



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

Certification Date: 11 Mar 2022

Expiration Date: 11 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                                   |     |         |
| CCL 406                                                                                                                                                                                                                                                                                                                                                               | 1236866                                                                     |                             |                | Tank Barge                                |     |         |
| Hailing Port                                                                                                                                                                                                                                                                                                                                                          | Hull Material                                                               | Horsepower                  | Propulsion     |                                           |     |         |
| NEW ORLEANS, LA                                                                                                                                                                                                                                                                                                                                                       | Steel                                                                       |                             |                |                                           |     |         |
| UNITED STATES                                                                                                                                                                                                                                                                                                                                                         |                                                                             |                             |                |                                           |     |         |
| Place Built                                                                                                                                                                                                                                                                                                                                                           | Delivery Date                                                               | Keel Laid Date              | Gross Tons     | Net Tons                                  | DWT | Length  |
| MADISONVILLE, LA                                                                                                                                                                                                                                                                                                                                                      | 13Jan2012                                                                   | 12Dec2011                   | R-1619         | R-1619                                    |     | R-297.5 |
| UNITED STATES                                                                                                                                                                                                                                                                                                                                                         |                                                                             |                             | I-             | I-                                        |     | I-0     |
| Owner                                                                                                                                                                                                                                                                                                                                                                 | Operator                                                                    |                             |                |                                           |     |         |
| CHEM CARRIERS LLC<br>1237 HIGHWAY 75<br>SUNSHINE, LA 70780<br>UNITED STATES                                                                                                                                                                                                                                                                                           | CHEM CARRIERS LLC<br>1237 HIGHWAY 75<br>SUNSHINE, LA 70780<br>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 Engineer |                |                                           |     |         |
| 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:<br>---Lakes, Bays, and Sounds---                                                                                                                                                                                                                                                                                         |                                                                             |                             |                |                                           |     |         |
| Also, in fair weather only, 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 Table 31.10 -21 (b); if this vessel is operated in salt water more than six (6) months in any twelve (12) month period, the vessel must be inspected using salt water intervals and the cognizant OCMI 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 New Orleans, LA, UNITED STATES, the Officer in Charge, Marine Inspection, Sector New Orleans 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 Amended certificate issued by:       |     |         |
| Date                                                                                                                                                                                                                                                                                                                                                                  | Zone                                                                        | A/P/R                       | Signature      | Joseph W. Morgan, CDR, USCG, by Direction |     |         |
| 03Mar2023                                                                                                                                                                                                                                                                                                                                                             | SEC CorpChr                                                                 | A                           | OLIVARES STEVE | Officer in Charge, Marine Inspection      |     |         |
| 31Jan2024                                                                                                                                                                                                                                                                                                                                                             | SEC HouGalvstn                                                              | A                           | STRAYER DAVID  | Sector Houston-Galveston                  |     |         |
| 22MAY25                                                                                                                                                                                                                                                                                                                                                               | SEC Hou-GAL                                                                 | P                           | [Signature]    | Inspection Zone                           |     |         |
| 11MAY26                                                                                                                                                                                                                                                                                                                                                               | HSU PortArthur                                                              | A                           | [Signature]    |                                           |     |         |



# Certificate of Inspection

Vessel Name: CCL 406

## ---Hull Exams---

| Exam Type          | Next Exam | Last Exam | Prior Exam |
|--------------------|-----------|-----------|------------|
| DryDock            | 13Jan2032 | 14Feb2022 | 13Jan2012  |
| Internal Structure | 31Dec2026 | 14Feb2022 | 27Dec2016  |

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

Authorization: GRADE "A" AND LOWER AND SPECIFIED HAZARDOUS CARGOES

| Total Capacity | Units   | Highest Grade Type | Part151 Regulated | Part153 Regulated | Part154 Regulated |
|----------------|---------|--------------------|-------------------|-------------------|-------------------|
| 30400          | 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       | 900                                    | 13.60                     |
| 2 P/S       | 849                                    | 13.60                     |
| 3 P/S       | 784                                    | 13.60                     |

### \*Loading Constraints - Stability\*

| Hull Type | Maximum Load<br>(short tons) | Maximum Draft<br>(ft/in) | Max Density<br>(lbs/gal) | Route Description |
|-----------|------------------------------|--------------------------|--------------------------|-------------------|
| II        | 3943                         | 10ft 0in                 | 13.6                     | LBS               |
| III       | 4823                         | 11ft 9in                 | 13.6                     | LBS               |

### \*Conditions Of Carriage\*

Only those cargoes named in the vessel's Cargo Authority Attachment Serial# C1-1103914, dated November 22, 2011 and Grade "A" and lower cargoes may be carried, and then only in the tanks indicated.

Per 46 CFR 150.130, The Person in Charge of the vessel is responsible for ensuring that the compatibility requirements of 46 CFR 150 are met. Cargoes must be checked for compatibility using the figures, tables, and appendices of 46 CFR 150 in conjunction with the compatibility group numbers from the "COMPAT GRP" column listed in the vessel's Cargo Authority Attachment.

### \*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 letters Serial # C1-1103914 dated November 22, 2011 and the list of authorized cargoes on the CAA, Serial C1-1103914 dated November 22, 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, the Person in Charge is responsible for ensuring the provisions of 46 CFR 197, Subpart C are applied.

## --- Inspection Status ---



# Certificate of Inspection

Vessel Name: CCL 406

## \*Cargo Tanks\*

| Tank Id | Internal Exam |           |           | External Exam |      |      |
|---------|---------------|-----------|-----------|---------------|------|------|
|         | Previous      | Last      | Next      | Previous      | Last | Next |
| 1 P/S   | 13Jan2012     | 14Feb2022 | 31Jan2032 | -             | -    | -    |
| 2 P/S   | 13Jan2012     | 14Feb2022 | 31Jan2032 | -             | -    | -    |
| 3 P/S   | 13Jan2012     | 14Feb2022 | 31Jan2032 | -             | -    | -    |

### Hydro Test

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

## ---Conditional Portable Fire Extinguisher Requirements---

Required Only During Transfer of Cargo or Operation of Barge Machinery

## --- Fire Fighting Equipment ---

Number of Fireman Outfits - 0

### \*Fire Extinguishers - Hand portable and semi-portable\*

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

\*\*\*END\*\*\*



Department of Homeland Security  
United States Coast Guard

Serial #: C1-1103914  
Dated: 22-Nov-11

# Certificate of Inspection

## Cargo Authority Attachment

Vessel Name: CCL 406

Shipyard: Trinity Marine,  
Madisonville

Official #: 1236866

Hull #: 2199-1

### 46 CFR 151 Tank Group Characteristics

| Tank Group Information |                      | Cargo Identification |        |       | Hull Type | Cargo Seg Tank | Tanks            |      |        | Cargo Transfer |      | Environmental Control |                | Fire Protection Provided | Special Requirements                                        |                                                                       |    | Elec Haz | Temp Cont |
|------------------------|----------------------|----------------------|--------|-------|-----------|----------------|------------------|------|--------|----------------|------|-----------------------|----------------|--------------------------|-------------------------------------------------------------|-----------------------------------------------------------------------|----|----------|-----------|
| Tnk 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 | 13.6                 | Atmos. | Amb.  | II        | 1ii<br>2ii     | 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(b), (c), (e), (f), (j), .56-1(a), (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 Mat'l's 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 <sup>2</sup> | O | C   | II  | A | Yes | 4   | .50-70(a), .55-1(e)             | G |
| Adiponitrile                                                                     | ADN | 37              | O | E   | II  | A | Yes | 1   | No                              | G |
| Alkyl(C7-C9) nitrates                                                            | AKN | 34 <sup>2</sup> | O | NA  | III | A | No  | N/A | .50-81, .50-86                  | G |
| Aminoethylethanolamine                                                           | AEE | 8               | O | E   | III | A | Yes | 1   | .55-1(b)                        | G |
| Ammonium bisulfite solution (70% or less)                                        | ABX | 43 <sup>2</sup> | O | NA  | III | A | No  | N/A | .50-73, .56-1(a), (b), (c)      | G |
| Ammonium hydroxide (28% or less NH3)                                             | AMH | 6               | O | NA  | III | A | No  | N/A | .56-1(a), (b), (c), (f), (g)    | 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   | .50-80                          | G |
| Benzene or hydrocarbon mixtures (having 10% Benzene or more)                     | BHB | 32 <sup>2</sup> | O | C   | III | A | Yes | 1   | .50-80                          | G |
| Benzene or hydrocarbon mixtures (containing Acetylene and 10% Benzene or more)   | BHA | 32 <sup>2</sup> | O | C   | III | A | Yes | 1   | .50-80, .56-1(b), (d), (f), (g) | G |
| Benzene, Toluene, Xylene mixtures (10% Benzene or more)                          | BTX | 32              | O | B/C | III | A | Yes | 1   | .50-80                          | 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 | 19              | O | C   | III | A | Yes | 1   | .55-1(h)                        | G |
| Camphor oil (light)                                                              | CPO | 18              | O | D   | II  | A | No  | N/A | No                              | G |
| Carbon tetrachloride                                                             | CBT | 36              | O | NA  | III | A | No  | N/A | No                              | G |
| Caustic potash solution                                                          | CPS | 5 <sup>2</sup>  | O | NA  | III | A | No  | N/A | .50-73, .55-1(i)                | G |
| Caustic soda solution                                                            | CSS | 5 <sup>2</sup>  | O | NA  | III | A | No  | N/A | .50-73, .55-1(i)                | 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                                                                       | CRF | 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 <sup>2</sup> | O | E   | III | A | Yes | 1   | No                              | G |
| Cresols (all isomers)                                                            | CRS | 21              | O | E   | III | A | Yes | 1   | No                              | G |
| Cresylate spent caustic                                                          | CSC | 5               | O | NA  | III | A | No  | N/A | .50-73, .55-1(b)                | G |
| Cresylic acid tar                                                                | CRX |                 | O | E   | III | A | Yes | 1   | .55-1(f)                        | G |
| Crotonaldehyde                                                                   | CTA | 19 <sup>2</sup> | 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                                                                    | CCH | 18              | O | D   | III | A | Yes | 1   | .56-1(a), (b)                   | G |
| Cyclohexanone, Cyclohexanol mixture                                              | CYX | 18 <sup>2</sup> | O | E   | III | A | Yes | 1   | .56-1 (b)                       | G |

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Department of Homeland Security  
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Serial #: C1-1103914

Dated: 22-Nov-11

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## Cargo Authority Attachment

Vessel Name: CCL 406

Shipyard: Trinity Marine,  
Madisonville

Official #: 1236866

Page 2 of 8

Hull #: 2199-1

| 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's of 58-1(a), (b), (c), (g) | Insp. Period |  |
|                                                                   |           |                 |             |       |           |            | App'd (Y or N)         | VCS Category |                                                                                |              |  |
| Cyclohexylamine                                                   | CHA       | 7               | O           | D     | III       | A          | Yes                    | 1            |                                                                                |              |  |
| 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            |  |
| Dichlorobenzene (all isomers)                                     | DBX       | 36              | O           | E     | III       | A          | Yes                    | 3            | 56-1(a), (b)                                                                   | G            |  |
| 1,1-Dichloroethane                                                | DCH       | 36              | O           | C     | III       | A          | Yes                    | 1            | No                                                                             | G            |  |
| 2,2'-Dichloroethyl ether                                          | DEE       | 41              | O           | D     | II        | A          | Yes                    | 1            | 55-1(f)                                                                        | G            |  |
| Dichloromethane                                                   | DCM       | 36              | O           | NA    | III       | A          | Yes                    | 5            | No                                                                             | G            |  |
| 2,4-Dichlorophenoxyacetic acid, diethanolamine salt solution      | DDE       | 43              | O           | E     | III       | A          | No                     | N/A          | 56-1(a), (b), (c), (g)                                                         | G            |  |
| 2,4-Dichlorophenoxyacetic acid, dimethylamine salt solution       | DAD       | 0 1,2           | O           | A     | III       | A          | No                     | N/A          | 56-1(a), (b), (c), (g)                                                         | G            |  |
| 2,4-Dichlorophenoxyacetic acid, triisopropanolamine salt solution | DTI       | 43 2            | O           | E     | III       | A          | No                     | N/A          | 56-1(a), (b), (c), (g)                                                         | 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            |  |
| Diethanolamine                                                    | DEA       | 8               | O           | E     | III       | A          | Yes                    | 1            | 55-1(c)                                                                        | G            |  |
| Diethylamine                                                      | DEN       | 7               | O           | C     | 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            | 56-1(b)                                                                        | G            |  |
| Dimethylethanolamine                                              | DMB       | 8               | O           | D     | III       | A          | Yes                    | 1            | 56-1(b), (c)                                                                   | G            |  |
| Dimethylformamide                                                 | DMF       | 10              | O           | D     | III       | A          | Yes                    | 1            | 55-1(e)                                                                        | G            |  |
| Di-n-propylamine                                                  | DNA       | 7               | O           | C     | II        | A          | Yes                    | 3            | 55-1(c)                                                                        | G            |  |
| Dodecyldimethylamine, Tetradecyldimethylamine mixture             | DOT       | 7               | O           | E     | III       | A          | No                     | N/A          | 56-1(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            |  |
| Ethylamine solution (72% or less)                                 | EAN       | 7               | O           | A     | II        | A          | No                     | N/A          | 55-1(b)                                                                        | G            |  |
| N-Ethylbutylamine                                                 | EBA       | 7               | O           | D     | III       | A          | Yes                    | 3            | 55-1(b)                                                                        | G            |  |
| N-Ethylcyclohexylamine                                            | ECC       | 7               | O           | D     | III       | A          | Yes                    | 1            | 55-1(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(h)                                                                        | G            |  |
| Furfural                                                          | FFA       | 19              | O           | D     | III       | A          | Yes                    | 1            | 55-1(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            |  |
| Hexamethyleneimine                                                | HMI       | 7               | O           | C     | II        | A          | Yes                    | 1            | 56-1(b), (c)                                                                   | G            |  |
| Hydrocarbon 5-9                                                   | HFN       |                 | O           | C     | III       | A          | Yes                    | 1            | 50-70(a), 50-81(a), (b)                                                        | G            |  |

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## Cargo Authority Attachment

