D | E | | A | Yes | 1 | | |
| Ethyl acetate | ETA | 34 | D | C | | A | Yes | 1 | | |
| Ethyl acetoacetate | EAA | 34 | D | E | | A | Yes | 1 | | |
| Ethyl alcohol | EAL | 20 ² | D | C | | A | Yes | 1 | | |
| Ethylbenzene | ETB | 32 | D | C | | A | Yes | 1 | | |
| Ethyl butanol | EBT | 20 | D | D | | A | Yes | 1 | | |
| Ethyl tert-butyl ether | EBE | 41 | D | C | | A | Yes | 1 | | |
| Ethyl butyrate | EBR | 34 | D | D | | A | Yes | 1 | | |
| Ethyl cyclohexane | ECY | 31 | D | D | | A | Yes | 1 | | |
| Ethylene glycol | EGL | 20 ² | D | E | | A | Yes | 1 | | |
| Ethylene glycol butyl ether acetate | EMA | 34 | D | E | | A | Yes | 1 | | |
| Ethylene glycol diacetate | EGY | 34 | D | E | | A | Yes | 1 | | |
| Ethylene glycol phenyl ether | EPE | 40 | D | E | | A | Yes | 1 | | |
| Ethyl-3-ethoxypropionate | EEP | 34 | D | D | | A | Yes | 1 | | |
| 2-Ethylhexanol | EHX | 20 | D | E | | A | Yes | 1 | | |
| Ethyl propionate | EPR | 34 | D | C | | A | Yes | 1 | | |
| Ethyl toluene | ETE | 32 | D | D | | A | Yes | 1 | | |
| Formamide | FAM | 10 | D | E | | A | Yes | 1 | | |
| Furfuryl alcohol | FAL | 20 ² | D | E | | A | Yes | 1 | | |
| Gasoline blending stocks: Alkylates | GAK | 33 | D | A/C | | A | Yes | 1 | | |
| Gasoline blending stocks: Reformates | GRF | 33 | D | A/C | | A | Yes | 1 | | |
| Gasolines: Automotive (containing not over 4.23 grams lead per gallon) | GAT | 33 | D | C | | A | Yes | 1 | | |
| Gasolines: Aviation (containing not over 4.86 grams of lead per gallon) | GAV | 33 | D | C | | A | Yes | 1 | | |
| Gasolines: Casinghead (natural) | GCS | 33 | D | A/C | | A | Yes | 1 | | |
| Gasolines: Polymer | GPI | 33 | D | A/C | | A | Yes | 1 | | |
| Gasolines: Straight run | GSR | 33 | D | A/C | | A | Yes | 1 | | |
| Glycerine | GCR | 20 ² | D | E | | A | Yes | 1 | | |
| Heptane (all isomers), see Alkanes (C6-C8) (all isomers) | HMX | 31 | D | C | | A | Yes | 1 | | |
| Heptanoic acid | HEP | 4 | D | E | | A | Yes | 1 | | |
| Heptanol (all isomers) | HTX | 20 | D | D/E | | A | Yes | 1 | | |
| Heptene (all isomers) | HPX | 30 | D | C | | A | Yes | 2 | | |
| Heptyl acetate | HPE | 34 | D | E | | A | Yes | 1 | | |
| Hexane (all isomers), see Alkanes (C6-C8) | HXS | 31 ² | D | B/C | | A | Yes | 1 | | |
| Hexanoic acid | HXO | 4 | D | E | | A | Yes | 1 | | |

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Department of Homeland Security
United States Coast Guard

Serial #: C1-1103918

Dated: 09-Nov-11

Certificate of Inspection

Cargo Authority Attachment

Vessel Name: **HFL 435**

Official #: 1236563

Page 5 of 7

Shipyard: Trinity Marine

Hull #: 4859

| Cargo Identification | | | | | | Conditions of Carriage | | | | |
|--|-----------|-----------------|-------------|-------|-----------|------------------------|----------------------------------|--------------|---|--------------|
| Name | Chem Code | Compat Group No | Sub Chapter | Grade | Hull Type | Tank Group | Vapor Recovery App'd (Y or N) | VCS Category | Special Requirements In 46 CFR 151 General and Mails of | Insp. Period |
| Hexanol | HXN | 20 | D | D | | A | Yes | 1 | | |
| Hexene (all isomers) | HEX | 30 | D | C | | A | Yes | 2 | | |
| Hexylene glycol | HXG | 20 | D | E | | A | Yes | 1 | | |
| Isophorone | IPH | 18 ² | D | E | | A | Yes | 1 | | |
| Jet fuel: JP-4 | JPF | 33 | D | E | | A | Yes | 1 | | |
| Jet fuel: JP-5 (kerosene, heavy) | JPV | 33 | D | D | | A | Yes | 1 | | |
| Kerosene | KRS | 33 | D | D | | A | Yes | 1 | | |
| Methyl acetate | MTT | 34 | D | D | | A | Yes | 1 | | |
| Methyl alcohol | MAL | 20 ² | D | C | | A | Yes | 1 | | |
| Methylamyl acetate | MAC | 34 | D | D | | A | Yes | 1 | | |
| Methylamyl alcohol | MAA | 20 | D | D | | A | Yes | 1 | | |
| Methyl amyl ketone | MAK | 18 | D | D | | A | Yes | 1 | | |
| Methyl tert-butyl ether | MBE | 41 ² | D | C | | A | Yes | 1 | | |
| Methyl butyl ketone | MBK | 18 | D | C | | A | Yes | 1 | | |
| Methyl butyrate | MBU | 34 | D | C | | A | Yes | 1 | | |
| Methyl ethyl ketone | MEK | 18 ² | D | C | | A | Yes | 1 | | |
| Methyl heptyl ketone | MHK | 18 | D | D | | A | Yes | 1 | | |
| Methyl isobutyl ketone | MIK | 18 ² | D | C | | A | Yes | 1 | | |
| Methyl naphthalene (molten) | MNA | 32 | D | E | | A | Yes | 1 | | |
| Mineral spirits | MNS | 33 | D | D | | A | Yes | 1 | | |
| Myrcene | MRE | 30 | D | D | | A | Yes | 1 | | |
| Naphtha: Heavy | NAG | 33 | D | # | | A | Yes | 1 | | |
| Naphtha: Petroleum | PTN | 33 | D | # | | A | Yes | 1 | | |
| Naphtha: Solvent | NSV | 33 | D | D | | A | Yes | 1 | | |
| Naphtha: Stoddard solvent | NSS | 33 | D | D | | A | Yes | 1 | | |
| Naphtha: Varnish makers and painters (75%) | NVM | 33 | D | C | | A | Yes | 1 | | |
| Nonane (all isomers), see Alkanes (C8-C9) | NAX | 31 | D | D | | A | Yes | 1 | | |
| Nonene (all isomers) | NON | 30 | D | D | | A | Yes | 2 | | |
| Nonyl alcohol (all isomers) | NNS | 20 ² | D | E | | A | Yes | 1 | | |
| Nonyl phenol | NNP | 21 | D | E | | A | Yes | 1 | | |
| Nonyl phenol poly(4+)ethoxylates | NPE | 40 | D | E | | A | Yes | 1 | | |
| Octane (all isomers), see Alkanes (C8-C9) | OAX | 31 | D | C | | A | Yes | 1 | | |
| Octanoic acid (all isomers) | OAY | 4 | D | E | | A | Yes | 1 | | |
| Octanol (all isomers) | OCX | 20 ² | D | E | | A | Yes | 1 | | |
| Octene (all isomers) | OTX | 30 | D | C | | A | Yes | 2 | | |
| Oil, fuel: No. 2 | OTW | 33 | D | D/E | | A | Yes | 1 | | |
| Oil, fuel: No. 2-D | OTD | 33 | D | D | | A | Yes | 1 | | |
| Oil, fuel: No. 4 | OFR | 33 | D | D/E | | A | Yes | 1 | | |
| Oil, fuel: No. 5 | OFV | 33 | D | D/E | | A | Yes | 1 | | |
| Oil, fuel: No. 6 | OSX | 33 | D | E | | A | Yes | 1 | | |
| Oil, misc: Crude | OIL | 33 | D | C/D | | A | Yes | 1 | | |
| Oil, misc: Diesel | ODS | 33 | D | D/E | | A | Yes | 1 | | |
| Oil, misc: Gas, high pour | OGP | 33 | D | E | | A | Yes | 1 | | |
| Oil, misc: Lubricating | OLB | 33 | D | E | | A | Yes | 1 | | |
| Oil, misc: Residual | ORL | 33 | D | E | | A | Yes | 1 | | |
| Oil, misc: Turbine | OTB | 33 | D | E | | A | Yes | 1 | | |
| Pentane (all isomers) | PTY | 31 | D | A | | A | Yes | 5 | | |
| Pentene (all isomers) | PTX | 30 | D | A | | A | Yes | 5 | | |

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Department of Homeland Security
United States Coast Guard

Serial #: C1-1103918

Dated: 09-Nov-11

Certificate of Inspection

Cargo Authority Attachment

Vessel Name: HFL 435

Official #: 1236563

Page 6 of 7

Shipyard: Trinity Marine

Hull #: 4859

| Cargo Identification | | | | | | Conditions of Carriage | | | | |
|---|-----------|-----------------|-------------|-------|-----------|------------------------|----------------|--------------|--|--------------|
| Name | Chem Code | Compat Group No | Sub Chapter | Grade | Hull Type | Tank Group | Vapor Recovery | | Special Requirements in 46 CFR 151 General and Mat'ls of | Insp. Period |
| | | | | | | | App'd (Y or N) | VCS Category | | |
| n-Pentyl propionate | PPE | 34 | D | D | | A | Yes | 1 | | |
| alpha-Pinene | PIO | 30 | D | D | | A | Yes | 1 | | |
| beta-Pinene | PIP | 30 | D | D | | A | Yes | 1 | | |
| Poly(2-8)alkylene glycol monoalkyl(C1-C6) ether | PAG | 40 | D | E | | A | Yes | 1 | | |
| Poly(2-8)alkylene glycol monoalkyl(C1-C6) ether acetate | PAF | 34 | D | E | | A | Yes | 1 | | |
| Polybutene | PLB | 30 | D | E | | A | Yes | 1 | | |
| Polypropylene glycol | PGC | 40 | D | E | | A | Yes | 1 | | |
| iso-Propyl acetate | IAC | 34 | D | C | | A | Yes | 1 | | |
| n-Propyl acetate | PAT | 34 | D | C | | A | Yes | 1 | | |
| iso-Propyl alcohol | IPA | 20 ² | D | C | | A | Yes | 1 | | |
| n-Propyl alcohol | PAL | 20 ² | D | C | | A | Yes | 1 | | |
| Propylbenzene (all isomers) | PBY | 32 | D | D | | A | Yes | 1 | | |
| iso-Propylcyclohexane | IPX | 31 | D | D | | A | Yes | 1 | | |
| Propylene glycol | PPG | 20 ² | D | E | | A | Yes | 1 | | |
| Propylene glycol methyl ether acetate | PGN | 34 | D | D | | A | Yes | 1 | | |
| Propylene tetramer | PTT | 30 | D | D | | A | Yes | 1 | | |
| Sulfolane | SFL | 39 | D | E | | A | Yes | 1 | | |
| Tetraethylene glycol | TTG | 40 | D | E | | A | Yes | 1 | | |
| Tetrahydronaphthalene | THN | 32 | D | E | | A | Yes | 1 | | |
| Toluene | TOL | 32 | D | C | | A | Yes | 1 | | |
| Tricresyl phosphate (less than 1% of the ortho isomer) | TCP | 34 | D | E | | A | Yes | 1 | | |
| Triethylbenzene | TEB | 32 | D | E | | A | Yes | 1 | | |
| Triethylene glycol | TEG | 40 | D | E | | A | Yes | 1 | | |
| Triethyl phosphate | TPS | 34 | D | E | | A | Yes | 1 | | |
| Trimethylbenzene (all isomers) | TRE | 32 | D | {D} | | A | Yes | 1 | | |
| Trixylenyl phosphate | TRP | 34 | D | E | | A | Yes | 1 | | |
| Undecene | UDC | 30 | D | D/E | | A | Yes | 1 | | |
| 1-Undecyl alcohol | UND | 20 | D | E | | A | Yes | 1 | | |
| Xylenes (ortho-, meta-, para-) | XLX | 32 | D | D | | A | Yes | 1 | | |

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Department of Homeland Security
United States Coast Guard

Serial #: C1-1103918

Dated: 09-Nov-11

Certificate of Inspection

Cargo Authority Attachment

Vessel Name: HFL 435

Official #: 1236563

Page 7 of 7

Shipyard: Trinity Marine

Hull #: 4859

Explanation of terms & symbols used in the Table:

Cargo Identification

| | |
|-------------------------|--|
| Name | The proper shipping name as listed in 46 CFR Table 30.25-1, 46 CFR Table 151.05, and 46 CFR Part 153 Table 2. |
| Chem Code | The three letter designation assigned to the cargo in the Chemical Hazards Response Information System (CHRIS) Manual. Certain mixtures of cargoes may not have a CHRIS Code assigned. |
| none | |
| Compatibility Group No. | The cargo reactive group number assigned for compatibility determinations in 46 CFR Part 150 Tables I and II. In accordance with 46 CFR 150.130, the Person-in-Charge of the barge is responsible for ensuring that the compatibility requirements of 46 CFR Part 150 are met. Cargoes must be checked for compatibility using the figures, tables, and appendices of 46 CFR 150 in conjunction with the assigned reactive group number. |
| Note 1 | Because of the very high reactivity or unusual conditions of carriage or potential compatibility problems, this product is not assigned to a specific group in the Compatibility Chart. For additional compatibility information, contact Commandant (CG-3PSO-3), U.S. Coast Guard, 2100 Second Street, SW, Washington, DC 20593-0001. Telephone (202) 372-1426. |
| Note 2 | See Appendix I to 46 CFR Part 150 - exceptions to the compatibility chart. |
| Subchapter | The subchapter in Title 46 Code of Federal Regulations under which the cargo has been classified. |
| Subchapter D | Those flammable and combustible liquids listed in 46 CFR Table 30.25-1. |
| Subchapter O | Those hazardous cargoes listed in 46 CFR Table 151.05 and 46 CFR Part 153 Table 2. |
| Note 3 | Those cargoes listed in 46 CFR Part 153 Table 2 are non-regulated cargoes when carried in bulk on non-oceangoing barges. |
| Grade | The cargo classification assigned to each flammable or combustible liquid. Grades inside of "X" indicate a provisional assignment based upon literature sources which were not verified by manufacturers data. The Person-in-Charge shall verify the cargo grade based on Manufacturers data and ensure that the barge is authorized for carriage of that grade of cargo. |
| A, B, C | Flammable liquid cargoes, as defined in 46 CFR 30.10.22. |
| D, E | Combustible liquid cargoes, as defined in 46 CFR 30.10.15. |
| Note 4 | The flammability/combustibility grade of these cargoes may vary depending upon the flashpoint and Reid vapor pressure. The Person-in-Charge shall verify the cargo grade based on Manufacturers data and ensure that the barge is authorized for carriage of that grade of cargo. |
| NA | Those subchapter O cargoes which are not classified as a flammable or combustible liquid. |
| # | No flammability/combustibility grade has been assigned yet, as the necessary flash point/vapor pressure data for such assignments are presently not available. |
| Hull Type | The required barge hull classification for carriage of the specified Subchapter O hazardous material cargo, see 46 CFR 151.10-1. |
| I | Designed to carry products which require the maximum preventive measures to preclude the uncontrolled release of the cargo. See 46 CFR 151.10-1(b)(1). |
| II | Designed to carry products which require significant preventive measures to preclude the uncontrolled release of cargo. See 46 CFR 151.10-1(b)(3). |
| III | Designed to carry products of sufficient hazard to require a moderate degree of control. See 46 CFR 151.10-1(b)(4). |
| NA | Not applicable to barges certificated under Subchapter D. |

Conditions of Carriage

| | |
|-------------------|---|
| Tank Group | The vessel's tank group (as defined in Section 4) which is authorized for carriage of the named cargo. |
| Vapor Recovery | Yes: The vessel's VCS has been reviewed and approved by the MSC to control vapors of the specified cargo. |
| Approved (Y or N) | No: The vessel's VCS has been reviewed and is not approved by the MSC to control vapors of the specified cargo. |

Conditions of Carriage

| | |
|-------------------|--|
| Tank Group | The vessel's tank group (as defined under the "46 CFR Tank Group Characteristics" listed on page 1) which is authorized for carriage of the named cargo. |
| Vapor Recovery | Yes: The vessel's VCS has been reviewed and approved by the MSC to control vapors of the specified cargo. |
| Approved (Y or N) | No: The vessel's VCS has been reviewed and is not approved by the MSC to control vapors of the specified cargo. |
| VCS Category: | The specified cargo's provisional classification for vapor control systems. |
| Category 1 | (No additional VCS requirements above those for benzene, gasoline and crude oil) All requirements applying to the handling of oil and hazardous materials in Titles 33 and 46 Code of Federal Regulations (CFR) apply to these cargoes. Those specifically dealing with vapor control systems are in 33 CFR 156.750, 33 CFR 158.120, 33 CFR 158.170, 46 CFR 35.35 and 46 CFR 39. The cargo tank venting system calculations (46 CFR 39.20-11) and the pressure drop calculations (46 CFR 39.30-1(b)) must use appropriate friction factors, vapor densities and vapor growth rates. |
| Category 2 | (Polymerizes) Polymerization and residue build-up of these cargoes can adversely affect the vessel by fouling safety components and restricting vapor flow which could lead to cargo tank overpressurization. The vessel's owner must develop a method of ensuring all VCS safety components are functional and polymer build-up is not causing an unsafe condition due to increased pressure in the vapor control piping and cargo tanks. The method shall be acceptable to the local Officer in Charge, Marine Inspection. This is in addition to the requirements of Category 1. Please note that a material not normally considered a monomer can be a problem in detonation/arrest. |
| Category 3 | (Highly toxic) VCSs for these toxic cargoes cannot use a spill valve or rupture disk as the primary means to meet the overfill protection requirement of 46 CFR 39.20-9. This requirement is in addition to the requirements of Category 1. |
| Category 4 | (Polymerizes and highly toxic) Must comply with requirements of Categories 1, 2 and 3. |
| Category 5 | (High vapor pressure) VCS pressure drop calculations for cargoes with a vapor pressure greater than 14.7 psia at 115 F must take into account increased vapor-air mixture densities and vapor growth rates as compared to Category 1 cargoes. Consult the Marine Safety Center's VCS Guidelines for further information. This requirement is in addition to the requirements of Category 1. |
| Category 6 | (High vapor pressure and highly toxic) Must comply with requirements of Categories 1, 3 and 5. |
| Category 7 | (High vapor pressure and polymerizes) Must comply with requirements of Categories 1, 2 and 5. |
| none | The cargo has not been evaluated/classified for use in vapor control systems. |



Department of Homeland Security
United States Coast Guard

Serial #: C1-1103918

Dated: 09-Nov-11

Certificate of Inspection

Cargo Authority Attachment

Vessel Name: HFL 435

Official #: 1236563

Shipyard: Trinity Marine

Hull #: 4859

46 CFR 151 Tank Group Characteristics

| Tank Group Information | | Cargo Identification | | | Hull Type | Tanks | | | Cargo Transfer | | Environmental Control | | Fire Protection Provided | Special Requirements | | Elec Haz | Temp Cont |
|------------------------|---------------------|----------------------|--------|-------|--------------|----------------------------|------|--------|-------------------|------|--------------------------|-------------------|--------------------------------|---|--|-------------|--------------|
| Tank Grp | Tanks In Group | Density | Press. | Temp. | | Type | Vent | Gauge | Pipe Class | Cont | Tanks | Handling Space | | General | Materials of Construction | | |
| A | #1P/S, #2P/S, #3P/S | 13.8 | Atmos. | Amb. | II | 11i Integral Gravity | PV | Closed | II | G-1 | NR | NA | Portable | .50-60, .50-70(a), .50-70(b), .50-73, .50-81(a), .50- 81(b), | .55-1(e), (e), (h), 56- 1(b), (c), (d), (e), (f), (g), | NR | No |

- Notes: 1. Under Environmental Control, Tanks, NR means that the tank group is suitable only for those cargoes which require no environmental control in the cargo tanks.
2. Under Environmental Control, Handling Space, NR means that the tank group is suitable only for those cargoes which require no environmental control in the cargo handling space. NA means that the vessel does not have a cargo control space, and this requirement is not applied.
3. Under Electrical Hazard Class, NA means that the tank group is suitable only for those cargoes which have no electrical hazard class requirement. NR means that the vessel has no electrical equipment located in a hazardous location.

List of Authorized Cargoes

| Cargo Identification | | | | | | Conditions of Carriage | | | | | |
|----------------------|--------------|--------------------|----------------|-------|--------------|------------------------|-------------------|-----------------|--|--|--|
| Name | Chem Code | Compat Group No | Sub Chapter | Grade | Hull Type | Tank Group | Vapor Recovery | | Special Requirements in 46 CFR 151 General and Matls of | | |
| | | | | | | | App'd (Y or N) | VCS Category | | | |

Authorized Subchapter O Cargoes

| | | | | | | | | | | | |
|--|-----|-----------------|---|-----|-----|---|-----|-----|-------------------------------------|--|---|
| Acetonitrile | ATN | 37 | O | C | III | A | Yes | 3 | No | | G |
| Acrylonitrile | ACN | 15 ² | O | C | II | A | Yes | 4 | .50-70(a), .55-1(a) | | G |
| Adiponitrile | ADN | 37 | O | E | II | A | Yes | 1 | No | | G |
| Alkyl(C7-C9) nitrates | AKN | 34 ² | O | NA | III | A | No | N/A | .50-81, .50-85 | | G |
| Anthracene oil (Coal tar fraction) | AHO | 33 | O | NA | II | A | No | N/A | No | | G |
| Benzene | BNZ | 32 | O | C | III | A | Yes | 1 | .50-60 | | G |
| Benzene or hydrocarbon mixtures (having 10% Benzene or more) | BHB | 32 ² | O | C | III | A | Yes | 1 | .50-60 | | G |
| Benzene or hydrocarbon mixtures (containing Acetylene and 10% Benzene or more) | BHA | 32 ² | O | C | III | A | Yes | 1 | .50-60, .56-1(b), (c), (f), (g) | | G |
| Benzene, Toluene, Xylene mixtures (10% Benzene or more) | BTX | 32 | O | B/C | III | A | Yes | 1 | .50-60 | | G |
| Butyl acrylate (all isomers) | BAR | 14 | O | D | III | A | Yes | 2 | .50-70(a), .50-81(a), (b) | | G |
| Butyl methacrylate | BMH | 14 | O | D | III | A | Yes | 2 | .50-70(a), .50-81(a), (b) | | G |
| Butyraldehyde (all isomers) | BAE | 18 | O | C | III | A | Yes | 1 | .56-1(d) | | G |
| Camphor oil (light) | CPO | 18 | O | D | II | A | No | N/A | No | | G |
| Carbon tetrachloride | CBT | 38 | O | NA | III | A | No | N/A | No | | G |
| Chemical Oil (refined, containing phenolics) | COD | 21 | O | E | II | A | No | N/A | .50-73 | | G |
| Chlorobenzene | CRB | 36 | O | D | III | A | Yes | 1 | No | | G |
| Chloroform | GRF | 36 | O | NA | III | A | Yes | 3 | No | | G |
| Coal tar naphtha solvent | NCT | 33 | O | D | III | A | Yes | 1 | .50-73 | | G |
| Creosote | CCW | 21 ² | O | E | III | A | Yes | 1 | No | | G |
| Cresols (all isomers) | CRS | 21 | O | E | III | A | Yes | 1 | No | | G |
| Crotonaldehyde | CTA | 19 ² | O | C | II | A | Yes | 4 | .55-1(b) | | G |
| Crude hydrocarbon feedstock (containing Butyraldehydes and Ethylpropyl acrolein) | CHG | | O | C | III | A | No | N/A | No | | G |
| Cyclohexanone, Cyclohexanol mixture | CYX | 18 ² | O | E | III | A | Yes | 1 | .56-1 (b) | | G |
| Cyclopentadiene, Styrene, Benzene mixture | CSB | 30 | O | D | III | A | Yes | 1 | .50-60, .56-1(b) | | G |
| Iso-Decyl acrylate | IAI | 14 | O | E | III | A | Yes | 2 | .50-70(a), .50-81(a), (b), .55-1(c) | | G |
| 1,1-Dichloroethane | DCH | 36 | O | C | III | A | Yes | 1 | No | | G |
| Dichloromethane | DCM | 36 | O | NA | III | A | Yes | 5 | No | | G |
| 1,1-Dichloropropane | DPB | 36 | O | C | III | A | Yes | 3 | No | | G |
| 1,2-Dichloropropane | DPP | 36 | O | C | III | A | Yes | 3 | No | | G |
| 1,3-Dichloropropane | DPC | 36 | O | C | III | A | Yes | 3 | No | | G |
| 1,3-Dichloropropene | DPU | 15 | O | D | II | A | Yes | 4 | No | | G |
| Dichloropropene, Dichloropropane mixtures | DMX | 15 | O | C | II | A | Yes | 1 | No | | G |

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Department of Homeland Security
United States Coast Guard

Serial #: C1-110391B

Dated: 09-Nov-11

Certificate of Inspection

Cargo Authority Attachment

Vessel Name: HFL 435

Official #: 1236563

Shipyard: Trinity Marine

Hull #: 4859

Page 2 of 7

| Cargo Identification | | | | | | | Conditions of Carriage | | | |
|--|-----------|-----------------|-------------|-------|-----------|------------|------------------------|--------------|---|--------------|
| Name | Chem Code | Compat Group No | Sub Chapter | Grade | Hull Type | Tank Group | Vapor Recovery | | Special Requirements in 48 CFR 151 General and Mat'l's of | Insp. Period |
| | | | | | | | App'd (Y or N) | VCS Category | | |
| Diethanolamine | DEA | 8 | O | E | III | A | Yes | 1 | .55-1(c) | G |
| Diethylamine | DEN | 7 | O | G | III | A | Yes | 3 | .55-1(c) | G |
| Diethylenetriamine | DET | 7 ² | O | E | III | A | Yes | 1 | .55-1(c) | G |
| Diisobutylamine | DBU | 7 | O | D | III | A | Yes | 3 | .55-1(c) | G |
| Diisopropanolamine | DIP | 8 | O | E | III | A | Yes | 1 | .55-1(c) | G |
| Diisopropylamine | DIA | 7 | O | C | II | A | Yes | 3 | .55-1(c) | G |
| N,N-Dimethylacetamide | DAC | 10 | O | E | III | A | Yes | 3 | .55-1(b) | G |
| Dimethylethanolamine | DMB | 8 | O | D | III | A | Yes | 1 | .55-1(b), (c) | G |
| Dimethylformamide | DMF | 10 | O | D | III | A | Yes | 1 | .55-1(c) | G |
| Di-n-propylamine | DNA | 7 | O | G | II | A | Yes | 3 | .55-1(c) | G |
| Dodecyl dimethylamine, Tetradecyldimethylamine mixture | DOT | 7 | O | E | III | A | No | N/A | .55-1(b) | G |
| Dodecyl diphenyl ether disulfonate solution | DOS | 43 | O | # | II | A | No | N/A | No | G |
| EE Glycol Ether Mixture | EEG | 40 | O | D | III | A | No | N/A | No | G |
| Ethanolamine | MEA | 8 | O | E | III | A | Yes | 1 | .55-1(c) | G |
| Ethyl acrylate | EAC | 14 | O | C | III | A | Yes | 2 | .50-70(a), .50-81(a), (b) | G |
| Ethylene cyanohydrin | ETC | 20 | O | E | III | A | Yes | 1 | No | G |
| Ethylenediamine | EDA | 7 ² | O | D | III | A | Yes | 1 | .55-1(c) | G |
| Ethylene dichloride | EDC | 36 ² | O | C | III | A | Yes | 1 | No | G |
| Ethylene glycol hexyl ether | EGH | 40 | O | E | III | A | No | N/A | No | G |
| Ethylene glycol monoalkyl ethers | EGC | 40 | O | D/E | III | A | Yes | 1 | No | G |
| Ethylene glycol propyl ether | EGP | 40 | O | E | III | A | Yes | 1 | No | G |
| 2-Ethylhexyl acrylate | EAI | 14 | O | E | III | A | Yes | 2 | .50-70(a), .50-81(a), (b) | G |
| Ethyl methacrylate | ETM | 14 | O | D/E | III | A | Yes | 2 | .50-70(a) | G |
| 2-Ethyl-3-propylacrolein | EPA | 19 ² | O | E | III | A | Yes | 1 | No | G |
| Formaldehyde solution (37% to 50%) | FMS | 19 ² | O | D/E | III | A | Yes | 1 | .55-1(b) | G |
| Furfural | FFA | 19 | O | D | III | A | Yes | 1 | .50-1(h) | G |
| Glutaraldehyde solution (50% or less) | GTA | 19 | O | NA | III | A | No | N/A | No | G |
| Hexamethylenediamine solution | HMC | 7 | O | E | III | A | Yes | 1 | .55-1(c) | G |
| Hexamethylenimine | HMI | 7 | O | C | II | A | Yes | 1 | .55-1(b), (c) | G |
| Hydrocarbon 5-9 | HFN | | O | C | III | A | Yes | 1 | .50-70(a), .50-81(a), (b) | G |
| Isoprene | IPR | 30 | O | A | III | A | Yes | 7 | .50-70(a), .50-81(a), (b) | G |
| Isoprene, Pentadiene mixture | IPN | | O | B | III | A | No | N/A | .50-70(a), .55-1(c) | G |
| Mesityl oxide | MSO | 18 ² | O | D | III | A | Yes | 1 | No | G |
| Methyl acrylate | MAM | 14 | O | C | III | A | Yes | 2 | .50-70(a), .50-81(a), (b) | G |
| Methylcyclopentadiene dimer | MCK | 30 | O | C | III | A | Yes | 1 | No | G |
| Methyl diethanolamine | MDE | 8 | O | E | III | A | Yes | 1 | .55-1(b), (c) | G |
| 2-Methyl-5-ethylpyridine | MEP | 9 | O | E | III | A | Yes | 1 | .55-1(a) | G |
| Methyl methacrylate | MMM | 14 | O | C | III | A | Yes | 2 | .50-70(a), .50-81(a), (b) | G |
| 2-Methylpyridine | MPR | 9 | O | D | III | A | Yes | 3 | .55-1(c) | G |
| alpha-Methylstyrene | MSR | 30 | O | D | III | A | Yes | 2 | .50-70(a), .50-81(a), (b) | G |
| Morpholine | MPL | 7 ² | O | D | III | A | Yes | 1 | .55-1(c) | G |
| Nitroethane | NTE | 42 | O | D | II | A | No | N/A | .50-81, .55-1(b) | G |
| 1- or 2-Nitropropane | NPM | 42 | O | D | III | A | Yes | 1 | .50-81 | G |
| 1,3-Pentadiene | PDE | 30 | O | A | III | A | Yes | 7 | .50-70(a), .50-81 | G |
| Perchloroethylene | PER | 36 | O | NA | III | A | No | N/A | No | G |
| Polyethylene polyamines | PEB | 7 ² | O | E | III | A | Yes | 1 | .55-1(c) | G |
| Iso-Propanolamine | MPA | 8 | O | E | III | A | Yes | 1 | .55-1(c) | G |
| Propanolamine (iso-, n-) | PAX | 8 | O | E | III | A | Yes | 1 | .55-1(b), (c) | G |