Vessel Name: CCL 406

Shipyard: Trinity Marine,  
Madisonville

Official #: 1236866

Page 3 of 8

Hull #: 2199-1

| Cargo Identification                                                                             |               |                  |             |       |           | Conditions of Carriage |                |              |                                                                                   |              |
|--------------------------------------------------------------------------------------------------|---------------|------------------|-------------|-------|-----------|------------------------|----------------|--------------|-----------------------------------------------------------------------------------|--------------|
| Name                                                                                             | Chem Code IPR | Compat Group No  | Sub Chapter | Grade | Hull Type | Tank Group             | Vapor Recovery |              | Special Requirements in 46 CFR 151 General and Mar's of .50-70(a), .50-81(a), (b) | Insp. Period |
|                                                                                                  |               |                  |             |       |           |                        | App'd (Y or N) | VCS Category |                                                                                   |              |
| Isoprene                                                                                         |               | 30               | O           | A     | III       | A                      | No             | N/A          |                                                                                   | G            |
| Isoprene, Pentadiene mixture                                                                     | IPN           |                  | O           | B     | III       | A                      | No             | N/A          | .50-70(a), .55-1(c)                                                               | G            |
| Kraft pulping liquors (free alkali content 3% or more)(including: Black, Green, or White liquor) | KPL           | 5                | O           | NA    | III       | A                      | No             | N/A          | .50-73, .56-1(a), (c), (g)                                                        | G            |
| Mesityl oxide                                                                                    | MSO           | 18 <sup>2</sup>  | 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            | .56-1(b), (c)                                                                     | G            |
| 2-Methyl-5-ethylpyridine                                                                         | MEP           | 9                | O           | E     | III       | A                      | Yes            | 1            | .55-1(e)                                                                          | 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 <sup>2</sup>   | O           | D     | III       | A                      | Yes            | 1            | .55-1(c)                                                                          | G            |
| Nitroethane                                                                                      | NTE           | 42               | O           | D     | II        | A                      | No             | N/A          | .50-81, .56-1(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                      | No             | N/A          | .50-70(a), .50-81                                                                 | G            |
| Perchloroethylene                                                                                | PER           | 36               | O           | NA    | III       | A                      | No             | N/A          | No                                                                                | G            |
| Polyethylene polyamines                                                                          | PEB           | 7 <sup>2</sup>   | O           | E     | III       | A                      | Yes            | 1            | .55-1(e)                                                                          | 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            | .56-1(b), (c)                                                                     | G            |
| iso-Propylamine                                                                                  | IPP           | 7                | O           | A     | II        | A                      | Yes            | 5            | .55-1(c)                                                                          | G            |
| Pyridine                                                                                         | PRD           | 9                | O           | C     | III       | A                      | Yes            | 1            | .55-1(e)                                                                          | G            |
| Sodium acetate, Glycol, Water mixture (3% or more Sodium Hydroxide)                              | SAP           |                  | O           |       | III       | A                      | No             | N/A          | .50-73, .55-1(f)                                                                  | G            |
| Sodium aluminate solution (45% or less)                                                          | SAU           | 5                | O           | NA    | III       | A                      | No             | N/A          | .50-73, .56-1(a), (b), (c)                                                        | G            |
| Sodium chlorate solution (50% or less)                                                           | SDD           | 0 <sup>1,2</sup> | O           | NA    | III       | A                      | No             | N/A          | .50-73                                                                            | G            |
| Sodium hypochlorite solution (20% or less)                                                       | SHQ           | 5                | O           | NA    | III       | A                      | No             | N/A          | .50-73, .56-1(a), (b)                                                             | G            |
| Sodium sulfide, hydrosulfide solution (H2S 15 ppm or less)                                       | SSH           | 0 <sup>1,2</sup> | O           | NA    | III       | A                      | Yes            | 1            | .50-73, .55-1(b)                                                                  | G            |
| Sodium sulfide, hydrosulfide solution (H2S greater than 15 ppm but less than 200 ppm)            | SSI           | 0 <sup>1,2</sup> | O           | NA    | III       | A                      | No             | N/A          | .50-73, .55-1(b)                                                                  | G            |
| Sodium sulfide, hydrosulfide solution (H2S greater than 200 ppm)                                 | SSJ           | 0 <sup>1,2</sup> | O           | NA    | II        | A                      | No             | N/A          | .50-73, .55-1(b)                                                                  | G            |
| Styrene (crude)                                                                                  | STX           |                  | O           | D     | III       | A                      | Yes            | 2            | No                                                                                | G            |
| Styrene monomer                                                                                  | STY           | 30               | O           | D     | III       | A                      | Yes            | 2            | .50-70(a), .50-81(a), (b)                                                         | G            |
| 1,1,2,2-Tetrachloroethane                                                                        | TEC           | 36               | O           | NA    | III       | A                      | No             | N/A          | No                                                                                | G            |
| Tetraethylenepentamine                                                                           | TTP           | 7                | O           | E     | III       | A                      | Yes            | 1            | .55-1(c)                                                                          | G            |
| Tetrahydrofuran                                                                                  | THF           | 41               | O           | C     | III       | A                      | Yes            | 1            | .50-70(b)                                                                         | G            |
| Toluenediamine                                                                                   | TDA           | 9                | O           | E     | II        | A                      | No             | N/A          | .50-73, .56-1(a), (b), (c), (g)                                                   | G            |
| 1,2,4-Trichlorobenzene                                                                           | TCB           | 36               | O           | E     | III       | A                      | Yes            | 1            | No                                                                                | G            |
| 1,1,2-Trichloroethane                                                                            | TCM           | 38               | O           | NA    | III       | A                      | Yes            | 1            | .50-73, .56-1(a)                                                                  | G            |
| Trichloroethylene                                                                                | TCL           | 38 <sup>2</sup>  | O           | NA    | III       | A                      | Yes            | 1            | No                                                                                | G            |
| 1,2,3-Trichloropropane                                                                           | TCN           | 36               | O           | E     | II        | A                      | Yes            | 3            | .50-73, .56-1(a)                                                                  | G            |
| Triethanolamine                                                                                  | TEA           | 8 <sup>2</sup>   | O           | E     | III       | A                      | Yes            | 1            | .55-1(b)                                                                          | G            |
| Triethylamine                                                                                    | TEN           | 7                | O           | C     | II        | A                      | Yes            | 3            | .55-1(e)                                                                          | G            |
| Triethylenetetramine                                                                             | TET           | 7 <sup>2</sup>   | O           | E     | III       | A                      | Yes            | 1            | .55-1(b)                                                                          | G            |
| Triphenylborane (10% or less), caustic soda solution                                             | TPB           | 5                | O           | NA    | III       | A                      | No             | N/A          | .56-1(a), (b), (c)                                                                | G            |
| Trisodium phosphate solution                                                                     | TSP           | 5                | O           | NA    | III       | A                      | No             | N/A          | .50-73, .56-1(a), (c)                                                             | G            |
| Urea, Ammonium nitrate solution (containing more than 2% NH3)                                    | UAS           | 6                | O           | NA    | III       | A                      | No             | N/A          | .56-1(b)                                                                          | G            |
| Vanillin black liquor (free alkali content, 3% or more).                                         | VBL           | 5                | O           | NA    | III       | A                      | No             | N/A          | .50-73, .56-1(a), (c), (g)                                                        | G            |
| Vinyl acetate                                                                                    | VAM           | 13               | O           | C     | III       | A                      | Yes            | 2            | .50-70(a), .50-81(a), (b)                                                         | G            |
| Vinyl neodecanate                                                                                | VND           | 13               | O           | E     | III       | A                      | No             | N/A          | .50-70(a), .50-81(a), (b)                                                         | G            |

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Department of Homeland Security  
United States Coast Guard

Serial #: C1-1103914

Dated: 22-Nov-11

# Certificate of Inspection

## Cargo Authority Attachment

Vessel Name: CCL 406

Shipyard: Trinity Marine,  
Madisonville

Official #: 1236866

Page 4 of 8

Hull #: 2199-1

| 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 Maf's of 50-70(a), 50-81, 56-1(a), (b), (c), ( | Insp. Permit |
| Vinytoluene          | VNT       | 13              | O           | D     | III       | A                      | Yes                           | 2            |                                                                                               | G            |

### Subchapter D Cargoes Authorized for Vapor Control

|                                                                                                                                                       |     |                 |   |     |  |   |     |   |  |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----------------|---|-----|--|---|-----|---|--|--|
| Acetone                                                                                                                                               | ACT | 18 <sup>2</sup> | 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)alkylene(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 <sup>2</sup> | D | D   |  | A | Yes | 1 |  |  |
| Butyl alcohol (n-)                                                                                                                                    | BAN | 20 <sup>2</sup> | D | D   |  | A | Yes | 1 |  |  |
| Butyl alcohol (sec-)                                                                                                                                  | BAS | 20 <sup>2</sup> | 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 <sup>2</sup> | D | E   |  | A | Yes | 1 |  |  |
| n-Decylbenzene, see Alkyl(C9+)benzenes                                                                                                                | DBZ | 32              | D | E   |  | A | Yes | 1 |  |  |
| Diacetone alcohol                                                                                                                                     | DAA | 20 <sup>2</sup> | 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 <sup>2</sup> | D | E   |  | A | Yes | 1 |  |  |
| Diisobutylene                                                                                                                                         | DBL | 30              | D | C   |  | A | Yes | 1 |  |  |
| Diisobutyl ketone                                                                                                                                     | DIK | 18              | D | D   |  | A | Yes | 1 |  |  |
| Diisopropylbenzene (all isomers)                                                                                                                      | DIX | 32              | D | E   |  | A | Yes | 1 |  |  |
| Dimethyl phthalate                                                                                                                                    | DTL | 34              | D | E   |  | A | Yes | 1 |  |  |
| Diocetyl 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                                                                                                                      | OFF | 33              | D | E   |  | A | Yes | 1 |  |  |
| Distillates: Straight run                                                                                                                             | DSR | 33              | D | E   |  | A | Yes | 1 |  |  |
| Dodecene (all isomers)                                                                                                                                | DOZ | 30              | D | D   |  | A | Yes | 1 |  |  |
| Dodecylbenzene, see Alkyl(C9+)benzenes                                                                                                                | DDB | 32              | D | E   |  | A | Yes | 1 |  |  |
| 2-Ethoxyethyl acetate                                                                                                                                 | EEA | 34              | D | D   |  | A | Yes | 1 |  |  |

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Department of Homeland Security  
United States Coast Guard

Serial #: C1-1103914

Dated: 22-Nov-11

# Certificate of Inspection

## Cargo Authority Attachment

Vessel Name: CCL 406

Official #: 1236866

Page 5 of 8

Shipyard: Trinity Marine,  
Madisonville

Hull #: 2199-1

| 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's of | Insp. Permit |
|                                                                         |           |                 |             |       |           |            | App'd (Y or N)         | VCS Category |                                                         |              |
| 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 <sup>2</sup> | 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 <sup>2</sup> | 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 <sup>2</sup> | 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                                                      | GPL       | 33              | D           | A/C   |           | A          | Yes                    | 1            |                                                         |              |
| Gasolines: Straight run                                                 | GSR       | 33              | D           | A/C   |           | A          | Yes                    | 1            |                                                         |              |
| Glycerine                                                               | GCR       | 20 <sup>2</sup> | D           | E     |           | A          | Yes                    | 1            |                                                         |              |
| Heptane (all isomers), see Alkanes (C6-C9) (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-C9)                               | HXS       | 31 <sup>2</sup> | D           | B/C   |           | A          | Yes                    | 1            |                                                         |              |
| Hexanoic acid                                                           | HXO       | 4               | D           | E     |           | A          | Yes                    | 1            |                                                         |              |
| 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 <sup>2</sup> | 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 <sup>2</sup> | 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 <sup>2</sup> | D           | C     |           | A          | Yes                    | 1            |                                                         |              |

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# Certificate of Inspection

## Cargo Authority Attachment

Vessel Name: CCL 406

Official #: 1236866

Page 6 of 8

Shipyard: Trinity Marine,  
Madisonville

Hull #: 2199-1

### Cargo Identification

### Conditions of Carriage

| Name                                                    | Chem Code MBK | Compat Group No | Sub Chapter | Grade | Hull Type | Tank Group | Vapor Recovery |              | Special Requirements in 46 CFR 151 General and Mat'l's of | Insp. Period |
|---------------------------------------------------------|---------------|-----------------|-------------|-------|-----------|------------|----------------|--------------|-----------------------------------------------------------|--------------|
|                                                         |               |                 |             |       |           |            | App'd (Y or N) | VCS Category |                                                           |              |
| Methyl butyl ketone                                     | MBK           | 18              | D           | C     |           | A          | Yes            | 1            |                                                           |              |
| Methyl butyrate                                         | MBU           | 34              | D           | C     |           | A          | Yes            | 1            |                                                           |              |
| Methyl ethyl ketone                                     | MEK           | 18 <sup>2</sup> | D           | C     |           | A          | Yes            | 1            |                                                           |              |
| Methyl heptyl ketone                                    | MHK           | 18              | D           | D     |           | A          | Yes            | 1            |                                                           |              |
| Methyl isobutyl ketone                                  | MIK           | 18 <sup>2</sup> | 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 <sup>2</sup> | 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 <sup>2</sup> | 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            |                                                           |              |
| 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-C8) ether         | PAG           | 40              | D           | E     |           | A          | Yes            | 1            |                                                           |              |
| Poly(2-8)alkylene glycol monoalkyl(C1-C8) 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 <sup>2</sup> | D           | C     |           | A          | Yes            | 1            |                                                           |              |
| n-Propyl alcohol                                        | PAL           | 20 <sup>2</sup> | D           | C     |           | A          | Yes            | 1            |                                                           |              |
| Propylbenzene (all isomers)                             | PBY           | 32              | D           | D     |           | A          | Yes            | 1            |                                                           |              |
| iso-Propylcyclohexane                                   | IPX           | 31              | D           | D     |           | A          | Yes            | 1            |                                                           |              |

\*\*\* This document is only valid when attached to, and referenced by a current, valid Certificate of Inspection. \*\*\*



Department of Homeland Security  
United States Coast Guard

Serial #: C1-1103914

Dated: 22-Nov-11

# Certificate of Inspection

## Cargo Authority Attachment

Vessel Name: CCL 406

Official #: 1236866

Page 7 of 8

Shipyard: Trinity Marine,  
Madisonville

Hull #: 2199-1

| 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's of | Insp. Period |
|                                                        |           |                 |             |       |           |            | App'd (Y or N)         | VCS Category |                                                         |              |
| Propylene glycol                                       | PPG       | 20 <sup>2</sup> | 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            |                                                         |              |



# Certificate of Inspection

## Cargo Authority Attachment

Vessel Name: CCL 406

Official #: 1236866

Page 8 of 8

Shipyard: Trinity Marine,

Hull #: 2199-1

### 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.                                                                                                                                                                                                                                                                                                                   |
| none                    | Certain mixtures of cargoes may not have a CHRIS Code assigned.                                                                                                                                                                                                                                                                                                                                                                          |
| 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) 372-1425.                                                                         |
| 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 "I" 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    |                                                                                                                                                                                                                              |
| Approved (Y or N) | Yes: The vessel's VCS has been reviewed and approved by the MSC to control vapors of the specified cargo.<br>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    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Approved (Y or N) | Yes: The vessel's VCS has been reviewed and approved by the MSC to control vapors of the specified cargo.<br>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, gasolines 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 155.750, 33 CFR 156.120, 33 CFR 156.170, 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 |
| 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

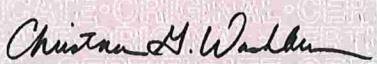


# UNITED STATES OF AMERICA

## DEPARTMENT OF HOMELAND SECURITY UNITED STATES COAST GUARD

### NATIONAL VESSEL DOCUMENTATION CENTER

# CERTIFICATE OF DOCUMENTATION

|                                                                             |                             |                                                                                                                                        |                                       |                             |  |
|-----------------------------------------------------------------------------|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|-----------------------------|--|
| VESSEL NAME<br>CCL 406                                                      |                             | OFFICIAL NUMBER<br>1236866                                                                                                             | IMO OR OTHER NUMBER<br>2199-1         | YEAR COMPLETED<br>2012      |  |
| HAILING PORT<br>NEW ORLEANS LA                                              |                             | HULL MATERIAL<br>STEEL                                                                                                                 |                                       | MECHANICAL PROPULSION<br>NO |  |
| GROSS TONNAGE<br><br>1619 GRT                                               | NET TONNAGE<br><br>1619 NRT | LENGTH<br><br>297.5                                                                                                                    | BREADTH<br><br>54.0                   | DEPTH<br><br>12.0           |  |
| PLACE BUILT<br><br>MADISONVILLE LA                                          |                             |                                                                                                                                        |                                       |                             |  |
| OWNERS<br>CHEM CARRIERS LLC<br>COMPRISED OF ONE MEMBER                      |                             |                                                                                                                                        | OPERATIONAL ENDORSEMENTS<br>COASTWISE |                             |  |
| MANAGING OWNER<br>CHEM CARRIERS LLC<br>1237 HIGHWAY 75<br>SUNSHINE LA 70780 |                             |                                                                                                                                        |                                       |                             |  |
| RESTRICTIONS<br>NONE                                                        |                             |                                                                                                                                        |                                       |                             |  |
| ENTITLEMENTS<br>NONE                                                        |                             |                                                                                                                                        |                                       |                             |  |
| REMARKS<br>NONE                                                             |                             |                                                                                                                                        |                                       |                             |  |
| ISSUE DATE<br>JULY 09, 2026                                                 |                             | <br>DIRECTOR, NATIONAL VESSEL DOCUMENTATION CENTER |                                       |                             |  |
| THIS CERTIFICATE EXPIRES<br><br>AUGUST 31, 2027                             |                             |                                                                                                                                        |                                       |                             |  |





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| VESSEL NAME                                                                               | VESSEL TYPE | HULL TYPE | GROSS TONNAGE | COFR NUMBER | EFFECTIVE DATE | EXPIRATION DATE | COFR APPLICANT       | VIN      | INSURANCE CANCEL FLAG |
|-------------------------------------------------------------------------------------------|-------------|-----------|---------------|-------------|----------------|-----------------|----------------------|----------|-----------------------|
|  CCL 406 | TANKBARGE D |           | 1691          | 841310 - 21 | 1/27/2024      | 1/27/2027       | CHEM CARRIERS, L.L.C | D1236866 |                       |

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ILLINOIS & MICHIGAN OIL, LLC | 800.834.6644 | CHANNAKON FLEET

724 Railroad Street | Joliet, Illinois 60436 | 844.456.4645 | DISPATCH@ILMIOIL.COM | ILMIOIL.COM



## VAPOR TIGHTNESS TEST CERTIFICATE

Date Performed: Testing Location: 07-08-2026

*Channakon Fleet*

Vessel ID: Vessel Operator: CCL 406

*Chem Carriers*

| # | Testing                                                                                                 | Results                                                                                                    |
|---|---------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| 1 | Pressurize all cargo tanks and related vapor systems with dry air to 1.5 psi.                           | Start Pressure: <u>1.5</u> PSI <i>16"oz</i>                                                                |
| 2 | Hold pressure and check with soap and water for leaks at all valves, hatches, and pipeline connections. | Duration Held: <u>30</u> Min<br><i>07-08-2026</i>                                                          |
| 3 | Were any leaks found and repaired? If so note any repairs made below. Re-pressurize and restart test.   | Repaired: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/a |
| 4 | Record ending pressure. Maximum pressure change on 10k barges = 0.2 psi and 30k barges = 0.1 psi.       | End Pressure: PSI <i>16"oz</i>                                                                             |
| * | Overall Result of Testing:                                                                              | Pass: <input checked="" type="checkbox"/> Fail: <input type="checkbox"/>                                   |

### Notes / Comments:

*#1 Port Cargo manway and #2 Starboard manway needed to be opened and adjust Flame Screen wire back inside. Tighten all Hatches and Butterworth Hatches so they were vapor tight.*

### Certification

I hereby certify that the aforementioned tests were conducted in compliance with 40 CFR 61.300 to 40 CFR 61.306.

Name:

*Armando Sanchez*

Signature:

*[Signature]*

Title:

*Supervisor*

Note: Illinois & Michigan Oil, LLC (IMO) offers no warranty neither expressed nor implied, to the vessel operator (or owner) stated above, as to the integrity of the tests performed that are listed on this document once the vessel leaves our facility. To the extent permitted by law, vessel owner/operator, agrees to hold harmless IMO, its/their officers directors, agents, and employees from and against any and all claims, suits, liens, judgments, damages, losses, and expenses including reasonable legal fees and costs arising in whole or in part and in any manner from acts, omissions, breach, or default in connection with performance of any work by IMO, its officers directors agents employees and subcontractors.



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## PIPELINE TEST CERTIFICATE

Date Performed: Testing Location: 07-08-2026

Channahon Fleet

Vessel ID: Vessel Operator: CCL 406

Chem Carriers

| # | Testing                                                                                                                                                                                                                    | Results                                                                  |
|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| 1 | Test all oil transfer systems annually at the pressure of the relief valve or at 1.5 times the maximum allowable working pressure (MAWP) plus any static head pressure in the system for which the equipment will be used. | Test Pressure: PSI<br>186.5 PSI                                          |
| 2 | Test the transfer relief valve annually. It must not exceed the pressure for which it was set and release at or below the manufacturer's set pressure.                                                                     | Test Pressure: PSI<br>125 PSI                                            |
| 3 | Test each pressure gauge annually. Each pressure gauge must read within 10 percent of the test pressure or be replaced.                                                                                                    | Test Pressure: PSI Actual Pressure: PSI<br>07-08-2026                    |
| 4 | Test each remote controlled operation, or indicating equipment, such as, a remotely operated valve, tank level alarm, or emergency shutdown.                                                                               | Operational: Yes No N/a<br>Repaired: Yes No N/a                          |
| * | Overall Result of Testing:                                                                                                                                                                                                 | Pass: <input checked="" type="checkbox"/> Fail: <input type="checkbox"/> |

Notes / Comments:

N/A

Certification

I hereby certify that the aforementioned tests were conducted in compliance with 33 CFR 156.170 and 46 CFR 35.35.70.

Name: Armando Sanchez

Signature:

Title: Supervisor



### BARGE PIPING LETTER

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

BARGE OWNER/BARGE NAME: Chem Carriers / CCL 406

Letter expiration date (one year from test date): 9-04-26

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

1. Cargo Piping and Valves (actual date of test): 9-04-25

Test Pressure (188 psi): 188psi

2. Cargo Relief Valve (actual date of test): 9-04-25

Test Pressure (125 psi): 125psi

3. Cargo Pressure Gauge (actual date of test): 9-04-25

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:        | <u>Jacob Saverdo</u>                     |
| Printed Name of Tester:     | <u>Jacob Saverdo</u>                     |
| Company/Location of Tester: | <u>K-solv maritime / channelview TX.</u> |

1015 Lakeside Dr, Channelview, TX 77530

Phone: 281-452-4000 Fax: 281-452-5523

Revised 10/03/2019



### BARGE VAPOR TIGHTNESS LETTER

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

- Test date: 09-04-25
- Barge owner: ChemCarriers
- Barge Name/Official Number: CCL406
- Maximum load rate (BPH): 5500 (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: 15:00 Beginning Pressure: 28"

→ End Time: 15:30 Ending Pressure: 27.8"

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

Company of Tester:

Location:

K-solv Maritime

Channelview TX

Name of Tester (Print):

Signature of Tester:

Jacob Saucedo

Jacob Saucedo

Name of Witness (Print):

Signature of Witness:

Edgar Quiroz

Edgar Quiroz

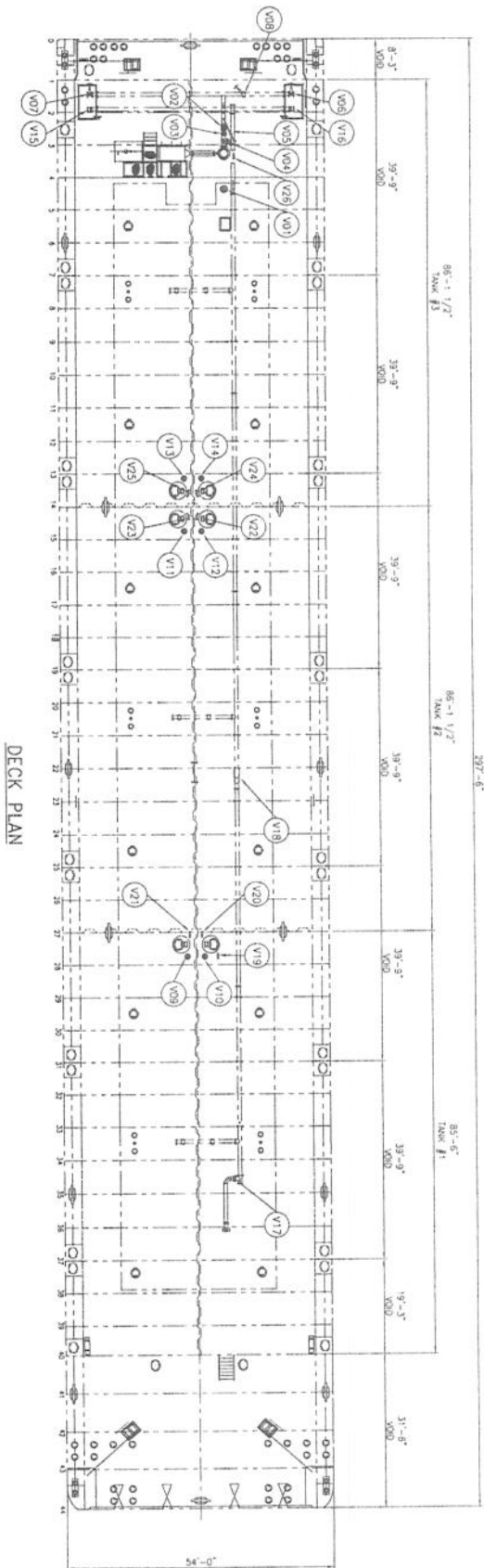
Affiliation/Company of Witness (Print)

K-solv / Supervisor

1015 Lakeside Dr, Channelview, TX 77530

Phone: 281-452-4000 Fax: 281-452-5523

Revised 10/03/2019



DECK PLAN

### CARGO SYSTEM

- V01 CARGO PUMP SUCTION VALVE
- V02 CARGO PUMP DISCHARGE VALVE
- V03 CARGO PUMP RELIEF VALVE
- V04 CARGO PUMP BYPASS VALVE
- V05 PORT TRANS CARGO HOR BLOCK VALVE
- V06 STBD TRANS CARGO HOR BLOCK VALVE
- V07 CARGO LOADING VALVE
- V08 CARGO SUCTION VALVE-TANK #15
- V09 CARGO SUCTION VALVE-TANK #1P
- V10 CARGO SUCTION VALVE-TANK #25
- V11 CARGO SUCTION VALVE-TANK #2P
- V12 CARGO SUCTION VALVE-TANK #35
- V13 CARGO SUCTION VALVE-TANK #3P
- V14 CARGO SUCTION VALVE-TANK #3P

### VAPOR SYSTEM

- V15 STBD TRANS VAPOR HOR BLOCK VALVE
- V16 PORT TRANS VAPOR HOR BLOCK VALVE
- V17 WAPOR STACK BLOCK VALVE
- V18 WAPOR P/V VALVE

### STRIPPING SYSTEM

- V19 STRIPPING VALVE-CARGO HEADER
- V20 STRIPPING VALVE-TANK #1P
- V21 STRIPPING VALVE-TANK #1S
- V22 STRIPPING VALVE-TANK #2P
- V23 STRIPPING VALVE-TANK #2S
- V24 STRIPPING VALVE-TANK #3P
- V25 STRIPPING VALVE-TANK #3S
- V26 STRIPPING VALVE-CARGO PUMPEL

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |          |           |        |    |
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| AB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | AS-Built | REVISIONS | V/AN/1 | MD |
| REV                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | REV      |           |        |    |
| <p>The drawings and the information shown herein are copyrighted by Tishtry Marine Products, Inc. and are the property of Tishtry Marine Products, Inc. and are not to be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or by any information storage and retrieval system, without the prior written permission of Tishtry Marine Products, Inc.</p> <p><b>TISHTRY MARINE PRODUCTS, INC.</b><br/>CHEM CARRIERS, LLC</p> <p>237-6" X 54'-0" X 12'-0" DOUBLE SKIN TANK BARGE</p> <p>VALVE LABEL PLATE DIAGRAM</p> <p>SCALE: 3/32" = 1'-0"</p> <p>DATE: 10/27/10</p> <p>DESIGN: 10/27/10</p> <p>CHECKED: 10/27/10</p> <p>APPROVED: 10/27/10</p> <p>REV: 1</p> <p>REV: 2</p> <p>REV: 3</p> <p>REV: 4</p> <p>REV: 5</p> <p>REV: 6</p> <p>REV: 7</p> <p>REV: 8</p> <p>REV: 9</p> <p>REV: 10</p> <p>REV: 11</p> <p>REV: 12</p> <p>REV: 13</p> <p>REV: 14</p> <p>REV: 15</p> <p>REV: 16</p> <p>REV: 17</p> <p>REV: 18</p> <p>REV: 19</p> <p>REV: 20</p> <p>REV: 21</p> <p>REV: 22</p> <p>REV: 23</p> <p>REV: 24</p> <p>REV: 25</p> <p>REV: 26</p> <p>REV: 27</p> <p>REV: 28</p> <p>REV: 29</p> <p>REV: 30</p> <p>REV: 31</p> <p>REV: 32</p> <p>REV: 33</p> <p>REV: 34</p> <p>REV: 35</p> <p>REV: 36</p> <p>REV: 37</p> <p>REV: 38</p> <p>REV: 39</p> <p>REV: 40</p> <p>REV: 41</p> <p>REV: 42</p> <p>REV: 43</p> <p>REV: 44</p> <p>REV: 45</p> <p>REV: 46</p> <p>REV: 47</p> <p>REV: 48</p> <p>REV: 49</p> <p>REV: 50</p> <p>REV: 51</p> <p>REV: 52</p> <p>REV: 53</p> <p>REV: 54</p> <p>REV: 55</p> <p>REV: 56</p> <p>REV: 57</p> <p>REV: 58</p> <p>REV: 59</p> <p>REV: 60</p> <p>REV: 61</p> <p>REV: 62</p> <p>REV: 63</p> <p>REV: 64</p> <p>REV: 65</p> <p>REV: 66</p> <p>REV: 67</p> <p>REV: 68</p> <p>REV: 69</p> <p>REV: 70</p> <p>REV: 71</p> <p>REV: 72</p> <p>REV: 73</p> <p>REV: 74</p> <p>REV: 75</p> <p>REV: 76</p> <p>REV: 77</p> <p>REV: 78</p> <p>REV: 79</p> <p>REV: 80</p> <p>REV: 81</p> <p>REV: 82</p> <p>REV: 83</p> <p>REV: 84</p> <p>REV: 85</p> <p>REV: 86</p> <p>REV: 87</p> <p>REV: 88</p> <p>REV: 89</p> <p>REV: 90</p> <p>REV: 91</p> <p>REV: 92</p> <p>REV: 93</p> <p>REV: 94</p> <p>REV: 95</p> <p>REV: 96</p> <p>REV: 97</p> <p>REV: 98</p> <p>REV: 99</p> <p>REV: 100</p> |          |           |        |    |



# Marine Safety Center Form for Tank Vessels Installing a Vapor Control System



1. Vessel Name CCL 406  
Official Number Pending

Shipyard Trinity Marine Products, Madisonville, LA  
Hull # 2199-1

2. **Purpose:** This form consolidates the information required for VCS approval. Entering the requested information will expedite your approval and significantly decrease the probability the MSC will return the submission for revision.

3. **Tank Design:** Raised Trunk ☒ Maximum Design Working Pressure: 3.50 psig  
Flush Deck ☐ Existing Raised Trunk Barges need MSC approval letter serial number and date which approved its MDWP

4. **Requested Maximum Cargo Transfer Rates**  
5,000 bbl/hr loading  
5,000 bbl/hr discharging

## 5. Requested Maximum Cargo-Air Mixture Vapor Density:

List the requested cargoes with the (a) highest vapor density and (b) highest pressure drop. They are not always the same cargo.

a. Cargo Name PTY iso-Pentane 0.378 lbm/ft<sup>3</sup>  
b. Cargo Name PTY iso-Pentane 0.378 lbm/ft<sup>3</sup>

6. **VCS Categories Requested (list):** 5

## 7. Pressure Drop for the cargo(es) from Section 5 for the following scenarios:

|                                                         | Cargo A<br>psi | Cargo B<br>psi |
|---------------------------------------------------------|----------------|----------------|
| a. Most Remote Cargo Tank to P/V valve                  | 0.292          | 0.292          |
| b. Most Remote Cargo Tank to VCS Facility Connection    | 0.442          | 0.442          |
| c. ΔP across P/V valve @ cargoes' Maximum Transfer Rate | 3.139          | 3.139          |
| d. ΔP across Vacuum P/V @ MTR or Max. Discharge Rate    | 2.488          |                |
| e. ΔP across Spill Valve for Max. Density Cargo at MTR  | NA             |                |

## 8. Pressure Vacuum Valve:

Manufacturer ERL  
Model/Size SUPERAC  
CG Approval Number 162.017/0000167/3

Settings in psig:  
Pressure-side 3.0  
Vacuum-side 3.0

Include the Manufacturer's ΔP versus Flow for both parts of P/V & Spill Valve: ☒

## 9. VCS Pipe Sizes:

Longitudinal Header 8 Inches Transverse Headers 8 Inches

## 10. Closed Gauging ☒

Check the box to signify the vessel will have closed gauging meeting 46 CFR 151.151-10(c). MSC Electrical Branch and the OCMI will verify the closed gauging meets these requirements.

## 11. Tank Overfill Protection System (check appropriate box or boxes and list make/model)

a. High Level/Tank Overfill Alarm ☒ ERL Level Alert II Setting in psig   
b. Overfill Control Shutdown ☒ ERL Level Alert II  
c. Spill Valve ☐ Meets ASTM F1271 ☐  
d. Rupture Disk ☐

If applicable, Calculations demonstrate compliance with 39.20-9(b)(2). ☒

12. Submittal Includes a Graph or Table showing the ΔP through the VCS piping from the most remote cargo tank to the facility connection as a function of liquid transfer rate for **both** cargoes in Section 5. ☒

13. Submittal Includes a Graph or Table showing the Facility Pressure @ the vessel's vapor connect versus allowable transfer rate. This graph demonstrates the barge can satisfy 46 CFR 39.30-1(d)(3). See MSC "Guidelines" at [www.msc.uscg/hq/msc](http://www.msc.uscg/hq/msc) for an example. ☒

14. Previous VCS approval letters:  Page 9 of 12

OWNER: Chem Carriers, LLC  
DESCRIPTION: Double Skin Trail Rake Inland Tank Barge  
SIZE: 297'-6"x54'-0"x12'-0"  
HULL/NAME: 2199-1/CCL 406