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Department of Homeland Security
United States Coast Guard

Serial #: C7-110391B
Dated: 09-Nov-11

Certificate of Inspection

Cargo Authority Attachment

Vessel Name: HFL 435
Official #: 1236563

Shipyard: Trinity Marine
Hull #: 4859

Page 3 of 7

| Cargo Identification | | | | | | Conditions of Carriage | | | | |
|---|-----------|-----------------|-------------|-------|-----------|------------------------|-------------------------------|--------------|--|--------------|
| Name | Chem Code | Compat Group No | Sub Chapter | Grade | Hull Type | Tank Group | Vapor Recovery App'd (Y or N) | VCS Category | Special Requirements in 48 CFR 161 General and Mat'ls of | Insp. Period |
| Iso-Propylamine | IPP | 7 | O | A | II | A | Yes | 5 | .55-1(c) | 6 |
| Pyridine | PRD | 9 | O | C | III | A | Yes | 1 | .55-1(c) | 6 |
| Sodium chlorate solution (50% or less) | SDD | 0 1/2 | O | NA | III | A | No | N/A | .50-73 | 6 |
| Styrene (crude) | STX | | O | D | III | A | Yes | 2 | No | 6 |
| Styrene monomer | STY | 30 | O | D | III | A | Yes | 2 | .50-70(a), .50-81(a), (b) | 6 |
| 1,1,2,2-Tetrachloroethane | TEC | 36 | O | NA | III | A | No | N/A | No | 6 |
| Tetraethylenepentamine | TTP | 7 | O | E | III | A | Yes | 1 | .55-1(c) | 6 |
| Tetrahydrofuran | THF | 41 | O | C | III | A | Yes | 1 | .50-70(b) | 6 |
| 1,2,4-Trichlorobenzene | TCB | 36 | O | E | III | A | Yes | 1 | No | 6 |
| Trichloroethylene | TCL | 36 2 | O | NA | III | A | Yes | 1 | No | 6 |
| Triethylamine | TEN | 7 | O | C | II | A | Yes | 3 | .55-1(c) | 6 |
| Urea, Ammonium nitrate solution (containing more than 2% NH3) | UAS | 6 | O | NA | III | A | No | N/A | .55-1(b) | 6 |
| Vinyl acetate | VAM | 13 | O | C | III | A | Yes | 2 | .50-70(a), .50-81(a), (b) | 6 |
| Vinyl naodecanate | VND | 13 | O | E | III | A | No | N/A | .50-70(a), .50-81(a), (b) | 6 |

Subchapter D Cargoes Authorized for Vapor Control

| | | | | | | | | |
|--|-----|------|---|-----|--|---|-----|---|
| Acetone | ACT | 18 2 | D | C | | A | Yes | 1 |
| Acetophenone | ACP | 18 | D | E | | A | Yes | 1 |
| Alcohol(C12-C16) poly(1-6)ethoxylates | APU | 20 | D | E | | A | Yes | 1 |
| Alcohol(C6-C17)(secondary) poly(7-12)ethoxylates | AEB | 20 | D | E | | A | Yes | 1 |
| Amyl acetate (all isomers) | AEC | 34 | D | D | | A | Yes | 1 |
| Amyl alcohol (iso-, n-, sec-, primary) | AAI | 20 | D | D | | A | Yes | 1 |
| Benzyl alcohol | BAL | 21 | D | E | | A | Yes | 1 |
| Brake fluid base mixtures (containing Poly(2-8)alkylenes(C2-C3) glycols, Polyalkylene(C2-C10) glycol monoalkyl(C1-C4) ethers, and their borate esters) | BFX | 20 | D | E | | A | Yes | 1 |
| Butyl acetate (all isomers) | BAX | 34 | D | D | | A | Yes | 1 |
| Butyl alcohol (iso-) | IAL | 20 2 | D | D | | A | Yes | 1 |
| Butyl alcohol (n-) | BAN | 20 2 | D | D | | A | Yes | 1 |
| Butyl alcohol (sec-) | BAS | 20 2 | D | C | | A | Yes | 1 |
| Butyl alcohol (tert-) | BAT | | D | C | | A | Yes | 1 |
| Butyl benzyl phthalate | BPH | 34 | D | E | | A | Yes | 1 |
| Butyl toluene | BUE | 32 | D | D | | A | Yes | 1 |
| Caprolactam solutions | CLS | 22 | D | E | | A | Yes | 1 |
| Cyclohexane | CHX | 31 | D | C | | A | Yes | 1 |
| Cyclohexanol | CHN | 20 | D | E | | A | Yes | 1 |
| 1,3-Cyclopentadiene dimer (molten) | CPD | 30 | D | D/E | | A | Yes | 2 |
| p-Cymene | CMP | 32 | D | D | | A | Yes | 1 |
| Iso-Decaldehyde | IDA | 19 | D | E | | A | Yes | 1 |
| n-Decaldehyde | DAL | 19 | D | E | | A | Yes | 1 |
| Decene | DCE | 30 | D | D | | A | Yes | 1 |
| Decyl alcohol (all isomers) | DAX | 20 2 | D | E | | A | Yes | 1 |
| n-Decylbenzene, see Alkyl(C9+)benzenes | DBZ | 32 | D | E | | A | Yes | 1 |
| Diacetone alcohol | DAA | 20 2 | D | D | | A | Yes | 1 |
| ortho-Dibutyl phthalate | DPA | 34 | D | E | | A | Yes | 1 |
| Diethylbenzene | DEB | 32 | D | D | | A | Yes | 1 |
| Diethylene glycol | DEG | 40 2 | D | E | | A | Yes | 1 |
| Diisobutylene | DBL | 30 | D | C | | A | Yes | 1 |
| Diisobutyl ketone | DIK | 18 | D | D | | A | Yes | 1 |

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Department of Homeland Security
United States Coast Guard

Serial #: C1-1103918

Dated: 09-Nov-11

Certificate of Inspection

Cargo Authority Attachment

Vessel Name: HFL 435

Official #: 1236583

Page 4 of 7

Shipyard: Trinity Marine

Hull #: 4859

| Cargo Identification | | | | | | Conditions of Carriage | | | | |
|---|-----------|-----------------|-------------|-------|-----------|------------------------|----------------|--------------|---|--------------|
| Name | Chem Code | Compat Group No | Sub Chapter | Grade | Hull Type | Tank Group | Vapor Recovery | | Special Requirements in 48 CFR 161 General and Mails of | Insp. Period |
| | | | | | | | App'd (Y or N) | VCS Category | | |
| Diisopropylbenzene (all isomers) | DIX | 32 | D | E | | A | Yes | 1 | | |
| Dimethyl phthalate | DTL | 34 | D | E | | A | Yes | 1 | | |
| Diethyl phthalate | DOP | 34 | D | E | | A | Yes | 1 | | |
| Dipentene | DPN | 30 | D | D | | A | Yes | 1 | | |
| Diphenyl | DIL | 32 | D | D/E | | A | Yes | 1 | | |
| Diphenyl, Diphenyl ether mixtures | DDO | 33 | D | E | | A | Yes | 1 | | |
| Diphenyl ether | DPE | 41 | D | {E} | | A | Yes | 1 | | |
| Dipropylene glycol | DPG | 40 | D | E | | A | Yes | 1 | | |
| Distillates: Flashed feed stocks | DFP | 33 | D | E | | A | Yes | 1 | | |
| Distillates: Straight run | DSR | 33 | D | E | | A | Yes | 1 | | |
| Dodecane (all isomers) | DOZ | 30 | D | D | | A | Yes | 1 | | |
| Dodecylbenzene, see Alkyl(C8+)benzenes | DDB | 32 | D | E | | A | Yes | 1 | | |
| 2-Ethoxyethyl acetate | EEA | 34 | D | D | | A | Yes | 1 | | |
| Ethoxy triglycol (crude) | ETG | 40 | D | E | | A | Yes | 1 | | |
| Ethyl acetate | ETA | 34 | D | C | | A | Yes | 1 | | |
| Ethyl acetoacetate | EAA | 34 | D | E | | A | Yes | 1 | | |
| Ethyl alcohol | EAL | 20 ² | D | C | | A | Yes | 1 | | |
| Ethylbenzene | ETB | 32 | D | C | | A | Yes | 1 | | |
| Ethyl butanol | EBT | 20 | D | D | | A | Yes | 1 | | |
| Ethyl tert-butyl ether | EBE | 41 | D | C | | A | Yes | 1 | | |
| Ethyl butyrate | EBR | 34 | D | D | | A | Yes | 1 | | |
| Ethyl cyclohexane | ECY | 31 | D | D | | A | Yes | 1 | | |
| Ethylene glycol | EGL | 20 ² | D | E | | A | Yes | 1 | | |
| Ethylene glycol butyl ether acetate | EMA | 34 | D | E | | A | Yes | 1 | | |
| Ethylene glycol diacetate | EGY | 34 | D | E | | A | Yes | 1 | | |
| Ethylene glycol phenyl ether | EPE | 40 | D | E | | A | Yes | 1 | | |
| Ethyl-3-ethoxypropionate | EEP | 34 | D | D | | A | Yes | 1 | | |
| 2-Ethylhexanol | EHX | 20 | D | E | | A | Yes | 1 | | |
| Ethyl propionate | EPR | 34 | D | C | | A | Yes | 1 | | |
| Ethyl toluene | ETE | 32 | D | D | | A | Yes | 1 | | |
| Formamide | FAM | 10 | D | E | | A | Yes | 1 | | |
| Furfuryl alcohol | FAL | 20 ² | D | E | | A | Yes | 1 | | |
| Gasoline blending stocks: Alkylates | GAK | 33 | D | A/C | | A | Yes | 1 | | |
| Gasoline blending stocks: Reformates | GRF | 33 | D | A/C | | A | Yes | 1 | | |
| Gasolines: Automotive (containing not over 4.23 grams lead per gallon) | GAT | 33 | D | C | | A | Yes | 1 | | |
| Gasolines: Aviation (containing not over 4.86 grams of lead per gallon) | GAV | 33 | D | C | | A | Yes | 1 | | |
| Gasolines: Casinghead (natural) | GCS | 33 | D | A/C | | A | Yes | 1 | | |
| Gasolines: Polymer | GPI | 33 | D | A/C | | A | Yes | 1 | | |
| Gasolines: Straight run | GSR | 33 | D | A/C | | A | Yes | 1 | | |
| Glycerine | GCR | 20 ² | D | E | | A | Yes | 1 | | |
| Heptane (all isomers), see Alkanes (C6-C8) (all isomers) | HMX | 31 | D | C | | A | Yes | 1 | | |
| Heptanoic acid | HEP | 4 | D | E | | A | Yes | 1 | | |
| Heptanol (all isomers) | HTX | 20 | D | D/E | | A | Yes | 1 | | |
| Heptene (all isomers) | HPX | 30 | D | C | | A | Yes | 2 | | |
| Heptyl acetate | HPE | 34 | D | E | | A | Yes | 1 | | |
| Hexane (all isomers), see Alkanes (C6-C8) | HXS | 31 ² | D | B/C | | A | Yes | 1 | | |
| Hexanoic acid | HXO | 4 | D | E | | A | Yes | 1 | | |

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Department of Homeland Security
United States Coast Guard

Serial #: C1-1103918

Dated: 09-Nov-11

Certificate of Inspection

Cargo Authority Attachment

Vessel Name: **HFL 435**

Official #: 1236563

Page 5 of 7

Shipyard: Trinity Marine

Hull #: 4859

| Cargo Identification | | | | | | Conditions of Carriage | | | | |
|--|-----------|-----------------|-------------|-------|-----------|------------------------|----------------------------------|--------------|---|--------------|
| Name | Chem Code | Compat Group No | Sub Chapter | Grade | Hull Type | Tank Group | Vapor Recovery App'd (Y or N) | VCS Category | Special Requirements In 46 CFR 151 General and Mails of | Insp. Period |
| Hexanol | HXN | 20 | D | D | | A | Yes | 1 | | |
| Hexene (all isomers) | HEX | 30 | D | C | | A | Yes | 2 | | |
| Hexylene glycol | HXG | 20 | D | E | | A | Yes | 1 | | |
| Isophorone | IPH | 18 ² | D | E | | A | Yes | 1 | | |
| Jet fuel: JP-4 | JPF | 33 | D | E | | A | Yes | 1 | | |
| Jet fuel: JP-5 (kerosene, heavy) | JPV | 33 | D | D | | A | Yes | 1 | | |
| Kerosene | KRS | 33 | D | D | | A | Yes | 1 | | |
| Methyl acetate | MTT | 34 | D | D | | A | Yes | 1 | | |
| Methyl alcohol | MAL | 20 ² | D | C | | A | Yes | 1 | | |
| Methylamyl acetate | MAC | 34 | D | D | | A | Yes | 1 | | |
| Methylamyl alcohol | MAA | 20 | D | D | | A | Yes | 1 | | |
| Methyl amyl ketone | MAK | 18 | D | D | | A | Yes | 1 | | |
| Methyl tert-butyl ether | MBE | 41 ² | D | C | | A | Yes | 1 | | |
| Methyl butyl ketone | MBK | 18 | D | C | | A | Yes | 1 | | |
| Methyl butyrate | MBU | 34 | D | C | | A | Yes | 1 | | |
| Methyl ethyl ketone | MEK | 18 ² | D | C | | A | Yes | 1 | | |
| Methyl heptyl ketone | MHK | 18 | D | D | | A | Yes | 1 | | |
| Methyl isobutyl ketone | MIK | 18 ² | D | C | | A | Yes | 1 | | |
| Methyl naphthalene (molten) | MNA | 32 | D | E | | A | Yes | 1 | | |
| Mineral spirits | MNS | 33 | D | D | | A | Yes | 1 | | |
| Myrcene | MRE | 30 | D | D | | A | Yes | 1 | | |
| Naphtha: Heavy | NAG | 33 | D | # | | A | Yes | 1 | | |
| Naphtha: Petroleum | PTN | 33 | D | # | | A | Yes | 1 | | |
| Naphtha: Solvent | NSV | 33 | D | D | | A | Yes | 1 | | |
| Naphtha: Stoddard solvent | NSS | 33 | D | D | | A | Yes | 1 | | |
| Naphtha: Varnish makers and painters (75%) | NVM | 33 | D | C | | A | Yes | 1 | | |
| Nonane (all isomers), see Alkanes (C8-C9) | NAX | 31 | D | D | | A | Yes | 1 | | |
| Nonene (all isomers) | NON | 30 | D | D | | A | Yes | 2 | | |
| Nonyl alcohol (all isomers) | NNS | 20 ² | D | E | | A | Yes | 1 | | |
| Nonyl phenol | NNP | 21 | D | E | | A | Yes | 1 | | |
| Nonyl phenol poly(4+)ethoxylates | NPE | 40 | D | E | | A | Yes | 1 | | |
| Octane (all isomers), see Alkanes (C8-C9) | OAX | 31 | D | C | | A | Yes | 1 | | |
| Octanoic acid (all isomers) | OAY | 4 | D | E | | A | Yes | 1 | | |
| Octanol (all isomers) | OCX | 20 ² | D | E | | A | Yes | 1 | | |
| Octene (all isomers) | OTX | 30 | D | C | | A | Yes | 2 | | |
| Oil, fuel: No. 2 | OTW | 33 | D | D/E | | A | Yes | 1 | | |
| Oil, fuel: No. 2-D | OTD | 33 | D | D | | A | Yes | 1 | | |
| Oil, fuel: No. 4 | OFR | 33 | D | D/E | | A | Yes | 1 | | |
| Oil, fuel: No. 5 | OFV | 33 | D | D/E | | A | Yes | 1 | | |
| Oil, fuel: No. 6 | OSX | 33 | D | E | | A | Yes | 1 | | |
| Oil, misc: Crude | OIL | 33 | D | C/D | | A | Yes | 1 | | |
| Oil, misc: Diesel | ODS | 33 | D | D/E | | A | Yes | 1 | | |
| Oil, misc: Gas, high pour | OGP | 33 | D | E | | A | Yes | 1 | | |
| Oil, misc: Lubricating | OLB | 33 | D | E | | A | Yes | 1 | | |
| Oil, misc: Residual | ORL | 33 | D | E | | A | Yes | 1 | | |
| Oil, misc: Turbine | OTB | 33 | D | E | | A | Yes | 1 | | |
| Pentane (all isomers) | PTY | 31 | D | A | | A | Yes | 5 | | |
| Pentene (all isomers) | PTX | 30 | D | A | | A | Yes | 5 | | |

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Department of Homeland Security
United States Coast Guard

Serial #: C1-1103918

Dated: 09-Nov-11

Certificate of Inspection

Cargo Authority Attachment

Vessel Name: HFL 435

Official #: 1236563

Page 6 of 7

Shipyard: Trinity Marine

Hull #: 4859

| Cargo Identification | | | | | | Conditions of Carriage | | | | |
|---|-----------|-----------------|-------------|-------|-----------|------------------------|-------------------------------|--------------|--|--------------|
| Name | Chem Code | Compat Group No | Sub Chapter | Grade | Hull Type | Tank Group | Vapor Recovery App'd (Y or N) | VCS Category | Special Requirements in 46 CFR 151 General and Mat'ls of | Insp. Period |
| n-Pentyl propionate | PPE | 34 | D | D | | A | Yes | 1 | | |
| alpha-Pinene | PIO | 30 | D | D | | A | Yes | 1 | | |
| beta-Pinene | PIP | 30 | D | D | | A | Yes | 1 | | |
| Poly(2-8)alkylene glycol monoalkyl(C1-C6) ether | PAG | 40 | D | E | | A | Yes | 1 | | |
| Poly(2-8)alkylene glycol monoalkyl(C1-C6) ether acetate | PAF | 34 | D | E | | A | Yes | 1 | | |
| Polybutene | PLB | 30 | D | E | | A | Yes | 1 | | |
| Polypropylene glycol | PGC | 40 | D | E | | A | Yes | 1 | | |
| iso-Propyl acetate | IAC | 34 | D | C | | A | Yes | 1 | | |
| n-Propyl acetate | PAT | 34 | D | C | | A | Yes | 1 | | |
| iso-Propyl alcohol | IPA | 20 ² | D | C | | A | Yes | 1 | | |
| n-Propyl alcohol | PAL | 20 ² | D | C | | A | Yes | 1 | | |
| Propylbenzene (all isomers) | PBY | 32 | D | D | | A | Yes | 1 | | |
| iso-Propylcyclohexane | IPX | 31 | D | D | | A | Yes | 1 | | |
| Propylene glycol | PPG | 20 ² | D | E | | A | Yes | 1 | | |
| Propylene glycol methyl ether acetate | PGN | 34 | D | D | | A | Yes | 1 | | |
| Propylene tetramer | PTT | 30 | D | D | | A | Yes | 1 | | |
| Sulfolane | SFL | 39 | D | E | | A | Yes | 1 | | |
| Tetraethylene glycol | TTG | 40 | D | E | | A | Yes | 1 | | |
| Tetrahydronaphthalene | THN | 32 | D | E | | A | Yes | 1 | | |
| Toluene | TOL | 32 | D | C | | A | Yes | 1 | | |
| Tricresyl phosphate (less than 1% of the ortho isomer) | TCP | 34 | D | E | | A | Yes | 1 | | |
| Triethylbenzene | TEB | 32 | D | E | | A | Yes | 1 | | |
| Triethylene glycol | TEG | 40 | D | E | | A | Yes | 1 | | |
| Triethyl phosphate | TPS | 34 | D | E | | A | Yes | 1 | | |
| Trimethylbenzene (all isomers) | TRE | 32 | D | {D} | | A | Yes | 1 | | |
| Trixylenyl phosphate | TRP | 34 | D | E | | A | Yes | 1 | | |
| Undecene | UDC | 30 | D | D/E | | A | Yes | 1 | | |
| 1-Undecyl alcohol | UND | 20 | D | E | | A | Yes | 1 | | |
| Xylenes (ortho-, meta-, para-) | XLX | 32 | D | D | | A | Yes | 1 | | |

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UNITED STATES OF AMERICA

DEPARTMENT OF HOMELAND SECURITY UNITED STATES COAST GUARD

NATIONAL VESSEL DOCUMENTATION CENTER

CERTIFICATE OF DOCUMENTATION


| | | | | | |
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| VESSEL NAME HFL 435 | | OFFICIAL NUMBER 1236563 | IMO OR OTHER NUMBER 4859 | YEAR COMPLETED 2012 | |
| HAILING PORT NASHVILLE TN | | HULL MATERIAL STEEL | | MECHANICAL PROPULSION NO | |
| GROSS TONNAGE 1619 GRT | NET TONNAGE 1619 NRT | LENGTH 297.5 | BREADTH 54.0 | DEPTH 12.0 | |
| PLACE BUILT ASHLAND CITY TN | | | | | |
| OWNERS HINES FURLONG LINE INC | | OPERATIONAL ENDORSEMENTS COASTWISE | | | |
| MANAGING OWNER HINES FURLONG LINE INC 4015 HILLSBORO PIKE STE 202 PO BOX 150809 NASHVILLE TN 37215 | | | | | |
| RESTRICTIONS NONE | | | | | |
| ENTITLEMENTS NONE | | | | | |
| REMARKS NONE | | | | | |
| ISSUE DATE JANUARY 29, 2025 | |  DIRECTOR, NATIONAL VESSEL DOCUMENTATION CENTER | | | |
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Click on the Document Icon  to the left of a record to display a COFR Confirmation in html. You may print the COFR Confirmation by right clicking your mouse and selecting "print" from the list.

| VESEL NAME | VESEL TYPE | HULL TYPE | GROSS TONNAGE | COFR NUMBER | EFFECTIVE DATE | EXPIRATION DATE | COFR APPLICANT | VIN | INSURANCE CANCEL FLAG |
|--|-------------|-----------|---------------|-------------|----------------|-----------------|----------------------|----------|-----------------------|
|  HFL 435 | TANKBARGE D | | 1619 | 867267 - 20 | 3/2/2023 | 3/2/2026 | KIRBY CORPORATION | D1236563 | |
|  HFL 435 | TANKBARGE D | | 1619 | 841310 - 21 | 5/16/2024 | 5/16/2027 | CHEM CARRIERS, L.L.C | D1236563 | |

< Prev Next >

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Contact the [Accessibility Coordinator](#) for comments and inquiries about accessibility.

Version 3.7 -- This version is designed for Internet Explorer, Edge, Chrome, Firefox and Safari.



BARGE PIPING LETTER

INSTRUCTIONS: ALL FIELDS ARE REQUIRED. USE N/A ON ANY NON-APPLICABLE LINE.

BARGE OWNER/BARGE NAME: Chem Carriers / HFL 435

Letter expiration date (one year from test date): 2-6-26

NOTE: Test results are valid for (1) year from the date of test.

1. Cargo Piping and Valves (actual date of test): 2-6-25

Test Pressure (188 psi): 188 psi

2. Cargo Relief Valve (actual date of test): 2-6-25


Test Pressure (125 psi): 125 psi

3. Cargo Pressure Gauge (actual date of test): 2-6-25

Percent of Accuracy (%): 98%

4. Steam Piping and Relief Valves (actual date of test): N/A

Test Pressure (125 psi): N/A

| | |
|-----------------------------|--|
| Signature of Tester: |  |
| Printed Name of Tester: | <u>ALFREDO VALENCIA</u> |
| Company/Location of Tester: | <u>Channelview TX.</u> |



BARGE VAPOR TIGHTNESS LETTER

NOTE: Test results are valid for (1) one year from date of test

- Test date: 2-6-25
- Barge owner: CHEM CARRIERS
- Barge Name/Official Number: HFL 435 / 1236563
- Maximum load rate (BPH): 5,000 (BPH)

→ Pressure cargo tanks and vapor system to (28) twenty-eight inches of water using a Manometer to record the time and pressure. Close all valves and allow the vessel to Remain pressure for (30) thirty minutes. Use soap to test and inspect for leaks. After (30) thirty minutes, record pressure and times.

→ Test cargo tanks and Vapor System to 28" inches of water.

→ Start Time: 13:00 Beginning Pressure: 28"

→ End Time: 13:30 Ending Pressure: 27.5

✓ This vessel has been tested in accordance with Section 61.304f and has been found to to be vapor tight.

| | |
|--|------------------------|
| Company of Tester: | Location: |
| <u>K-solv</u> | <u>Channelview TX.</u> |
| Name of Tester (Print): | Signature of Tester: |
| <u>ALFREDO VALENCIA</u> | <u>[Signature]</u> |
| Name of Witness (Print): | Signature of Witness: |
| <u>Edgar Quira</u> | <u>Edgar Quira</u> |
| Affiliation/Company of Witness (Print) | |
| <u>K-solv / supervisor</u> | |



Cargo / Vapor / Fuel Hose Test

Note: Test Results are valid for 1 year from date of test.

| | | | |
|----------------------------|-------------------|-----------------------|----------|
| Hose Test Date: | January 2, 2020 | Serial (Hose) Number: | 70376-1 |
| Hose MFG Date: **see below | December 18, 2017 | Hose Size: | 8" x 25' |
| Vendor doing test: | Cummings Marine | Hose Type : | Vapor |

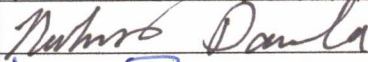
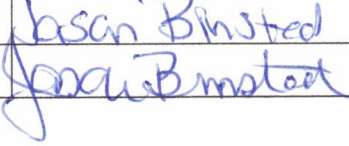
*****If MFG date exceeds 5 years, or is not known, hose must be discarded, DO NOT RETEST!!***

Test Results

| | | | |
|-------------|----------|--------------|---------|
| Burst PSI: | 1000 psi | Max Temp (F) | |
| Tested PSI: | 150 psi | Working PSI: | 100 psi |

Signatures

THE COMPETENT PERSON'S SIGNATURE BELOW CERTIFIES THAT TESTING OF THIS CARGO HOSE HAS BEEN PERFORMED IN ACCORDANCE WITH USCG REGULATIONS 33 CFR PART 154 - FACILITIES TRANSFERRING OIL OR HAZARDOUS MATERIAL IN BULK, SUBPART C - EQUIPMENT REQUIREMENTS, 154.500 – HOSE ASSEMBLIES, AND PART 156 – SUBPART A - OIL AND HAZARDOUS MATERIAL TRANSFER OPERATIONS, 156.170 - EQUIPMENT TEST AND INSPECTIONS.

| | |
|----------------------------|---|
| Tested By (Print Name): | Nicholas Davila |
| Signature: |  |
| Witnessed By (Print Name): | Jason Binsted |
| Signature: |  |



Cargo / Vapor / Fuel Hose Test

Note: Test Results are valid for 1 year from date of test.

| | | | |
|----------------------------|------------------|-----------------------|-----------------|
| Hose Test Date: | January 2, 2020 | Serial (Hose) Number: | 70648- <u>1</u> |
| Hose MFG Date: **see below | January 12, 2018 | Hose Size: | 6" x 25' |
| Vendor doing test: | Cummings Marine | Hose Type: | Cargo |

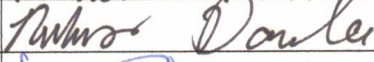
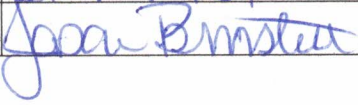
*****If MFG date exceeds 5 years, or is not known, hose must be discarded, DO NOT RETEST!!***

Test Results

| | | | |
|-------------|--|--------------|--|
| Burst PSI: | | Max Temp (F) | |
| Tested PSI: | | Working PSI: | |

Signatures

THE COMPETENT PERSON'S SIGNATURE BELOW CERTIFIES THAT TESTING OF THIS CARGO HOSE HAS BEEN PERFORMED IN ACCORDANCE WITH USCG REGULATIONS 33 CFR PART 154 - FACILITIES TRANSFERRING OIL OR HAZARDOUS MATERIAL IN BULK, SUBPART C - EQUIPMENT REQUIREMENTS, 154.500 – HOSE ASSEMBLIES, AND PART 156 – SUBPART A - OIL AND HAZARDOUS MATERIAL TRANSFER OPERATIONS, 156.170 - EQUIPMENT TEST AND INSPECTIONS.

| | |
|----------------------------|---|
| Tested By (Print Name): | Nicholas Davila |
| Signature: |  |
| Witnessed By (Print Name): | Joson Binsted |
| Signature: |  |

U.S. Department of
Homeland Security

United States
Coast Guard



Commanding Officer
United States Coast Guard
Marine Safety Center

US Coast Guard Stop 7430
2703 Martin Luther King Jr Ave SE
Washington, DC 20593-7430
Staff Symbol: MSC-3
Phone: (202) 795-6731
Email: msc@uscg.mil

16710/P022656/jdm1
Serial: C1-2103027
September 28, 2020

Marine Solutions, Inc.
Attn: Mr. Chetan Kumaria
P.O. Box 218197
Nashville, TN 37221
marinesolinc@aol.com

Subj: Hines Furlong and Chem Carrier Barges (Listed in Enclosure 1)
Multi-breasted Tandem Loading

Ref: (a) MSI Doc, Rev. 0, "Tandem Calculations for Hines Furlong Barges and Chem Carrier Barges," 60 pages, dated September 8, 2021
(b) Navigation and Vessel Inspection Circular (NVIC) 10-92, Change 2, "Coast Guard Recognition of Registered Professional Engineer Certification of Compliance with Coast Guard Requirements"
(c) Marine Safety Information bulletin 11-14, dated July 18, 2014

Dear Mr. Kumaria:

We reviewed reference (a), submitted by your email dated September 15, 2021 (MSC Document No. 2116097), under the provisions of reference (b), for compliance with 46 CFR Part 39.5000 for multi-breasted tandem loading. Reference (a) received full technical review by the Marine Safety Center for compliance with 46 CFR Subpart 39.5000. Reference (a) is **Examined in accordance with NVIC 10-92, CH-2**. Calculations such as these are not normally approved but are examined to verify compliance with appropriate regulations. The barges listed in enclosure (1) have previously approved vapor control systems. Based on the calculations in reference (a), multi-breasted tandem loading operations are authorized for the barges listed in enclosure (1). The following comments apply:

1. Multi-breasted tandem loading operations are limited to simultaneous collection of those cargoes listed in each vessel's CAA at the lower of the two maximum transfer rates noted in enclosure (1) for each barge pair.
2. Multi-breasted tandem loading approval is contingent on the vessels being owned or operated by the same entity, in accordance with 46 CFR 39.5001(a).
3. The facility pressure-vacuum valve must be set at the lower of the two settings noted in enclosure (1) for each barge pair.