CONTRACT: 38193  
BY: MEC  
DATE: 26-Oct-2011

TABLE 1 - VAPOR CONTROL SYSTEM CALCULATIONS

|    | CHRIS<br>CODE | NAME                                                                           | COMP<br>GROUP | SUB<br>CHAP | GRADE | HULL<br>TYPE | VCS<br>CAT | REST.                           | LIQ<br>SG | VAPOR<br>PRESS | VAPOR<br>SG | VAPOR<br>AIR<br>WEIGHT<br>DENSITY | VAPOR<br>GROWTH<br>RATE | VAPOR<br>FLOW RATE<br>(bbl/h) | AIR<br>EQUIV<br>FLOW<br>RATE<br>(bbl/hr) | PRESSURE<br>DROP TO<br>PV VALVE<br>IN VCS<br>(LOADING)<br>(psig) | PRESSURE<br>DROP TO<br>SHORE CONN<br>IN VCS<br>(LOADING)*<br>(psig) |
|----|---------------|--------------------------------------------------------------------------------|---------------|-------------|-------|--------------|------------|---------------------------------|-----------|----------------|-------------|-----------------------------------|-------------------------|-------------------------------|------------------------------------------|------------------------------------------------------------------|---------------------------------------------------------------------|
| 1  | ABX           | Ammonium bisulfite solution (70% or less)                                      | 43            | O           | NA    | III          | N/A        | .50-73, .56-1(a), (b), (c)      | 0.880     | 0.330          | 4.480       | 0.088                             | 1.007                   | 5033                          | 5192                                     | 0.044                                                            | 0.067                                                               |
| 2  | ACN           | Acrylonitrile                                                                  | 15            | O           | C     | II           | 4          | .50-70(a), .55-1(e)             | 0.810     | 5.000          | 1.800       | 0.102                             | 1.100                   | 5500                          | 6088                                     | 0.061                                                            | 0.092                                                               |
| 3  | ADN           | Adiponitrile                                                                   | 37            | O           | E     | II           | 1          | No                              | 0.950     | 0.010          | 3.730       | 0.083                             | 1.000                   | 5001                          | 5003                                     | 0.041                                                            | 0.062                                                               |
| 4  | AEE           | Aminoethylethanolamine                                                         | 8             | O           | E     | III          | 1          | .55-1(b)                        | 1.030     | 0.010          | 3.590       | 0.083                             | 1.000                   | 5001                          | 5003                                     | 0.041                                                            | 0.062                                                               |
| 5  | AHO           | Anthracene oil (Coal tar fraction)                                             | 33            | O           | NA    | II           | N/A        | No                              | 1.030     | 0.010          | 3.590       | 0.083                             | 1.000                   | 5001                          | 5003                                     | 0.041                                                            | 0.062                                                               |
| 6  | AMH           | Ammonium hydroxide (28% or less NH3)                                           | 6             | O           | NA    | III          | N/A        | .56-1(a), (b), (c), (f), (g)    | 0.940     | 10.600         | 2.640       | 0.165                             | 1.212                   | 6060                          | 8529                                     | 0.119                                                            | 0.181                                                               |
| 7  | ATN           | Acetonitrile                                                                   | 37            | O           | C     | III          | 3          | No                              | 0.780     | 0.030          | 1.410       | 0.083                             | 1.001                   | 5003                          | 5003                                     | 0.041                                                            | 0.062                                                               |
| 8  | BAR           | Butyl acrylate (all isomers)                                                   | 14            | O           | D     | III          | 2          | .50-70(a), .50-81(a), (b)       | 0.880     | 0.600          | 4.420       | 0.093                             | 1.012                   | 5060                          | 5344                                     | 0.047                                                            | 0.071                                                               |
| 9  | BHA           | Benzene or hydrocarbon mixtures (containing Acetylene and 10% Benzene or more) | 32            | O           | NA    | III          | 1          | .50-60, .56-1(b), (d), (f), (g) | 0.880     | 0.800          | 4.000       | 0.094                             | 1.250                   | 6250                          | 6658                                     | 0.073                                                            | 0.110                                                               |
| 10 | BHB           | Benzene or hydrocarbon mixtures (having 10% Benzene or more)                   | 32            | O           | NA    | III          | 1          | .50-60                          | 0.880     | 0.800          | 4.000       | 0.094                             | 1.250                   | 6250                          | 6658                                     | 0.073                                                            | 0.110                                                               |
| 11 | BMN           | Butyl Methacrylate                                                             | 14            | O           | D     | III          | 2          | .50-70(a), .50-81(a), (b)       | 0.880     | 0.290          | 4.900       | 0.088                             | 1.006                   | 5029                          | 5186                                     | 0.044                                                            | 0.067                                                               |
| 12 | BNZ           | Benzene                                                                        | 32            | O           | C     | III          | 1          | .50-60                          | 0.880     | 4.500          | 2.800       | 0.121                             | 1.250                   | 6250                          | 7544                                     | 0.093                                                            | 0.142                                                               |
| 13 | BTX           | Benzene, Toluene, Xylene mixtures (10% Benzene or more)                        | 32            | O           | B/C   | III          | 1          | .50-60                          | 0.840     | 7.300          | 2.800       | 0.145                             | 1.250                   | 6250                          | 8248                                     | 0.112                                                            | 0.169                                                               |
| 14 | CBT           | Carbon tetrachloride                                                           | 36            | O           | NA    | III          | N/A        | No                              | 1.590     | 5.400          | 5.490       | 0.197                             | 1.108                   | 5540                          | 8526                                     | 0.119                                                            | 0.181                                                               |
| 15 | CCH           | Cyclohexanone                                                                  | 18            | O           | D     | III          | 1          | .56-1(a), (b)                   | 0.950     | 0.200          | 3.400       | 0.085                             | 1.004                   | 5020                          | 5086                                     | 0.042                                                            | 0.064                                                               |
| 16 | CCW           | Creosote                                                                       | 21            | O           | E     | III          | 1          | No                              | 0.950     | 0.200          | 3.400       | 0.085                             | 1.004                   | 5020                          | 5086                                     | 0.042                                                            | 0.064                                                               |
| 17 | CHA           | Cyclohexylamine                                                                | 7             | O           | D     | III          | 1          | .56-1(a), (b), (c), (g)         | 0.870     | 0.620          | 3.420       | 0.090                             | 1.012                   | 5062                          | 5271                                     | 0.046                                                            | 0.069                                                               |
| 18 | DCM           | Dichloromethane                                                                | 36            | O           | NA    | III          | N/A        | No                              | 1.340     | 19.000         | 3.000       | 0.322                             | 1.250                   | 6250                          | 12304                                    | 0.248                                                            | 0.376                                                               |
| 19 | DEE           | 2,2'-Dichloroethyl ether                                                       | 41            | O           | D     | II           | 1          | .55-1(f)                        | 1.220     | 0.040          | 4.900       | 0.084                             | 1.001                   | 5004                          | 5025                                     | 0.041                                                            | 0.063                                                               |
| 20 | DEN           | Diethylamine                                                                   | 7             | O           | C     | III          | 3          | .55-1(c)                        | 0.710     | 1.000          | 2.500       | 0.090                             | 1.020                   | 5100                          | 5310                                     | 0.046                                                            | 0.070                                                               |
| 21 | DET           | Diethylenetriamine                                                             | 7             | O           | E     | III          | 1          | .55-1(c)                        | 0.950     | 0.040          | 3.480       | 0.083                             | 1.001                   | 5004                          | 5017                                     | 0.041                                                            | 0.063                                                               |
| 22 | DIA           | Diisopropylamine                                                               | 7             | O           | C     | II           | 3          | .55-1(c)                        | 0.720     | 3.700          | 3.500       | 0.126                             | 1.074                   | 5370                          | 6624                                     | 0.072                                                            | 0.109                                                               |
| 23 | DIP           | Diisopropanolamine                                                             | 8             | O           | E     | III          | 1          | .55-1(c)                        | 0.980     | 0.010          | 4.590       | 0.083                             | 1.000                   | 5001                          | 5005                                     | 0.041                                                            | 0.062                                                               |
| 24 | DMB           | Dimethylethanolamine                                                           | 8             | O           | D     | III          | 1          | .56-1(b), (c)                   | 0.890     | 0.516          | 3.030       | 0.088                             | 1.010                   | 5052                          | 5197                                     | 0.044                                                            | 0.067                                                               |
| 25 | DMF           | Dimethylformamide                                                              | 10            | O           | D     | III          | 1          | .55-1(e)                        | 0.950     | 0.300          | 2.510       | 0.085                             | 1.006                   | 5030                          | 5093                                     | 0.043                                                            | 0.064                                                               |
| 26 | DMX           | Dichloropropene, Dichloropropane mixtures.                                     | 15            | O           | NA    | II           | 1          | No                              | 0.892     | 9.200          | 1.550       | 0.107                             | 1.184                   | 5920                          | 6711                                     | 0.074                                                            | 0.112                                                               |
| 27 | DNA           | Di-n-propylamine                                                               | 7             | O           | C     | II           | 3          | .55-1(c)                        | 0.740     | 1.450          | 3.500       | 0.100                             | 1.029                   | 5145                          | 5646                                     | 0.052                                                            | 0.079                                                               |
| 28 | DOT           | Dodecyl dimethylamine, Tetradecyl dimethylamine mixture                        | 7             | O           | E     | III          | N/A        | .56-1(b)                        | 0.990     | 0.010          | 13.450      | 0.084                             | 1.000                   | 5001                          | 5017                                     | 0.041                                                            | 0.063                                                               |
| 29 | DPB           | 1,1-Dichloropropane                                                            | 36            | O           | C     | III          | 3          | No                              | 1.040     | 1.800          | 3.000       | 0.100                             | 1.036                   | 5180                          | 5681                                     | 0.053                                                            | 0.080                                                               |
| 30 | DPC           | 1,3-Dichloropropane                                                            | 36            | O           | C     | III          | 3          | No                              | 1.040     | 1.800          | 3.000       | 0.100                             | 1.036                   | 5180                          | 5681                                     | 0.053                                                            | 0.080                                                               |
| 31 | DPP           | 1,2-Dichloropropane                                                            | 36            | O           | C     | III          | 3          | No                              | 1.160     | 2.500          | 3.890       | 0.117                             | 1.050                   | 5250                          | 6228                                     | 0.064                                                            | 0.096                                                               |
| 32 | DPU           | 1,3-Dichloropropene                                                            | 15            | O           | D     | II           | 4          | No                              | 1.230     | 5.500          | 3.840       | 0.156                             | 1.110                   | 5550                          | 7613                                     | 0.095                                                            | 0.144                                                               |
| 33 | DTI           | 2,4-Dichlorophenoxyacetic acid, triisopropanolamine salt solution.             | 43            | O           | NA    | III          | N/A        | .56-1(a), (b), (c), (g)         | 1.180     | 0.010          | 5.300       | 0.083                             | 1.000                   | 5001                          | 5006                                     | 0.041                                                            | 0.062                                                               |
| 34 | EAC           | Ethyl acrylate                                                                 | 14            | O           | C     | III          | 2          | .50-70(a), .50-81(a), (b)       | 0.930     | 2.000          | 3.500       | 0.106                             | 1.040                   | 5200                          | 5887                                     | 0.057                                                            | 0.086                                                               |
| 35 | EAI           | 2-Ethylhexyl acrylate                                                          | 14            | O           | E     | III          | 2          | .50-70(a), .50-81(a), (b)       | 0.890     | 0.015          | 6.350       | 0.083                             | 1.000                   | 5002                          | 5011                                     | 0.041                                                            | 0.062                                                               |
| 36 | EAN           | Ethylamine solution (72% or less)                                              | 7             | O           | A     | II           | N/A        | .55-1(b)                        | 0.800     | 15.500         | 1.560       | 0.137                             | 1.250                   | 6250                          | 8014                                     | 0.105                                                            | 0.160                                                               |
| 37 | EBA           | N-Ethylbutylamine                                                              | 7             | O           | D     | III          | 3          | .55-1(b)                        | 0.719     | 1.598          | 0.286       | 0.078                             | 1.032                   | 5160                          | 4989                                     | 0.041                                                            | 0.062                                                               |
| 38 | ECC           | N-Ethylcyclohexylamine                                                         | 7             | O           | D     | III          | 1          | .55-1(b)                        | 0.850     | 0.585          | 4.400       | 0.092                             | 1.012                   | 5059                          | 5334                                     | 0.047                                                            | 0.071                                                               |
| 39 | EDA           | Ethylenediamine                                                                | 7             | O           | D     | III          | 1          | .55-1(c)                        | 0.910     | 0.900          | 2.100       | 0.088                             | 1.018                   | 5090                          | 5229                                     | 0.045                                                            | 0.068                                                               |
| 40 | EDC           | Ethylene dichloride                                                            | 36            | O           | C     | III          | 1          | No                              | 1.260     | 4.000          | 3.420       | 0.128                             | 1.080                   | 5400                          | 6714                                     | 0.074                                                            | 0.112                                                               |
| 41 | EGC           | Ethylene glycol monoalkyl ethers                                               | 40            | O           | D/E   | III          | 1          | No                              | 0.970     | 0.200          | 4.720       | 0.087                             | 1.004                   | 5020                          | 5123                                     | 0.043                                                            | 0.065                                                               |
| 42 | EGH           | Ethylene glycol hexyl ether                                                    | 40            | O           | E     | III          | N/A        | No                              | 0.930     | 0.170          | 3.100       | 0.085                             | 1.003                   | 5017                          | 5066                                     | 0.042                                                            | 0.064                                                               |
| 43 | EGP           | Ethylene glycol propyl ether                                                   | 40            | O           | E     | III          | 1          | No                              | 0.908     | 0.025          | 3.600       | 0.083                             | 1.001                   | 5003                          | 5010                                     | 0.041                                                            | 0.062                                                               |
| 44 | EPA           | 2-Ethyl-3-propylacrolein                                                       | 19            | O           | E     | III          | 1          | No                              | 0.850     | 0.120          | 4.350       | 0.085                             | 1.002                   | 5012                          | 5067                                     | 0.042                                                            | 0.064                                                               |
| 45 | ETC           | Ethylene cyanohydrin                                                           | 20            | O           | E     | III          | 1          | No                              | 1.040     | 0.010          | 2.450       | 0.083                             | 1.000                   | 5001                          | 5002                                     | 0.041                                                            | 0.062                                                               |
| 46 | ETM           | Ethyl methacrylate                                                             | 14            | O           | D/E   | III          | 2          | .50-70(a)                       | 0.920     | 1.000          | 3.940       | 0.097                             | 1.020                   | 5100                          | 5506                                     | 0.050                                                            | 0.075                                                               |
| 47 | GTA           | Glutaraldehyde solution (50% or less)                                          | 19            | O           | NA    | III          | N/A        | No                              | 1.124     | 0.010          | 3.400       | 0.083                             | 1.000                   | 5001                          | 5003                                     | 0.041                                                            | 0.062                                                               |

OWNER: Chem Carriers, LLC  
DESCRIPTION: Double Skin Trail Rake Inland Tank Barge  
SIZE: 297'-6"x54'-0"x12'-0"  
HULL/NAME: 2199-1/CCL 406

CONTRACT: 38193  
BY: MEC  
DATE: 26-Oct-2011

TABLE 1 - VAPOR CONTROL SYSTEM CALCULATIONS

|    | CHRIS<br>CODE | NAME                                                                                              | COMP<br>GROUP | SUB<br>CHAP | GRADE | HULL<br>TYPE | VCS<br>CAT | REST.                                      | LIQ<br>SG | VAPOR<br>PRESS | VAPOR<br>SG | VAPOR<br>AIR<br>WEIGHT<br>DENSITY | VAPOR<br>GROWTH<br>RATE | VAPOR<br>FLOW RATE<br>(bbl/h) | AIR<br>EQUIV<br>FLOW<br>RATE<br>(bbl/hr) | PRESSURE<br>DROP TO<br>PV VALVE<br>IN VCS<br>(LOADING)<br>(psig) | PRESSURE<br>DROP TO<br>SHORE CONN<br>IN VCS<br>(LOADING)*<br>(psig) |
|----|---------------|---------------------------------------------------------------------------------------------------|---------------|-------------|-------|--------------|------------|--------------------------------------------|-----------|----------------|-------------|-----------------------------------|-------------------------|-------------------------------|------------------------------------------|------------------------------------------------------------------|---------------------------------------------------------------------|
| 48 | HMC           | Hexamethylenediamine solution                                                                     | 7             | O           | E     | III          | 1          | .55-1(c)                                   | 1.210     | 10.500         | 1.260       | 0.096                             | 1.210                   | 6050                          | 6498                                     | 0.069                                                            | 0.105                                                               |
| 49 | HMI           | Hexamethyleneimine                                                                                | 7             | O           | C     | II           | 1          | .56-1(b), (c)                              | 0.880     | 5.600          | 0.104       | 0.059                             | 1.112                   | 5560                          | 4705                                     | 0.036                                                            | 0.055                                                               |
| 50 | IAI           | iso-Decyl acrylate                                                                                | 14            | O           | E     | III          | 2          | .50-70(a), .50-81(a), (b), .55-1(c)        | 0.890     | 0.010          | 7.300       | 0.083                             | 1.000                   | 5001                          | 5008                                     | 0.041                                                            | 0.062                                                               |
| 51 | IPP           | iso-Propylamine                                                                                   | 7             | O           | A     | II           | 5          | .55-1(c)                                   | 0.690     | 23.100         | 2.030       | 0.265                             | 1.250                   | 6250                          | 11160                                    | 0.204                                                            | 0.310                                                               |
| 52 | IPR           | Isoprene                                                                                          | 30            | O           | A     | III          | N/A        | .50-70(a), .50-81(a), (b)                  | 0.672     | 11.300         | 1.772       | 0.124                             | 1.226                   | 6130                          | 7488                                     | 0.092                                                            | 0.139                                                               |
| 53 | KPL           | Kraft pulping liquors (free alkali content 3% or more) (including: Black, Green, or White liquor) | 5             | O           | NA    | III          | N/A        | .50-73, .56-1(a), (c), (g)                 | 0.800     | 10.060         | 2.960       | 0.175                             | 1.201                   | 6006                          | 8730                                     | 0.125                                                            | 0.190                                                               |
| 54 | MAM           | Methyl acrylate                                                                                   | 14            | O           | C     | III          | 2          | .50-70(a), .50-81(a), (b)                  | 0.950     | 4.100          | 3.000       | 0.121                             | 1.082                   | 5410                          | 6542                                     | 0.070                                                            | 0.106                                                               |
| 55 | MCK           | Methylcyclopentadiene dimer                                                                       | 30            | O           | C     | III          | 1          | No                                         | 0.941     | 0.040          | 0.930       | 0.083                             | 1.001                   | 5004                          | 5002                                     | 0.041                                                            | 0.062                                                               |
| 56 | MEA           | Ethanolamine                                                                                      | 8             | O           | E     | III          | 1          | .55-1(c)                                   | 1.020     | 0.030          | 2.100       | 0.083                             | 1.001                   | 5003                          | 5006                                     | 0.041                                                            | 0.062                                                               |
| 57 | MEP           | 2-Methyl-5-ethylpyridine                                                                          | 9             | O           | E     | III          | 1          | .55-1(e)                                   | 0.920     | 0.160          | 4.180       | 0.085                             | 1.003                   | 5016                          | 5086                                     | 0.042                                                            | 0.064                                                               |
| 58 | MMM           | Methyl methacrylate                                                                               | 14            | O           | C     | III          | 2          | .50-70(a), .50-81(a), (b)                  | 0.940     | 2.020          | 3.450       | 0.106                             | 1.040                   | 5202                          | 5883                                     | 0.057                                                            | 0.086                                                               |
| 59 | MPA           | iso-Propanolamine                                                                                 | 8             | O           | E     | III          | 1          | .55-1(c)                                   | 0.960     | 0.080          | 2.590       | 0.084                             | 1.002                   | 5008                          | 5025                                     | 0.041                                                            | 0.063                                                               |
| 60 | MPL           | Morpholine                                                                                        | 7             | O           | D     | III          | 1          | .55-1(c)                                   | 1.000     | 0.800          | 3.000       | 0.091                             | 1.016                   | 5080                          | 5303                                     | 0.046                                                            | 0.070                                                               |
| 61 | MPR           | 2-Methylpyridine                                                                                  | 9             | O           | D     | III          | 3          | .55-1(c)                                   | 0.940     | 2.065          | 3.200       | 0.104                             | 1.041                   | 5207                          | 5835                                     | 0.056                                                            | 0.085                                                               |
| 62 | MSO           | Mesityl oxide                                                                                     | 18            | O           | D     | III          | 1          | No                                         | 0.860     | 0.670          | 3.500       | 0.091                             | 1.013                   | 5067                          | 5300                                     | 0.046                                                            | 0.070                                                               |
| 63 | MSR           | alpha-Methylstyrene                                                                               | 30            | O           | D     | III          | 2          | .50-70(a), .50-81(a), (b)                  | 0.890     | 0.400          | 4.080       | 0.089                             | 1.008                   | 5040                          | 5211                                     | 0.045                                                            | 0.068                                                               |
| 64 | NCT           | Coal tar naphtha solvent                                                                          | 33            | O           | D     | III          | 1          | .50-73                                     | 1.410     | 3.600          | 2.170       | 0.103                             | 1.072                   | 5360                          | 5962                                     | 0.058                                                            | 0.088                                                               |
| 65 | NPM           | 1- or 2-Nitropropane                                                                              | 42            | O           | D     | III          | 1          | .50-81                                     | 0.990     | 1.050          | 3.060       | 0.093                             | 1.021                   | 5105                          | 5406                                     | 0.048                                                            | 0.073                                                               |
| 66 | PAX           | Propanolamine (iso-, n-)                                                                          | 8             | O           | E     | III          | 1          | .56-1(b), (c)                              | 0.870     | 1.900          | 3.520       | 0.105                             | 1.038                   | 5190                          | 5848                                     | 0.056                                                            | 0.085                                                               |
| 67 | PDE           | 1,3-Pentadiene                                                                                    | 30            | O           | A     | III          | N/A        | .50-70(a), .50-81                          | 0.680     | 17.060         | 2.360       | 0.227                             | 1.250                   | 6250                          | 10341                                    | 0.176                                                            | 0.266                                                               |
| 68 | PEB           | Polyethylene polyamines                                                                           | 7             | O           | E     | III          | 1          | .55-1(e)                                   | 0.994     | 8.300          | 4.550       | 0.221                             | 1.166                   | 5830                          | 9514                                     | 0.149                                                            | 0.225                                                               |
| 69 | PER           | Perchloroethylene                                                                                 | 36            | O           | NA    | III          | N/A        | No                                         | 1.620     | 1.230          | 5.830       | 0.111                             | 1.025                   | 5123                          | 5919                                     | 0.058                                                            | 0.087                                                               |
| 70 | PRD           | Pyridine                                                                                          | 9             | O           | C     | III          | 1          | .55-1(e)                                   | 0.980     | 1.300          | 2.720       | 0.093                             | 1.026                   | 5130                          | 5443                                     | 0.049                                                            | 0.074                                                               |
| 71 | SAU           | Sodium aluminate solution (45% or less)                                                           | 5             | O           | NA    | III          | N/A        | .50-73, .56-1(a), (b), (c)                 | 0.850     | 0.010          | 0.010       | 0.083                             | 1.000                   | 5001                          | 4998                                     | 0.041                                                            | 0.062                                                               |
| 72 | SDD           | Sodium chlorate solution (50% or less)                                                            | 0             | O           | NA    | III          | N/A        | .50-73                                     | 0.850     | 0.010          | 0.010       | 0.083                             | 1.000                   | 5001                          | 4998                                     | 0.041                                                            | 0.062                                                               |
| 73 | SSH           | Sodium sulfide, hydrosulfide solution (H2S 15 ppm or less)                                        | 0             | O           | NA    | III          | 1          | .50-73, .55-1(b)                           | 1.280     | 1.510          | 1.170       | 0.084                             | 1.030                   | 5151                          | 5187                                     | 0.044                                                            | 0.067                                                               |
| 74 | SSI           | Sodium sulfide, hydrosulfide solution (H2S greater than 15 ppm but less than 200 ppm)             | 0             | O           | NA    | III          | N/A        | .50-73, .55-1(b)                           | 1.280     | 1.510          | 1.170       | 0.084                             | 1.030                   | 5151                          | 5187                                     | 0.044                                                            | 0.067                                                               |
| 75 | SSJ           | Sodium sulfide, hydrosulfidesolutions (H2S greater than200ppm)                                    | 0             | O           | NA    | II           | N/A        | .50-73, .55-1(b)                           | 1.280     | 1.510          | 1.170       | 0.084                             | 1.030                   | 5151                          | 5187                                     | 0.044                                                            | 0.067                                                               |
| 76 | STY           | Styrene monomer                                                                                   | 30            | O           | D     | III          | 2          | .50-70(a), .50-81(a), (b)                  | 0.920     | 0.400          | 3.600       | 0.088                             | 1.008                   | 5040                          | 5185                                     | 0.044                                                            | 0.067                                                               |
| 77 | TCB           | 1,2,4-Trichlorobenzene                                                                            | 36            | O           | E     | III          | 1          | No                                         | 1.450     | 0.010          | 6.260       | 0.083                             | 1.000                   | 5001                          | 5007                                     | 0.041                                                            | 0.062                                                               |
| 78 | TCL           | Trichloroethylene                                                                                 | 36            | O           | NA    | III          | 1          | No                                         | 1.470     | 3.500          | 4.540       | 0.141                             | 1.070                   | 5350                          | 6974                                     | 0.080                                                            | 0.121                                                               |
| 79 | TCM           | 1,1,2-Trichloroethane                                                                             | 36            | O           | NA    | III          | 1          | .50-73, .56-1(a)                           | 1.430     | 0.010          | 4.550       | 0.083                             | 1.000                   | 5001                          | 5005                                     | 0.041                                                            | 0.062                                                               |
| 80 | TCN           | 1,2,3-Trichloropropane                                                                            | 36            | O           | E     | II           | 3          | .50-73, .56-1(a)                           | 1.390     | 0.150          | 5.600       | 0.086                             | 1.003                   | 5015                          | 5110                                     | 0.043                                                            | 0.065                                                               |
| 81 | TEA           | Triethanolamine                                                                                   | 8             | O           | E     | III          | 1          | .55-1(b)                                   | 1.130     | 0.010          | 5.140       | 0.083                             | 1.000                   | 5001                          | 5005                                     | 0.041                                                            | 0.062                                                               |
| 82 | TEC           | 1,1,2,2-Tetrachloroethane                                                                         | 36            | O           | NA    | III          | N/A        | No                                         | 1.600     | 1.000          | 5.800       | 0.106                             | 1.020                   | 5100                          | 5748                                     | 0.054                                                            | 0.082                                                               |
| 83 | TEN           | Triethylamine                                                                                     | 7             | O           | C     | II           | 3          | .55-1(e)                                   | 0.730     | 2.500          | 3.490       | 0.112                             | 1.050                   | 5250                          | 6102                                     | 0.061                                                            | 0.093                                                               |
| 84 | TET           | Triethylenetetramine                                                                              | 7             | O           | E     | III          | 1          | .55-1(b)                                   | 0.980     | 0.010          | 5.040       | 0.083                             | 1.000                   | 5001                          | 5005                                     | 0.041                                                            | 0.062                                                               |
| 85 | THF           | Tetrahydrofuran                                                                                   | 41            | O           | C     | III          | 1          | .50-70(b)                                  | 0.890     | 8.500          | 1.350       | 0.097                             | 1.170                   | 5850                          | 6321                                     | 0.066                                                            | 0.099                                                               |
| 86 | TPB           | Triphenylborane (10% or less), caustic soda solution                                              | 5             | O           | NA    | III          | N/A        | .56-1(a), (b), (c)                         | 0.870     | 1.500          | 3.140       | 0.098                             | 1.030                   | 5150                          | 5596                                     | 0.051                                                            | 0.078                                                               |
| 87 | UAS           | Urea, Ammonium nitrate solution (containing more than 2% NH3)                                     | 6             | O           | NA    | III          | N/A        | .56-1(b)                                   | 1.000     | 0.010          | 6.800       | 0.083                             | 1.000                   | 5001                          | 5008                                     | 0.041                                                            | 0.062                                                               |
| 88 | VAM           | Vinyl acetate                                                                                     | 13            | O           | C     | III          | 2          | .50-70(a), .50-81(a), (b)                  | 0.940     | 5.800          | 2.970       | 0.137                             | 1.116                   | 5580                          | 7156                                     | 0.084                                                            | 0.127                                                               |
| 89 | VNT           | Vinyltoluene                                                                                      | 13            | O           | D     | III          | 2          | .50-70(a), .50-81, .56-1(a), (b), (c), (g) | 0.900     | 0.120          | 4.080       | 0.085                             | 1.002                   | 5012                          | 5063                                     | 0.042                                                            | 0.064                                                               |
| 90 | ACP           | Acetophenone                                                                                      | 18            | D           | E     | NA           | 1          | NA                                         | 1.030     | 0.600          | 4.140       | 0.092                             | 1.012                   | 5060                          | 5321                                     | 0.046                                                            | 0.070                                                               |
| 91 | ACT           | Acetone                                                                                           | 18            | D           | C     | NA           | 1          | NA                                         | 0.790     | 10.000         | 2.000       | 0.130                             | 1.200                   | 6000                          | 7504                                     | 0.092                                                            | 0.140                                                               |
| 92 | BAL           | Benzyl alcohol                                                                                    | 21            | D           | E     | NA           | 1          | NA                                         | 1.050     | 0.100          | 3.730       | 0.084                             | 1.002                   | 5010                          | 5047                                     | 0.042                                                            | 0.063                                                               |
| 93 | BAN           | Butyl alcohol (n-)                                                                                | 0             | D           | D     | NA           | 1          | NA                                         | 0.810     | 0.500          | 2.600       | 0.087                             | 1.010                   | 5050                          | 5161                                     | 0.044                                                            | 0.066                                                               |

OWNER: Chem Carriers, LLC  
DESCRIPTION: Double Skin Trail Rake Inland Tank Barge  
SIZE: 297'-6"x54'-0"x12'-0"  
HULL/NAME: 2199-1/CCL 406