Subj: Hines Furlong and Chem Carrier Barges
Multi-breasted Tandem Loading

16710/P022656/jdm1
Serial: C1-2103027
September 28, 2021

Please note that in accordance with reference (c), tandem loading shall be approved by the local Officer in Charge, Marine Inspection (OCMI) and may be subject to additional operational requirements.

For the OCMI's convenience, we have included the following recommended COI endorsement:

In accordance with 46 CFR Part 39.5000, this vessel's VCS has been evaluated and approved for multi-breasted tandem loading with other vessels specifically approved by Marine Safety Center letter Serial No. C1-2103027 dated September 28, 2021.

As an agreed-upon condition of your participation in the Marine Safety Center's electronic commerce program, you must provide the OCMI with a copy of this letter and identical paper copies of reference (a).

Our Project Number for this multi-breasted tandem fleet is P022656. Please ensure that all future correspondence includes the Project Number and the Official Numbers that are noted in enclosure (1).

Please contact LT Joel MacArthur at (202) 795-6779 with questions concerning our review.

Sincerely,

K. C. HEINE
Lieutenant Commander, U. S. Coast Guard
Chief, Vessel and Cargo Branch
By direction

Encl: (1) List of Applicable Barges

Copy: Commander, Coast Guard Sector Houston-Galveston, Prevention Department

U.S. Department of
Homeland Security

United States
Coast Guard



Commandant
United States Coast Guard

2703 Martin Luther King Jr. Ave SE
Stop 7516
Washington, DC 20593-7516
Staff Symbol: CG-MER-1 (VRP)
Phone: (202) 372-1005
Fax: (202) 372-8376
Email: vrp@uscg.mil

16460
September 2, 2021

Chem Carriers, L.L.C.
C/O: FOREFRONT EMERGENCY MANAGEMENT, LP
ATTN: ALLIE MARTIN
1730 COTEAU ROAD
HOUMA, LA 70364

Dear Sir or Madam:

Your Shipboard Oil Pollution Emergency Plan (SOPEP), Control Number 56041, for HFL 435 (1236563), has been reviewed and found to be in compliance with the requirements of Regulation 37 of Annex I of the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78).

This approval will remain valid until **March 21, 2025**. You must review your plan annually within one (1) month of the anniversary date of the plan's expiration date and submit a letter to this office certifying that the review has been completed. Any alteration or revision made to the plan, with the exception of those made to the appendices and non-mandatory provisions, must be submitted to this office for review and approval prior to the implementation of the revision. Further, the entire plan must be resubmitted to the Coast Guard for reapproval six (6) months before the end of the approval period of the plan.

I remind you that your plan is a vital working document and that implementing the plan will help ensure effective response and mitigation in the event of an oil pollution incident. Please be sure that all parties with responsibilities under the plan are familiar with the plan's procedures and requirements.

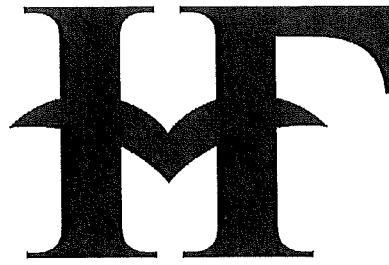
This letter shall be maintained onboard the vessel and placed in the front of the plan.

Sincerely,

W.W. ALVAREZ
Lieutenant Commander, U.S. Coast Guard
Vessel Response Plan Program
By Direction

List of Barges for C1-2103027

| Barge Name | O.N. | Shipyard | Hull No. | MAWP (psi) | P/V Valve Press/Vac Setting | Loading/ Discharge Rates | Previous MSC Approval Letter | Approval Date |
|-------------------|-------------|----------------------|-----------------|-----------------------|--|---|---|----------------------|
| CCL 403 | 1231311 | Trinity Ashland City | 4772 | 6.5 | 6/3 | 5000/5000 | C1-1100183 | January 21, 2011 |
| CCL 404 | 1231312 | Trinity Ashland City | 4773 | 6.5 | 6/3 | 5000/5000 | C1-1100183 | January 21, 2011 |
| CCL 405 | 1236867 | Trinity Madisonville | 2196-1 | 3.5 | 3/3 | 5000/5000 | C1-1103805 | November 14, 2011 |
| CCL 406 | 1236866 | Trinity Madisonville | 2199-1 | 3.5 | 3/3 | 5000/5000 | C1-1103914 | November 22, 2011 |
| CCL 407 | 1246320 | Three Rivers B&B | 121512 | 3.5 | 3/2 | 5000/5000 | C1-1203487 | July 30, 2012 |
| CCL 408 | 1246097 | Tres Palacios Marine | 144 | 3.5 | 3/2 | 6000/6000 | C1-1301141 | April 12, 2013 |
| CCL 409 | 1246098 | Tres Palacios Marine | 145 | 3.5 | 3/2 | 6000/6000 | C1-1301141 | April 12, 2013 |
| CCL 410 | 1255906 | Tres Palacios Marine | 152 | 3.5 | 3/2 | 6000/6000 | C1-1303733 | February 7, 2014 |
| CCL 411 | 1255907 | Tres Palacios Marine | 153 | 3.5 | 3/2 | 6000/6000 | C1-1303733 | February 7, 2014 |
| CCL 415-T | 1262942 | Trinity Ashland City | 5154 | 3.5 | 3/2 | 5000/5000 | C1-1503553 | August 17, 2015 |
| CCL 414-L | 1262941 | Trinity Ashland City | 5153 | 3.5 | 3/2 | 5000/5000 | C1-1503484 | August 10, 2015 |
| CCL 416-T | 1264691 | Tres Palacios Marine | 160 | 3.5 | 3/2 | 6000/6000 | C1-1504017 | September 17, 2015 |
| CCL 417 T | 1298307 | West Gulf Marine | 285 | 6.5 | 6/0.5 | 4000/4576 | C1-1901188 | April 23, 2019 |
| HFL 413 | 1237482 | Arcosa Ashland City | 4857 | 3.5 | 3/0.5 | 5000/5000 | C1-1104850 | December 21, 2011 |
| HFL 415 | 1237483 | Arcosa Ashland City | 4858 | 3.5 | 3/0.5 | 5000/5000 | C1-1104850 | December 21, 2011 |
| HFL 435 | 1236563 | Arcosa Ashland City | 4859 | 3 | 1.5/0.5 | 6000/6000 | C1-1103918 | November 9, 2011 |
| HFL 605 | 1237484 | Arcosa Ashland City | 4853 | 3.5 | 3/0.5 | 5000/5000 | C1-1104533 | December 9, 2011 |



HINES FURLONG LINE

TANK BARGE CARGO TRANSFER PROCEDURES

HFL 435

As required by 33 CFR 155.750(a)

Operator:

Chem Carriers LLC.

1237 Hwy 75
Sunshine LA 70780

REPORT ALL SPILLS TO:

U.S. Coast Guard National Response Center
(800) 424-8802

Hines Furlong Line, Inc.
HFL 435 CARGO TRANSFER PROCEDURES

| | |
|-------------------------------|----------------|
| Barge Name: | HFL 435 |
| Official Number: | 1236563 |
| Home Port: | Nashville, TN |
| Builder / Year: | TRINITY / 2012 |
| Hull #: | 4859 |
| Gross Tons: | 1619 |
| Length (Molded): | 297' 6" |
| Breadth (Molded): | 54'-00" |
| Depth (Molded, Deck at Side): | 12'-00" |
| Cargo Tank Capacity (100%): | 29,802 Barrels |

Hines Furlong Line, Inc.
HFL 435 CARGO TRANSFER PROCEDURES

155.750(a) (1) PRODUCTS TO BE TRANSFERRED:

- A. The products that are authorized to be carried by each barge are listed on the Certificate of Inspection. The Certificate of Inspection is available on the barge and a copy of each Certificate is available from the Hines Furlong Line office.
- B. For loading operations consult loading plans or other instructions issued by the shore facility operator to determine the names of the petroleum or chemicals to be loaded. Before beginning transfer operations, obtain information on safety, fire and personnel protection from cargo information cards and Safety Data Sheets (SDS) received from shore facility personnel. The information must be in written form and on board the vessel. Only products authorized by the Certificate Of Inspection may be loaded.
- C. For Unloading Operations consult the barge cargo manifest and / or shipping papers for the names of the petroleum or chemicals to be unloaded. For hazard and reactivity data see the Cargo Information Card and / or the SDS.

155.750(a) (2) DESCRIPTION OF TRANSFER SYSTEM:

- A. The barge is a 297'6"X54'X12' double hull, Rake Bow (lead), Box Stern, internally framed tank barge with 6 integral gravity cargo tanks arranged in pairs, 1 through 3 Port and Starboard. All transfer connection points are located near the Stern. The barge is equipped with 2 ea. 2,000 gal. transverse residual product tanks located in the trunk over the aft end of the #3 port and starboard cargo tanks.
- B. **CARGO PIPING & VALVES:** The cargo tanks are fitted with below deck fixed piping connected to the cargo pump. The piping system can be isolated from the pump by closing the Pump Suction Valve located on the suction side of the pump. An isolation valve is located in each cargo tank near the suction bell. Two 8-in. cross headers connecting to the below deck piping via risers are located above deck on the stern, near the pump engine. Each outboard end of the cross headers is equipped with a valve. The pump can be isolated from the discharge cross header by closing the Pump Discharge Valve located on the discharge side of the pump. The below deck piping can be isolated from the Loading cross header by closing the loading header drop valve. An 8-in. vapor header is located forward of the cargo cross headers which is connected to a longitudinal vapor collection pipeline with drops to each cargo tank.
- C. **CARGO VENTING:** A High Velocity Pressure Vacuum Relief valve (P/V valve) is mounted on the vapor collection header to provide the required venting when loading. This design considered the maximum loading and discharge rate of 3,500 gallons per minute (4,285 Barrels per hour) vs the flow rates of the P/V valve. The P/V valve is constructed with integral, internal, stainless steel, 30X30 mesh flame screens. It is set to relieve at +1.5 PSI Pressure and -0.5 PSI Vacuum. The settings are verified by bench testing at five-year intervals. If the barge carries a polymerizing cargo during any 12-month period since bench testing, the PV Valve will be bench tested at the next scheduled US Coast Guard inspection or sooner if deemed necessary. This model valve is equipped with a check feature to allow manual verification of the operation of the valve. The P/V Valve is equipped to swivel down to the horizontal position for low overhead clearance situations. The forward end of the vapor header is equipped with a retractable vent riser that is isolated by a gate valve. The riser can be raised and lowered and is equipped with a stainless steel, 30X30 mesh flame screen. Each residual product tank is equipped with a 2-1/2" low velocity P/V Valve set to relieve at +1.5 PSI Pressure and -0.5 PSI Vacuum.

Hines Furlong Line, Inc.
HFL 435 CARGO TRANSFER PROCEDURES

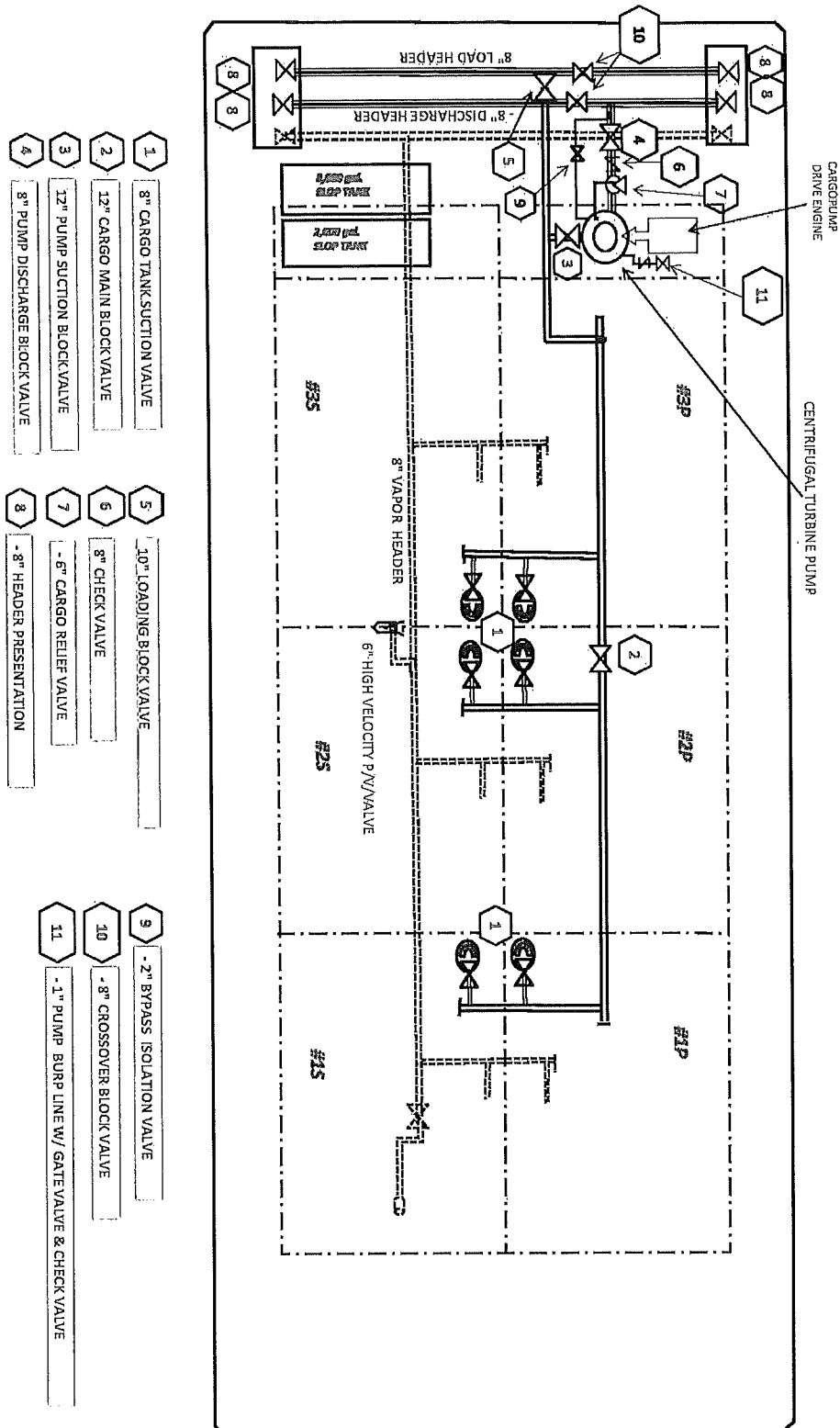
155.750(a) (2) DESCRIPTION OF TRANSFER SYSTEM: (continued)

- D. CARGO PUMP - The vessel is equipped with a fixed, vertical lift cargo pump located in the #3S cargo tank, driven by a diesel engine. The engine is located on deck and connected to the pump via a right-angle drive gear system. The emergency shut down pull is located near amidships on the #2P cargo tank trunk.
- E. DISCHARGE CONTAINMENT: The discharge containment consists of two large semi-enclosed tanks; one located at each end of the header lines. Each tank has a capacity of at least 9 barrels and is equipped with a drain line for the removal of liquid collected in them. Prior to any transfer operation, check to ensure that containment areas are properly drained and the plugs or caps are installed. Never drain the containment on deck. The containment should be empty at the start of the transfer. All liquid must be stripped or drained off before the attending towboat leaves the barge. The outer perimeter of the cargo tank and machinery areas have a 6-in. high secondary containment barrier with drain openings that are equipped with scupper plugs. The plugs must be securely installed in place prior to transfer of cargo.
- F. CARGO GAUGING - Each cargo tank is equipped with a "Hermetic" valve to facilitate a closed gauging device. Each cargo tank is equipped with a gauge tree located beneath a sight glass at the expansion dome measuring the upper 6 ft. of the tank. Each cargo tank is also fitted with a 1 Meter stick gauge, located near the center point. They provide a visual indication of high level and overfill in the cargo tank.
- G. This barge is equipped with internal steam coils in each tank to permit cargo heating using an external steam source when required.
Description:
The system consists of a 4 in. longitudinal pipe above deck with 2" drops into each cargo tank. The supply to the coils in each pair of cargo tanks can be isolated by closing the 2" valves located on deck. The internal coils are located near the cargo tank floor of each tank and surround the sump. The coils are also connected to the cargo pump in the 3P cargo tank.
- H. The Port and Starboard Tanks must be transferred (Loaded or Unloaded) simultaneously to maintain an Even Keel.

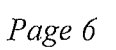
For details of these piping systems, consult the attached piping diagrams.

Hines Furlong Line, Inc.
HFL 435 CARGO TRANSFER PROCEDURES

CARGO PIPING DIAGRAM



STEAM PIPING DIAGRAM



Hines Furlong Line, Inc.
HFL 435 CARGO TRANSFER PROCEDURES

155.750(a) (2) DESCRIPTION OF TRANSFER SYSTEM: (continued)

I. STRIPPING SYSTEM

This barge is equipped with a stripping system capable of removing residual clingage and heels that the cargo piping is incapable of stripping.

Description:

The system consists of a 2 in. longitudinal pipe above deck with drops into each cargo tank sump and to the end of the branch pipe in the #3S cargo tank. The pump well and slop tank are also connected to the system, which can be used to either strip them or fill them. All pipe drops can be isolated by closing the above deck valves. The system is equipped with a hydraulically operated pump driven from the barge pump engine. The piping is connected to integral transverse "slop" tanks located in the trunk section over the aft end of the #3 S cargo tanks. The "slop" tanks are equipped with low velocity P/V valves set to +1.5 PSI pressure and -0.5 PSI vacuum. See the attached schematic drawing for details of the system.

Operation:

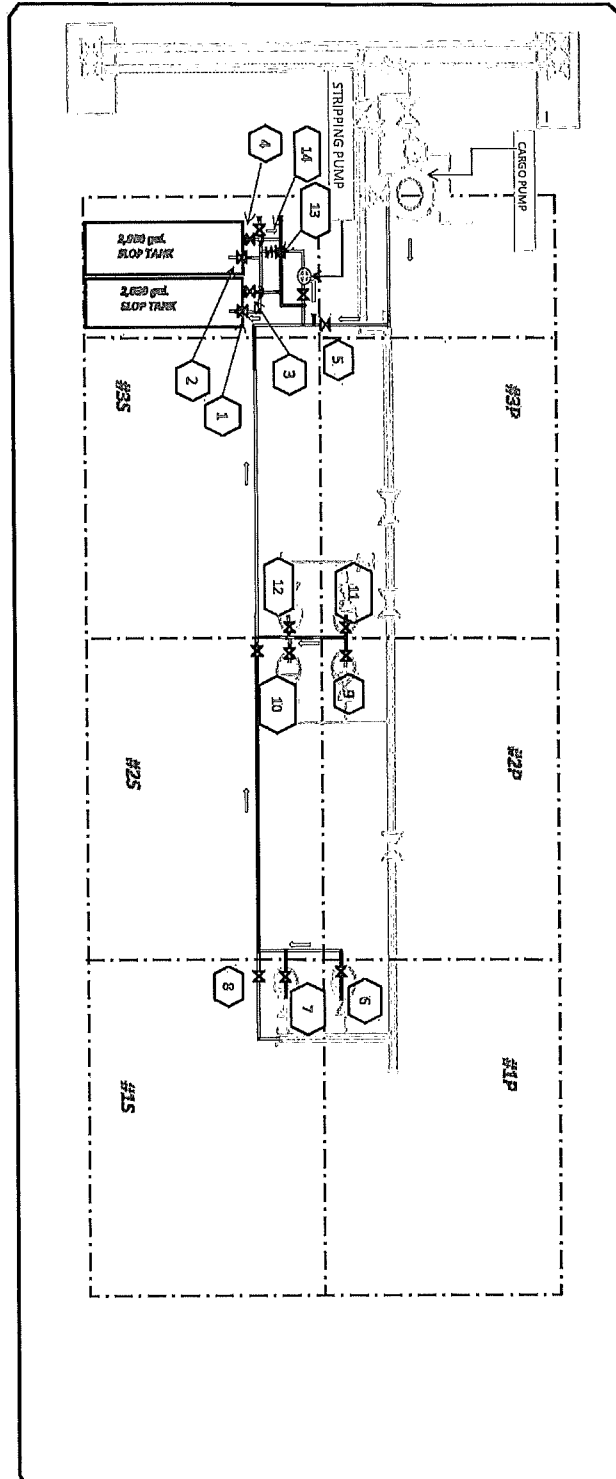
Regulate the rate of discharge to ensure that the #1 P&S tanks will empty first with progressively more cargo remaining in the other tanks towards the stern. The rate should be adjusted so the #3S tank will make empty last.

- 1) When the tanks are nearing the empty point, open the stripping valves to the tanks and the valve on the cargo pump priming line, close the pump stripping suction line valve and the valves on the slop tank supply and discharge lines.
- 2) After the valves are lined up as described in "1" engage the hydraulic stripping pump.
- 3) As soon as the system is primed, close the stripping valves to the #2 P&S and #3 P&S cargo tanks.
- 4) Strip the #1 P&S tanks first. The operation should start as the cargo level in the #1 P&S tanks becomes too low to maintain suction through the cargo piping. Manipulate the tank stripping valves to draw out as much cargo as possible. When the tank is as empty as possible, close the stripping valves tightly.
- 5) Strip the #2 P&S tanks next. Follow the same procedure as for the #1 P&S tanks.
- 6) Continue the same procedure for the #3 P&S tanks, stripping the #3P completely before the #3S. When
- 7) When the #3S tank has been stripped as much as possible, close all valves and disengage the stripping pump.
- 8) Shore line and header residue should be drained to the #3S tank.
- 9) Strip the remaining residue in the #3S tank to the slop tank as follows:
 - a) Check to ensure all stripping system valves are closed.
 - b) Open the valves on the slop tank supply line and pump stripping line.
 - c) Engage the hydraulic stripping pump.
 - d) Manipulate the #3S tank stripping and pump stripping valves to draw out as much cargo as possible.
 - e) When the pump well and tank are as empty as possible, close the stripping valves tightly and disengage the stripping pump.

Hines Furlong Line, Inc.
HFL 435 CARGO TRANSFER PROCEDURES

STRIPPING PIPING DIAGRAM

- | | | |
|--|--|--|
| <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px; text-align: center;">1</div> FWD SLOP TANK FILL SHUT OFF VALVE | <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px; text-align: center;">6</div> # 1 P CARGO TANK SUMP STRIPPING VALVE | <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px; text-align: center;">11</div> # 3 P CARGO TANK SUMP STRIPPING VALVE |
| <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px; text-align: center;">2</div> AFT SLOP TANK FILL SHUT OFF VALVE | <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px; text-align: center;">7</div> # 1 S CARGO TANK SUMP STRIPPING VALVE | <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px; text-align: center;">12</div> # 3 S CARGO TANK SUMP STRIPPING VALVE |
| <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px; text-align: center;">3</div> FWD SLOP TANK SUCTION SHUT OFF VALVE | <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px; text-align: center;">8</div> FWD CARGO MAIN STRIPPING VALVE | <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px; text-align: center;">13</div> SLOP TRANSFER ISOLATION VALVE |
| <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px; text-align: center;">4</div> AFT SLOP TANK SUCTION SHUT OFF VALVE | <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px; text-align: center;">9</div> # 2 P CARGO TANK SUMP STRIPPING VALVE | <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px; text-align: center;">14</div> CHECK VALVE |
| <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px; text-align: center;">5</div> PUMPELL STRIPPING VALVE | <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px; text-align: center;">10</div> # 2 S CARGO TANK SUMP STRIPPING VALVE | |



Hines Furlong Line, Inc.
HFL 435 CARGO TRANSFER PROCEDURES

155.750(a) (3) PERSONS REQUIRED:

At least two qualified persons are required for cargo transfer: One person on the barge and one person on the dock. The person on the barge shall be the Person In Charge of the transfer. The Person In Charge of the transfer shall have a Merchant Mariner's Credential issued by the U.S. Coast Guard, which is endorsed as Person In Charge for Dangerous Liquid Transfers (Barge).

When the terminal at which the barge is being loaded has received specific approval from the U.S. Coast Guard to do so, two barges may be loaded/unloaded simultaneously with one Person In Charge (PIC) on each barge.

Special Requirements: The Person In Charge (PIC) shall ensure only necessary personnel who are properly trained and PPE equipped are on board during transfer of the following products: formic acid, amines, acrylonitrile, adiponitrile, acetonitrile, or aniline.

155.730 (4) DUTIES OF THE PERSON IN CHARGE:

A. Prior To Transfer:

- 1) Check all barge moorings to ensure that they are properly secured and in satisfactory condition. Reference section 155.750(a)(5) as to number and size.
- 2) Examine deck and hull. Open and look into all void spaces to ascertain that there are no abnormal conditions that could affect the safe transfer of the cargo. All man way hatches are to be secured upon completion of this examination.
- 3) Check U.S. Coast Guard Certificate of Inspection to ensure
 - a) It is on board, valid and endorsed for the product being transferred.
 - b) The annual inspections have been completed and endorsed.
- 4) Examine the Cargo Information Card or SDS to obtain information concerning cargo hazards, reactivity and safety and whether or not this cargo requires vapor control.
- 5) Complete and sign the "Declaration of Inspection" together with the other PIC.
- 6) Confirm with the Hines Furlong Line Office/Facility PIC to determine whether or not this cargo requires a nitrogen blanket and/or pad. Identify which hoses or lines must be blown down with nitrogen.
- 7) Review static electricity precautions and the initial transfer rate found on page 18 of these procedures.
- 8) Visually inspect cargo and vapor piping and containment systems for cleanliness, remaining cargo and abnormal conditions. The PIC must not break seals or vapor tightness without approval of the facility/ Hines Furlong Line office and must wear appropriate PPE.
- 9) Place on board two, approved type, B-II portable fire extinguishers.
- 10) Check the grounding cable (if used) to ensure that it is properly connected or that an isolating flange has been properly installed
- 11) Confirm with the facility Person In Charge on whether or not a sample is to be drawn. If needed, the sample will be drawn at the barge tanks prior to loading or discharging cargo in a tank. If the sample is approved by the customer's surveyor the cargo transfer can commence, if not the cargo is to be slopped until a good sample is received and approved.

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DUTIES OF THE PERSON IN CHARGE: (continued)

- 12) Check the valve on the opposite (unused) side of the headers to ensure that they are closed and that a blind is secured tool tight on the flange using a full set of bolts and proper gasket.
- 13) Check the operation of the P/V valve.
 - a) Operate the handle on the side of the valve to check that mechanism is free and operating properly. Check the operation of both the pressure and vacuum side. Push down the handle to check the vacuum relief and lift the handle to check the pressure relief.
 - b) Check the condition of the flame screens to ensure it is clean and there are no holes or tears.
 - c) If the mechanism is not operating properly, the valve will require dismantling for cleaning or repair.
- 14) Connect cargo hoses or loading arms from dock to appropriate header on the stern of the barge. Use a full set of flange bolts and the proper size new gasket for each connection. Both liquid and vapor lines must be securely bolted, tool tight, with a bolt in every hole.
- 15) For unloading cargo transfers, start the pump drive engine and test the emergency shut down to insure proper operation. Establish a means for continuous communications with the Person In Charge at the facility. The method selected must be effective during all phases of the transfer.
- 16) Consult with the Facility Person In Charge concerning details of the transfer and ensure that each Person In Charge understands the following details of the transfer operation:
 - a) The sequence of transfer operations.
 - b) The transfer rate; both the initial rate and maximum rate.
 - c) The name or title and location of each person participating in the transfer operation.
 - d) Details of the transferring and receiving systems.
 - e) Critical stages of the transfer operation.
 - f) Federal, state, and local rules that apply to the transfer of oil or hazardous material.
 - g) Emergency procedures.
 - h) Discharge containment procedures.
 - i) Discharge reporting procedures.
 - j) Watch or shift change arrangement.
 - k) Transfer shutdown procedures.
- 17) Check to ensure that the proper warning signs and signals are displayed.
 - a) Red warning signals: a red signal (flag by day and approved lantern at night) shall be so placed that it will be visible on all sides
 - b) Warning sign on the barge: The sign shall state in letters not less than 2 inches high:
Warning
No open lights.
No smoking.
No visitors

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DUTIES OF THE PERSON IN CHARGE: (continued)

- 18) After the inspector has approved as ready for transfer, open the cargo control valves at the cargo tanks (seven (7) turns initially, then as required to control the flow). Ensure a proper flame screen is in place on all tank openings. Check that they fit tightly, are clean and have no rips or tears.
- 19) Uncap the stick gauges and engage the stick gauge magnet with the float magnet.
- 20) Inform the facility Person In Charge that the barge is ready for transfer.
- 21) When the facility Person In Charge informs you that the facility is ready for transfer, open the cargo control valves on the headers.
- 22) Confirm cargo is transferring to the proper cargo tanks.

B. During Transfer:

- 1. When the transfer begins, check all connections and components of the transfer system to ensure that there are no leaks or drips. If leaks or drips are discovered, stop the transfer immediately and correct the situation.
- 2. Check mooring lines frequently, at intervals of not more than 15 minutes and adjust as necessary. In conditions where the barge is surging due to passing vessels or high winds, additional mooring lines will be used to ensure a secure mooring.
- 3. Check the transfer hoses continuously to ensure that they are properly supported and are not under strain.
- 4. Monitor cargo levels in the tank by observing the ladder rungs, gauge trees and stick gauges at the gauging tubes. Make sure to inspect wing voids for any water accumulation during the loading or unloading process.
- 5. The Port and Starboard Tanks Must Be transferred (Loaded or Unloaded) simultaneously to maintain an Even Keel.
- 6. No cargo transfer operations will be conducted when electrical or thunderstorms are in the vicinity.
- 7. Constantly monitor cargo transfer operation to guard against an accidental discharge of oil. Minimize the number of tank openings to prevent contamination of cargo containment spaces.
- 8. During watch change, the Person In Charge arriving on watch shall conduct an inspection of the cargo tank levels, mooring lines and all elements of the duties listed in section "A", including complete and sign a "Declaration Of Inspection" prior to assuming the duties of Person In Charge of the transfer.
- 9. If at any time during the transfer the Person In Charge believes that a situation is occurring or about to occur that will endanger the transfer or is unsafe, he should immediately shut down the transfer and notify Hines Furlong Line office (615-352-6935)

Hines Furlong Line, Inc.
HFL 435 CARGO TRANSFER PROCEDURES

DUTIES OF THE PERSON IN CHARGE: (continued)

LOADING PROCEDURE:

- 1) Ensure that the following valves are in the closed position:
 - a. Pump Suction Valve
 - b. Cargo Pump Vent Valve
 - c. Discharge Valve
- 2) Prior to loading, after the inspector has approved as ready for transfer, ensure that the Load Line and / or Drop Valves, all Cargo Tank Valves are in the open position.
- 3) Begin loading at a slow rate in accordance with the static electricity precautions and the initial transfer rate found on page 17 of these procedures.
- 4) Recheck all connections for leaks.
- 5) Notify the Facility Person In Charge when you are receiving product.
- 6) After you determine that there is no more surface turbulence in a cargo tank and all connections are leak free, the flow rate can be increased to a good flow of product, then recheck all transfer system components.
- 7) After all tanks are receiving a good flow of product, increase the transfer rate slowly to the maximum rate as determined in the Pre-Transfer Conference.
- 8) Monitor the cargo levels in all tanks constantly throughout the transfer and keep them loading uniformly. Be especially aware of the cargo level in the aftermost Port and Starboard tanks (nearest the machinery deck) as these tanks are smaller.
- 9) If the transfer is shut down, the Person In Charge will close the header (presentation) valve at the dock connection. If the transfer is delayed for over one (1) hour, the Person In Charge must contact Hines Furlong Line office: 615-352-6935.

TANDEM LOADING PROCEDURE (two barges breasted up, loading through the same header):

- 1) Three qualified persons are required for cargo transfer: One person on each barge and one person on the dock. The person on the inboard barge shall be the Person In Charge of the transfer. Both Persons In Charge shall have a Merchant Mariner's Credential issued by the U.S. Coast Guard, which is endorsed as Person In Charge for Dangerous Liquid Transfers (Barge).
- 2) Both Vessel Persons In Charge shall conduct an inspection of the barge, transfer system, mooring lines and all elements of the duties listed in section "A", including complete and sign a "Declaration Of Inspection"
- 3) Place a bumper between barges prior to loading to ensure that the rub rails between the barges do not get hung up.
- 4) The procedures identified in "Loading Procedure" above apply to both barges.
- 5) All tank valves should be opened at least seven (7) rounds.
- 6) Normally product will start flowing into the inside barge first. When the flow of product begins to the inside barge, pinch back on the Drop Valve until product begins to flow on the outside barge.
- 7) When the product is flowing to both barges fully open the Drop Valves on both barges.
- 8) Control loading so that the outside barge tops off first (approximately forty-five (45) minutes prior to the inside barge. Follow "Procedures For Topping Off Tanks" (section "C")

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DUTIES OF THE PERSON IN CHARGE:

During Transfer – Tandem Loading: (continued)

- 9) When the outside barge loading is completed, close the outside barge Load Line Valve, all Cargo Tank Valves and Header Valves, including the Header Valve on the inside barge leading to the crossover hose.
- 10) Check all cargo tank levels on the outside barge until the transfer is complete to ensure that cargo levels are not rising.
- 11) Complete loading the inside barge. Follow "Procedures For Topping Off Tanks" (section "C")

C. 155.750(a) (7) PROCEDURES FOR TOPPING OFF TANKS

- 1) The Person In Charge (PIC) of the loading shall not perform other duties simultaneously with the topping off process, as this is a critical stage of the transfer.
 - a. If a watch change falls during the topping off process, both PIC's will be involved in the process. The on-watch PIC shall be in charge of the transfer with the relieving PIC as assistant.
- 2) The Person In Charge (PIC) of the loading will determine cargo compartment(s) and sequences to be used during the topping off procedures. The PIC must consider such factors as cargo compartment size, outage space, cargo amount to be topped off, vessel trim, vessel draft, cargo compartment openings before selecting the cargo compartment to be topped off. The topping off procedure must be done without spillage of any cargo outside the cargo compartment while maintaining proper vessel trim/draft.
- 3) Definite agreement with the Facility PIC concerning the rate of flow for topping off and final shut down must be reached prior to the topping off operation.
- 4) When cargo tanks are nearing the desired loading, regulate the cargo rate using the cargo control valves at each tank and / or slowing the rate of flow from the dock as required. When full capacity load is required, top the appropriate tanks first either from bow to stern or from stern to bow. Advise the Facility Person In Charge approximately 1 hour, 30 minutes, 15 minutes, and 5 minutes prior to completing top off.
- 5) When full capacity load is required, top the appropriate tanks first, either from bow to stern or from stern to bow by pinching down the cargo control valves at each tank that you wish to top off first. When cargo levels reach $\frac{1}{2}$ to $\frac{3}{4}$ of full capacity, start the topping off process.
- 6) Check all cargo tank levels continually when Topping Off. Be especially aware of the cargo level in the aftermost Port and Starboard tanks (nearest the machinery deck) as these tanks are smaller.

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DUTIES OF THE PERSON IN CHARGE:

PROCEDURES FOR TOPPING OFF TANKS (continued)

- 7) Choose the first set of tanks to top off (either bow or stern tanks). When topping off from the stern tanks first, the procedure is as follows, when topping off from the bow tanks first, reverse the procedure:
 - a. Continuously check draft readings throughout the process.
 - b. Ensure the stern tanks' (#3 P&S) cargo control valves are fully opened.
 - c. Decrease the flow rate into the next set of tanks forward (#2P&S).
 - d. Decrease the flow rate into the next set of tanks forward (#1P&S).
 - e. The objective is to top off the stern tanks prior to the #2P&S tank levels reaching 5 ft. from the deck and the #1 P&S tank levels reaching 5 ft. from the deck when the #2 P&S top off.
 - f. When the #3 P&S tank levels are approximately 15 in. from the deck, check the #2P&S tank levels (they should be approximately 5 ft. from the deck) and open the cargo control valves in the #2P&S tanks to prevent back pressure.
 - g. Return to the #3 P&S and regulate the flow by manipulating the cargo control valves and close them tightly when the product reaches 12 in. from the deck or the maximum draft allowed or specified.
 - h. Recheck the #2P&S and #1 P&S tank levels and product flow.
 - i. When the #2 P&S tank levels are approximately 15 in. from the deck, check the #1P&S tank levels (they should be approximately 5 ft. from the deck) and open the cargo control valves in the #1P&S tanks to prevent back pressure.
 - j. Return to the #2 P&S and regulate the flow by manipulating the cargo control valves and close them tightly when the product reaches 12 in. from the deck.
 - k. Return to the #1 P&S and regulate the flow by manipulating the cargo control valves and close them tightly when the product reaches 12 in. from the deck or the maximum draft allowed or specified.
- 8) As each tank is topped off, the compartment and associated control valves should be closed.
- 9) When the required barge draft or tank level is achieved, notify the Facility Person In Charge to shut down the transfer.
- 10) Continually monitor all cargo tanks with visual checks through the sight glasses and stick gauges in all tanks that you have closed to ensure that the levels are not rising. If you detect an increase in the level in any tank that you have closed, shut down the transfer immediately.
- 11) Do not load the tanks so as to exceed the loading restrictions on the Certificate Of Inspection. Adequate room to permit expansion of the product should remain in each tank. In no case should a tank be loaded above 12 in. from the deck (ullage) at the gauge point, unless directed by the Hines Furlong Line Office. Never exceed 98.5% of tank capacity.
- 12) When topping off is complete, close the header valves after confirming with the Facility PIC.
- 13) When the transfer is complete, drain the hoses, close all header valves, close all deck and cargo tank openings and close Vapor Line Stack Valves
- 14) Install a blind secured tool tight on the flanges of all manifolds and hoses using a full set of bolts and proper new gasket.

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DUTIES OF THE PERSON IN CHARGE:

UNLOADING PROCEDURE:

- 1) All elements and the duties listed in section "A "and section "B" apply.
- 2) Ensure that the loading valves on the manifold are tightly closed.
- 3) Ensure that the pump vent valve is closed.
- 4) Check the valves on the opposite (unused) side of the headers to ensure that they are closed and that a blind is secured tool tight on the flange using a full set of bolts and proper gasket. Ensure that all unused header and piping ends have a blind secured tool tight on the flange using a full set of bolts and proper gasket.
- 5) After the inspector has approved the transfer:
 - a. Open the Pump Suction valve.
 - b. Open the Pump Discharge valve.
 - c. Open the Vapor Stack Valve if not under vapor control or vapor balancing.
 - d. Start and warm up the pump drive engine.
- 6) When the facility or receiving unit is ready to receive cargo and the inspector has approved the transfer, open the proper cargo tank, Pump Suction and Pump Discharge valves.
- 7) Engage the pump. Start pumping slowly. Gradually increase the speed until the desired rate is achieved. Recheck all connections for leaks.
- 8) When nearing completion of the discharge, close the cargo control valves in the first (usually #1 P&S) tanks after opening the cargo control valves in the next set of tanks.
- 9) Ensure that the cargo control valves in the next tank to empty are open.
- 10) Open the stripping valves in the first tank and pinch down until the tank is stripped.
- 11) When the tank has been stripped, close the stripping valves.
- 12) Repeat steps #10, #11, #12 & #13 for the remaining tanks.
- 13) When all tanks have been stripped, close all cargo control valves.
- 14) When the transfer is complete and the inspector has gauged the barge tanks, drain the hoses, close all headers, close all deck and cargo tank openings and close Vapor Line Stack Valves
- 15) Install a blind secured tool tight on the flange of all manifolds and hoses using a full set of bolts and proper new gasket.

TANDEM UNLOADING PROCEDURE (two barges breasted up, discharging through the same header):

- 1) Three qualified persons are required for cargo transfer: One person on each barge and one person on the dock. The person on the inboard barge shall be the Person In Charge of the transfer. Both Persons In Charge shall have a Merchant Mariner's Credential issued by the U.S. Coast Guard, which is endorsed as Person In Charge for Dangerous Liquid Transfers (Barge).
- 2) Both Persons In Charge shall conduct an inspection of the barges, transfer systems, mooring lines and all elements of the duties listed in section "A", including complete and sign a "Declaration Of Inspection"

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TANDEM UNLOADING PROCEDURE (continued):

- 3) All appropriate steps for single barge unloading apply.
- 4) Place a bumper between barges prior to loading to ensure that the rub rails between the barges do not get hung up.
- 5) The objective is to synchronize the pumps on both barges so that one does not pump into the other. Although the barges do have check valves, the risk of cargo back flow is possible.
- 6) Ensure that the Header Valve on the outside barge is closed.
- 7) Ensure that the Bleeder Valves on the both barges are closed and capped / plugged tool tight.
- 8) Start the inside barge first.
- 9) When the inside barge is pumping correctly, recheck all connections to ensure they are leak free and confirmed with the Facility PIC that they are receiving cargo, increase the speed of the pump, then recheck all connections to ensure they are leak free.
- 10) Pump a minimum of 5 ft. (from the deck) of cargo from all tanks on the inside barge.
- 11) When the cargo level of inside barge has reached 5 ft. from the deck in all tanks, notify the Facility PIC, stop the discharge from the inside barge and close the Pump Discharge valve.
- 12) Open the Pump Suction Valve, Header Valve, Pump Discharge Valve and Cargo Control Valve in the set of tanks nearest the pump on the outside barge.
- 13) Inform the Facility PIC that the transfer is ready to restart.
- 14) Engage the pump on the outside barge at a slow rate of speed recheck all connections to ensure they are leak free.
- 15) Increase the pump speed on the outside barge to medium speed and IMMEDIATELY confirm that the inside barge is not receiving cargo by communication with the inside barge PIC.
- 16) Pump a minimum of 5 ft. (from the deck) of cargo from all tanks on the outside barge.
- 17) When the cargo level of outside barge has reached 5 ft. from the deck in all tanks, slow the pump to medium speed.
- 18) Open the Pump Discharge Valve and Cargo Control Valve in the set of tanks nearest the pump on the inside barge.
- 19) Start the pump on the inside barge and bring to medium speed and IMMEDIATELY confirm that the inside barge is not receiving cargo from the outside barge.
- 20) When both PIC's have confirmed that both barges are pumping to the Facility and are not pumping into each other, increase the pump speed to the appropriate speed to discharge both barges and recheck all connections to ensure they are leak free.
- 21) When both barge pumps have been synchronized and the maximum RPM's are reached, recheck both barges for vacuum in the cargo tanks with a rag over the ullage opening flame screen.
- 22) Continue the discharge and stripping of both barges as with a single barge unloading.

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POST TRANSFER BLOW BACK PROCEDURE:

- 1) All cargo hatches are to be dogged down tool tight and checked for vapor leaks.
- 2) When the transfer is complete, check to ensure all cargo tank control valves are closed.
 - a. **Single Barge Transfer:** Open the #1P&S Cargo Tank Control Valves and Load Valve slowly (not more than 5 turns) until the line is cleared of cargo.
 - b. **Tandem Barge Transfer:**
 - i. Inside barge: Close all valves except the header valves
 - ii. Outside Barge: Open the Header Valve that is connected to the crossover hose, Loading Drop Valve and #1P&S Cargo Tank Control Valves.
 - c. After the cargo header lines and crossover lines are cleared, check the crossover hose to ensure that all product has been cleared.
 - d. When the PIC is satisfied that the crossover hose is free of product, close the Loading Drop Valve #1P&S Cargo Tank Control Valves and Header Valves.
 - e. Disconnect the dock arm or hose and crossover hose.
 - f. Disconnect the bonding cable.
 - g. Install blinds on the flanges of the dock arm or hose, using a new gasket and a full set of bolts, tool tight.

UPON COMPLETION OF TRANSFER:

- 1) Close and dog down all cargo hatch covers, ullage opening covers and gauge tube plugs.
- 2) Check all cargo control valves to ensure they are tightly closed.
- 3) Disconnect cargo hoses or loading arms from the headers and secure the ends tool tight with a suitable blind flange, new gasket and full set of bolts.
- 4) Check all void tanks for water or product.
- 5) Drip Pans must be empty of water, product, rags, nuts, bolts, etc.
- 6) Oil dry on the deck must be swept up and deposited in a proper container.
- 7) Ensure that the pump is free of grease, rags and oil dry, especially in the vicinity of the packing gland and base.
- 8) Clean up all leaks and drips under the engine, around hatches, ullage points and headers.

D. 155.750(a) (8) PROCEDURES FOR ENSURING VALVES ARE CLOSED

- 1) Close and dog down all cargo hatch covers, ullage opening covers and gauge tube plugs.
- 2) Check all cargo control valves to ensure they are tightly closed.
- 3) Disconnect cargo hoses or loading arms from the headers and secure the ends with a suitable blind flange, new gasket and full set of bolts, tool tight.

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155.750(a) (5) TENDING OF MOORING LINES

Upon boarding the barge, it shall be the responsibility of the Person-in-Charge to check the mooring lines to see that they are in good condition, adequate in number and properly secured. Present and expected conditions of wind, weather, tide, and draft changes due to cargo loading shall be taken into account when checking mooring lines. PIC shall meet all facility mooring requirements of number and size of lines before transferring cargo. A Minimum of six (6) lines shall be used.

Promptly report any frayed or broken mooring lines so that they may be replaced. When shift boats other than Hines Furlong Line or Hunter Marine's boats are used, be sure that they place sufficient lines on the barge before dismissing the shift boat. If for any reason the shift boat refuses to leave sufficient lines, notify the Hines Furlong Line dispatcher immediately.

155.750(a) (6) EMERGENCY SHUTDOWN AND COMMUNICATIONS

Emergency Shut Down:

This vessel is equipped with a pump driven by a diesel engine. In the event of an emergency during unloading operations, the flow of cargo may be stopped by pulling the remote shut down cable located near the center of the barge and marked with a sign or disengaging the gear, whichever is closest. The PIC must verify the shut down operates before each transfer.

The PIC shall discuss emergency shutdown procedures for the vessel or facility prior to the transfer of cargo. This discussion should include:

- 1) Circumstances requiring the transfer to stop immediately,
- 2) Primary and secondary means of communication,
- 3) Valves to be closed, location of the shutdown cable, and other actions to be taken in the event of an emergency,
- 4) How long it will take for the shutdown to take effect (is it immediate or does it take several minutes in order to avoid rupturing lines)

Communications:

Communications shall be established, between the terminal (or vessel) and the barge before the transfer hoses are hooked up. Communications must be maintained until the transfer is complete and hoses are disconnected. PIC must routinely check communication at least every 2 hours. If portable radio devices are used, they must be intrinsically safe and meet the requirements of 46 CFR § 110.15-100(I) Class I, Division I, Group D as defined in 46 CFR § 111.80

If at any time during transfer operations communications are interrupted, STOP ALL TRANSFER OPERATIONS and do not resume until communications have been re-established.

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155.750(a) (9) PROCEDURES FOR REPORTING DISCHARGES OR OIL OR HAZARDOUS MATERIAL

In the event of any irregularities, perceived unsafe conditions or emergencies on board this barge prior to, during or after cargo transfer operations, immediate notice must be given to Hines Furlong Line, Inc. 4017 Hillsboro Pike STE 402 PO Box 150809 Nashville, TN 37215 (615-352-6935)

In the event of a cargo spill into the water immediately notify:

1. The receiving vessel or facility to stop the transfer.
2. U.S. Coast Guard National Response Center **(800) 424-8802**
3. Chem Carriers LLC. Qualified Individual: **225-642-0060**

155.750(a) (10) PROCEDURES FOR CLOSING AND OPENING VESSEL OPENINGS

Only the Person-in-Charge of the transfer, or a person designated by the Person-in-Charge, may open or close any vessel opening that maintains the seaworthy condition of the tank vessel and prevents the inadvertent release of cargo in the event of an accident. All vessel openings must be closed after the cargo transfer is complete.

155.750(a) (11) TRANSFER HOSES

155.750(a) (11) TRANSFER HOSES

If a transfer hose is used it must be marked with the Maximum Allowable Pressure, test date, date of manufacture and the words "OIL SERVICE" or for hazardous cargoes, the name of the product for which it can be used, or the words "HAZMAT SERVICE-SEE LIST" followed immediately by a letter, number or other symbol that corresponds to a list or chart. If the hose product is not specifically marked, then before it is hooked up the PIC must verify the test date and compatible products which can be transferred through the hose. This is done by comparing the hose identification with the list of compatible products. These documents may be found in the mailbox on the barge or the Pilot House of the attending boat. Hoses are to be tested annually in accordance with 33 CFR 156.170.

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STATIC ELECTRICITY PRECAUTIONS

Precautions against static electricity may be necessary when the cargo being transferred is known as an accumulator of static electricity. Clean oils (distillates) are generally accumulators of static electricity. They require precautions at the beginning of transfers. These oils are: natural gasoline, kerosene, white spirits, motor and aviation gasoline, jet fuels, clean diesel oils, heating oils, heavy gas oils, naphtha, and lubricating oils. When any of these products are being transferred these procedures shall be followed:

1. At the beginning of cargo flow into EACH cargo tank the flow rate should not exceed 730 bbls/hr.
2. After you determine that there is no more splashing and surface turbulence in a cargo tank the flow rate can be increased to the maximum allowable transfer rate.
3. During - and for 30 minutes after completing the loading - ullaging and sampling equipment must not be put into the tank. Ropes or lines used to lower equipment into the cargo tank must be only NATURAL fiber-cotton, sisal, hemp or flax. Synthetic line such as nylon must NEVER be used.
4. Operations performed through restricted gauging tubes are permissible at any time during transfer unless not allowed by vapor emission restrictions.
5. If the cargo tank atmosphere is maintained inert no anti-static precautions are necessary.

155.480 (b) (2) OVERFILL DEVICES

Stick Gauge Overfill Devices:

1 Meter stick gauges are located approximately near the center point of each cargo tank. They provide a visual indication of high level and overfill in the cargo tank. Follow these checks before a transfer:

1. Uncap the stick gauges
2. Grasp the gauge firmly and pull it up carefully to the fully raised position.
3. Lower the stick until it engages the float magnet. This will be near at the bottom of the stick's travel. The stick must engage the magnet in each tank in order to begin the transfer.
4. When the cargo in each tank reaches approximately 1-meter ullage, the float and gauge stick will begin to rise. It is important to make sure that the stick continues to rise as the tank fills. This will help provide the best indication of the internal cargo level.
5. The gauge sticks are marked with a green band which extends to the 6 in. before overfill level, followed by a 6 in. yellow band extending to the overfill level. The remainder of the stick is colored red. When loading cargo, the green color on the stick indicates the normal loading of the tank, the yellow indicates near over fill (high level) and the red means a dangerous over fill condition and the compartment cargo valve should be closed immediately.

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SPECIAL OPERATIONS – *Tandem loading operations*

The vapor control system of this barge is acceptable for dual (tandem) loading operations. Tandem loading is limited to simultaneous collection of those cargoes listed in the vessels' Cargo Authority Attachment (CAA) to the barge's Certificate of Inspection (COI), at a maximum vapor-air mixture density of 0.247 lbm/ft³, and a maximum combined liquid transfer rate of 7,000 bbl./hr.

The following additional procedures will apply:

- 1) Read the COI and CAA and verify the following information:
 - a) The product listed on the CAA.
 - b) Tandem loading is authorized by the Facility's Operation Manual
 - c) Continuous communication is maintained between both Persons In Charge and the Person In Charge at the facility. The method selected must be effective during all phases of the transfer.
 - d) Determine any special requirements for topping off (e.g. May the PIC top off the outboard barge while loading the inboard barge continues).
- 2) Comply with standard Cargo Transfer Procedures in this document.
- 3) One Person In Charge (PIC) is required to be on board each barge.
- 4) Use a minimum of six (6) mooring lines with fenders between the barges to absorb any shock in case the barges slam together. The mooring lines must be examined frequently during transfer operations and tended accordingly.
- 5) There shall be no sharp bends in the crossover hoses that would cause undue strain on the connecting flanges.
- 6) The dogs must be removed from hatches where the crossover hose may rest to prevent damage to the hose.
- 7) The hoses must never rest on a drip pan edge.
- 8) If the barges are different sizes, the smaller of the two barges should be the outboard barge

Hines Furlong Line, Inc.
HFL 435 CARGO TRANSFER PROCEDURES

SPECIAL OPERATIONS - Benzene Requirements

(and cargo mixtures containing benzene such as: pyrolysis gasoline, gasoline, cracked naphtha and hardcut reformat)

Federal Regulations (46 CFR 151.50-60) concerning benzene require that the licensed officer, certified PIC or Person-in-Charge of a barge ensure no person on the barge is exposed to an airborne concentration of benzene in excess of one part per million (1 PPM) as an eight-hour time weighted average (TWA) or five parts per million (5 PPM) TWA over any 15-minute period. Since these limits may be exceeded during barge loading, it is Hines Furlong Line's requirement that the following precautions be taken while sampling cargo, connecting or disconnecting a hose, opening a cargo tank, Butterworth hatch, ullage opening, sounding tube or any other opening if the product contains more than 0.5% (1/2 of 1%) benzene:

1. Respirators meeting 29 CFR 1910.134 must be worn. See the specific requirements for the particular operation involved. Cartridges must be changed every eight hours, at the end of a shift, when the wearer experiences "break through", or if they become difficult to breathe with - whichever comes first.
2. Connections, disconnections, or any other operation with the possibility of a splash hazard must be done only by personnel with at full face mask respirator, "splash suit" or slicker jacket, rubber gloves, rubber boots and full-face mask respirator. In addition, if the product contains 50% or more Benzene, the PIC should wear a slicker suit.
3. Post a sign stating:
BENZENE CANCER HAZARD IN THIS AREA
PROTECTIVE EQUIPMENT MAY BE REQUIRED
AUTHORIZED PERSONNEL ONLY
4. Observe safe work practices by remaining upwind of the tanks, pumps, and piping system whenever possible. Use common sense to minimize exposure.
5. Restrict visitor access during the transfer.
6. **LOADING:** When loading products containing more than 0.5% benzene a full-face mask is to be worn during the entire operation. These products are normally loaded using vapor recovery equipment. If the SDS indicates the product contains 5% or more benzene and the customer does not require vapor recovery loading, the PIC shall load the barge closed hatch. All tanks will be vented through the vent stack located near the bow.
7. **DISCHARGING:** When discharging products containing more than 0.5% benzene a full-face mask is to be worn during the entire operation. Products containing more than 0.5% benzene will normally be discharged closed hatch and all tanks will be vented through the vent stack located on the forward end of the barge. Final stripping of the barge may be performed open hatch, **using the installed stripping system**, while the PIC wears the appropriate personal protective equipment with at least a full-face respirator.

Products containing more than 50% Benzene will be discharged closed hatch. All tanks will be vented through the gooseneck vent located on the forward end of the barge. Final stripping of the barge may be performed open hatch, **using the installed stripping system**. However, the PIC performing the stripping must wear a full-face respirator.

8. **STRIPPING OVER THE TOP:** Products containing less than 50% Benzene may be stripped over the top. In order to perform this operation, the PIC must wear a full-face respirator, slicker suit, rubber gloves and rubber boots. This operation must not be performed underway. The barge must be put into a bank, dock or mooring with the boat tied alongside, upwind from the barge.

Barges containing more than 50% benzene, or with possible concentrations of more than 50% benzene, will not be stripped over the top underway. This operation may be performed at a shore side facility if the PIC wears a supplied air respirator, rubber gloves, rubber boots and slicker suit.