CONTRACT: 38193  
BY: MEC  
DATE: 26-Oct-2011

TABLE 1 - VAPOR CONTROL SYSTEM CALCULATIONS

|     | CHRIS<br>CODE | NAME                                                                   | COMP<br>GROUP | SUB<br>CHAP | GRADE | HULL<br>TYPE | VCS<br>CAT | REST. | LIQ<br>SG | VAPOR<br>PRESS | VAPOR<br>SG | VAPOR<br>AIR<br>WEIGHT<br>DENSITY | VAPOR<br>GROWTH<br>RATE | VAPOR<br>FLOW RATE<br>(bbl/h) | AIR<br>EQUIV<br>FLOW<br>RATE<br>(bbl/hr) | PRESSURE<br>DROP TO<br>PV VALVE<br>IN VCS<br>(LOADING)<br>(psig) | PRESSURE<br>DROP TO<br>SHORE CONN<br>IN VCS<br>(LOADING)*<br>(psig) |
|-----|---------------|------------------------------------------------------------------------|---------------|-------------|-------|--------------|------------|-------|-----------|----------------|-------------|-----------------------------------|-------------------------|-------------------------------|------------------------------------------|------------------------------------------------------------------|---------------------------------------------------------------------|
| 94  | BAS           | Butyl alcohol (sec-)                                                   | 0             | D           | C     | NA           | 1          | NA    | 0.810     | 1.300          | 2.600       | 0.093                             | 1.026                   | 5130                          | 5422                                     | 0.048                                                            | 0.073                                                               |
| 95  | BAT           | Butyl alcohol (tert-)                                                  | 0             | D           | C     | NA           | 1          | NA    | 0.780     | 2.800          | 2.600       | 0.104                             | 1.056                   | 5280                          | 5909                                     | 0.057                                                            | 0.087                                                               |
| 96  | BAX           | Butyl acetate (all isomers)                                            | 34            | D           | D     | NA           | 1          | NA    | 0.870     | 0.600          | 4.000       | 0.091                             | 1.012                   | 5060                          | 5310                                     | 0.046                                                            | 0.070                                                               |
| 97  | BPH           | Butyl benzyl phthalate                                                 | 34            | D           | E     | NA           | 1          | NA    | 1.120     | 0.010          | 10.800      | 0.083                             | 1.000                   | 5001                          | 5013                                     | 0.041                                                            | 0.063                                                               |
| 98  | BUE           | Butyl toluene                                                          | 32            | D           | D     | NA           | 1          | NA    | 0.850     | 0.100          | 5.110       | 0.085                             | 1.002                   | 5010                          | 5066                                     | 0.042                                                            | 0.064                                                               |
| 99  | CHN           | Cyclohexanol                                                           | 20            | D           | E     | NA           | 1          | NA    | 0.940     | 0.200          | 3.500       | 0.085                             | 1.004                   | 5020                          | 5089                                     | 0.043                                                            | 0.064                                                               |
| 100 | CHX           | Cyclohexane                                                            | 31            | D           | C     | NA           | 1          | NA    | 0.780     | 4.500          | 2.900       | 0.123                             | 1.090                   | 5450                          | 6635                                     | 0.072                                                            | 0.109                                                               |
| 101 | CLS           | Caprolactam solutions                                                  | 22            | D           | E     | NA           | 1          | NA    | 1.060     | 0.700          | 3.900       | 0.093                             | 1.014                   | 5070                          | 5351                                     | 0.047                                                            | 0.071                                                               |
| 102 | CMP           | p-Cymene                                                               | 32            | D           | D     | NA           | 1          | NA    | 0.860     | 0.460          | 4.620       | 0.091                             | 1.009                   | 5046                          | 5277                                     | 0.046                                                            | 0.069                                                               |
| 103 | CPD           | 1,3-Cyclopentadiene dimer (molten)                                     | 30            | D           | D/E   | NA           | 2          | NA    | 0.690     | 0.250          | 4.550       | 0.087                             | 1.005                   | 5025                          | 5148                                     | 0.044                                                            | 0.066                                                               |
| 104 | DAA           | Diacetone alcohol                                                      | 20            | D           | E     | NA           | 1          | NA    | 0.940     | 0.100          | 4.000       | 0.084                             | 1.002                   | 5010                          | 5051                                     | 0.042                                                            | 0.063                                                               |
| 105 | DAX           | Decyl alcohol (all isomers)                                            | 20            | D           | E     | NA           | 1          | NA    | 0.830     | 5.800          | 2.970       | 0.137                             | 1.116                   | 5580                          | 7156                                     | 0.084                                                            | 0.127                                                               |
| 106 | DBL           | Diisobutylene                                                          | 30            | D           | C     | NA           | 1          | NA    | 0.720     | 2.200          | 3.970       | 0.114                             | 1.044                   | 5220                          | 6106                                     | 0.061                                                            | 0.093                                                               |
| 107 | DCE           | Decene                                                                 | 30            | D           | D     | NA           | 1          | NA    | 0.740     | 0.120          | 5.300       | 0.085                             | 1.002                   | 5012                          | 5083                                     | 0.042                                                            | 0.064                                                               |
| 108 | DDB           | Dodecylbenzene, see Alkyl(C9+)benzenes                                 | 32            | D           | E     | NA           | 1          | NA    | 0.860     | 4.700          | 8.400       | 0.246                             | 1.094                   | 5470                          | 9416                                     | 0.146                                                            | 0.220                                                               |
| 109 | DDO           | Diphenyl, Diphenyl ether mixtures                                      | 33            | D           | E     | NA           | 1          | NA    | 1.070     | 0.010          | 5.870       | 0.083                             | 1.000                   | 5001                          | 5006                                     | 0.041                                                            | 0.062                                                               |
| 110 | DEB           | Diethylbenzene                                                         | 32            | D           | D     | NA           | 1          | NA    | 0.870     | 0.080          | 4.620       | 0.084                             | 1.002                   | 5008                          | 5047                                     | 0.042                                                            | 0.063                                                               |
| 111 | DEG           | Diethylene glycol                                                      | 40            | D           | E     | NA           | 1          | NA    | 1.120     | 0.010          | 3.660       | 0.083                             | 1.000                   | 5001                          | 5003                                     | 0.041                                                            | 0.062                                                               |
| 112 | DIK           | Diisobutyl ketone                                                      | 18            | D           | D     | NA           | 1          | NA    | 0.810     | 0.480          | 4.900       | 0.092                             | 1.010                   | 5048                          | 5307                                     | 0.046                                                            | 0.070                                                               |
| 113 | DOP           | Diocetyl phthalate                                                     | 34            | D           | E     | NA           | 1          | NA    | 0.990     | 0.010          | 13.450      | 0.084                             | 1.000                   | 5001                          | 5017                                     | 0.041                                                            | 0.063                                                               |
| 114 | DPG           | Dipropylene glycol                                                     | 40            | D           | E     | NA           | 1          | NA    | 1.030     | 0.070          | 4.630       | 0.084                             | 1.001                   | 5007                          | 5041                                     | 0.042                                                            | 0.063                                                               |
| 115 | EAL           | Ethyl alcohol                                                          | 20            | D           | C     | NA           | 1          | NA    | 0.790     | 3.500          | 1.600       | 0.093                             | 1.070                   | 5350                          | 5657                                     | 0.053                                                            | 0.080                                                               |
| 116 | EBT           | Ethyl butanol                                                          | 20            | D           | D     | NA           | 1          | NA    | 0.830     | 0.140          | 3.400       | 0.085                             | 1.003                   | 5014                          | 5060                                     | 0.042                                                            | 0.064                                                               |
| 117 | EGL           | Ethylene glycol                                                        | 20            | D           | E     | NA           | 1          | NA    | 1.130     | 0.010          | 2.210       | 0.083                             | 1.000                   | 5001                          | 5001                                     | 0.041                                                            | 0.062                                                               |
| 118 | EGY           | Ethylene glycol diacetate                                              | 34            | D           | E     | NA           | 1          | NA    | 1.130     | 0.010          | 1.000       | 0.083                             | 1.000                   | 5001                          | 5000                                     | 0.041                                                            | 0.062                                                               |
| 119 | EHX           | 2-Ethylhexanol                                                         | 20            | D           | E     | NA           | 1          | NA    | 0.830     | 0.015          | 4.500       | 0.083                             | 1.000                   | 5002                          | 5008                                     | 0.041                                                            | 0.062                                                               |
| 120 | ETA           | Ethyl acetate                                                          | 34            | D           | C     | NA           | 1          | NA    | 0.900     | 4.500          | 3.040       | 0.126                             | 1.090                   | 5450                          | 6714                                     | 0.074                                                            | 0.112                                                               |
| 121 | ETB           | Ethylbenzene                                                           | 32            | D           | C     | NA           | 1          | NA    | 0.870     | 0.600          | 3.660       | 0.090                             | 1.012                   | 5060                          | 5282                                     | 0.046                                                            | 0.069                                                               |
| 122 | ETG           | Ethoxy triglycol (crude)                                               | 40            | D           | E     | NA           | 1          | NA    | 1.020     | 0.010          | 6.140       | 0.083                             | 1.000                   | 5001                          | 5007                                     | 0.041                                                            | 0.062                                                               |
| 123 | FAL           | Furfuryl alcohol                                                       | 20            | D           | E     | NA           | 1          | NA    | 1.290     | 0.100          | 3.370       | 0.084                             | 1.002                   | 5010                          | 5042                                     | 0.042                                                            | 0.063                                                               |
| 124 | GAT           | Gasolines: Automotive (containing not over 4.23 grams lead per gallon) | 33            | D           | C     | NA           | 1          | NA    | 0.760     | 12.500         | 3.400       | 0.224                             | 1.250                   | 6250                          | 10257                                    | 0.173                                                            | 0.262                                                               |
| 125 | GCR           | Glycerine                                                              | 20            | D           | E     | NA           | 1          | NA    | 1.260     | 0.010          | 3.170       | 0.083                             | 1.000                   | 5001                          | 5003                                     | 0.041                                                            | 0.062                                                               |
| 126 | HMX           | Heptane (all isomers), see Alkanes (C6-C9) (all isomers)               | 31            | D           | C     | NA           | 1          | NA    | 0.680     | 2.500          | 3.450       | 0.112                             | 1.050                   | 5250                          | 6089                                     | 0.061                                                            | 0.092                                                               |
| 127 | HPX           | Heptene (all isomers)                                                  | 30            | D           | C     | NA           | 2          | NA    | 0.700     | 2.900          | 3.400       | 0.116                             | 1.058                   | 5290                          | 6242                                     | 0.064                                                            | 0.097                                                               |
| 128 | HXG           | Hexylene glycol                                                        | 20            | D           | E     | NA           | 1          | NA    | 0.920     | 0.010          | 4.000       | 0.083                             | 1.000                   | 5001                          | 5004                                     | 0.041                                                            | 0.062                                                               |
| 129 | HXN           | Hexanol                                                                | 20            | D           | D     | NA           | 1          | NA    | 0.820     | 1.000          | 3.520       | 0.095                             | 1.020                   | 5100                          | 5449                                     | 0.049                                                            | 0.074                                                               |
| 130 | IAC           | iso-Propyl acetate                                                     | 34            | D           | C     | NA           | 1          | NA    | 0.880     | 3.100          | 3.520       | 0.120                             | 1.062                   | 5310                          | 6373                                     | 0.067                                                            | 0.101                                                               |
| 131 | IAL           | Butyl alcohol (iso-)                                                   | 20            | D           | D     | NA           | 1          | NA    | 0.810     | 0.900          | 2.600       | 0.090                             | 1.018                   | 5090                          | 5292                                     | 0.046                                                            | 0.070                                                               |
| 132 | IDA           | iso-Decaldehyde                                                        | 19            | D           | E     | NA           | 1          | NA    | 0.830     | 0.060          | 5.380       | 0.084                             | 1.001                   | 5006                          | 5042                                     | 0.042                                                            | 0.063                                                               |
| 133 | IPA           | iso-Propyl alcohol                                                     | 20            | D           | C     | NA           | 1          | NA    | 0.790     | 3.000          | 2.070       | 0.098                             | 1.060                   | 5300                          | 5759                                     | 0.054                                                            | 0.082                                                               |
| 134 | IPH           | Isophorone                                                             | 18            | D           | E     | NA           | 1          | NA    | 0.930     | 0.010          | 4.750       | 0.083                             | 1.000                   | 5001                          | 5005                                     | 0.041                                                            | 0.062                                                               |
| 135 | KRS           | Kerosene                                                               | 33            | D           | D     | NA           | 1          | NA    | 0.810     | 0.150          | 4.500       | 0.085                             | 1.003                   | 5015                          | 5087                                     | 0.042                                                            | 0.064                                                               |
| 136 | MAC           | Methylamyl acetate                                                     | 34            | D           | D     | NA           | 1          | NA    | 0.860     | 0.340          | 5.000       | 0.089                             | 1.007                   | 5034                          | 5222                                     | 0.045                                                            | 0.068                                                               |
| 137 | MAL           | Methyl alcohol                                                         | 20            | D           | C     | NA           | 1          | NA    | 0.790     | 7.000          | 1.100       | 0.086                             | 1.140                   | 5700                          | 5810                                     | 0.055                                                            | 0.084                                                               |
| 138 | MBE           | Methyl tert-butyl ether                                                | 41            | D           | C     | NA           | 1          | NA    | 0.740     | 0.040          | 3.100       | 0.083                             | 1.001                   | 5004                          | 5014                                     | 0.041                                                            | 0.063                                                               |
| 139 | MEK           | Methyl ethyl ketone                                                    | 18            | D           | C     | NA           | 1          | NA    | 0.800     | 4.500          | 2.500       | 0.115                             | 1.090                   | 5450                          | 6404                                     | 0.067                                                            | 0.102                                                               |
| 140 | MIK           | Methyl isobutyl ketone                                                 | 18            | D           | C     | NA           | 1          | NA    | 0.800     | 1.200          | 3.450       | 0.097                             | 1.024                   | 5120                          | 5527                                     | 0.050                                                            | 0.076                                                               |
| 141 | MNS           | Mineral spirits                                                        | 33            | D           | D     | NA           | 1          | NA    | 0.750     | 0.200          | 4.300       | 0.086                             | 1.004                   | 5020                          | 5111                                     | 0.043                                                            | 0.065                                                               |
| 142 | MTT           | Methyl acetate                                                         | 34            | D           | D     | NA           | 1          | NA    | 0.920     | 6.100          | 2.600       | 0.129                             | 1.122                   | 5610                          | 6986                                     | 0.080                                                            | 0.121                                                               |
| 143 | NNP           | Nonyl phenol                                                           | 21            | D           | E     | NA           | 1          | NA    | 0.940     | 0.010          | 7.590       | 0.083                             | 1.000                   | 5001                          | 5009                                     | 0.041                                                            | 0.062                                                               |
| 144 | NSS           | Naphtha: Stoddard solvent                                              | 33            | D           | D     | NA           | 1          | NA    | 0.780     | 0.200          | 0.010       | 0.082                             | 1.004                   | 5020                          | 4990                                     | 0.041                                                            | 0.062                                                               |
| 145 | NSV           | Naphtha: Solvent                                                       | 33            | D           | D     | NA           | 1          | NA    | 0.870     | 0.200          | 3.500       | 0.085                             | 1.004                   | 5020                          | 5089                                     | 0.043                                                            | 0.064                                                               |

OWNER: Chem Carriers, LLC  
DESCRIPTION: Double Skin Trail Rake Inland Tank Barge  
SIZE: 297'-6"x54'-0"x12'-0"  
HULL/NAME: 2199-1/CCL 406

CONTRACT: 38193  
BY: MEC  
DATE: 26-Oct-2011

TABLE 1 - VAPOR CONTROL SYSTEM CALCULATIONS

|                         | CHRIS<br>CODE | NAME                                                   | COMP<br>GROUP | SUB<br>CHAP | GRADE | HULL<br>TYPE | VCS<br>CAT | REST. | LIQ<br>SG | VAPOR<br>PRESS | VAPOR<br>SG | VAPOR<br>AIR<br>WEIGHT<br>DENSITY | VAPOR<br>GROWTH<br>RATE | VAPOR<br>FLOW RATE<br>(bbl/h) | AIR<br>EQUIV<br>FLOW<br>RATE<br>(bbl/hr) | PRESSURE<br>DROP TO<br>PV VALVE<br>IN VCS<br>(LOADING)<br>(psig) | PRESSURE<br>DROP TO<br>SHORE CONN<br>IN VCS<br>(LOADING)*<br>(psig) |
|-------------------------|---------------|--------------------------------------------------------|---------------|-------------|-------|--------------|------------|-------|-----------|----------------|-------------|-----------------------------------|-------------------------|-------------------------------|------------------------------------------|------------------------------------------------------------------|---------------------------------------------------------------------|
| 146                     | NVM           | Naphtha: Varnish makers and painters (75%)             | 33            | D           | C     | NA           | 1          | NA    | 0.770     | 0.190          | 0.010       | 0.082                             | 1.004                   | 5019                          | 4991                                     | 0.041                                                            | 0.062                                                               |
| 147                     | ODS           | Oil, misc: Diesel                                      | 33            | D           | D/E   | NA           | 1          | NA    | 0.900     | 5.800          | 2.970       | 0.137                             | 1.116                   | 5580                          | 7156                                     | 0.084                                                            | 0.127                                                               |
| 148                     | OIL           | Oil, misc: Crude                                       | 33            | D           | C/D   | NA           | 1          | NA    | 0.950     | 5.800          | 2.970       | 0.137                             | 1.116                   | 5580                          | 7156                                     | 0.084                                                            | 0.127                                                               |
| 149                     | OSX           | Oil, fuel: No. 6                                       | 33            | D           | E     | NA           | 1          | NA    | 0.950     | 0.149          | 2.970       | 0.084                             | 1.003                   | 5015                          | 5055                                     | 0.042                                                            | 0.064                                                               |
| 150                     | OTW           | Oil, fuel: No. 2                                       | 33            | D           | D/E   | NA           | 1          | NA    | 0.880     | 0.560          | 8.000       | 0.101                             | 1.011                   | 5056                          | 5586                                     | 0.051                                                            | 0.078                                                               |
| 151                     | PAL           | n-Propyl alcohol                                       | 20            | D           | C     | NA           | 1          | NA    | 0.800     | 1.200          | 2.070       | 0.089                             | 1.024                   | 5120                          | 5301                                     | 0.046                                                            | 0.070                                                               |
| 152                     | PAT           | n-Propyl acetate                                       | 34            | D           | C     | NA           | 1          | NA    | 0.870     | 1.900          | 3.520       | 0.105                             | 1.038                   | 5190                          | 5848                                     | 0.056                                                            | 0.085                                                               |
| 153                     | PBY           | Propylbenzene (all isomers)                            | 32            | D           | D     | NA           | 1          | NA    | 0.860     | 0.600          | 4.200       | 0.092                             | 1.012                   | 5060                          | 5326                                     | 0.047                                                            | 0.071                                                               |
| 154                     | PLB           | Polybutene                                             | 30            | D           | E     | NA           | 1          | NA    | 0.910     | 0.010          | 0.010       | 0.083                             | 1.000                   | 5001                          | 4998                                     | 0.041                                                            | 0.062                                                               |
| 156                     | PTE           | Pentene (all isomers)                                  | 31            | D           | A     | III          | 5          | NA    | 0.637     | 24.945         | 2.500       | 0.352                             | 1.250                   | 6250                          | 12870                                    | 0.272                                                            | 0.412                                                               |
| 155                     | PTY           | iso-Pentane                                            | 30            | D           | A     | III          | 5          | NA    | 0.620     | 27.000         | 2.480       | 0.378                             | 1.250                   | 6250                          | 13335                                    | 0.292                                                            | 0.442                                                               |
| 157                     | TCP           | Tricresyl phosphate (less than 1% of the ortho isomer) | 34            | D           | E     | NA           | 1          | NA    | 1.170     | 0.010          | 12.700      | 0.084                             | 1.000                   | 5001                          | 5016                                     | 0.041                                                            | 0.063                                                               |
| 158                     | TEB           | Triethylbenzene                                        | 32            | D           | E     | NA           | 1          | NA    | 0.860     | 0.050          | 5.600       | 0.084                             | 1.001                   | 5005                          | 5036                                     | 0.042                                                            | 0.063                                                               |
| 159                     | TEG           | Triethylene glycol                                     | 40            | D           | E     | NA           | 1          | NA    | 1.120     | 0.010          | 5.170       | 0.083                             | 1.000                   | 5001                          | 5005                                     | 0.041                                                            | 0.062                                                               |
| 160                     | THN           | Tetrahydronaphthalene                                  | 32            | D           | E     | NA           | 1          | NA    | 0.980     | 0.040          | 4.550       | 0.084                             | 1.001                   | 5004                          | 5023                                     | 0.041                                                            | 0.063                                                               |
| 161                     | TOL           | Toluene                                                | 32            | D           | C     | NA           | 1          | NA    | 0.870     | 1.500          | 3.140       | 0.098                             | 1.030                   | 5150                          | 5596                                     | 0.051                                                            | 0.078                                                               |
| 162                     | TTG           | Tetraethylene glycol                                   | 40            | D           | E     | NA           | 1          | NA    | 1.130     | 0.010          | 6.700       | 0.083                             | 1.000                   | 5001                          | 5008                                     | 0.041                                                            | 0.062                                                               |
| Max Vapor Density Cargo |               | PTY iso-Pentane                                        | 30            | D           | A     | III          | 5          | NA    | 0.620     | 27.000         | 2.480       | 0.378                             | 1.250                   | 6250                          | 13335                                    | 0.292                                                            | 0.442                                                               |
| Max Pressure Drop Cargo |               | PTY iso-Pentane                                        | 30            | D           | A     | III          | 5          | NA    | 0.620     | 27.000         | 2.480       | 0.378                             | 1.250                   | 6250                          | 13335                                    | 0.292                                                            | 0.442                                                               |

# **CARGO TRANSFER PROCEDURES**

## ***CHEM CARRIERS L.L.C.***

### **TRANSFER FROM BARGE TO DOCK**

#### **PARTS**

1. **PRODUCTS TRANSFERRED**
2. **DESCRIPTION OF SYSTEM**
3. **PERSONS ON DUTY**
4. **PERSONS IN CHARGE**
5. **EMERGENCY SHUTDOWN**
6. **TOPPING OFF PROCEDURE**
7. **COMPLETION OF TRANSFER**
8. **REPORTING CARGO SPILLS**
9. **VESSEL CLOSURES**
10. **PRODUCT DATA**
11. **Vapor Control Procedures**
12. **Inert system**

**Barge CCL 406**

#### **PARTS 1. PRODUCTS TRANSFERRED**

33 CFR 155.750 (a) (1) (i)

**This vessel is certificated for the carriage of grades "A" and lower Sub-Chapter (D) and (O) Products. It has also been certified to carry vapor products. Reference Certificate of Inspection.**

#### **PARTS 2. DESCRIPTION OF CARGO TRANSFER SYSTEM**

33 CFR 155.750 (a) (2) (i) (ii)

The cargo transfer procedures apply to all Chem Carrier L.L.C. owned or leased tank barges. In most cases other than series built barges, the cargo piping arrangement is usually slightly different on every barge, and for this reason, the piping diagram must be studied before loading or discharging a barge. The basic concept for loading and discharging is fairly standard depending on the location of the pump.

A. (Reference the piping diagram for transfer system arrangement.)

B. **PROCEDURES FOR THE CONTAINMENT SYSTEM**

33 CFR 155.310 (a) (1) (iv)

33 CFR 155.750 (a) (2) (iii)

- 1). The containment pans are equipped with a drain for the removal of slops to shore facilities:  
NEVER DRAIN THE CONTAINMENT TANKS ONTO THE DECK.
- 2). CCL 406 is equipped with a separate containment area for

the cargo trunk top and the aft deck area. Each containment area is equipped with drains and scupper plugs. Plugs should be installed prior to cargo transfer and removed after the cargo transfer is complete. PIC should notify Chem Carriers when containment areas need cleaning or if scupper plugs need replacing. **Never Drain Product captured in containment area overboard.**

### **PARTS 3.                    PERSONS ON DUTY DURING TRANSFER**

33 CFR 155.750 (a) (3)

Number of persons required on duty during transfer operations:

- A. At no time during the transfer operation will be less than one responsible person on duty. The certified tankerman assigned shall be in charge and responsible for the safe transfer of cargo.