Hines Furlong Line, Inc.
HFL 435 CARGO TRANSFER PROCEDURES

SPECIAL OPERATIONS - *Ethylene Dichloride (EDC)*

Ethylene Dichloride (EDC) will be loaded using the Vapor Recovery System. Nitrogen is used to minimize the amount of moisture that comes in contact with cargo. As an added benefit, it reduces the amount of cargo vapors to a minimum. In addition to this precaution and normal cargo loading procedures, the measures listed below will also be taken:

1. Empty tanks will be purged with Nitrogen after every discharge.
2. Once the tanks are loaded, a nitrogen pad will be added on top of the cargo.
3. All hose connections and disconnections will be performed by a PIC wearing the following personal protective equipment:
 - a. Respirator (provided)
 - b. Chemical resistant gloves (provided)
 - c. Rain slicker
 - d. Rubber boots
4. Cargo hoses will be blown back to the barges using nitrogen.
5. Since EDC is heavier than water, barges will be loaded to a **maximum draft** of 10' 6" and tanks will not be full.
6. Wood covers will be provided for drip pans. Pans will be kept covered when not loading cargo.
7. Drip pans will be stripped to the residual tanks **only** when necessary. When stripping, PIC's must wear the protective equipment listed above.
8. The dispatcher will be notified every time stripping is performed since the slops are considered hazardous waste and must be disposed of at an approved facility.
9. **No person shall enter any cargo tank or void of a barge that has been loaded with EDC or purged with Nitrogen until the barge is cleaned and gas-free!**

Hines Furlong Line, Inc.
HFL 435 CARGO TRANSFER PROCEDURES

SPECIAL OPERATIONS - *Hydrogen Sulfide (H₂S)*

Certain products loaded on Hines Furlong Line's barges may contain hydrogen sulfide; this can most easily be determined when checking the Safety Data Sheet during the initial pre-transfer conference. If the PIC suspects that H₂S may be present the following procedures will be followed:

1. Carry a full-face mask respirator and Hydrogen Sulfide monitor on your person, the monitor is set for 10 PPM. The monitor must be worn on the front of your body within one foot of your face; this area is called the "breathing zone."
 - a. Do not place the monitor inside cargo hatches or lower it into tanks. If you do you may burn out the sensor and not get an accurate reading later on.
 - b. The H₂S monitor should be tested daily and before each use.
2. While preparing to commence the transfer take note of wind speed and direction. During the transfer you must be aware of any change, such as a passing vessel blocking the wind.
3. Look for escape routes beforehand. Identify the safe routes that you will follow to get access to the dock or adjoining vessels. If in an escape situation go crosswind from the source of the H₂S exposure.
4. Make sure that the monitor is in place and turned on throughout the transfer, continuously check it.
5. Observe safe work practices by remaining upwind of the tanks, pumps, and piping system whenever possible. Use commonsense to minimize exposure.
6. Restrict visitor access during the transfer.
7. Because H₂S is flammable all ignition sources must be eliminated and No Smoking Rules strictly observed.
8. If the monitor alarm goes off immediately put on your mask and move crosswind until out of the H₂S. Remember that H₂S can kill your sense of smell. In a safe area (one without H₂S) clear the alarm - this should happen automatically as the H₂S level drops - then call Hines Furlong Line office. **If the level rises above 10 PPM STOP THE TRANSFER AND CALL FOR A SHORE PIC.**

Hines Furlong Line, Inc.
HFL 435 CARGO TRANSFER PROCEDURES

USING THE VAPOR RECOVERY SYSTEM

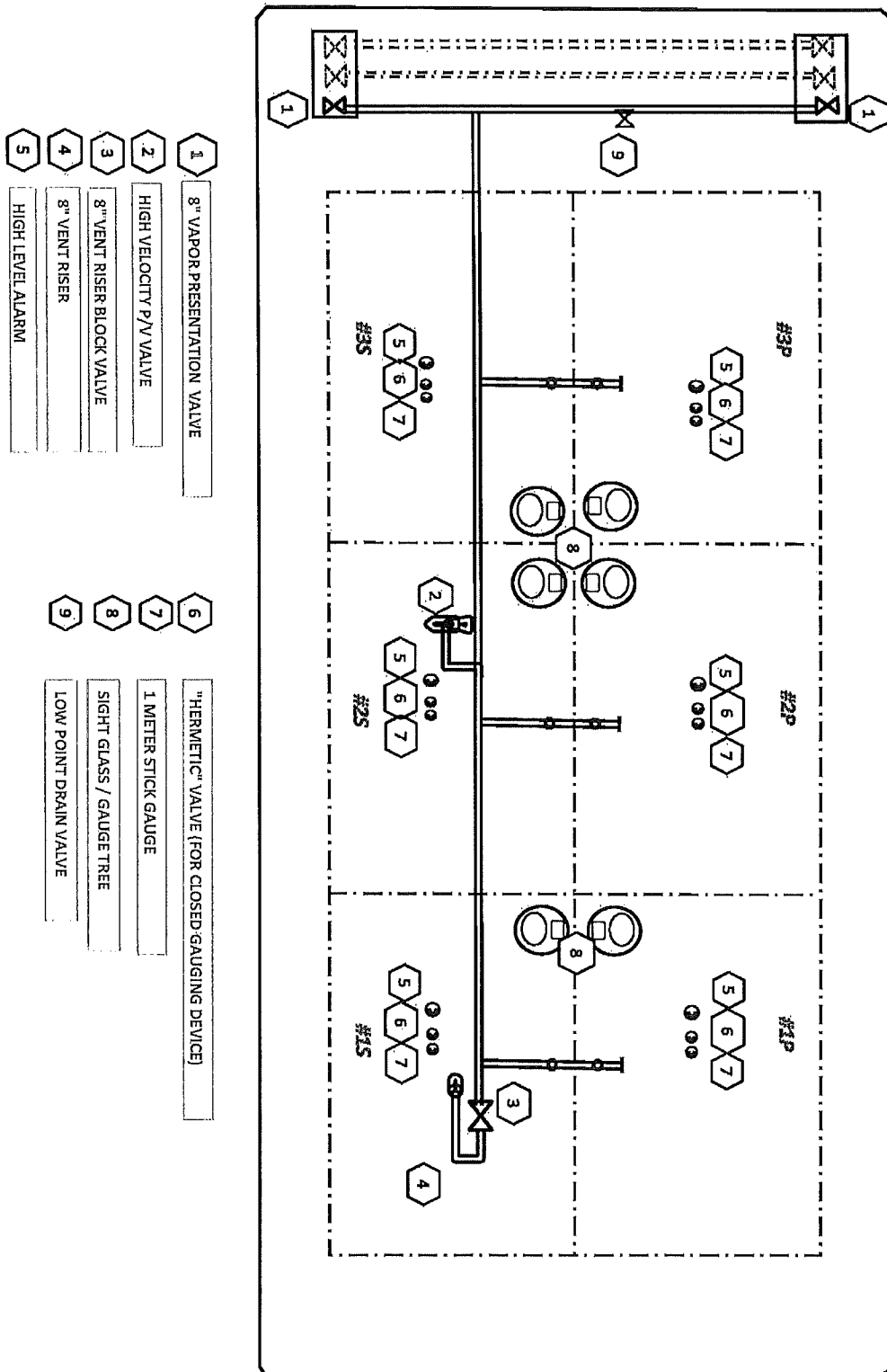
DESCRIPTION:

The vapor recovery system on this vessel consists of the following:

1. An eight-inch longitudinal header with a drop into each cargo tank that joins a transverse header positioned above the cargo headers at the stern.
 - a. The outboard end of each side of the transverse header is equipped with a rising stem gate valve.
 - b. The last 3.3 feet of vapor piping before the vessel vapor connection is painted red/ yellow/ red bands and labeled "VAPOR" for ease of identification in the manner required by federal regulations.
 - c. Each vapor connection flange is equipped with a 0.5-inch diameter, 1-inch long stud to prevent connecting a cargo hose or loading arm to the vapor system.
2. A High Velocity Pressure Vacuum Relief Valve (P/V valve) is mounted on the vapor collection header to provide the required venting when loading. The P/V Valve is set to relieve at +1.5 PSI Pressure and -0.5 PSI Vacuum
3. Each cargo tank is equipped with a high level and overfill alarm sensor. The Overfill alarm set point is at least 60 seconds before the tank is liquid full when loading at the maximum rate. The High-Level alarm set point is at least 120 seconds before the tank is liquid full when loading at the maximum rate. The sensors connect to the facilities alarm system or Portable Alarm Unit (PAU) by a API connection located near the stern
4. Each cargo tank is equipped with a stick gauge overfill warning device. This system consists of a magnetic stick gauge that measures the top 1-meter of the tank.
5. Each cargo tank is equipped with a gauge tree with paddles indicating each 1 ft. increments of tank innage and paddles indicating high level and overfill conditions
6. An ERL, model SGM -1, sight glass is located on each cargo dome in such a position so as to permit viewing both the gauge tree and the sump at the end of the cargo piping.

Hines Furlong Line, Inc.
HFL 435 CARGO TRANSFER PROCEDURES

155.750 (d) (1) VAPOR COLLECTION SYSTEM LINE DIAGRAMS



Hines Furlong Line, Inc.
HFL 435 CARGO TRANSFER PROCEDURES

155.750 (d)(2) LOCATION OF SPILL VALVES

This vessel is not equipped with Spill Valves.

155.750 (d)(6) RELIEF SETTINGS FOR VALVES AND P/Vs

- A. This Barge has a High Velocity Pressure Vacuum Relief Valve mounted on the vapor collection header. The P/V Valve is set to relieve at +1.5 PSI Pressure and -0.5 PSI Vacuum
- B. Each residual product tank is equipped with a 2-1/2" low velocity P/V Valve set to relieve at +1.5 PSI Pressure and -0.5 PSI Vacuum.

155.750 (d)(3) MAXIMUM ALLOWABLE TRANSFER RATE

The vapor collection system installed on this vessel is recommended for a maximum loading rate of 4,900 gallons per minute (7,000 Barrels per hour). However, the maximum loading rate authorized by Hines Furlong Line is 3,500 gallons per minute (5,000 Barrels per hour).

155.750 (d)(4) INITIAL TRANSFER RATES

- 1. The initial flow rate should not exceed 730 bbl./hr. per tank:
- 2. Vessel Person In Charge of the Transfer must monitor pressure/vacuum gauges at the vapor connection to ensure pressure and/or vacuum are normal.

When it has been determined that there is no surface turbulence in a cargo tank and the systems are operating properly, the flow rate can be increased to the maximum allowable transfer rate. 155.750 (d)(5)

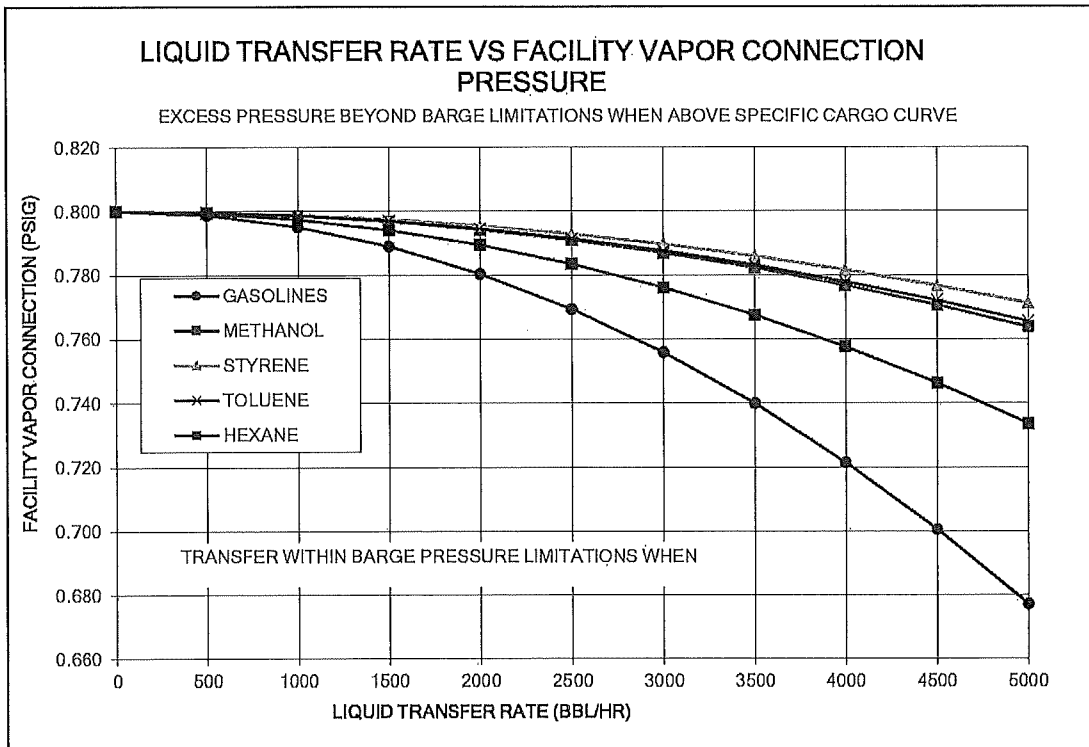
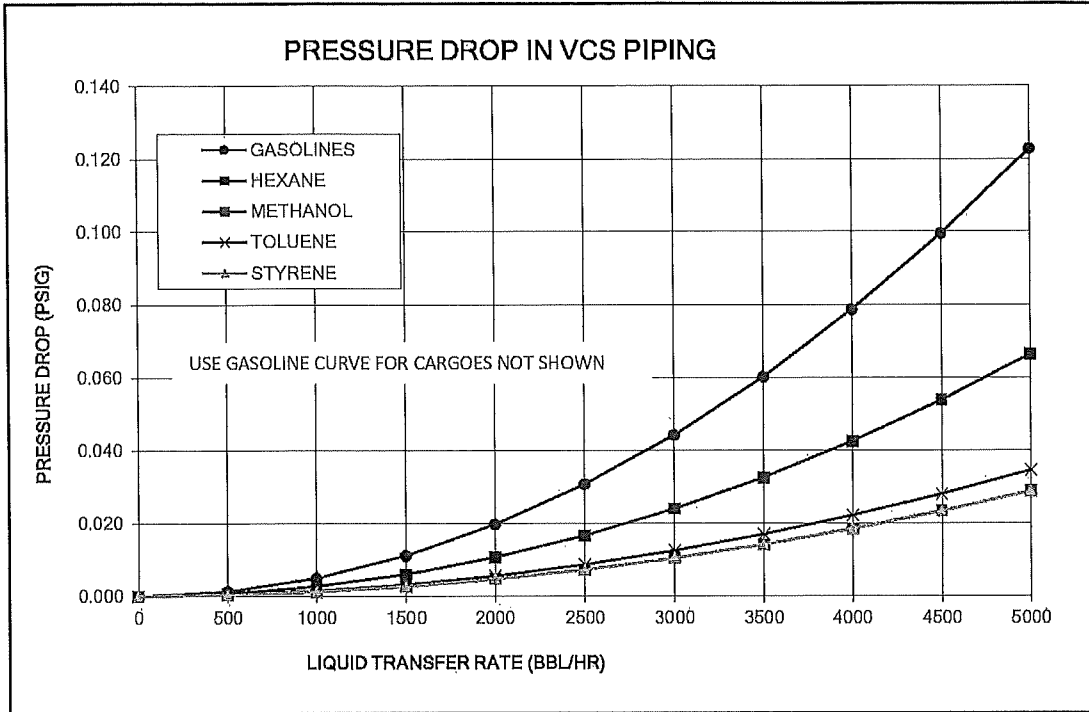
155.750 (d)(5) VAPOR COLLECTION SYSTEM PRESSURE DROP CALCULATIONS

Transfer rates and pressure drop calculations and charts are included in these procedures. The top chart shows the anticipated maximum pressure drop in the vessels piping system for the various cargo transfer rates. The top curve line represents the maximum pressure drop for all cargoes approved for vapor collection on this vessel (gasoline). There are also representative curves for specific cargoes typically carried on Hines Furlong Line's vapor barges.

To read this chart, find the cargo transfer rate on the horizontal chart line, and then read up the chart vertically to the appropriate curve. This point indicates the expected pressure drop from the farthest point in the vapor piping system to the shore vapor connection point. The shore's vapor piping pressure setting should then be reduced by the pressure drop. Under no circumstances should the vessel vapor connection point be greater than 80 percent of the vessel's pressure/vacuum relief valve set point.

The bottom chart can also be used to find pressure drop without the need of calculations. For any given facility vapor connection pressure, the corresponding liquid transfer rate is given... The chart applies to all cargoes listed for vapor recovery on the vessels Certificate of Inspection. It was prepared using the cargo that created the biggest pressure drop in the vapor piping. You must know the facility vapor connection pressure and the liquid flow rate to the barge. Cargo vapor growth rate, cargo vapor specific gravity, and cargo saturated vapor pressure are not required. To read the chart, simply find the facility vapor connection pressure on the left side of the chart and follow the corresponding line across the chart. Then find your anticipated liquid transfer rate on the bottom of the chart, follow the corresponding line up. Any combination of liquid transfer rate and facility vapor connection pressure below the specific cargo curve is within the barge limitations. Any combination of liquid transfer rate and facility connection pressure above the specific cargo curve is in excess of barge limitations.

Hines Furlong Line, Inc.
HFL 435 CARGO TRANSFER PROCEDURES



Hines Furlong Line, Inc.
HFL 435 CARGO TRANSFER PROCEDURES

155.750(c) (7) VAPOR COLLECTION SYSTEM PROCEDURES

Vapors are dispersed and disposed of through hose connections to shore facilities. Vapor hose connections at either side of the transverse header vent vapors to shore during loading operations.

Before a transfer using this vessel's vapor recovery system the following steps must be followed:

1. Check the operation of the P/V valves.
 - a. Operate the handle on the side of the valve to check that mechanism is free and operating properly. Check the operation of both the pressure and vacuum side. Push down the handle to check the vacuum relief and lift the handle to check the pressure relief.
 - b. Check the condition of the flame screen to ensure it is clean and there are no holes or tears.
 - c. If the mechanism is not operating properly, the valve will require dismantling for cleaning or repair.
2. All valves on cargo and vapor line shall be tested for free operation. Any stiff operating valves shall be inspected for damage, failure, or polymerization and repaired prior to transferring vapors.
3. Check to ensure that the vent riser isolation valve is fully closed.
4. Vapor and cargo manifold shall be inspected for polymerization by removing blind flanges and examining the manifold with explosion proof lighting before making cargo and vapor hose connections.
5. Ullages and domes shall be inspected for product polymerization prior to vapor collection. This should be done when personnel exposure is below STEL for the specific cargo to be transferred.
6. Vapor and cargo piping will be visually inspected quarterly. This should be done when personnel exposure is below STEL for the specific cargo to be transferred. If the level is not below the STEL then the inspection will be deferred until the next gas free. If a non-gas free inspection must be made before the next gas free because of suspected polymerization, appropriate steps will be taken to reduce personnel exposure below STEL limits. These steps may include vapor vacuuming, respiratory devices, transparent barriers or other sufficient means.

Annually, the vapor piping will be presented to a Coast Guard Inspector for inspection. Precaution shall be taken to ensure that the personnel exposure is below the STEL. This may be accomplished by providing a gas free certificate, or other means such as vapor vacuuming, transparent barrier, remote camera, etc.

During this inspection, all blinds are to be removed and piping shall be visually inspected for obstructions.

Hines Furlong Line, Inc.
HFL 435 CARGO TRANSFER PROCEDURES

155.750(e) OVERFILL PROTECTIONS SYSTEM

Stick Gauge Overfill Devices:

1 Meter stick gauges are located approximately near the center point of each cargo tank. They provide a visual indication of high level and overfill in the cargo tank. Follow these checks before a transfer:

1. Uncap the stick gauges
2. Grasp the gauge firmly and pull it up carefully to the fully raised position.
3. Lower the stick until it engages the float magnet. This will be near at the bottom of the stick's travel. The stick must engage the magnet in each tank in order to begin the transfer.
4. When the cargo in each tank reaches approximately 1-meter ullage, the float and gauge stick will begin to rise. It is important to make sure that the stick continues to rise as the tank fills. This will help provide the best indication of the internal cargo level.
5. The gauge sticks are marked with a green band which extends to the 6" before overfill level, followed by a 6" yellow band extending to the overfill level. The remainder of the stick is colored red. When loading cargo, the green color on the stick indicates the normal loading of the tank, the yellow indicates near over fill (high level) and the red means a dangerous over fill condition and the compartment cargo valve should be closed immediately.

155.750(e)(1) ALARM SYSTEM

Each cargo tank is equipped with cargo tank High Level/Overfill Shutdown sensors. The High-Level sensors will activate when the product level reaches 96.5 percent of its capacity. This will occur when the product level in the tank is approximately 12" below the deck. The Overflow Shutdown System will activate at 98 percent capacity or 60 seconds before the tank becomes 100% full at the maximum transfer rate. This will occur when the product level in the tank is approximately 6" below the deck. These sensors must be connected to the appropriate system before a visual or audio alarm will activate.

155.750(e)(1) GAUGE TREE

Each cargo tank is equipped with a gauge tree located directly under each sight glass. This tree will indicate the product level while the vessel is being loaded. The top rung of the gauge tree is at deck level. The space between each descending paddle is 12" with the bottom paddle being 6'0" below the deck level. The ladder can also serve as a gauge as the space between each descending rung is 12".

THE ALARM SYSTEM OR GAUGE TREE DOES NOT RELIEVE THE PERSON-IN-CHARGE FROM ANY OF THEIR RESPONSIBILITIES OR DUTIES BUT ARE TO BE USED AS ADDITIONAL SAFEGUARDS ONLY.

Hines Furlong Line, Inc.
HFL 435 CARGO TRANSFER PROCEDURES

155.750 (e)(2) PRE-TRANSFER INSPECTION AND TEST REQUIREMENTS

Before a transfer using this vessel's vapor recovery system the following steps must be followed:

1. All pressure/vacuum valves shall be checked for free operation. The P/V valves should be checked for free operation in the pressure and vacuum settings and the flame screen is clean with no rips or tears.
2. All valves on cargo and vapor line shall be tested for free operation. Any stiff operating valves shall be inspected for damage, failure, or polymerization and repaired prior to transferring vapors.
3. Vapor and cargo manifold shall be inspected for polymerization by removing blind flanges and examining the manifold with explosion proof lighting before making cargo and vapor hose connections.
4. Ullages and domes shall be inspected for product polymerization prior to vapor collection. This should be done when personnel exposure is below STEL for the specific cargo to be transferred.
5. 1 Meter stick gauges are located approximately near the center point of each cargo tank. They provide a visual indication of high level and overfill in the cargo tank. Follow these checks before a transfer:
 - a. Uncap the stick gauges
 - b. Grasp the gauge firmly and pull it up carefully to the fully raised position.
 - c. Lower the stick until it engages the float magnet. This will be near at the bottom of the stick's travel. The stick must engage the magnet in each tank in order to begin the transfer.
 - d. When the cargo in each tank reaches approximately 39 inches Ullage, the float and gauge stick will begin to rise. It is important to make sure that the stick continues to rise as the tank fills. This will help provide the best indication of the internal cargo level.
6. Test the High Level / Overfill Alarm System for proper operation.
7. Connect the system to the terminal alarm system or PAU at the API connection.
8. Activate the alarm on each tank by operating the manual float lifting device until each alarm has activated in both the High level and overfill positions.
9. All sight glasses into cargo tanks shall be inspected to ensure glass is clear and unobstructed. This inspection includes the checking of wipers.
10. The initial loading rate shall be slowed while the Person-in-Charge and shore facility PIC ensure the return of vapors back to the shore facility.
11. Throughout cargo and vapor transfer and especially at the initial loading, the Person In Charge of the Transfer must monitor pressure/vacuum gauges at the vapor connection to ensure pressure and/or vacuum are below the maximum design of the vessel.
12. After discharging cargo and before disconnection of shore line, the vapor header shall be purged of vapors. Manually depress the farthest vapor header pressure relief valve for approximately 1.5 minutes to clear header of all vapors. To equalize atmospheric pressure inside the cargo tanks, depress pressure relief valve.

All points outlined above are part of this vessel's transfer procedures. The declaration of inspection must be reviewed and verified by the Person-in-Charge before starting the transfer.

U.S. Department of
Homeland Security

United States
Coast Guard



Commandant
United States Coast Guard

2703 Martin Luther King Jr. Ave SE
Stop 7516
Washington, DC 20593-7516
Staff Symbol: CG-MER-4 (VRP)
Phone: (202) 372-1005
Fax: (202) 372-8376
Email: vrp@uscg.mil

16460
March 12, 2025

Chem Carriers, L.L.C.
C/O: FOREFRONT EMERGENCY MANAGEMENT, LP
ATTN: ALLIE MARTIN
1730 COTEAU ROAD
HOUMA, LA 70364

Dear Sir or Madam:

Your Shipboard Oil Pollution Emergency Plan (SOPEP), Control Number 56041, for HFL 435 (1236563), has been reviewed and found to be in compliance with the requirements of Regulation 37 of Annex I of the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78).

This approval will remain valid until **March 21, 2030**. You must review your plan annually within one (1) month of the anniversary date of the plan's expiration date and submit a letter to this office certifying that the review has been completed. Any alteration or revision made to the plan, with the exception of those made to the appendices and non-mandatory provisions, must be submitted to this office for review and approval prior to the implementation of the revision. Further, the entire plan must be resubmitted to the Coast Guard for reapproval six (6) months before the end of the approval period of the plan.

I remind you that your plan is a vital working document and that implementing the plan will help ensure effective response and mitigation in the event of an oil pollution incident. Please be sure that all parties with responsibilities under the plan are familiar with the plan's procedures and requirements.

This letter shall be maintained onboard the vessel and placed in the front of the plan.

Sincerely,

CHARRON MCCOMBS

Lieutenant Commander
Acting Chief, Domestic Preparedness & Planning Division
U.S. Coast Guard
By direction

U.S. Department of
Homeland Security

United States
Coast Guard



Commandant
United States Coast Guard

2703 Martin Luther King Jr. Ave SE
Stop 7516
Washington, DC 20593-7516
Staff Symbol: CG-MER-4 (VRP)
Phone: (202) 372-1005
Fax: (202) 372-8376
Email: vrp@uscg.mil

16460
March 12, 2025

Chem Carriers, L.L.C.
C/O: FOREFRONT EMERGENCY MANAGEMENT, LP
ATTN: ALLIE MARTIN
1730 COTEAU ROAD
HOUMA, LA 70364

Dear Sir or Madam:

Your Vessel Response Plan (Control Number 56041), submitted to meet the requirements of Title 33, Code of Federal Regulations (CFR), Part 155, Subparts D and I, is **approved**. Approval will remain valid until **March 21, 2030**.

The HFL 435 (1236563) is authorized to operate only in the ports or geographic areas indicated in the Captain of the Port zones listed below. If carrying oil as cargo, the vessel is prohibited from handling, storing, transporting, transferring, or lightering oil unless it is operating in full compliance with this plan. Compliance includes ensuring that required resources have been identified and planned for or are in place and available through contract or other approved means. If applicable to your routes, this includes the dispersant and aerial observation requirements of 33 CFR 155.1050.

You are reminded that your chosen salvage and marine firefighting resource provider may have submitted waivers from meeting one or more of the specified response times in accordance with 33 CFR 155.4055. If so, this may be rescinded by the U.S. Coast Guard if the appropriate response resources are not available when the approved waiver expires. You shall continue to assess the adequacy of your chosen salvors and firefighters as required by 33 CFR 155.4050.

The vessel must keep a copy of this approval letter onboard in addition to the minimum sections of the plan as required by 33 CFR 155.1030. In accordance with 33 CFR 155.1070, you are required to review your plan annually and submit plan amendments for approval. As per 33 CFR 155.1070(b), the entire plan must be resubmitted for a comprehensive review and approval six (6) months prior to the expiration date.

APPROVED CAPTAIN OF THE PORT ZONES

CORPUS CHRISTI
HOUMA
HOUSTON-GALVESTON

LOWER MISSISSIPPI RIVER OHIO VALLEY
(MEMPHIS)
MOBILE
NEW ORLEANS

UPPER MISSISSIPPI RIVER
(ST. LOUIS)
PORT ARTHUR AND LAKE
CHARLES

Sincerely,



CHARRON MCCOMBS

Lieutenant Commander

Acting Chief, Domestic Preparedness & Planning Division

U.S. Coast Guard

By direction

U.S. Department of
Homeland Security

United States
Coast Guard



Commanding Officer
United States Coast Guard
Marine Safety Center

US Coast Guard Stop 7430
2703 Martin Luther King Jr. Ave. SE
Washington, DC 20593-7430
Staff Symbol: MSC-5
Phone: (202) 795-6729
Email: securityplaninfo@uscg.mil

16710
VS-326893
December 3, 2024

Chem Carriers, LLC
Attn: Robert Banta
1237 Hwy 75
Sunshine, LA 70780
robert@chemcarriers.com

Subj: CHEM CARRIERS, LLC VESSELS
VESSEL SECURITY PLAN APPROVAL WITH AMENDMENTS

Ref: (a) Your correspondence dated November 6, 2024
(b) Title 33 Code of Federal Regulations (CFR) Part 104
(c) MSC Vessel Security Plan Approval letter dated October 16, 2024

Dear Mr. Banta:

We have conducted a review of the Vessel Security Plan (VSP) submitted with reference (a) in accordance with reference (b) and it is **"Approved."**

Your vessel must operate in compliance with this approved VSP and the requirements contained in reference (b). You are reminded to immediately report any deviation from this approved plan to the local Captain of the Port (COTP)/Officer in Charge, Marine Inspection (OCMI).

This approval will remain valid until five years from the date of reference (c) unless rescinded in writing by the local COTP/OCMI. You must review your plan annually and submit any amendments to this office for approval. Please ensure that a copy of the VSP is maintained on board the vessel if manned, or, if unmanned, at a suitable secure location so that it is readily available during an emergency or security incident. You shall make available to the Coast Guard, upon request, this letter, the VSP and any information related to the implementation of the VSP. Our Case Number for this plan is 326893. Please ensure that all future correspondence includes this Case Number.

Sincerely,

K. C. WILLIAMS
Lieutenant Commander, U.S. Coast Guard
Chief, Vessel Security Division
By direction

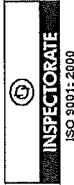
Enclosures: (1) List of Vessel Security Plan Amendments
(2) List of Vessels Covered

List of Vessels Covered

| <u>Vessel Name</u> | <u>Official Number (O.N.)</u> |
|--------------------|-------------------------------|
| CCL-1 | 518612 |
| CCL 2 | 510107 |
| CCL-3 | 296363 |
| CCL 4 | 512519 |
| CCL-5 | 512520 |
| CCL-6 | 530996 |
| CCL7 | 551980 |
| CCL 8 | 551982 |
| CCL 9 | 551983 |
| CCL 10 | 551979 |
| CCL 11 | 551976 |
| CCL 14 | 1164451 |
| CCL 15 | 1164452 |
| CCL 16 | 1164666 |
| CCL 17 | 1166179 |
| CCL 18 | 1168981 |
| CCL 19 | 1168980 |
| CCL 20 | 1191598 |
| CCL 21 | 1191599 |
| CCL 22 | 1191600 |
| CCL 23 | 1191601 |
| CCL 24 | 1196547 |
| CCL 25 | 1196548 |
| CCL 26 | 1203816 |
| CCL 27 | 1203817 |
| CCL 28 | 1212828 |
| CCL 29 | 1212829 |
| CCL 30 | 1305871 |
| CCL 31 | 1305870 |
| CCL 32 | 1305869 |
| CCL 33 | 1305868 |
| CCL 401 | 1216671 |
| CCL 402 | 1219910 |
| CCL 403 | 1231311 |
| CCL 404 | 1231312 |
| CCL 405 | 1236867 |
| CCL 406 | 1236866 |
| CCL 407 | 1246320 |
| CCL 408 | 1246097 |
| CCL 409 | 1246098 |
| CCL 410 | 1255906 |
| CCL 411 | 1255907 |
| CCL 414-L | 1262941 |
| CCL 415-T | 1262942 |

| <u>Vessel Name</u> | <u>Official Number (O.N.)</u> |
|--------------------|-------------------------------|
| CCL 416-T | 1264691 |
| CCL 417 T | 1298307 |
| CCL 418-L | 1306896 |
| CCL 419-L | 1306897 |
| CCL 420-T | 1348560 |
| CCL 421-T | CG1843359 |
| CCL 3202 | 1089031 |
| HFL 413 | 1237482 |
| HFL 415 | 1237483 |
| HFL 435 | 1236563 |
| HFL 605 | 1237484 |

| | | | | | | | | | | | | | |
|---|-------|---------|-------|-------|-------|-------|-------|-------|-------|-------|--------|------------------------|--|
| EMPTY BARGE LINES III | | HFL 435 | | | | | | | | | | REFERENCE: 96189 | |
| TANK BARGE, RIVERS | | | | | | | | | | | | HULL No: 4859 | |
| 297'-6" X 54'-0" X 12'-0" | | | | | | | | | | | | DATE: 01/20/2012 Clean | |
| VESSEL DISPLACEMENT AND CARGO DEADWEIGHT TABLE (FRESH WATER) | | | | | | | | | | | | | |
| | DRAFT | 1 FT. | 2 FT. | 3 FT. | 4 FT. | 5 FT. | 6 FT. | 7 FT. | 8 FT. | 9 FT. | 10 FT. | 11 FT. | |
| DISPLACEMENT | 0 IN | | | 1348 | 1811 | 2280 | 2754 | 3234 | 3717 | 4205 | 4697 | 5193 | |
| DEADWEIGHT | | | 0 | 448 | 911 | 1380 | 1855 | 2334 | 2817 | 3305 | 3797 | 4293 | |
| DISPLACEMENT | 1 IN | | 930 | 1387 | 1850 | 2320 | 2794 | 3274 | 3758 | 4246 | 4738 | 5235 | |
| DEADWEIGHT | | | 30 | 487 | 950 | 1420 | 1894 | 2374 | 2858 | 3346 | 3838 | 4335 | |
| DISPLACEMENT | 2 IN | | 968 | 1425 | 989 | 2359 | 2834 | 3314 | 3798 | 4287 | 4780 | 5276 | |
| DEADWEIGHT | | | 68 | 525 | 970 | 1459 | 1934 | 2414 | 2898 | 3387 | 3880 | 4376 | |
| DISPLACEMENT | 3 IN | | 1006 | 1464 | 1928 | 2398 | 2874 | 3354 | 3839 | 4328 | 4821 | 5318 | |
| DEADWEIGHT | | | 106 | 564 | 1028 | 1498 | 1974 | 2454 | 2939 | 3428 | 3921 | 4418 | |
| DISPLACEMENT | 4 IN | | 1044 | 1502 | 1967 | 2438 | 2914 | 3394 | 3880 | 4369 | 4862 | 5359 | |
| DEADWEIGHT | | | 144 | 602 | 1067 | 1538 | 2014 | 2494 | 2980 | 3469 | 3962 | 4459 | |
| DISPLACEMENT | 5 IN | | 1082 | 1540 | 2006 | 2477 | 2954 | 3435 | 3920 | 4410 | 4903 | 5401 | |
| DEADWEIGHT | | | 182 | 641 | 1106 | 1577 | 2054 | 2535 | 3020 | 3510 | 4003 | 4501 | |
| DISPLACEMENT | 6 IN | | 1120 | 1579 | 2045 | 2517 | 2993 | 3475 | 3961 | 4451 | 4945 | 5442 | |
| DEADWEIGHT | | | 220 | 679 | 1145 | 1617 | 2094 | 2575 | 3061 | 3551 | 4045 | 4542 | |
| DISPLACEMENT | 7 IN | | 1158 | 1618 | 2084 | 2556 | 3033 | 3515 | 4001 | 4492 | 4986 | 5484 | |
| DEADWEIGHT | | | 258 | 718 | 1184 | 1656 | 2133 | 2615 | 3101 | 3592 | 4086 | 4584 | |
| DISPLACEMENT | 8 IN | | 1196 | 1656 | 2123 | 2596 | 3073 | 3556 | 4042 | 4533 | 5027 | 5526 | |
| DEADWEIGHT | | | 296 | 756 | 1223 | 1696 | 2173 | 2656 | 3142 | 3633 | 4127 | 4626 | |
| DISPLACEMENT | 9 IN | | 1234 | 1695 | 2162 | 2635 | 3113 | 3596 | 4083 | 4574 | 5069 | 5568 | |
| DEADWEIGHT | | | 334 | 795 | 1262 | 1735 | 2213 | 2696 | 3183 | 3674 | 4169 | 4668 | |
| DISPLACEMENT | 10 IN | | 1272 | 1734 | 2202 | 2675 | 3154 | 3636 | 4124 | 4615 | 5110 | | |
| DEADWEIGHT | | | 372 | 834 | 1302 | 1775 | 2254 | 2736 | 3224 | 3715 | 4210 | | |
| DISPLACEMENT | 11 IN | | 1310 | 1772 | 2241 | 2715 | 3194 | 3677 | 4164 | 4656 | 5152 | | |
| DEADWEIGHT | | | 410 | 872 | 1341 | 1815 | 2294 | 2777 | 3264 | 3756 | 4252 | | |
| THE DISPLACEMENT AND THE DEADWEIGHT ARE IN SHORT TONS. ONE SHORT TON IS = 2000 POUNDS | | | | | | | | | | | | | |
| THE LIGHTSHIP WEIGHT IS ESTIMATED = 900 S.TONS (LWT) | | | | | | | | | | | | | |



BARGE "HFL-435" **HINES FURLONG LINE**

INNAGE TABLE

1 PORT OR STAR

BARGE SHOULD BE ON EVEN-LEVEL KEEL WHEN GAUGES ARE TAKEN

HULL NO. 4859

| BARGE SHOULD BE ON EVEN-LEVEL KEEL WHEN GAUGES ARE TAKEN | | | | | | | | | | | | | | | | ROLL NO. 7003 | | | | | | | | | | | | | | | |
|--|-------|----------|--------|----------|--------|----------|--------|----------|--------|----------|--------|----------|--------|----------|--------|---------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | 0 FT. | 1 FT. | 2 FT. | 3 FT. | 4 FT. | 5 FT. | 6 FT. | 7 FT. | 8 FT. | 9 FT. | 10 FT. | 11 FT. | 12 FT. | 13 FT. | 14 FT. | | | | | | | | | | | | | | | | |
| IN | 0 | 284.19 | 5 | 997.80 | 0 | 1,713.09 | 0 | 2,428.39 | 0 | 2,786.04 | 0 | 3,501.33 | 0 | 4,216.63 | 0 | | | | | | | | | | | | | | | | |
| OUT | 1.56 | 640.15 | 0 | 1,355.44 | 0 | 2,070.74 | 0 | 2,438.84 | 0 | 2,793.49 | 0 | 3,518.78 | 0 | 4,234.08 | 0 | | | | | | | | | | | | | | | | |
| 1 | 2.84 | 647.60 | 1/4 | 1,362.89 | 1/4 | 2,078.19 | 1/4 | 2,443.84 | 1/4 | 2,793.49 | 1/4 | 3,518.78 | 1/4 | 4,234.08 | 1/4 | | | | | | | | | | | | | | | | |
| 2 | 4.12 | 655.05 | 1/2 | 1,012.25 | 1/2 | 2,085.64 | 1/2 | 2,453.84 | 1/2 | 2,800.94 | 1/2 | 3,518.78 | 1/2 | 4,234.08 | 1/2 | | | | | | | | | | | | | | | | |
| 3 | 5.40 | 662.50 | 3/4 | 1,377.80 | 3/4 | 2,093.09 | 3/4 | 2,450.74 | 3/4 | 2,808.39 | 3/4 | 3,522.68 | 3/4 | 4,238.98 | 3/4 | | | | | | | | | | | | | | | | |
| 4 | 6.68 | 669.95 | 1 | 1,027.60 | 1 | 2,100.54 | 1 | 2,458.19 | 1 | 2,815.84 | 1 | 3,531.14 | 1 | 4,243.48 | 1 | | | | | | | | | | | | | | | | |
| 5 | 7.96 | 677.40 | 1 1/4 | 1,035.05 | 1 1/4 | 2,107.35 | 1 1/4 | 2,465.64 | 1 1/4 | 2,823.29 | 1 1/4 | 3,538.94 | 1 1/4 | 4,248.98 | 1 1/4 | | | | | | | | | | | | | | | | |
| 6 | 9.24 | 684.85 | 1 1/2 | 1,042.50 | 1 1/2 | 2,115.45 | 1 1/2 | 2,473.09 | 1 1/2 | 2,830.74 | 1 1/2 | 3,546.04 | 1 1/2 | 4,254.48 | 1 1/2 | | | | | | | | | | | | | | | | |
| 7 | 10.52 | 692.30 | 1 3/4 | 1,049.95 | 1 3/4 | 2,122.90 | 1 3/4 | 2,480.54 | 1 3/4 | 2,838.19 | 1 3/4 | 3,553.49 | 1 3/4 | 4,259.98 | 1 3/4 | | | | | | | | | | | | | | | | |
| 8 | 11.80 | 699.75 | 2 | 1,057.40 | 2 | 2,130.35 | 2 | 2,488.09 | 2 | 2,845.64 | 2 | 3,560.94 | 2 | 4,265.48 | 2 | | | | | | | | | | | | | | | | |
| 9 | 13.08 | 707.20 | 2 1/4 | 1,064.85 | 2 1/4 | 2,137.80 | 2 1/4 | 2,495.45 | 2 1/4 | 2,853.09 | 2 1/4 | 3,568.39 | 2 1/4 | 4,270.98 | 2 1/4 | | | | | | | | | | | | | | | | |
| 10 | 14.36 | 714.65 | 2 1/2 | 1,072.31 | 2 1/2 | 2,145.25 | 2 1/2 | 2,502.90 | 2 1/2 | 2,860.54 | 2 1/2 | 3,575.84 | 2 1/2 | 4,276.48 | 2 1/2 | | | | | | | | | | | | | | | | |
| 11 | 15.64 | 722.11 | 3 | 1,079.76 | 3 | 2,152.70 | 3 | 2,510.35 | 3 | 2,868.09 | 3 | 3,583.29 | 3 | 4,281.98 | 3 | | | | | | | | | | | | | | | | |
| 12 | 16.92 | 729.56 | 3 1/4 | 1,087.21 | 3 1/4 | 2,160.15 | 3 1/4 | 2,517.80 | 3 1/4 | 2,875.54 | 3 1/4 | 3,590.74 | 3 1/4 | 4,287.48 | 3 1/4 | | | | | | | | | | | | | | | | |
| 13 | 18.20 | 737.01 | 3 1/2 | 1,094.66 | 3 1/2 | 2,167.60 | 3 1/2 | 2,525.25 | 3 1/2 | 2,882.90 | 3 1/2 | 3,598.19 | 3 1/2 | 4,292.98 | 3 1/2 | | | | | | | | | | | | | | | | |
| 14 | 19.48 | 744.46 | 3 3/4 | 1,102.11 | 3 3/4 | 2,175.05 | 3 3/4 | 2,532.70 | 3 3/4 | 2,890.35 | 3 3/4 | 3,605.64 | 3 3/4 | 4,298.48 | 3 3/4 | | | | | | | | | | | | | | | | |
| 15 | 20.76 | 751.91 | 4 | 1,109.56 | 4 | 2,182.50 | 4 | 2,540.15 | 4 | 2,897.80 | 4 | 3,613.09 | 4 | 4,303.98 | 4 | | | | | | | | | | | | | | | | |
| 16 | 22.04 | 759.36 | 4 1/4 | 1,117.01 | 4 1/4 | 2,189.95 | 4 1/4 | 2,547.60 | 4 1/4 | 2,905.25 | 4 1/4 | 3,620.54 | 4 1/4 | 4,309.48 | 4 1/4 | | | | | | | | | | | | | | | | |
| 17 | 23.32 | 766.81 | 4 1/2 | 1,124.46 | 4 1/2 | 2,197.41 | 4 1/2 | 2,555.05 | 4 1/2 | 2,912.70 | 4 1/2 | 3,628.00 | 4 1/2 | 4,314.98 | 4 1/2 | | | | | | | | | | | | | | | | |
| 18 | 24.60 | 774.27 | 4 3/4 | 1,131.91 | 4 3/4 | 2,204.86 | 4 3/4 | 2,562.51 | 4 3/4 | 2,920.15 | 4 3/4 | 3,635.45 | 4 3/4 | 4,320.48 | 4 3/4 | | | | | | | | | | | | | | | | |
| 19 | 25.88 | 781.72 | 5 | 1,139.36 | 5 | 2,212.31 | 5 | 2,569.96 | 5 | 2,927.60 | 5 | 3,642.90 | 5 | 4,325.98 | 5 | | | | | | | | | | | | | | | | |
| 20 | 27.16 | 789.17 | 5 1/4 | 1,146.82 | 5 1/4 | 2,219.76 | 5 1/4 | 2,577.41 | 5 1/4 | 2,935.06 | 5 1/4 | 3,650.35 | 5 1/4 | 4,331.48 | 5 1/4 | | | | | | | | | | | | | | | | |
| 21 | 28.44 | 796.62 | 5 1/2 | 1,154.27 | 5 1/2 | 2,227.21 | 5 1/2 | 2,584.86 | 5 1/2 | 2,942.51 | 5 1/2 | 3,657.80 | 5 1/2 | 4,336.98 | 5 1/2 | | | | | | | | | | | | | | | | |
| 22 | 29.72 | 804.07 | 5 3/4 | 1,161.72 | 5 3/4 | 2,234.66 | 5 3/4 | 2,592.31 | 5 3/4 | 2,949.96 | 5 3/4 | 3,665.25 | 5 3/4 | 4,342.48 | 5 3/4 | | | | | | | | | | | | | | | | |
| 23 | 31.00 | 811.52 | 6 | 1,169.17 | 6 | 2,242.11 | 6 | 2,599.76 | 6 | 2,957.41 | 6 | 3,672.70 | 6 | 4,347.98 | 6 | | | | | | | | | | | | | | | | |
| 24 | 32.28 | 818.97 | 6 1/4 | 1,176.62 | 6 1/4 | 2,249.56 | 6 1/4 | 2,607.21 | 6 1/4 | 2,964.86 | 6 1/4 | 3,680.15 | 6 1/4 | 4,353.48 | 6 1/4 | | | | | | | | | | | | | | | | |
| 25 | 33.56 | 826.42 | 6 1/2 | 1,184.07 | 6 1/2 | 2,257.01 | 6 1/2 | 2,614.66 | 6 1/2 | 2,972.31 | 6 1/2 | 3,687.60 | 6 1/2 | 4,358.98 | 6 1/2 | | | | | | | | | | | | | | | | |
| 26 | 34.84 | 833.87 | 6 3/4 | 1,191.52 | 6 3/4 | 2,264.46 | 6 3/4 | 2,621.51 | 6 3/4 | 2,979.76 | 6 3/4 | 3,695.05 | 6 3/4 | 4,364.48 | 6 3/4 | | | | | | | | | | | | | | | | |
| 27 | 36.12 | 841.32 | 7 | 1,198.97 | 7 | 2,271.91 | 7 | 2,628.96 | 7 | 2,987.21 | 7 | 3,702.50 | 7 | 4,369.98 | 7 | | | | | | | | | | | | | | | | |
| 28 | 37.40 | 848.77 | 7 1/4 | 1,206.42 | 7 1/4 | 2,279.36 | 7 1/4 | 2,636.41 | 7 1/4 | 3,002.11 | 7 1/4 | 3,709.95 | 7 1/4 | 4,375.48 | 7 1/4 | | | | | | | | | | | | | | | | |
| 29 | 38.68 | 856.22 | 7 1/2 | 1,213.87 | 7 1/2 | 2,286.82 | 7 1/2 | 2,644.47 | 7 1/2 | 3,009.57 | 7 1/2 | 3,717.41 | 7 1/2 | 4,380.98 | 7 1/2 | | | | | | | | | | | | | | | | |
| 30 | 39.96 | 863.67 | 7 3/4 | 1,221.33 | 7 3/4 | 2,294.27 | 7 3/4 | 2,651.92 | 7 3/4 | 3,017.02 | 7 3/4 | 3,724.86 | 7 3/4 | 4,386.48 | 7 3/4 | | | | | | | | | | | | | | | | |
| 31 | 41.24 | 871.12 | 8 | 1,228.78 | 8 | 2,301.72 | 8 | 2,659.37 | 8 | 3,024.47 | 8 | 3,732.31 | 8 | 4,391.98 | 8 | | | | | | | | | | | | | | | | |
| 32 | 42.52 | 878.57 | 8 1/4 | 1,236.23 | 8 1/4 | 2,309.17 | 8 1/4 | 2,666.82 | 8 1/4 | 3,031.92 | 8 1/4 | 3,739.76 | 8 1/4 | 4,397.48 | 8 1/4 | | | | | | | | | | | | | | | | |
| 33 | 43.80 | 886.02 | 8 1/2 | 1,243.68 | 8 1/2 | 2,316.62 | 8 1/2 | 2,674.27 | 8 1/2 | 3,031.92 | 8 1/2 | 3,747.21 | 8 1/2 | 4,402.98 | 8 1/2 | | | | | | | | | | | | | | | | |
| 34 | 45.08 | 893.47 | 8 3/4 | 1,251.13 | 8 3/4 | 2,324.07 | 8 3/4 | 2,681.72 | 8 3/4 | 3,039.37 | 8 3/4 | 3,754.67 | 8 3/4 | 4,408.48 | 8 3/4 | | | | | | | | | | | | | | | | |
| 35 | 46.36 | 900.92 | 9 | 1,258.58 | 9 | 2,331.52 | 9 | 2,689.17 | 9 | 3,046.82 | 9 | 3,762.12 | 9 | 4,413.98 | 9 | | | | | | | | | | | | | | | | |
| 36 | 47.64 | 908.37 | 9 1/4 | 1,266.03 | 9 1/4 | 2,338.97 | 9 1/4 | 2,696.62 | 9 1/4 | 3,054.27 | 9 1/4 | 3,769.57 | 9 1/4 | 4,419.48 | 9 1/4 | | | | | | | | | | | | | | | | |
| 37 | 48.92 | 915.82 | 9 1/2 | 1,273.48 | 9 1/2 | 2,346.43 | 9 1/2 | 2,704.07 | 9 1/2 | 3,061.72 | 9 1/2 | 3,777.02 | 9 1/2 | 4,424.98 | 9 1/2 | | | | | | | | | | | | | | | | |
| 38 | 50.20 | 923.27 | 9 3/4 | 1,280.93 | 9 3/4 | 2,353.88 | 9 3/4 | 2,711.53 | 9 3/4 | 3,069.17 | 9 3/4 | 3,784.47 | 9 3/4 | 4,430.48 | 9 3/4 | | | | | | | | | | | | | | | | |
| 39 | 51.48 | 930.72 | 10 | 1,288.38 | 10 | 2,361.33 | 10 | 2,718.98 | 10 | 3,076.62 | 10 | 3,791.92 | 10 | 4,435.98 | 10 | | | | | | | | | | | | | | | | |
| 40 | 52.76 | 938.17 | 10 1/4 | 1,295.84 | 10 1/4 | 2,368.78 | 10 1/4 | 2,726.43 | 10 1/4 | 3,084.08 | 10 1/4 | 3,799.37 | 10 1/4 | 4,441.48 | 10 1/4 | | | | | | | | | | | | | | | | |
| 41 | 54.04 | 945.62 | 10 1/2 | 1,303.29 | 10 1/2 | 2,376.23 | 10 1/2 | 2,733.88 | 10 1/2 | 3,091.53 | 10 1/2 | 3,806.82 | 10 1/2 | 4,446.98 | 10 1/2 | | | | | | | | | | | | | | | | |
| 42 | 55.32 | 953.07 | 10 3/4 | 1,310.74 | 10 3/4 | 2,383.68 | 10 3/4 | 2,741.73 | 10 3/4 | 3,098.98 | 10 3/4 | 3,814.27 | 10 3/4 | 4,452.48 | 10 3/4 | | | | | | | | | | | | | | | | |
| 43 | 56.60 | 960.52 | 11 | 1,318.19 | 11 | 2,391.13 | 11 | 2,749.18 | 11 | 3,106.43 | 11 | 3,821.72 | 11 | 4,457.98 | 11 | | | | | | | | | | | | | | | | |
| 44 | 57.88 | 967.97 | 11 1/4 | 1,325.64 | 11 1/4 | 2,398.58 | 11 1/4 | 2,756.63 | 11 1/4 | 3,113.88 | 11 1/4 | 3,829.17 | 11 1/4 | 4,463.48 | 11 1/4 | | | | | | | | | | | | | | | | |
| 45 | 59.16 | 975.42 | 11 1/2 | 1,333.09 | 11 1/2 | 2,406.03 | 11 1/2 | 2,764.08 | 11 1/2 | 3,121.33 | 11 1/2 | 3,836.63 | 11 1/2 | 4,468.98 | 11 1/2 | | | | | | | | | | | | | | | | |
| 46 | 60.44 | 982.87 | 11 3/4 | 1,340.54 | 11 3/4 | 2,413.49 | 11 3/4 | 2,771.53 | 11 3/4 | 3,128.78 | 11 3/4 | 3,844.08 | 11 3/4 | 4,474.48 | 11 3/4 | | | | | | | | | | | | | | | | |
| 47 | 61.72 | 990.32 | 12 | 1,347.99 | 12 | 2,420.94 | 12 | 2,778.98 | 12 | 3,136.23 | 12 | 3,851.53 | 12 | 4,479.98 | 12 | | | | | | | | | | | | | | | | |
| 48 | 63.00 | 997.77 | 12 1/4 | 1,355.44 | 12 1/4 | 2,428.39 | 12 1/4 | 2,786.33 | 12 1/4 | 3,143.68 | 12 1/4 | 3,858.98 | 12 1/4 | 4,485.48 | 12 1/4 | | | | | | | | | | | | | | | | |
| 49 | 64.28 | 1,005.22 | 12 1/2 | 1,362.89 | 12 1/2 | 2,435.84 | 12 1/2 | 2,793.78 | 12 1/2 | 3,151.13 | 12 1/2 | 3,866.43 | 12 1/2 | 4,490.98 | 12 1/2 | | | | | | | | | | | | | | | | |
| 50 | 65.56 | 1,012.67 | 12 3/4 | 1,370.35 | 12 3/4 | 2,443.29 | 12 3/4 | 2,800.23 | 12 3/4 | 3,158.58 | 12 3/4 | 3,873.88 | 12 3/4 | 4,496.48 | 12 3/4 | | | | | | | | | | | | | | | | |
| 51 | 66.84 | 1,020.12 | 13 | 1,377.80 | 13 | 2,450.74 | 13 | 2,807.68 | 13 | 3,166.04 | 13 | 3,881.33 | 13 | 4,501.98 | 13 | | | | | | | | | | | | | | | | |
| 52 | 68.12 | 1,027.57 | 13 1/4 | 1,385.25 | 13 1/4 | 2,458.19 | 13 1/4 | 2,815.13 | 13 1/4 | 3,173.49 | 13 1/4 | 3,888.78 | 13 1/4 | 4,507.48 | 13 1/4 | | | | | | | | | | | | | | | | |
| 53 | 69.40 | 1,035.02 | 13 1/2 | 1,392.70 | 13 1/2 | 2,465.64 | 13 1/2 | 2,822.58 | 13 1/2 | 3,180.94 | 13 1/2 | 3,896.23 | 13 1/2 | 4,512.98 | 13 1/2 | | | | | | | | | | | | | | | | |
| 54 | 70.68 | 1,042.47 | 13 3/4 | 1,400.15 | 13 3/4 | 2,473.09 | 13 3/4 | 2,830.03 | 13 3/4 | 3,188.39 | 13 3/4 | 3,903.68 | 13 3/4 | 4,518.48 | 13 3/4 | | | | | | | | | | | | | | | | |
| 55 | 71.96 | 1,049.92 | 14 | 1,407.60 | 14 | 2,480.54 | 14 | 2,837.48 | 14 | 3,195.84 | 14 | 3,911.13 | 14 | 4,523.98 | 14 | | | | | | | | | | | | | | | | |
| 56 | 73.24 | 1,057.37 | 14 1/4 | 1,415.05 | 14 1/4 | 2,488.09 | 14 1/4 | 2,844.93 | 14 1/4 | 3,203.29 | 14 1/4 | 3,918.58 | 14 1/4 | 4,529.48 | 14 1/4 | | | | | | | | | | | | | | | | |
| 57 | 74.52 | 1,064.82 | 14 1/2 | 1,422.50 | 14 1/2 | 2,495.45 | 14 1/2 | 2,852.38 | 14 1/2 | 3,210.74 | 14 1/2 | 3,926.03 | 14 1/2 | 4,534.98 | 14 1/2 | | | | | | | | | | | | | | | | |
| 58 | 75.80 | 1,072.27 | 14 3/4 | 1,430.00 | 14 3/4 | 2,502.90 | 14 3/4 | 2,859.83 | 14 3/4 | 3,218.19 | 14 3/4 | 3,933.48 | 14 3/4 | 4,540.48 | 14 3/4 | | | | | | | | | | | | | | | | |
| 59 | 77.08 | 1,079.72 | 15 | 1,437.45 | 15 | 2,510.35 | 15 | 2,867.28 | 15 | 3,225.64 | 15 | 3,940.93 | 15 | 4,545.98 | 15 | | | | | | | | | | | | | | | | |
| 60 | 78.36 | 1,087.17 | 15 1/4 | 1,444.90 | 15 1/4 | 2,517.80 | 15 1/4 | 2,874.73 | 15 1/4 | 3,233.09 | 15 1/4 | 3,948.38 | 15 1/4 | 4,551.48 | 15 1/4 | | | | | | | | | | | | | | | | |
| 61 | 79.64 | 1,094.62 | 15 1/2 | 1,452.35 | 15 1/2 | 2,525.25 | 15 1/2 | 2,882.18 | 15 1/2 | 3,240.54 | 15 1/2 | 3,955.83 | 15 1/2 | 4 | | | | | | | | | | | | | | | | | |