### **PARTS 4.                    PERSONS IN CHARGE**

The tankerman (person in charge) is responsible for transferring cargo and carrying out related operations on board in an efficient, safe, and pollution free manner. The tankerman whether employed by the towboat, owner, operator, a shore tankerman service, or Chem Carriers L.L.C., shall comply with all Coast Guard, State and local regulations. Tankerman's responsibility shall include but not be limited to the following:

- A. To have on his/her person a valid merchant marine document endorsed as tankerman, certified to handle the grade of cargo to be transferred.
- B. Make a thorough inspection of the barge prior to the start of transfer operation.
- C. To have proper connection of the grounding cable.
- D. The vessel's moorings are adequate to hold during all expected conditions of surge, current, wind, tide, ect., and lines are long enough to allow for surge, tide, wind, changes in draft ect.
- E. Proper hose sizes, lengths, support, and connections.
- F. The condition of fire extinguishers and required number.
- G. The person in charge of transfer operations on the transferring vessel or facility and the person in charge of transferring operations on the receiving vessel or facility agree to begin the transfer operations.
- H. The transfer operation between tank barges and dock facilities should be lighted between sunset and sunrise to comply with the U. S. Coast Guard regulation pertaining to the displaying of lights on barges as required by Title 33.
- I. The PIC (PERSON IN CHARGE) will be responsible for the DOI (declaration of inspection) and DOS (declaration of security).
- J. Always maintain communications with dock or shore personnel with an agreed upon approved system.

**PARTS 5:            EMERGENCY SHUTDOWN**

33 CFR 155.750 (a) (6)

THE EMERGENCY SHUTDOWN IS LOCATED NEAR THE CENTER OF THE BARGE.

- A. In the event of an emergency, transfer operations can be stopped by pulling the remote shutdown cable.
- B. Familiarize yourself with its location and operation prior to transfer.

**PARTS 6;                            TOPPING OFF PROCEDURES**

33 CFR 155.750 (a) (7)

In the process of topping off, tanks should be loaded at different levels to top off one at a time. Extra care should be taken to avoid over pressuring the connections, and hoses by closing valves against the receiving line. Since barges and facilities vary in their systems, no standard for topping off exist, but the following should be considered:

- A. The closing of one tank increases the rate of flow to other tanks on the same line.
- B. Always consider temperature and cargo in accordance with the amount of expansion that should be allowed.
- C. Always maintain communications with dock or shore personnel.
- D. A set of dipstick overfill devices have been installed on the CCL 406. Dipsticks can be made operational by releasing the covers or caps. Dipsticks should be used as a visual aid for overfill protection.

**PARTS 7:            COMPLETION OF TRANSFER**

33 CFR 155.750 (a) (8)

Upon the completion of the transfer all pipelines should be drained into cargo tanks. The header valve used during the operation should then be closed, sealed off with a blind flange and shore personnel should seal lines and hatches on vessel.

**PARTS 8:                            REPORTING CARGO SPILLS**

33 CFR 155.750 (a) (9)

Should an accidental discharge of product occur, you should consider the following:

- A. Locate the source of the spill and try to stop it, if possible, and safe to do so.

- B. Make an attempt to contain the product if possible.
- C. Notify the Coast Guard. The national Response Center at 1-800-424-9300.
- E. Notify Chem Carriers L.L.C. at (225) 642-0060
- F. If loading, transfer the cargo from the leaking tank to an adjacent tank or back to the dock if safe to do so.
- G. If discharging, pump the product from the leaking tank as quickly as possible if safe to do so.

**\*When reporting a spill, the tankerman should provide the following information:**

- A. Name (his or her)
- B. Name of Company: (employed by; (contracted by;
- C. Name of Barge.
- D. Spill Location
- E. Specify Product.
- F. Estimate Quantity of Spill
- G. Weather, Tide, Sea and Current Conditions.
- H. Cause of Spill.
- I. Action Being Taken to Contain and Stop Spill

## **PART 9**

### **CLOSURES ON VESSELS**

Upon completion of cargo transfer operations, all tank hatch covers, ullage covers, and gauging device covers shall be dogged down and secured. In addition, the vent drain valves, if installed, should be secured and left in the proper position. All drain valves should be closed, and drip pan covers, if installed, should be made up tight. Covers for void spaces, bow and stern compartments shall be secured at all times and checked for tightness. Closing devices on clean-out hatches and clean-out opening should be checked, especially when the barge is loaded.

## **PART 10**

### **PRODUCT DATA**

See specific MSDS sheets provided with these procedures.

In case of any other emergency, immediately shut down and notify the transferring facility, and Chem Carriers L.L.C. (225) 642-0060 24 Hour Line.

## **PART 11**

### **VAPOR CONTROL PROCEDURES**

This is a guide only and is not intended to replace experience, sound judgment, and a proper assessment of the task at hand.

The tankerman on duty is the acting Designated Person In Charge (PIC) and is responsible for cargo transfer operations and carrying out related operations on barges.

1. Vapor Recovery Transfer Maximum Rate is 4000 BBLS/HR for

subchapter "D" Cargoes and 4000 BBLS/Hr for subchapter "O" Cargoes.

- 1.1 Transfer rates, which exceed these maximums, must be approved by Chem Carriers.
- 1.2 Transfer rates for each cargo tank should not exceed the maximum transfer rate.

## **2. Pre-transfer Inspection For Vapor Recovery Operations**

2.1 Follow the procedures outlined below in addition to the procedures utilized during normal transfers:

2.1.1 Wear personal protective equipment (PPE) as needed for the cargo in the barge when testing P/V and, hooking up hoses, or draining low points.

2.1.2 Ensure that a Certificate of Vapor Tightness is onboard and valid.

2.1.3 Close the low point drain on the port/starboard vapor header, if applicable.

2.1.4 Close the low point drain near the vent stack, if applicable.

2.1.5 Close valve to the vent riser if applicable.

2.1.7 Blinds used for the vapor control manifold should have a hole to accommodate the ½" stud located in the vapor header.

2.1.8 Each cargo tank is fitted with a liquid level gauge stick. Remove the cap, raise the stick, This stick can be monitored visually to avoid overfilling.

2.1.9 Ensure that the last one meter (3.3 feet) of vapor piping before the vapor connection is painted red/yellow/red.

2.1.10 The cross-header should be stenciled with the word "VAPOR" in black letters at least 2'' high.

2.1.11 The vapor connection flange should be fixed with a 1" long by 1/2" diameter stud projecting outward from the face of the flange, midway between bolt holes.

2.1.12 The high level alarms/shutdowns are installed near the center of each cargo tank. Dock alarm/shutdown should be connected prior to loading, and plugs located near the forward end of the barge Port and Starboard should be labeled "ALARM/SHUTDOWN SENSOR." High level alarms are set to alarm at 90% of the cargo tanks capacity and Shut downs are set to shut transfer down at 95% of each tanks capacity.

2.1.13 Ensure that the P/V relief valve flame screen, if required, is in place and in good condition prior to testing.

2.1.14 Ensure that the facility has a Letter of Adequacy endorsed as meeting the requirements of 33 CFR Subpart E.

### **3. Vapor Piping**

3.1 The PIC checks the vapor piping diagram.

3.2 Characteristics of a vapor header:

3.2.1 The vapor collection piping system on tank barges is permanently installed and located as close as practical to the loading manifold. The piping system is electrically bonded to the hull and electrically continuous.

3.2.2 The last one meter (3.3 feet) of vapor piping prior to the valve before the vapor connection is painted red/yellow/red. The red bands are 4" wide and the yellow band is 32" wide.

3.2.3 The vapor header is stenciled with the word "VAPOR" in black letters at least 2" high.

3.2.4 The vapor connection flange is to be fixed with a 1" by 1/2" diameter stud projecting outward from the face of the flange. This stud is located at the top of the flange, midway between bolt holes.

3.2.5 When not in use, blank off the vapor headers using a blind flange with a bolt in every hole. Each blind flange used on the vapor piping has a hole drilled to accommodate the pin.

### **4. Inspection And Verification Of Vent Lines**

4.1 The Person in Charge performs the following steps:

4.1.1 Checks the Certificate of Inspection on board the barge;

4.1.2 Locates polymerizing or inhibited cargoes in the section of the COI marked *Specific Hazardous Cargo Authority*;

4.1.3 Refers to the MSDS or Chemical Data Guide on board the vessel to determine what cargoes are subject to polymerization, or what cargoes are inhibited;

4.1.4 Locates the MSDS for the cargo and determines its toxicity and whether or not it is a polymerizing or inhibited cargo; and,

4.1.5 Notifies the Dispatcher and Field Supervisor when polymerization is suspected.

5. Any problems with the Vapor Control system must be reported immediately to the person in charge and Chem Carriers.

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 CCL 406 (1236866) 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) PORT ARTHUR AND LAKE  
MOBILE CHARLES  
NEW ORLEANS

UPPER MISSISSIPPI RIVER  
(ST. LOUIS)

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                       |



Barge "CCL-406"  
CHEM CARRIERS, LLC

INNAGE TABLE

1 PORT OR STAR

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

HULL NO. 2199-1

| 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. |         |
|-------|-------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|---------|-------|---------|-------|---------|-------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|
| N     |       | N     |        | N     |        | N     |        | N     |        | N     |        | N     |         | N     |         | N     |         | N     |         | N      |         | N      |         | N      |         | N      |         | N      |         |
| 0     | 696   | 0     | 14,307 | 0     | 30,248 | 0     | 46,453 | 0     | 62,657 | 0     | 78,862 | 0     | 95,066  | 0     | 111,270 | 0     | 127,475 | 0     | 143,679 | 0      | 159,884 | 0      | 176,088 | 0      | 192,292 | 0      | 208,497 | 0      | 224,701 |
| 1/4   | 880   | 1/4   | 14,626 | 1/4   | 30,586 | 1/4   | 46,790 | 1/4   | 62,995 | 1/4   | 79,199 | 1/4   | 95,404  | 1/4   | 111,608 | 1/4   | 127,812 | 1/4   | 144,017 | 1/4    | 160,221 | 1/4    | 176,426 | 1/4    | 192,630 | 1/4    | 208,834 | 1/4    | 225,039 |
| 1/2   | 1,064 | 1/2   | 14,946 | 1/2   | 30,923 | 1/2   | 47,128 | 1/2   | 63,332 | 1/2   | 79,537 | 1/2   | 95,741  | 1/2   | 111,946 | 1/2   | 128,150 | 1/2   | 144,354 | 1/2    | 160,559 | 1/2    | 176,763 | 1/2    | 192,968 | 1/2    | 209,172 | 1/2    | 225,376 |
| 3/4   | 1,248 | 3/4   | 15,265 | 3/4   | 31,261 | 3/4   | 47,466 | 3/4   | 63,670 | 3/4   | 79,874 | 3/4   | 96,079  | 3/4   | 112,283 | 3/4   | 128,488 | 3/4   | 144,692 | 3/4    | 160,896 | 3/4    | 177,101 | 3/4    | 193,305 | 3/4    | 209,510 | 3/4    | 225,714 |
| 1     | 1,432 | 1     | 15,584 | 1     | 31,599 | 1     | 47,803 | 1     | 64,008 | 1     | 80,212 | 1     | 96,416  | 1     | 112,621 | 1     | 128,825 | 1     | 145,030 | 1      | 161,234 | 1      | 177,438 | 1      | 193,643 | 1      | 209,847 | 1      | 226,052 |
| 1/4   | 1,677 | 1/4   | 15,904 | 1/4   | 31,938 | 1/4   | 48,141 | 1/4   | 64,345 | 1/4   | 80,550 | 1/4   | 96,754  | 1/4   | 112,958 | 1/4   | 129,163 | 1/4   | 145,367 | 1/4    | 161,572 | 1/4    | 177,776 | 1/4    | 193,980 | 1/4    | 210,185 | 1/4    | 226,381 |
| 1/2   | 1,922 | 1/2   | 16,223 | 1/2   | 32,274 | 1/2   | 48,478 | 1/2   | 64,683 | 1/2   | 80,887 | 1/2   | 97,092  | 1/2   | 113,296 | 1/2   | 129,500 | 1/2   | 145,705 | 1/2    | 161,909 | 1/2    | 178,114 | 1/2    | 194,318 | 1/2    | 210,522 | 1/2    | 226,671 |
| 3/4   | 2,167 | 3/4   | 16,542 | 3/4   | 32,611 | 3/4   | 48,816 | 3/4   | 65,020 | 3/4   | 81,225 | 3/4   | 97,429  | 3/4   | 113,634 | 3/4   | 129,838 | 3/4   | 146,042 | 3/4    | 162,247 | 3/4    | 178,451 | 3/4    | 194,656 | 3/4    | 210,860 | 3/4    | 226,980 |
| 2     | 2,412 | 2     | 16,862 | 2     | 32,949 | 2     | 49,153 | 2     | 65,358 | 2     | 81,562 | 2     | 97,767  | 2     | 113,971 | 2     | 130,176 | 2     | 146,380 | 2      | 162,584 | 2      | 178,789 | 2      | 194,993 | 2      | 211,198 | 2      | 227,290 |
| 1/4   | 2,695 | 1/4   | 17,188 | 1/4   | 33,287 | 1/4   | 49,491 | 1/4   | 65,695 | 1/4   | 81,900 | 1/4   | 98,104  | 1/4   | 114,309 | 1/4   | 130,513 | 1/4   | 146,718 | 1/4    | 162,922 | 1/4    | 179,126 | 1/4    | 195,331 | 1/4    | 211,535 | 1/4    | 227,543 |
| 1/2   | 2,978 | 1/2   | 17,515 | 1/2   | 33,624 | 1/2   | 49,829 | 1/2   | 66,033 | 1/2   | 82,237 | 1/2   | 98,442  | 1/2   | 114,646 | 1/2   | 130,851 | 1/2   | 147,055 | 1/2    | 163,260 | 1/2    | 179,464 | 1/2    | 195,668 | 1/2    | 211,873 | 1/2    | 227,796 |
| 3/4   | 3,261 | 3/4   | 17,842 | 3/4   | 33,962 | 3/4   | 50,166 | 3/4   | 66,371 | 3/4   | 82,575 | 3/4   | 98,779  | 3/4   | 114,984 | 3/4   | 131,188 | 3/4   | 147,393 | 3/4    | 163,597 | 3/4    | 179,802 | 3/4    | 196,006 | 3/4    | 212,210 | 3/4    | 228,049 |
| 3     | 3,543 | 3     | 18,168 | 3     | 34,299 | 3     | 50,504 | 3     | 66,708 | 3     | 82,913 | 3     | 99,117  | 3     | 115,321 | 3     | 131,526 | 3     | 147,730 | 3      | 163,935 | 3      | 180,139 | 3      | 196,344 | 3      | 212,548 | 3      | 228,302 |
| 1/4   | 3,826 | 1/4   | 18,495 | 1/4   | 34,637 | 1/4   | 50,841 | 1/4   | 67,046 | 1/4   | 83,250 | 1/4   | 99,455  | 1/4   | 115,659 | 1/4   | 131,864 | 1/4   | 148,068 | 1/4    | 164,272 | 1/4    | 180,477 | 1/4    | 196,681 | 1/4    | 212,886 | 1/4    | 228,499 |
| 1/2   | 4,109 | 1/2   | 18,821 | 1/2   | 34,976 | 1/2   | 51,179 | 1/2   | 67,383 | 1/2   | 83,588 | 1/2   | 99,792  | 1/2   | 115,997 | 1/2   | 132,201 | 1/2   | 148,406 | 1/2    | 164,610 | 1/2    | 180,814 | 1/2    | 197,019 | 1/2    | 213,223 | 1/2    | 228,696 |
| 3/4   | 4,392 | 3/4   | 19,148 | 3/4   | 35,312 | 3/4   | 51,517 | 3/4   | 67,721 | 3/4   | 83,925 | 3/4   | 100,130 | 3/4   | 116,334 | 3/4   | 132,539 | 3/4   | 148,743 | 3/4    | 164,948 | 3/4    | 181,152 | 3/4    | 197,356 | 3/4    | 213,561 | 3/4    | 228,893 |
| 4     | 4,674 | 4     | 19,475 | 4     | 35,650 | 4     | 51,854 | 4     | 68,059 | 4     | 84,263 | 4     | 100,467 | 4     | 116,672 | 4     | 132,876 | 4     | 149,081 | 4      | 165,285 | 4      | 181,490 | 4      | 197,694 | 4      | 213,898 | 4      | 229,090 |
| 1/4   | 4,964 | 1/4   | 19,809 | 1/4   | 35,987 | 1/4   | 52,192 | 1/4   | 68,396 | 1/4   | 84,601 | 1/4   | 100,805 | 1/4   | 117,009 | 1/4   | 133,214 | 1/4   | 149,418 | 1/4    | 165,623 | 1/4    | 181,827 | 1/4    | 198,032 | 1/4    | 214,236 | 1/4    | 229,231 |
| 1/2   | 5,254 | 1/2   | 20,142 | 1/2   | 36,326 | 1/2   | 52,529 | 1/2   | 68,734 | 1/2   | 84,938 | 1/2   | 101,143 | 1/2   | 117,347 | 1/2   | 133,551 | 1/2   | 149,766 | 1/2    | 165,960 | 1/2    | 182,165 | 1/2    | 198,369 | 1/2    | 214,574 | 1/2    | 229,371 |
| 3/4   | 5,544 | 3/4   | 20,476 | 3/4   | 36,663 | 3/4   | 52,867 | 3/4   | 69,071 | 3/4   | 85,276 | 3/4   | 101,480 | 3/4   | 117,685 | 3/4   | 133,889 | 3/4   | 150,093 | 3/4    | 166,298 | 3/4    | 182,502 | 3/4    | 198,707 | 3/4    | 214,911 | 3/4    | 229,512 |
| 5     | 5,835 | 5     | 20,810 | 5     | 37,000 | 5     | 53,205 | 5     | 69,409 | 5     | 85,613 | 5     | 101,818 | 5     | 118,022 | 5     | 134,227 | 5     | 150,431 | 5      | 166,635 | 5      | 182,840 | 5      | 199,044 | 5      | 215,249 | 5      | 229,653 |
| 1/4   | 6,125 | 1/4   | 21,144 | 1/4   | 37,338 | 1/4   | 53,542 | 1/4   | 69,747 | 1/4   | 85,951 | 1/4   | 102,155 | 1/4   | 118,360 | 1/4   | 134,564 | 1/4   | 150,769 | 1/4    | 166,973 | 1/4    | 183,177 | 1/4    | 199,382 | 1/4    | 215,586 | 1/4    | 229,737 |
| 1/2   | 6,415 | 1/2   | 21,478 | 1/2   | 37,675 | 1/2   | 53,880 | 1/2   | 70,084 | 1/2   | 86,289 | 1/2   | 102,493 | 1/2   | 118,697 | 1/2   | 134,902 | 1/2   | 151,106 | 1/2    | 167,311 | 1/2    | 183,515 | 1/2    | 199,719 | 1/2    | 215,924 | 1/2    | 229,821 |
| 3/4   | 6,705 | 3/4   | 21,812 | 3/4   | 38,013 | 3/4   | 54,217 | 3/4   | 70,422 | 3/4   | 86,626 | 3/4   | 102,831 | 3/4   | 119,035 | 3/4   | 135,239 | 3/4   | 151,444 | 3/4    | 167,648 | 3/4    | 183,853 | 3/4    | 200,057 | 3/4    | 216,262 | 3/4    | 229,906 |
| 6     | 6,995 | 6     | 22,146 | 6     | 38,351 | 6     | 54,555 | 6     | 70,759 | 6     | 86,964 | 6     | 103,168 | 6     | 119,373 | 6     | 135,577 | 6     | 151,781 | 6      | 167,986 | 6      | 184,190 | 6      | 200,395 | 6      | 216,599 | 6      | 229,990 |
| 1/4   | 7,292 | 1/4   | 22,484 | 1/4   | 38,688 | 1/4   | 54,893 | 1/4   | 71,097 | 1/4   | 87,301 | 1/4   | 103,506 | 1/4   | 119,710 | 1/4   | 135,916 | 1/4   | 152,119 | 1/4    | 168,323 | 1/4    | 184,528 | 1/4    | 200,732 | 1/4    | 216,937 | 1/4    | 230,018 |
| 1/2   | 7,590 | 1/2   | 22,821 | 1/2   | 39,026 | 1/2   | 55,230 | 1/2   | 71,435 | 1/2   | 87,639 | 1/2   | 103,843 | 1/2   | 120,048 | 1/2   | 136,252 | 1/2   | 152,457 | 1/2    | 168,661 | 1/2    | 184,865 | 1/2    | 201,070 | 1/2    | 217,274 | 1/2    | 230,047 |
| 3/4   | 7,887 | 3/4   | 23,159 | 3/4   | 39,363 | 3/4   | 55,568 | 3/4   | 71,772 | 3/4   | 87,977 | 3/4   | 104,181 | 3/4   | 120,385 | 3/4   | 136,590 | 3/4   | 152,794 | 3/4    | 168,999 | 3/4    | 185,203 | 3/4    | 201,407 | 3/4    | 217,612 | 3/4    | 230,075 |
| 7     | 8,184 | 7     | 23,496 | 7     | 39,701 | 7     | 55,905 | 7     | 72,110 | 7     | 88,314 | 7     | 104,519 | 7     | 120,723 | 7     | 136,927 | 7     | 153,132 | 7      | 169,336 | 7      | 185,541 | 7      | 201,745 | 7      | 217,949 | 7      | 230,103 |
| 1/4   | 8,482 | 1/4   | 23,834 | 1/4   | 40,038 | 1/4   | 56,243 | 1/4   | 72,447 | 1/4   | 88,652 | 1/4   | 104,856 | 1/4   | 121,061 | 1/4   | 137,265 | 1/4   | 153,469 | 1/4    | 169,674 | 1/4    | 185,878 | 1/4    | 202,083 | 1/4    | 218,287 | 1/4    | 230,118 |
| 1/2   | 8,779 | 1/2   | 24,172 | 1/2   | 40,376 | 1/2   | 56,580 | 1/2   | 72,785 | 1/2   | 88,989 | 1/2   | 105,194 | 1/2   | 121,398 | 1/2   | 137,603 | 1/2   | 153,807 | 1/2    | 170,011 | 1/2    | 186,216 | 1/2    | 202,420 | 1/2    | 218,625 | 1/2    | 230,133 |
| 3/4   | 9,076 | 3/4   | 24,509 | 3/4   | 40,714 | 3/4   | 56,918 | 3/4   | 73,122 | 3/4   | 89,327 | 3/4   | 105,531 | 3/4   | 121,736 | 3/4   | 137,940 | 3/4   | 154,145 | 3/4    | 170,349 | 3/4    | 186,553 | 3/4    | 202,768 | 3/4    | 218,962 | 3/4    | 230,148 |
| 8     | 9,374 | 8     | 24,847 | 8     | 41,051 | 8     | 57,256 | 8     | 73,460 | 8     | 89,665 | 8     | 105,869 | 8     | 122,073 | 8     | 138,278 | 8     | 154,482 | 8      | 170,687 | 8      | 186,891 | 8      | 203,095 | 8      | 219,300 | 8      | 230,163 |
| 1/4   | 9,678 | 1/4   | 25,184 | 1/4   | 41,389 | 1/4   | 57,593 | 1/4   | 73,798 | 1/4   | 90,002 | 1/4   | 106,207 | 1/4   | 122,411 | 1/4   | 138,615 | 1/4   | 154,820 | 1/4    | 171,024 | 1/4    | 187,229 | 1/4    | 203,433 | 1/4    | 219,637 | 1/4    | 230,178 |
| 1/2   | 9,983 | 1/2   | 25,522 | 1/2   | 41,726 | 1/2   | 57,931 | 1/2   | 74,135 | 1/2   | 90,340 | 1/2   | 106,544 | 1/2   | 122,749 | 1/2   | 138,953 | 1/2   | 155,1   |        |         |        |         |        |         |        |         |        |         |