BARGE "HFL-435" **HINES FURLONG LINE** **INNAGE TABLE**

2 PORT OR STAR

HULL NO. 4859

BARGE SHOULD BE ON EVEN-LEVEL KEEL WHEN GAUGES ARE TAKEN

| BARGE SHOULD BE ON EVEN-LEVEL KEEL WHEN GAUGES ARE TAKEN | | | | | | | | | | | | | | | | | | | | | | | | | | | TOLL-ROADS | | | | | | | | | |
|--|-------|----|--------|-----|--------|----|----------|----|----------|----|----------|----|----------|----|----------|----|----------|----|----------|----|----------|----|----------|----|----------|----|------------|----|----------|----|--|--|--|--|--|--|
| IN | 0 FT. | IN | 1 FT. | IN | 2 FT. | IN | 3 FT. | IN | 4 FT. | IN | 5 FT. | IN | 6 FT. | IN | 7 FT. | IN | 8 FT. | IN | 9 FT. | IN | 10 FT. | IN | 11 FT. | IN | 12 FT. | IN | 13 FT. | IN | 14 FT. | | | | | | | |
| 0 | 1.30 | 0 | 301.58 | 0 | 661.91 | 0 | 1,022.25 | 0 | 1,382.59 | 0 | 1,742.92 | 0 | 2,103.26 | 0 | 2,463.59 | 0 | 2,823.93 | 0 | 3,184.26 | 0 | 3,544.60 | 0 | 3,904.94 | 0 | 4,265.27 | 0 | 4,625.61 | 0 | 4,985.95 | 0 | | | | | | |
| 1 | 2.33 | 1 | 315.59 | 1 | 676.92 | 1 | 1,037.26 | 1 | 1,390.09 | 1 | 1,750.43 | 1 | 2,110.76 | 1 | 2,471.10 | 1 | 2,831.43 | 1 | 3,191.77 | 1 | 3,552.11 | 1 | 3,912.44 | 1 | 4,272.78 | 1 | 4,633.11 | 1 | 4,993.45 | 1 | | | | | | |
| 2 | 3.36 | 2 | 324.10 | 2 | 684.43 | 2 | 1,044.77 | 2 | 1,405.10 | 2 | 1,765.44 | 2 | 2,125.78 | 2 | 2,486.11 | 2 | 2,846.45 | 2 | 3,206.78 | 2 | 3,567.12 | 2 | 3,927.46 | 2 | 4,287.79 | 2 | 4,648.13 | 2 | 5,008.47 | 2 | | | | | | |
| 3 | 4.39 | 3 | 331.60 | 3 | 691.94 | 3 | 1,052.28 | 3 | 1,412.61 | 3 | 1,772.95 | 3 | 2,133.28 | 3 | 2,493.62 | 3 | 2,853.96 | 3 | 3,214.29 | 3 | 3,574.63 | 3 | 3,934.96 | 3 | 4,295.30 | 3 | 4,655.63 | 3 | 5,016.97 | 3 | | | | | | |
| 4 | 5.42 | 4 | 339.11 | 4 | 699.45 | 4 | 1,059.78 | 4 | 1,420.12 | 4 | 1,780.45 | 4 | 2,140.79 | 4 | 2,501.13 | 4 | 2,861.46 | 4 | 3,221.80 | 4 | 3,582.13 | 4 | 3,942.47 | 4 | 4,302.80 | 4 | 4,663.14 | 4 | 5,024.51 | 4 | | | | | | |
| 5 | 6.45 | 5 | 346.62 | 5 | 706.95 | 5 | 1,067.29 | 5 | 1,427.63 | 5 | 1,787.96 | 5 | 2,148.30 | 5 | 2,508.63 | 5 | 2,868.97 | 5 | 3,229.31 | 5 | 3,589.64 | 5 | 3,949.97 | 5 | 4,310.31 | 5 | 4,670.65 | 5 | 5,032.16 | 5 | | | | | | |
| 6 | 7.48 | 6 | 354.12 | 6 | 714.46 | 6 | 1,074.80 | 6 | 1,435.13 | 6 | 1,795.47 | 6 | 2,155.80 | 6 | 2,516.14 | 6 | 2,876.48 | 6 | 3,236.81 | 6 | 3,597.15 | 6 | 3,957.48 | 6 | 4,317.82 | 6 | 4,678.16 | 6 | 5,039.81 | 6 | | | | | | |
| 7 | 8.51 | 7 | 361.63 | 7 | 721.97 | 7 | 1,082.30 | 7 | 1,442.64 | 7 | 1,802.98 | 7 | 2,163.31 | 7 | 2,523.65 | 7 | 2,883.98 | 7 | 3,244.32 | 7 | 3,604.65 | 7 | 3,964.98 | 7 | 4,325.32 | 7 | 4,685.66 | 7 | 5,046.31 | 7 | | | | | | |
| 8 | 9.54 | 8 | 369.14 | 8 | 729.47 | 8 | 1,089.81 | 8 | 1,450.15 | 8 | 1,810.48 | 8 | 2,170.82 | 8 | 2,531.15 | 8 | 2,891.48 | 8 | 3,251.81 | 8 | 3,612.14 | 8 | 3,972.47 | 8 | 4,332.80 | 8 | 4,693.14 | 8 | 5,052.94 | 8 | | | | | | |
| 9 | 10.57 | 9 | 376.65 | 9 | 736.98 | 9 | 1,097.32 | 9 | 1,457.66 | 9 | 1,817.99 | 9 | 2,178.33 | 9 | 2,538.66 | 9 | 2,898.99 | 9 | 3,259.32 | 9 | 3,619.65 | 9 | 3,980.98 | 9 | 4,340.31 | 9 | 4,700.65 | 9 | 5,059.51 | 9 | | | | | | |
| 10 | 11.60 | 10 | 384.15 | 10 | 744.49 | 10 | 1,104.82 | 10 | 1,465.16 | 10 | 1,825.50 | 10 | 2,185.65 | 10 | 2,545.98 | 10 | 2,906.31 | 10 | 3,266.64 | 10 | 3,626.97 | 10 | 3,987.30 | 10 | 4,347.63 | 10 | 4,707.97 | 10 | 5,066.08 | 10 | | | | | | |
| 11 | 12.63 | 11 | 391.66 | 11 | 751.99 | 11 | 1,112.33 | 11 | 1,472.67 | 11 | 1,833.00 | 11 | 2,193.34 | 11 | 2,553.67 | 11 | 2,913.99 | 11 | 3,274.32 | 11 | 3,634.65 | 11 | 3,995.98 | 11 | 4,355.32 | 11 | 4,715.66 | 11 | 5,073.65 | 11 | | | | | | |
| 12 | 13.66 | 12 | 399.17 | 12 | 759.50 | 12 | 1,119.84 | 12 | 1,480.17 | 12 | 1,840.51 | 12 | 2,198.35 | 12 | 2,558.68 | 12 | 2,918.33 | 12 | 3,284.66 | 12 | 3,644.99 | 12 | 3,997.51 | 12 | 4,366.65 | 12 | 4,726.99 | 12 | 5,084.07 | 12 | | | | | | |
| 13 | 14.69 | 13 | 406.67 | 13 | 767.01 | 13 | 1,127.35 | 13 | 1,487.68 | 13 | 1,848.02 | 13 | 2,203.35 | 13 | 2,563.68 | 13 | 2,923.02 | 13 | 3,291.33 | 13 | 3,647.66 | 13 | 3,997.51 | 13 | 4,370.32 | 13 | 4,730.66 | 13 | 5,091.14 | 13 | | | | | | |
| 14 | 15.72 | 14 | 414.18 | 14 | 774.52 | 14 | 1,134.85 | 14 | 1,495.19 | 14 | 1,858.52 | 14 | 2,208.35 | 14 | 2,568.68 | 14 | 2,933.02 | 14 | 3,291.33 | 14 | 3,647.66 | 14 | 4,006.32 | 14 | 4,380.32 | 14 | 4,738.00 | 14 | 5,098.49 | 14 | | | | | | |
| 15 | 16.75 | 15 | 421.69 | 15 | 782.03 | 15 | 1,142.36 | 15 | 1,502.70 | 15 | 1,865.03 | 15 | 2,213.35 | 15 | 2,573.68 | 15 | 2,938.02 | 15 | 3,291.33 | 15 | 3,647.66 | 15 | 4,013.99 | 15 | 4,387.00 | 15 | 4,745.00 | 15 | 5,106.90 | 15 | | | | | | |
| 16 | 17.78 | 16 | 429.20 | 16 | 789.54 | 16 | 1,149.87 | 16 | 1,510.20 | 16 | 1,872.54 | 16 | 2,218.35 | 16 | 2,578.68 | 16 | 2,943.02 | 16 | 3,291.33 | 16 | 3,647.66 | 16 | 4,021.32 | 16 | 4,395.32 | 16 | 4,753.00 | 16 | 5,114.02 | 16 | | | | | | |
| 17 | 18.81 | 17 | 436.71 | 17 | 797.05 | 17 | 1,157.37 | 17 | 1,517.71 | 17 | 1,878.05 | 17 | 2,223.35 | 17 | 2,583.68 | 17 | 2,948.02 | 17 | 3,291.33 | 17 | 3,647.66 | 17 | 4,028.99 | 17 | 4,400.32 | 17 | 4,758.00 | 17 | 5,121.61 | 17 | | | | | | |
| 18 | 19.84 | 18 | 444.22 | 18 | 804.56 | 18 | 1,164.88 | 18 | 1,525.22 | 18 | 1,882.03 | 18 | 2,228.35 | 18 | 2,588.68 | 18 | 2,953.02 | 18 | 3,291.33 | 18 | 3,647.66 | 18 | 4,033.99 | 18 | 4,405.32 | 18 | 4,763.00 | 18 | 5,128.18 | 18 | | | | | | |
| 19 | 20.87 | 19 | 451.73 | 19 | 812.07 | 19 | 1,172.39 | 19 | 1,532.72 | 19 | 1,889.54 | 19 | 2,233.35 | 19 | 2,593.68 | 19 | 2,958.02 | 19 | 3,291.33 | 19 | 3,647.66 | 19 | 4,038.99 | 19 | 4,410.32 | 19 | 4,768.00 | 19 | 5,134.75 | 19 | | | | | | |
| 20 | 21.90 | 20 | 459.24 | 20 | 819.57 | 20 | 1,179.89 | 20 | 1,540.22 | 20 | 1,897.05 | 20 | 2,238.35 | 20 | 2,598.68 | 20 | 2,963.02 | 20 | 3,291.33 | 20 | 3,647.66 | 20 | 4,043.99 | 20 | 4,415.32 | 20 | 4,773.00 | 20 | 5,141.32 | 20 | | | | | | |
| 21 | 22.93 | 21 | 466.75 | 21 | 827.08 | 21 | 1,187.40 | 21 | 1,547.74 | 21 | 1,904.56 | 21 | 2,243.35 | 21 | 2,603.68 | 21 | 2,968.02 | 21 | 3,291.33 | 21 | 3,647.66 | 21 | 4,048.99 | 21 | 4,420.32 | 21 | 4,778.00 | 21 | 5,147.89 | 21 | | | | | | |
| 22 | 23.96 | 22 | 474.24 | 22 | 834.57 | 22 | 1,194.91 | 22 | 1,555.22 | 22 | 1,912.07 | 22 | 2,248.35 | 22 | 2,608.68 | 22 | 2,973.02 | 22 | 3,291.33 | 22 | 3,647.66 | 22 | 4,053.99 | 22 | 4,425.32 | 22 | 4,783.00 | 22 | 5,154.46 | 22 | | | | | | |
| 23 | 24.99 | 23 | 481.74 | 23 | 842.08 | 23 | 1,202.42 | 23 | 1,562.72 | 23 | 1,919.58 | 23 | 2,253.35 | 23 | 2,613.68 | 23 | 2,978.02 | 23 | 3,291.33 | 23 | 3,647.66 | 23 | 4,058.99 | 23 | 4,430.32 | 23 | 4,788.00 | 23 | 5,161.03 | 23 | | | | | | |
| 24 | 26.02 | 24 | 489.25 | 24 | 849.59 | 24 | 1,209.92 | 24 | 1,570.22 | 24 | 1,927.09 | 24 | 2,258.35 | 24 | 2,618.68 | 24 | 2,983.02 | 24 | 3,291.33 | 24 | 3,647.66 | 24 | 4,063.99 | 24 | 4,435.32 | 24 | 4,793.00 | 24 | 5,167.60 | 24 | | | | | | |
| 25 | 27.05 | 25 | 496.76 | 25 | 857.09 | 25 | 1,217.43 | 25 | 1,577.77 | 25 | 1,934.60 | 25 | 2,263.35 | 25 | 2,623.68 | 25 | 2,988.02 | 25 | 3,291.33 | 25 | 3,647.66 | 25 | 4,068.99 | 25 | 4,440.32 | 25 | 4,798.00 | 25 | 5,174.17 | 25 | | | | | | |
| 26 | 28.08 | 26 | 504.26 | 26 | 864.60 | 26 | 1,224.94 | 26 | 1,585.22 | 26 | 1,942.11 | 26 | 2,268.35 | 26 | 2,628.68 | 26 | 2,993.02 | 26 | 3,291.33 | 26 | 3,647.66 | 26 | 4,073.99 | 26 | 4,445.32 | 26 | 4,803.00 | 26 | 5,180.74 | 26 | | | | | | |
| 27 | 29.11 | 27 | 511.77 | 27 | 872.11 | 27 | 1,232.44 | 27 | 1,592.78 | 27 | 1,949.62 | 27 | 2,273.35 | 27 | 2,633.68 | 27 | 2,998.02 | 27 | 3,291.33 | 27 | 3,647.66 | 27 | 4,078.99 | 27 | 4,450.32 | 27 | 4,808.00 | 27 | 5,187.31 | 27 | | | | | | |
| 28 | 30.14 | 28 | 519.28 | 28 | 879.61 | 28 | 1,239.95 | 28 | 1,600.22 | 28 | 1,957.13 | 28 | 2,278.35 | 28 | 2,638.68 | 28 | 3,003.02 | 28 | 3,291.33 | 28 | 3,647.66 | 28 | 4,083.99 | 28 | 4,455.32 | 28 | 4,813.00 | 28 | 5,193.88 | 28 | | | | | | |
| 29 | 31.17 | 29 | 526.79 | 29 | 887.12 | 29 | 1,247.46 | 29 | 1,607.79 | 29 | 1,964.64 | 29 | 2,283.35 | 29 | 2,643.68 | 29 | 3,008.02 | 29 | 3,291.33 | 29 | 3,647.66 | 29 | 4,088.99 | 29 | 4,460.32 | 29 | 4,818.00 | 29 | 5,200.45 | 29 | | | | | | |
| 30 | 32.20 | 30 | 534.29 | 30 | 894.63 | 30 | 1,254.96 | 30 | 1,615.30 | 30 | 1,972.15 | 30 | 2,288.35 | 30 | 2,648.68 | 30 | 3,013.02 | 30 | 3,291.33 | 30 | 3,647.66 | 30 | 4,093.99 | 30 | 4,465.32 | 30 | 4,823.00 | 30 | 5,207.02 | 30 | | | | | | |
| 31 | 33.23 | 31 | 541.80 | 31 | 902.13 | 31 | 1,262.47 | 31 | 1,623.81 | 31 | 1,979.65 | 31 | 2,293.35 | 31 | 2,653.68 | 31 | 3,018.02 | 31 | 3,291.33 | 31 | 3,647.66 | 31 | 4,098.99 | 31 | 4,470.32 | 31 | 4,828.00 | 31 | 5,213.59 | 31 | | | | | | |
| 32 | 34.26 | 32 | 549.31 | 32 | 909.64 | 32 | 1,269.98 | 32 | 1,630.31 | 32 | 1,987.16 | 32 | 2,298.35 | 32 | 2,658.68 | 32 | 3,023.02 | 32 | 3,291.33 | 32 | 3,647.66 | 32 | 4,103.99 | 32 | 4,475.32 | 32 | 4,833.00 | 32 | 5,220.16 | 32 | | | | | | |
| 33 | 35.29 | 33 | 556.82 | 33 | 917.15 | 33 | 1,277.48 | 33 | 1,637.82 | 33 | 1,994.67 | 33 | 2,303.35 | 33 | 2,663.68 | 33 | 3,028.02 | 33 | 3,291.33 | 33 | 3,647.66 | 33 | 4,108.99 | 33 | 4,480.32 | 33 | 4,838.00 | 33 | 5,226.73 | 33 | | | | | | |
| 34 | 36.32 | 34 | 564.32 | 34 | 924.66 | 34 | 1,284.99 | 34 | 1,645.33 | 34 | 1,999.68 | 34 | 2,308.35 | 34 | 2,668.68 | 34 | 3,033.02 | 34 | 3,291.33 | 34 | 3,647.66 | 34 | 4,113.99 | 34 | 4,485.32 | 34 | 4,843.00 | 34 | 5,233.30 | 34 | | | | | | |
| 35 | 37.35 | 35 | 571.83 | 35 | 932.16 | 35 | 1,292.50 | 35 | 1,652.84 | 35 | 2,007.19 | 35 | 2,313.35 | 35 | 2,673.68 | 35 | 3,038.02 | 35 | 3,291.33 | 35 | 3,647.66 | 35 | 4,118.99 | 35 | 4,490.32 | 35 | 4,848.00 | 35 | 5,239.87 | 35 | | | | | | |
| 36 | 38.38 | 36 | 579.33 | 363 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

INNAGE TABLE

INNAGE TABLE

WILLIAM J. NO. 4850

BARGE SHOULD BE ON EVENT, EVEN WHEN GAUGES ARE TAKEN

CAPACITIES GIVEN IN BARRELS OF 42 U.S. GALLONS

REFERENCE GAUGE HEIGHT: 17'-4 1/2" (TO RIM OF 2" DIAMETER BALL VALVE)

WE CERTIFY ALL MEASUREMENTS AND COMPUTATIONS ARE IN ACCORDANCE WITH APPLICABLE API STANDARDS AND ARE TRUE AND CORRECT TO THE BEST OF OUR KNOWLEDGE

INSPECTORATE AMERICA CORPORATION



BARGE "HFL-435" HINES FURLONG LINE

INNAGE TABLE

1 PORT OR STAR

HULL NO. 4559

BARGE SHOULD BE ON EVEN-LEVEL KEEL WHEN GAUGES ARE TAKEN

| BARGE SHOULD BE ON EVEN LEVEL KEEL WHEN GAUGES ARE TAKEN | | | | | | | | | | | | | | | | TOLL IN 1900 | | | | | | | | | | | | | | | |
|--|-------|--------|--------|--------|----------|--------|----------|--------|----------|--------|----------|--------|----------|--------|----------|--------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| IN | 0 FT. | 1 FT. | 2 FT. | 3 FT. | 4 FT. | 5 FT. | 6 FT. | 7 FT. | 8 FT. | 9 FT. | 10 FT. | 11 FT. | 12 FT. | 13 FT. | 14 FT. | | | | | | | | | | | | | | | | |
| IN | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | | | | | | | | | | | | | | | | |
| 0 | 1.56 | 0 | 284.19 | 0 | 997.80 | 0 | 1,713.09 | 0 | 2,428.39 | 0 | 3,143.69 | 0 | 3,858.98 | 0 | 4,574.28 | | | | | | | | | | | | | | | | |
| 1 | 2.84 | 1/4 | 291.39 | 1/4 | 647.60 | 1/4 | 1,720.54 | 1/4 | 2,435.84 | 1/4 | 3,151.13 | 1/4 | 3,866.43 | 1/4 | 4,581.73 | | | | | | | | | | | | | | | | |
| 2 | 4.12 | 1/2 | 298.60 | 1/2 | 655.05 | 1/2 | 1,727.99 | 1/2 | 2,443.29 | 1/2 | 3,158.59 | 1/2 | 3,873.88 | 1/2 | 4,588.83 | | | | | | | | | | | | | | | | |
| 3 | 5.40 | 3/4 | 305.80 | 3/4 | 662.50 | 3/4 | 1,735.44 | 3/4 | 2,450.74 | 3/4 | 3,166.04 | 3/4 | 3,881.33 | 3/4 | 4,594.28 | | | | | | | | | | | | | | | | |
| 4 | 6.68 | 1 | 313.00 | 1 | 669.95 | 1 | 1,742.90 | 1 | 2,458.19 | 1 | 3,173.49 | 1 | 3,888.78 | 1 | 4,601.73 | | | | | | | | | | | | | | | | |
| 5 | 7.96 | 1 1/4 | 320.21 | 1 1/4 | 677.40 | 1 1/4 | 1,750.35 | 1 1/4 | 2,465.64 | 1 1/4 | 3,180.94 | 1 1/4 | 3,903.65 | 1 1/4 | 4,608.18 | | | | | | | | | | | | | | | | |
| 6 | 9.24 | 1 1/2 | 327.41 | 1 1/2 | 684.85 | 1 1/2 | 1,757.80 | 1 1/2 | 2,473.09 | 1 1/2 | 3,188.99 | 1 1/2 | 3,913.69 | 1 1/2 | 4,615.63 | | | | | | | | | | | | | | | | |
| 7 | 10.52 | 1 3/4 | 334.62 | 1 3/4 | 692.30 | 1 3/4 | 1,765.25 | 1 3/4 | 2,480.34 | 1 3/4 | 3,196.39 | 1 3/4 | 3,925.94 | 1 3/4 | 4,623.08 | | | | | | | | | | | | | | | | |
| 8 | 11.80 | 2 | 341.83 | 2 | 699.76 | 2 | 1,772.70 | 2 | 2,487.59 | 2 | 3,203.79 | 2 | 3,933.39 | 2 | 4,630.53 | | | | | | | | | | | | | | | | |
| 9 | 13.08 | 2 1/4 | 349.27 | 2 1/4 | 707.21 | 2 1/4 | 1,780.15 | 2 1/4 | 2,494.84 | 2 1/4 | 3,210.74 | 2 1/4 | 3,940.84 | 2 1/4 | 4,637.98 | | | | | | | | | | | | | | | | |
| 10 | 14.36 | 2 1/2 | 356.60 | 2 1/2 | 714.66 | 2 1/2 | 1,787.60 | 2 1/2 | 2,502.09 | 2 1/2 | 3,218.19 | 2 1/2 | 3,948.29 | 2 1/2 | 4,645.43 | | | | | | | | | | | | | | | | |
| 11 | 15.64 | 2 3/4 | 363.93 | 2 3/4 | 722.11 | 2 3/4 | 1,795.05 | 2 3/4 | 2,509.34 | 2 3/4 | 3,225.64 | 2 3/4 | 3,955.74 | 2 3/4 | 4,652.88 | | | | | | | | | | | | | | | | |
| 12 | 16.92 | 3 | 371.26 | 3 | 729.56 | 3 | 1,802.50 | 3 | 2,516.59 | 3 | 3,233.09 | 3 | 3,963.19 | 3 | 4,660.33 | | | | | | | | | | | | | | | | |
| 13 | 18.20 | 3 1/4 | 378.59 | 3 1/4 | 737.01 | 3 1/4 | 1,809.95 | 3 1/4 | 2,523.84 | 3 1/4 | 3,240.54 | 3 1/4 | 3,970.64 | 3 1/4 | 4,667.78 | | | | | | | | | | | | | | | | |
| 14 | 19.48 | 3 1/2 | 385.92 | 3 1/2 | 744.46 | 3 1/2 | 1,817.40 | 3 1/2 | 2,531.29 | 3 1/2 | 3,248.09 | 3 1/2 | 3,978.09 | 3 1/2 | 4,675.23 | | | | | | | | | | | | | | | | |
| 15 | 20.76 | 3 3/4 | 393.25 | 3 3/4 | 751.91 | 3 3/4 | 1,824.85 | 3 3/4 | 2,538.74 | 3 3/4 | 3,255.64 | 3 3/4 | 3,985.54 | 3 3/4 | 4,682.68 | | | | | | | | | | | | | | | | |
| 16 | 22.04 | 4 | 400.58 | 4 | 759.36 | 4 | 1,832.30 | 4 | 2,546.19 | 4 | 3,263.09 | 4 | 3,993.09 | 4 | 4,690.13 | | | | | | | | | | | | | | | | |
| 17 | 23.32 | 4 1/4 | 407.91 | 4 1/4 | 766.81 | 4 1/4 | 1,839.75 | 4 1/4 | 2,553.64 | 4 1/4 | 3,270.54 | 4 1/4 | 4,000.54 | 4 1/4 | 4,697.58 | | | | | | | | | | | | | | | | |
| 18 | 24.60 | 4 1/2 | 415.24 | 4 1/2 | 774.27 | 4 1/2 | 1,847.20 | 4 1/2 | 2,561.09 | 4 1/2 | 3,277.99 | 4 1/2 | 4,008.09 | 4 1/2 | 4,705.03 | | | | | | | | | | | | | | | | |
| 19 | 25.88 | 4 3/4 | 422.57 | 4 3/4 | 781.72 | 4 3/4 | 1,854.65 | 4 3/4 | 2,568.54 | 4 3/4 | 3,285.44 | 4 3/4 | 4,015.54 | 4 3/4 | 4,712.48 | | | | | | | | | | | | | | | | |
| 20 | 27.16 | 5 | 430.00 | 5 | 789.17 | 5 | 1,862.10 | 5 | 2,575.99 | 5 | 3,292.89 | 5 | 4,023.09 | 5 | 4,719.93 | | | | | | | | | | | | | | | | |
| 21 | 28.44 | 5 1/4 | 437.43 | 5 1/4 | 796.62 | 5 1/4 | 1,869.55 | 5 1/4 | 2,583.44 | 5 1/4 | 3,300.34 | 5 1/4 | 4,030.54 | 5 1/4 | 4,727.38 | | | | | | | | | | | | | | | | |
| 22 | 29.72 | 5 1/2 | 444.86 | 5 1/2 | 804.07 | 5 1/2 | 1,877.00 | 5 1/2 | 2,590.89 | 5 1/2 | 3,307.79 | 5 1/2 | 4,038.09 | 5 1/2 | 4,734.83 | | | | | | | | | | | | | | | | |
| 23 | 31.00 | 5 3/4 | 452.29 | 5 3/4 | 811.52 | 5 3/4 | 1,884.45 | 5 3/4 | 2,598.34 | 5 3/4 | 3,315.24 | 5 3/4 | 4,045.54 | 5 3/4 | 4,742.28 | | | | | | | | | | | | | | | | |
| 24 | 32.28 | 6 | 460.00 | 6 | 818.97 | 6 | 1,891.90 | 6 | 2,605.79 | 6 | 3,322.69 | 6 | 4,053.09 | 6 | 4,749.73 | | | | | | | | | | | | | | | | |
| 25 | 33.56 | 6 1/4 | 467.43 | 6 1/4 | 826.42 | 6 1/4 | 1,899.35 | 6 1/4 | 2,613.24 | 6 1/4 | 3,330.14 | 6 1/4 | 4,060.54 | 6 1/4 | 4,757.18 | | | | | | | | | | | | | | | | |
| 26 | 34.84 | 6 1/2 | 474.86 | 6 1/2 | 833.87 | 6 1/2 | 1,906.80 | 6 1/2 | 2,620.69 | 6 1/2 | 3,337.59 | 6 1/2 | 4,068.09 | 6 1/2 | 4,764.63 | | | | | | | | | | | | | | | | |
| 27 | 36.12 | 6 3/4 | 482.29 | 6 3/4 | 841.32 | 6 3/4 | 1,914.25 | 6 3/4 | 2,628.14 | 6 3/4 | 3,345.04 | 6 3/4 | 4,075.54 | 6 3/4 | 4,772.08 | | | | | | | | | | | | | | | | |
| 28 | 37.40 | 7 | 490.00 | 7 | 848.77 | 7 | 1,921.70 | 7 | 2,635.59 | 7 | 3,352.49 | 7 | 4,083.09 | 7 | 4,779.53 | | | | | | | | | | | | | | | | |
| 29 | 38.68 | 7 1/4 | 497.43 | 7 1/4 | 856.22 | 7 1/4 | 1,929.15 | 7 1/4 | 2,643.04 | 7 1/4 | 3,359.94 | 7 1/4 | 4,090.54 | 7 1/4 | 4,786.98 | | | | | | | | | | | | | | | | |
| 30 | 39.96 | 7 1/2 | 504.86 | 7 1/2 | 863.67 | 7 1/2 | 1,936.60 | 7 1/2 | 2,650.49 | 7 1/2 | 3,367.39 | 7 1/2 | 4,098.09 | 7 1/2 | 4,794.43 | | | | | | | | | | | | | | | | |
| 31 | 41.24 | 7 3/4 | 512.29 | 7 3/4 | 871.12 | 7 3/4 | 1,944.05 | 7 3/4 | 2,657.94 | 7 3/4 | 3,374.84 | 7 3/4 | 4,105.54 | 7 3/4 | 4,801.88 | | | | | | | | | | | | | | | | |
| 32 | 42.52 | 8 | 520.00 | 8 | 878.57 | 8 | 1,951.50 | 8 | 2,665.39 | 8 | 3,382.29 | 8 | 4,113.09 | 8 | 4,809.33 | | | | | | | | | | | | | | | | |
| 33 | 43.80 | 8 1/4 | 527.43 | 8 1/4 | 886.02 | 8 1/4 | 1,958.95 | 8 1/4 | 2,672.84 | 8 1/4 | 3,389.74 | 8 1/4 | 4,120.54 | 8 1/4 | 4,816.78 | | | | | | | | | | | | | | | | |
| 34 | 45.08 | 8 1/2 | 534.86 | 8 1/2 | 893.47 | 8 1/2 | 1,966.40 | 8 1/2 | 2,680.29 | 8 1/2 | 3,397.19 | 8 1/2 | 4,128.09 | 8 1/2 | 4,824.23 | | | | | | | | | | | | | | | | |
| 35 | 46.36 | 8 3/4 | 542.29 | 8 3/4 | 900.92 | 8 3/4 | 1,973.85 | 8 3/4 | 2,687.74 | 8 3/4 | 3,404.64 | 8 3/4 | 4,135.54 | 8 3/4 | 4,831.68 | | | | | | | | | | | | | | | | |
| 36 | 47.64 | 9 | 550.00 | 9 | 908.37 | 9 | 1,981.30 | 9 | 2,695.19 | 9 | 3,412.09 | 9 | 4,143.09 | 9 | 4,839.13 | | | | | | | | | | | | | | | | |
| 37 | 48.92 | 9 1/4 | 557.43 | 9 1/4 | 915.82 | 9 1/4 | 1,988.75 | 9 1/4 | 2,702.64 | 9 1/4 | 3,419.54 | 9 1/4 | 4,150.54 | 9 1/4 | 4,846.58 | | | | | | | | | | | | | | | | |
| 38 | 50.20 | 9 1/2 | 564.86 | 9 1/2 | 923.27 | 9 1/2 | 1,996.20 | 9 1/2 | 2,710.09 | 9 1/2 | 3,426.99 | 9 1/2 | 4,158.09 | 9 1/2 | 4,854.03 | | | | | | | | | | | | | | | | |
| 39 | 51.48 | 9 3/4 | 572.29 | 9 3/4 | 930.72 | 9 3/4 | 2,003.65 | 9 3/4 | 2,717.54 | 9 3/4 | 3,434.44 | 9 3/4 | 4,165.54 | 9 3/4 | 4,861.48 | | | | | | | | | | | | | | | | |
| 40 | 52.76 | 10 | 580.00 | 10 | 938.17 | 10 | 2,011.10 | 10 | 2,724.99 | 10 | 3,441.89 | 10 | 4,173.09 | 10 | 4,868.93 | | | | | | | | | | | | | | | | |
| 41 | 54.04 | 10 1/4 | 587.43 | 10 1/4 | 945.62 | 10 1/4 | 2,018.55 | 10 1/4 | 2,732.44 | 10 1/4 | 3,449.34 | 10 1/4 | 4,180.54 | 10 1/4 | 4,876.38 | | | | | | | | | | | | | | | | |
| 42 | 55.32 | 10 1/2 | 594.86 | 10 1/2 | 953.07 | 10 1/2 | 2,026.00 | 10 1/2 | 2,739.89 | 10 1/2 | 3,456.79 | 10 1/2 | 4,188.09 | 10 1/2 | 4,883.83 | | | | | | | | | | | | | | | | |
| 43 | 56.60 | 10 3/4 | 602.29 | 10 3/4 | 960.52 | 10 3/4 | 2,033.45 | 10 3/4 | 2,747.34 | 10 3/4 | 3,464.24 | 10 3/4 | 4,195.54 | 10 3/4 | 4,891.28 | | | | | | | | | | | | | | | | |
| 44 | 57.88 | 11 | 610.00 | 11 | 967.97 | 11 | 2,040.90 | 11 | 2,754.79 | 11 | 3,471.69 | 11 | 4,203.09 | 11 | 4,898.73 | | | | | | | | | | | | | | | | |
| 45 | 59.16 | 11 1/4 | 617.43 | 11 1/4 | 975.44 | 11 1/4 | 2,048.35 | 11 1/4 | 2,762.24 | 11 1/4 | 3,479.14 | 11 1/4 | 4,210.54 | 11 1/4 | 4,906.18 | | | | | | | | | | | | | | | | |
| 46 | 60.44 | 11 1/2 | 624.86 | 11 1/2 | 982.89 | 11 1/2 | 2,055.80 | 11 1/2 | 2,769.69 | 11 1/2 | 3,486.59 | 11 1/2 | 4,218.09 | 11 1/2 | 4,913.63 | | | | | | | | | | | | | | | | |
| 47 | 61.72 | 11 3/4 | 632.29 | 11 3/4 | 990.34 | 11 3/4 | 2,063.25 | 11 3/4 | 2,777.14 | 11 3/4 | 3,494.04 | 11 3/4 | 4,225.54 | 11 3/4 | 4,921.08 | | | | | | | | | | | | | | | | |
| 48 | 63.00 | 12 | 640.00 | 12 | 997.79 | 12 | 2,070.70 | 12 | 2,784.59 | 12 | 3,501.49 | 12 | 4,233.09 | 12 | 4,928.53 | | | | | | | | | | | | | | | | |
| 49 | 64.28 | 12 1/4 | 647.43 | 12 1/4 | 1,005.24 | 12 1/4 | 2,078.15 | 12 1/4 | 2,792.04 | 12 1/4 | 3,508.94 | 12 1/4 | 4,240.54 | 12 1/4 | 4,935.98 | | | | | | | | | | | | | | | | |
| 50 | 65.56 | 12 1/2 | 654.86 | 12 1/2 | 1,012.69 | 12 1/2 | 2,085.60 | 12 1/2 | 2,799.49 | 12 1/2 | 3,516.39 | 12 1/2 | 4,248.09 | 12 1/2 | 4,943.43 | | | | | | | | | | | | | | | | |
| 51 | 66.84 | 12 3/4 | 662.29 | 12 3/4 | 1,020.14 | 12 3/4 | 2,093.05 | 12 3/4 | 2,806.94 | 12 3/4 | 3,523.84 | 12 3/4 | 4,255.54 | 12 3/4 | 4,950.88 | | | | | | | | | | | | | | | | |
| 52 | 68.12 | 13 | 670.00 | 13 | 1,027.59 | 13 | 2,100.50 | 13 | 2,814.39 | 13 | 3,531.29 | 13 | 4,263.09 | 13 | 4,958.33 | | | | | | | | | | | | | | | | |
| 53 | 69.40 | 13 1/4 | 677.43 | 13 1/4 | 1,035.04 | 13 1/4 | 2,107.95 | 13 1/4 | 2,821.84 | 13 1/4 | 3,538.74 | 13 1/4 | 4,270.54 | 13 1/4 | 4,965.78 | | | | | | | | | | | | | | | | |
| 54 | 70.68 | 13 1/2 | 684.86 | 13 1/2 | 1,042.49 | 13 1/2 | 2,115.40 | 13 1/2 | 2,829.29 | 13 1/2 | 3,546.19 | 13 1/2 | 4,278.09 | 13 1/2 | 4,973.23 | | | | | | | | | | | | | | | | |
| 55 | 71.96 | 13 3/4 | 692.29 | 13 3/4 | 1,049.94 | 13 3/4 | 2,122.85 | 13 3/4 | 2,836.74 | 13 3/4 | 3,553.64 | 13 3/4 | 4,285.54 | 13 3/4 | 4,980.68 | | | | | | | | | | | | | | | | |
| 56 | 73.24 | 14 | 700.00 | 14 | 1,057.39 | 14 | 2,130.30 | 14 | 2,844.19 | 14 | 3,561.09 | 14 | 4,293.09 | 14 | 4,988.13 | | | | | | | | | | | | | | | | |
| 57 | 74.52 | 14 1/4 | 707.43 | 14 1/4 | 1,064.84 | 14 1/4 | 2,137.75 | 14 1/4 | 2,851.64 | 14 1/4 | 3,568.54 | 14 1/4 | 4,300.54 | 14 1/4 | 4,995.58 | | | | | | | | | | | | | | | | |
| 58 | 75.80 | 14 1/2 | 714.86 | 14 1/2 | 1,072.29 | 14 1/2 | 2,145.20 | 14 1/2 | 2,859.09 | 14 1/2 | 3,576.09 | 14 1/2 | 4,308.09 | 14 1/2 | 5,003.03 | | | | | | | | | | | | | | | | |
| 59 | 77.08 | 14 3/4 | 722.29 | 14 3/4 | 1,079.74 | 14 3/4 | 2,152.65 | 14 3/4 | 2,866.54 | 14 3/4 | 3,583.54 | 14 3/4 | 4,315.54 | 14 3/4 | 5,010.48 | | | | | | | | | | | | | | | | |
| 60 | 78.36 | 15 | 730.00 | 15 | 1,087.19 | 15 | 2,160.10 | 15 | 2,873.99 | 15 | 3,591.09 | 15 | 4,323.09 | 15 | 5,017.93 | | | | | | | | | | | | | | | | |
| 61 | 79.64 | 15 1/4 | 737.43 | 15 1/4 | 1,094.64 | 15 1/4 | 2,167.55 | 15 1/4 | 2,881.44 | 15 1/4 | 3,598.54 | 15 1/4 | 4,330.54 | 15 1/4 | 5,025.38 | | | | | | | | | | | | | | | | |
| 62 | 80.92 | 15 1/2 | 744.86 | 15 1/2 | 1,102.09 | 15 1/2 | 2,175.00 | 15 1/2 | 2,888.89 | 15 1/2 | | | | | | | | | | | | | | | | | | | | | |