Barge "CCL-406"  
CHEM CARRIERS, LLC

INNAGE TABLE

2 PORT OR STAR

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

HULL NO. 2199-1

| 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. |         |
|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|---------|-------|---------|-------|---------|-------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|
| N     |        | N     |        | N     |        | N     |        | N     |        | N     |        | N     |         | N     |         | N     |         | N     |         | N      |         | N      |         | N      |         | N      |         | N      |         |
| 0     | * 640  | 0     | 15,098 | 0     | 30,188 | 0     | 45,273 | 0     | 60,361 | 0     | 75,449 | 0     | 90,537  | 0     | 105,625 | 0     | 120,713 | 0     | 135,801 | 0      | 150,889 | 0      | 165,977 | 0      | 181,064 | 0      | 196,152 | 0      | 211,240 |
| 1/4   | 836    | 1/4   | 15,412 | 1/4   | 30,500 | 1/4   | 45,588 | 1/4   | 60,676 | 1/4   | 75,764 | 1/4   | 90,851  | 1/4   | 105,939 | 1/4   | 121,027 | 1/4   | 136,115 | 1/4    | 151,203 | 1/4    | 166,291 | 1/4    | 181,379 | 1/4    | 196,467 | 1/4    | 211,555 |
| 1/2   | 1,033  | 1/2   | 15,726 | 1/2   | 30,814 | 1/2   | 45,902 | 1/2   | 60,990 | 1/2   | 76,078 | 1/2   | 91,166  | 1/2   | 106,254 | 1/2   | 121,342 | 1/2   | 136,429 | 1/2    | 151,517 | 1/2    | 166,605 | 1/2    | 181,693 | 1/2    | 196,781 | 1/2    | 211,869 |
| 3/4   | 1,229  | 3/4   | 16,041 | 3/4   | 31,129 | 3/4   | 46,216 | 3/4   | 61,304 | 3/4   | 76,392 | 3/4   | 91,480  | 3/4   | 106,568 | 3/4   | 121,656 | 3/4   | 136,744 | 3/4    | 151,832 | 3/4    | 166,920 | 3/4    | 182,007 | 3/4    | 197,095 | 3/4    | 212,183 |
| 1     | 1,425  | 1     | 16,355 | 1     | 31,443 | 1     | 46,531 | 1     | 61,619 | 1     | 76,707 | 1     | 91,794  | 1     | 106,882 | 1     | 121,970 | 1     | 137,058 | 1      | 152,146 | 1      | 167,234 | 1      | 182,322 | 1      | 197,410 | 1      | 212,498 |
| 1/4   | 1,700  | 1/4   | 16,669 | 1/4   | 31,757 | 1/4   | 46,845 | 1/4   | 61,933 | 1/4   | 77,021 | 1/4   | 92,109  | 1/4   | 107,197 | 1/4   | 122,285 | 1/4   | 137,372 | 1/4    | 152,460 | 1/4    | 167,548 | 1/4    | 182,636 | 1/4    | 197,724 | 1/4    | 212,785 |
| 1/2   | 1,975  | 1/2   | 16,984 | 1/2   | 32,072 | 1/2   | 47,159 | 1/2   | 62,247 | 1/2   | 77,335 | 1/2   | 92,423  | 1/2   | 107,511 | 1/2   | 122,599 | 1/2   | 137,687 | 1/2    | 152,775 | 1/2    | 167,863 | 1/2    | 182,950 | 1/2    | 198,038 | 1/2    | 213,073 |
| 3/4   | 2,250  | 3/4   | 17,298 | 3/4   | 32,386 | 3/4   | 47,474 | 3/4   | 62,562 | 3/4   | 77,650 | 3/4   | 92,737  | 3/4   | 107,825 | 3/4   | 122,913 | 3/4   | 138,001 | 3/4    | 153,089 | 3/4    | 168,177 | 3/4    | 183,265 | 3/4    | 198,353 | 3/4    | 213,361 |
| 2     | 2,524  | 2     | 17,612 | 2     | 32,700 | 2     | 47,788 | 2     | 62,876 | 2     | 77,964 | 2     | 93,052  | 2     | 108,140 | 2     | 123,228 | 2     | 138,315 | 2      | 153,403 | 2      | 168,491 | 2      | 183,579 | 2      | 198,667 | 2      | 213,649 |
| 1/4   | 2,839  | 1/4   | 17,927 | 1/4   | 33,015 | 1/4   | 48,102 | 1/4   | 63,190 | 1/4   | 78,278 | 1/4   | 93,366  | 1/4   | 108,454 | 1/4   | 123,542 | 1/4   | 138,630 | 1/4    | 153,718 | 1/4    | 168,806 | 1/4    | 183,893 | 1/4    | 198,981 | 1/4    | 213,885 |
| 1/2   | 3,153  | 1/2   | 18,241 | 1/2   | 33,329 | 1/2   | 48,417 | 1/2   | 63,505 | 1/2   | 78,593 | 1/2   | 93,680  | 1/2   | 108,768 | 1/2   | 123,856 | 1/2   | 138,944 | 1/2    | 154,032 | 1/2    | 169,120 | 1/2    | 184,208 | 1/2    | 199,296 | 1/2    | 214,120 |
| 3/4   | 3,467  | 3/4   | 18,555 | 3/4   | 33,643 | 3/4   | 48,731 | 3/4   | 63,819 | 3/4   | 78,907 | 3/4   | 93,995  | 3/4   | 109,083 | 3/4   | 124,171 | 3/4   | 139,258 | 3/4    | 154,346 | 3/4    | 169,434 | 3/4    | 184,522 | 3/4    | 199,610 | 3/4    | 214,356 |
| 3     | 3,782  | 3     | 18,870 | 3     | 33,958 | 3     | 49,045 | 3     | 64,133 | 3     | 79,221 | 3     | 94,309  | 3     | 109,397 | 3     | 124,485 | 3     | 139,573 | 3      | 154,661 | 3      | 169,749 | 3      | 184,836 | 3      | 199,924 | 3      | 214,591 |
| 1/4   | 4,096  | 1/4   | 19,184 | 1/4   | 34,272 | 1/4   | 49,360 | 1/4   | 64,448 | 1/4   | 79,536 | 1/4   | 94,623  | 1/4   | 109,711 | 1/4   | 124,799 | 1/4   | 139,887 | 1/4    | 154,975 | 1/4    | 170,063 | 1/4    | 185,151 | 1/4    | 200,239 | 1/4    | 214,775 |
| 1/2   | 4,410  | 1/2   | 19,498 | 1/2   | 34,586 | 1/2   | 49,674 | 1/2   | 64,762 | 1/2   | 79,850 | 1/2   | 94,938  | 1/2   | 110,026 | 1/2   | 125,114 | 1/2   | 140,201 | 1/2    | 155,289 | 1/2    | 170,377 | 1/2    | 185,465 | 1/2    | 200,553 | 1/2    | 214,958 |
| 3/4   | 4,725  | 3/4   | 19,813 | 3/4   | 34,901 | 3/4   | 49,988 | 3/4   | 65,076 | 3/4   | 80,164 | 3/4   | 95,252  | 3/4   | 110,340 | 3/4   | 125,428 | 3/4   | 140,516 | 3/4    | 155,604 | 3/4    | 170,692 | 3/4    | 185,779 | 3/4    | 200,867 | 3/4    | 215,141 |
| 4     | 5,039  | 4     | 20,127 | 4     | 35,215 | 4     | 50,303 | 4     | 65,391 | 4     | 80,479 | 4     | 95,566  | 4     | 110,654 | 4     | 125,742 | 4     | 140,830 | 4      | 155,918 | 4      | 171,006 | 4      | 186,094 | 4      | 201,182 | 4      | 215,324 |
| 1/4   | 5,353  | 1/4   | 20,441 | 1/4   | 35,529 | 1/4   | 50,617 | 1/4   | 65,705 | 1/4   | 80,793 | 1/4   | 95,881  | 1/4   | 110,969 | 1/4   | 126,057 | 1/4   | 141,144 | 1/4    | 156,232 | 1/4    | 171,320 | 1/4    | 186,408 | 1/4    | 201,496 | 1/4    | 215,455 |
| 1/2   | 5,668  | 1/2   | 20,756 | 1/2   | 35,844 | 1/2   | 50,931 | 1/2   | 66,019 | 1/2   | 81,107 | 1/2   | 96,195  | 1/2   | 111,283 | 1/2   | 126,371 | 1/2   | 141,459 | 1/2    | 156,547 | 1/2    | 171,635 | 1/2    | 186,722 | 1/2    | 201,810 | 1/2    | 215,586 |
| 3/4   | 5,982  | 3/4   | 21,070 | 3/4   | 36,158 | 3/4   | 51,246 | 3/4   | 66,334 | 3/4   | 81,422 | 3/4   | 96,509  | 3/4   | 111,597 | 3/4   | 126,685 | 3/4   | 141,773 | 3/4    | 156,861 | 3/4    | 171,949 | 3/4    | 187,037 | 3/4    | 202,125 | 3/4    | 215,717 |
| 5     | 6,296  | 5     | 21,384 | 5     | 36,472 | 5     | 51,560 | 5     | 66,648 | 5     | 81,736 | 5     | 96,824  | 5     | 111,912 | 5     | 127,000 | 5     | 142,087 | 5      | 157,175 | 5      | 172,263 | 5      | 187,351 | 5      | 202,439 | 5      | 215,848 |
| 1/4   | 6,611  | 1/4   | 21,699 | 1/4   | 36,787 | 1/4   | 51,874 | 1/4   | 66,962 | 1/4   | 82,050 | 1/4   | 97,138  | 1/4   | 112,226 | 1/4   | 127,314 | 1/4   | 142,402 | 1/4    | 157,490 | 1/4    | 172,578 | 1/4    | 187,665 | 1/4    | 202,753 | 1/4    | 215,926 |
| 1/2   | 6,925  | 1/2   | 22,013 | 1/2   | 37,101 | 1/2   | 52,189 | 1/2   | 67,277 | 1/2   | 82,365 | 1/2   | 97,452  | 1/2   | 112,540 | 1/2   | 127,628 | 1/2   | 142,716 | 1/2    | 157,804 | 1/2    | 172,892 | 1/2    | 187,980 | 1/2    | 203,068 | 1/2    | 216,005 |
| 3/4   | 7,239  | 3/4   | 22,327 | 3/4   | 37,415 | 3/4   | 52,503 | 3/4   | 67,591 | 3/4   | 82,679 | 3/4   | 97,767  | 3/4   | 112,855 | 3/4   | 127,942 | 3/4   | 143,030 | 3/4    | 158,118 | 3/4    | 173,206 | 3/4    | 188,294 | 3/4    | 203,382 | 3/4    | 216,083 |
| 6     | 7,554  | 6     | 22,642 | 6     | 37,730 | 6     | 52,817 | 6     | 67,905 | 6     | 82,993 | 6     | 98,081  | 6     | 113,169 | 6     | 128,257 | 6     | 143,345 | 6      | 158,433 | 6      | 173,520 | 6      | 188,608 | 6      | 203,696 | 6      | 216,162 |
| 1/4   | 7,868  | 1/4   | 22,956 | 1/4   | 38,044 | 1/4   | 53,132 | 1/4   | 68,220 | 1/4   | 83,307 | 1/4   | 98,395  | 1/4   | 113,483 | 1/4   | 128,571 | 1/4   | 143,659 | 1/4    | 158,747 | 1/4    | 173,835 | 1/4    