INNAGE TABLE

INNAGE TABLE

6587 JUN 11 1979

6587 JUN 11 1979

CAPACITIES GIVEN IN BARRELS OF 42 U.S. GALLONS

REFERENCE GAUGE HEIGHT: 17'-3" (TO RIM OF 10" DIAMETER HATCH
LOCATED ON MANWAY)

WE CERTIFY ALL MEASUREMENTS AND COMPUTATIONS ARE IN ACCORDANCE WITH APPLICABLE API STANDARDS AND ARE TRUE AND CORRECT TO THE BEST OF OUR KNOWLEDGE.

INSPECTORATE AMERICA CORPORATION

3 PORT OR STAR

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|-----|-----|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--|
| 3-4 | 5-6 | 7-8 | 9-10 | 11-12 | 13-14 | 15-16 | 17-18 | 19-20 | 21-22 | 23-24 | 25-26 | 27-28 | 29-30 | 31-32 | 33-34 | 35-36 | 37-38 | 39-40 | 41-42 | 43-44 | 45-46 | 47-48 | 49-50 | 51-52 | 53-54 | 55-56 | 57-58 | 59-60 | 61-62 | 63-64 | 65-66 | 67-68 | 69-70 | 71-72 | 73-74 | 75-76 | 77-78 | 79-80 | 81-82 | 83-84 | 85-86 | 87-88 | 89-90 | 91-92 | 93-94 | 95-96 | 97-98 | 99-100 | |
| CAPACITIES GIVEN IN PARRELS OF 42 U.S. GALLONS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

WE CERTIFY ALL MEASUREMENTS AND COMPUTATIONS ARE
IN ACCORDANCE WITH APPLICABLE API STANDARDS AND
ARE TRUE AND CORRECT TO THE BEST OF OUR KNOWLEDGE

INSPECTORATE AMERICA CORPORATION

TANK NO.

[illegible]

NOTE: TABLE SCALED FROM EXTREME BOTTOM OF TANK
FORMER EHL 2906

REFERENCE GAUGE HEIGHT: 3'-10 1/2" (TO RIM OF 2" PIPE)

WE CERTIFY ALL MEASUREMENTS AND COMPUTATIONS ARE
IN ACCORDANCE WITH APPLICABLE API STANDARDS AND
ARE TRUE AND CORRECT TO THE BEST OF OUR KNOWLEDGE

INSPECTORATE AMERICA CORPORATION



BARGE "HFL-435"
HINES FURLONG LINE
INNAGE TABLE

TANK NO.
SLOP
(FWD OR AFT)

| BARGE SHOULD BE ON EVEN-LEVEL KEEL WHEN GAUGES ARE TAKEN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | HULL NO. 4859 | | | | | | | | | | | |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------------|--|--|--|--|--|--|--|--|--|--|--|
| IN | | 0 FT. | | 1 FT. | | 2 FT. | | 3 FT. | | 4 FT. | | 5 FT. | | 6 FT. | | 7 FT. | | 8 FT. | | 9 FT. | | 10 FT. | | 11 FT. | | 12 FT. | | 13 FT. | | 14 FT. | | | | | | | | | | | | | |
| IN | 0 FT. | IN | 0 FT. | IN | 1 FT. | IN | 2 FT. | IN | 3 FT. | IN | 4 FT. | IN | 5 FT. | IN | 6 FT. | IN | 7 FT. | IN | 8 FT. | IN | 9 FT. | IN | 10 FT. | IN | 11 FT. | IN | 12 FT. | IN | 13 FT. | IN | 14 FT. | | | | | | | | | | | | |
| 0 | 0 | 0 | 451 | 0 | 903 | 0 | 1,354 | 0 | 1,805 | 0 | 2,256 | 0 | 2,707 | 0 | 3,158 | 0 | 3,609 | 0 | 4,060 | 0 | 4,511 | 0 | 4,962 | 0 | 5,413 | 0 | 5,864 | 0 | 6,315 | 0 | 6,766 | | | | | | | | | | | | |
| 1/4 | 9 | 1/4 | 461 | 1/4 | 912 | 1/4 | 1,363 | 1/4 | 1,814 | 1/4 | 2,265 | 1/4 | 2,716 | 1/4 | 3,167 | 1/4 | 3,618 | 1/4 | 4,069 | 1/4 | 4,520 | 1/4 | 4,971 | 1/4 | 5,422 | 1/4 | 5,873 | 1/4 | 6,324 | 1/4 | 6,775 | | | | | | | | | | | | |
| 1/2 | 19 | 1/2 | 470 | 1/2 | 921 | 1/2 | 1,373 | 1/2 | 1,824 | 1/2 | 2,275 | 1/2 | 2,726 | 1/2 | 3,177 | 1/2 | 3,628 | 1/2 | 4,079 | 1/2 | 4,530 | 1/2 | 4,981 | 1/2 | 5,432 | 1/2 | 5,883 | 1/2 | 6,334 | 1/2 | 6,785 | | | | | | | | | | | | |
| 3/4 | 28 | 3/4 | 480 | 3/4 | 931 | 3/4 | 1,382 | 3/4 | 1,833 | 3/4 | 2,284 | 3/4 | 2,735 | 3/4 | 3,186 | 3/4 | 3,637 | 3/4 | 4,088 | 3/4 | 4,539 | 3/4 | 4,990 | 3/4 | 5,441 | 3/4 | 5,892 | 3/4 | 6,343 | 3/4 | 6,794 | | | | | | | | | | | | |
| 1 | 38 | 1 | 489 | 1 | 940 | 1 | 1,392 | 1 | 1,843 | 1 | 2,294 | 1 | 2,745 | 1 | 3,196 | 1 | 3,647 | 1 | 4,098 | 1 | 4,549 | 1 | 5,000 | 1 | 5,451 | 1 | 5,902 | 1 | 6,353 | 1 | 6,804 | | | | | | | | | | | | |
| 1/4 | 47 | 1/4 | 498 | 1/4 | 950 | 1/4 | 1,401 | 1/4 | 1,852 | 1/4 | 2,303 | 1/4 | 2,754 | 1/4 | 3,205 | 1/4 | 3,656 | 1/4 | 4,107 | 1/4 | 4,558 | 1/4 | 5,009 | 1/4 | 5,460 | 1/4 | 5,911 | 1/4 | 6,362 | 1/4 | 6,813 | | | | | | | | | | | | |
| 1/2 | 56 | 1/2 | 508 | 1/2 | 959 | 1/2 | 1,410 | 1/2 | 1,862 | 1/2 | 2,312 | 1/2 | 2,763 | 1/2 | 3,214 | 1/2 | 3,665 | 1/2 | 4,116 | 1/2 | 4,567 | 1/2 | 5,018 | 1/2 | 5,469 | 1/2 | 5,920 | 1/2 | 6,371 | 1/2 | 6,822 | | | | | | | | | | | | |
| 3/4 | 65 | 3/4 | 517 | 3/4 | 969 | 3/4 | 1,420 | 3/4 | 1,871 | 3/4 | 2,321 | 3/4 | 2,772 | 3/4 | 3,223 | 3/4 | 3,674 | 3/4 | 4,125 | 3/4 | 4,576 | 3/4 | 5,027 | 3/4 | 5,478 | 3/4 | 5,929 | 3/4 | 6,380 | 3/4 | 6,831 | | | | | | | | | | | | |
| 1 | 75 | 2 | 527 | 2 | 978 | 2 | 1,429 | 2 | 1,881 | 2 | 2,330 | 2 | 2,781 | 2 | 3,232 | 2 | 3,683 | 2 | 4,134 | 2 | 4,585 | 2 | 5,036 | 2 | 5,487 | 2 | 5,938 | 2 | 6,389 | 2 | 6,840 | | | | | | | | | | | | |
| 1/4 | 84 | 1/4 | 536 | 1/4 | 987 | 1/4 | 1,438 | 1/4 | 1,890 | 1/4 | 2,339 | 1/4 | 2,790 | 1/4 | 3,241 | 1/4 | 3,692 | 1/4 | 4,143 | 1/4 | 4,594 | 1/4 | 5,045 | 1/4 | 5,496 | 1/4 | 5,947 | 1/4 | 6,398 | 1/4 | 6,850 | | | | | | | | | | | | |
| 1/2 | 94 | 1/2 | 545 | 1/2 | 997 | 1/2 | 1,448 | 1/2 | 1,899 | 1/2 | 2,348 | 1/2 | 2,799 | 1/2 | 3,250 | 1/2 | 3,701 | 1/2 | 4,152 | 1/2 | 4,603 | 1/2 | 5,054 | 1/2 | 5,505 | 1/2 | 5,956 | 1/2 | 6,407 | 1/2 | 6,860 | | | | | | | | | | | | |
| 3/4 | 103 | 3/4 | 555 | 3/4 | 1,006 | 3/4 | 1,457 | 3/4 | 1,908 | 3/4 | 2,357 | 3/4 | 2,808 | 3/4 | 3,259 | 3/4 | 3,710 | 3/4 | 4,161 | 3/4 | 4,612 | 3/4 | 5,063 | 3/4 | 5,514 | 3/4 | 5,965 | 3/4 | 6,416 | 3/4 | 6,870 | | | | | | | | | | | | |
| 1 | 113 | 3 | 564 | 3 | 1,016 | 3 | 1,467 | 3 | 1,918 | 3 | 2,368 | 3 | 2,819 | 3 | 3,270 | 3 | 3,721 | 3 | 4,172 | 3 | 4,623 | 3 | 5,074 | 3 | 5,525 | 3 | 5,976 | 3 | 6,427 | 3 | 6,880 | | | | | | | | | | | | |
| 1/4 | 122 | 1/4 | 574 | 1/4 | 1,025 | 1/4 | 1,476 | 1/4 | 1,927 | 1/4 | 2,377 | 1/4 | 2,828 | 1/4 | 3,279 | 1/4 | 3,730 | 1/4 | 4,181 | 1/4 | 4,632 | 1/4 | 5,083 | 1/4 | 5,534 | 1/4 | 5,985 | 1/4 | 6,436 | 1/4 | 6,890 | | | | | | | | | | | | |
| 1/2 | 132 | 1/2 | 583 | 1/2 | 1,034 | 1/2 | 1,486 | 1/2 | 1,937 | 1/2 | 2,387 | 1/2 | 2,838 | 1/2 | 3,289 | 1/2 | 3,740 | 1/2 | 4,191 | 1/2 | 4,642 | 1/2 | 5,093 | 1/2 | 5,544 | 1/2 | 5,995 | 1/2 | 6,445 | 1/2 | 6,900 | | | | | | | | | | | | |
| 3/4 | 141 | 3/4 | 592 | 3/4 | 1,044 | 3/4 | 1,495 | 3/4 | 1,946 | 3/4 | 2,397 | 3/4 | 2,848 | 3/4 | 3,299 | 3/4 | 3,750 | 3/4 | 4,201 | 3/4 | 4,652 | 3/4 | 5,103 | 3/4 | 5,554 | 3/4 | 6,005 | 3/4 | 6,456 | 3/4 | 6,910 | | | | | | | | | | | | |
| 1 | 150 | 4 | 602 | 4 | 1,053 | 4 | 1,504 | 4 | 1,956 | 4 | 2,405 | 4 | 2,856 | 4 | 3,307 | 4 | 3,758 | 4 | 4,209 | 4 | 4,660 | 4 | 5,111 | 4 | 5,562 | 4 | 6,013 | 4 | 6,464 | 4 | 6,918 | | | | | | | | | | | | |
| 1/4 | 160 | 1/4 | 611 | 1/4 | 1,063 | 1/4 | 1,514 | 1/4 | 1,965 | 1/4 | 2,414 | 1/4 | 2,865 | 1/4 | 3,316 | 1/4 | 3,767 | 1/4 | 4,218 | 1/4 | 4,669 | 1/4 | 5,120 | 1/4 | 5,571 | 1/4 | 6,022 | 1/4 | 6,473 | 1/4 | 6,927 | | | | | | | | | | | | |
| 1/2 | 169 | 1/2 | 621 | 1/2 | 1,072 | 1/2 | 1,523 | 1/2 | 1,975 | 1/2 | 2,423 | 1/2 | 2,874 | 1/2 | 3,327 | 1/2 | 3,778 | 1/2 | 4,229 | 1/2 | 4,680 | 1/2 | 5,131 | 1/2 | 5,582 | 1/2 | 6,033 | 1/2 | 6,484 | 1/2 | 6,938 | | | | | | | | | | | | |
| 3/4 | 179 | 3/4 | 630 | 3/4 | 1,081 | 3/4 | 1,533 | 3/4 | 1,984 | 3/4 | 2,432 | 3/4 | 2,883 | 3/4 | 3,338 | 3/4 | 3,789 | 3/4 | 4,240 | 3/4 | 4,691 | 3/4 | 5,142 | 3/4 | 5,593 | 3/4 | 6,044 | 3/4 | 6,495 | 3/4 | 6,949 | | | | | | | | | | | | |
| 1 | 188 | 5 | 639 | 5 | 1,091 | 5 | 1,542 | 5 | 1,993 | 5 | 2,441 | 5 | 2,892 | 5 | 3,343 | 5 | 3,794 | 5 | 4,245 | 5 | 4,696 | 5 | 5,147 | 5 | 5,598 | 5 | 6,049 | 5 | 6,500 | 5 | 6,954 | | | | | | | | | | | | |
| 1/4 | 197 | 1/4 | 649 | 1/4 | 1,100 | 1/4 | 1,551 | 1/4 | 2,003 | 1/4 | 2,452 | 1/4 | 2,903 | 1/4 | 3,354 | 1/4 | 3,805 | 1/4 | 4,256 | 1/4 | 4,707 | 1/4 | 5,158 | 1/4 | 5,609 | 1/4 | 6,060 | 1/4 | 6,511 | 1/4 | 6,965 | | | | | | | | | | | | |
| 1/2 | 207 | 1/2 | 658 | 1/2 | 1,110 | 1/2 | 1,561 | 1/2 | 2,012 | 1/2 | 2,463 | 1/2 | 2,914 | 1/2 | 3,365 | 1/2 | 3,816 | 1/2 | 4,267 | 1/2 | 4,718 | 1/2 | 5,169 | 1/2 | 5,620 | 1/2 | 6,071 | 1/2 | 6,522 | 1/2 | 6,976 | | | | | | | | | | | | |
| 3/4 | 216 | 3/4 | 668 | 3/4 | 1,119 | 3/4 | 1,570 | 3/4 | 2,022 | 3/4 | 2,474 | 3/4 | 2,925 | 3/4 | 3,376 | 3/4 | 3,827 | 3/4 | 4,278 | 3/4 | 4,729 | 3/4 | 5,180 | 3/4 | 5,631 | 3/4 | 6,082 | 3/4 | 6,533 | 3/4 | 6,987 | | | | | | | | | | | | |
| 1 | 226 | 8 | 677 | 8 | 1,128 | 8 | 1,580 | 8 | 2,031 | 8 | 2,481 | 8 | 2,932 | 8 | 3,383 | 8 | 3,834 | 8 | 4,285 | 8 | 4,736 | 8 | 5,187 | 8 | 5,638 | 8 | 6,089 | 8 | 6,540 | 8 | 6,994 | | | | | | | | | | | | |
| 1/4 | 235 | 1/4 | 686 | 1/4 | 1,138 | 1/4 | 1,589 | 1/4 | 2,040 | 1/4 | 2,491 | 1/4 | 2,942 | 1/4 | 3,393 | 1/4 | 3,844 | 1/4 | 4,295 | 1/4 | 4,746 | 1/4 | 5,197 | 1/4 | 5,648 | 1/4 | 6,099 | 1/4 | 6,550 | 1/4 | 7,004 | | | | | | | | | | | | |
| 1/2 | 244 | 1/2 | 696 | 1/2 | 1,147 | 1/2 | 1,599 | 1/2 | 2,049 | 1/2 | 2,500 | 1/2 | 2,951 | 1/2 | 3,402 | 1/2 | 3,853 | 1/2 | 4,304 | 1/2 | 4,755 | 1/2 | 5,206 | 1/2 | 5,657 | 1/2 | 6,108 | 1/2 | 6,559 | 1/2 | 7,013 | | | | | | | | | | | | |
| 3/4 | 254 | 3/4 | 705 | 3/4 | 1,157 | 3/4 | 1,608 | 3/4 | 2,058 | 3/4 | 2,509 | 3/4 | 2,960 | 3/4 | 3,411 | 3/4 | 3,862 | 3/4 | 4,313 | 3/4 | 4,764 | 3/4 | 5,215 | 3/4 | 5,666 | 3/4 | 6,117 | 3/4 | 6,568 | 3/4 | 7,022 | | | | | | | | | | | | |
| 1 | 263 | 7 | 715 | 7 | 1,166 | 7 | 1,617 | 7 | 2,067 | 7 | 2,518 | 7 | 2,969 | 7 | 3,420 | 7 | 3,871 | 7 | 4,322 | 7 | 4,773 | 7 | 5,224 | 7 | 5,675 | 7 | 6,126 | 7 | 6,577 | 7 | 7,031 | | | | | | | | | | | | |
| 1/4 | 273 | 1/4 | 724 | 1/4 | 1,175 | 1/4 | 1,627 | 1/4 | 2,076 | 1/4 | 2,527 | 1/4 | 2,978 | 1/4 | 3,429 | 1/4 | 3,880 | 1/4 | 4,331 | 1/4 | 4,782 | 1/4 | 5,233 | 1/4 | 5,684 | 1/4 | 6,135 | 1/4 | 6,586 | 1/4 | 7,040 | | | | | | | | | | | | |
| 1/2 | 282 | 1/2 | 734 | 1/2 | 1,185 | 1/2 | 1,636 | 1/2 | 2,085 | 1/2 | 2,536 | 1/2 | 2,987 | 1/2 | 3,438 | 1/2 | 3,889 | 1/2 | 4,340 | 1/2 | 4,791 | 1/2 | 5,240 | 1/2 | 5,691 | 1/2 | 6,142 | 1/2 | 6,593 | 1/2 | 7,049 | | | | | | | | | | | | |
| 3/4 | 291 | 3/4 | 743 | 3/4 | 1,194 | 3/4 | 1,645 | 3/4 | 2,094 | 3/4 | 2,545 | 3/4 | 2,996 | 3/4 | 3,447 | 3/4 | 3,898 | 3/4 | 4,349 | 3/4 | 4,800 | 3/4 | 5,251 | 3/4 | 5,702 | 3/4 | 6,153 | 3/4 | 6,604 | 3/4 | 7,058 | | | | | | | | | | | | |
| 1 | 301 | 8 | 752 | 8 | 1,203 | 8 | 1,654 | 8 | 2,103 | 8 | 2,554 | 8 | 2,995 | 8 | 3,446 | 8 | 3,897 | 8 | 4,348 | 8 | 4,799 | 8 | 5,250 | 8 | 5,701 | 8 | 6,152 | 8 | 6,603 | 8 | 7,060 | | | | | | | | | | | | |
| 1/4 | 310 | 1/4 | 762 | 1/4 | 1,213 | 1/4 | 1,664 | 1/4 | 2,112 | 1/4 | 2,563 | 1/4 | 3,004 | 1/4 | 3,455 | 1/4 | 3,906 | 1/4 | 4,357 | 1/4 | 4,808 | 1/4 | 5,259 | 1/4 | 5,710 | 1/4 | 6,161 | 1/4 | 6,612 | 1/4 | 7,069 | | | | | | | | | | | | |
| 1/2 | 320 | 1/2 | 771 | 1/2 | 1,222 | 1/2 | 1,674 | 1/2 | 2,121 | 1/2 | 2,572 | 1/2 | 3,013 | 1/2 | 3,464 | 1/2 | 3,915 | 1/2 | 4,366 | 1/2 | 4,817 | 1/2 | 5,268 | 1/2 | 5,719 | 1/2 | 6,172 | 1/2 | 6,623 | 1/2 | 7,078 | | | | | | | | | | | | |
| 3/4 | 329 | 3/4 | 780 | 3/4 | 1,232 | 3/4 | 1,683 | 3/4 | 2,130 | 3/4 | 2,581 | 3/4 | 3,024 | 3/4 | 3,475 | 3/4 | 3,926 | 3/4 | 4,377 | 3/4 | 4,828 | 3/4 | 5,279 | 3/4 | 5,730 | 3/4 | 6,183 | 3/4 | 6,634 | 3/4 | 7,087 | | | | | | | | | | | | |
| 1 | 339 | 9 | 790 | 9 | 1,241 | 9 | 1,693 | 9 | 2,139 | 9 | 2,590 | 9 | 3,031 | 9 | 3,482 | 9 | 3,933 | 9 | 4,384 | 9 | 4,835 | 9 | 5,286 | 9 | 5,737 | 9 | 6,188 | 9 | 6,639 | 9 | 7,096 | | | | | | | | | | | | |
| 1/4 | 348 | 1/4 | 799 | 1/4 | 1,251 | 1/4 | 1,702 | 1/4 | 2,148 | 1/4 | 2,599 | 1/4 | 3,040 | 1/4 | 3,491 | 1/4 | 3,942 | 1/4 | 4,393 | 1/4 | 4,844 | 1/4 | 5,295 | 1/4 | 5,746 | 1/4 | 6,199 | 1/4 | 6,650 | 1/4 | 7,105 | | | | | | | | | | | | |
| 1/2 | 357 | 1/2 | 809 | 1/2 | 1,260 | 1/2 | 1,711 | 1/2 | 2,157 | 1/2 | 2,608 | 1/2 | 3,049 | 1/2 | 3,500 | 1/2 | 3,951 | 1/2 | 4,402 | 1/2 | 4,853 | 1/2 | 5,304 | 1/2 | 5,755 | 1/2 | 6,209 | 1/2 | 6,661 | 1/2 | 7,114 | | | | | | | | | | | | |
| 3/4 | 367 | 3/4 | 818 | 3/4 | 1,269 | 3/4 | 1,721 | 3/4 | 2,166 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |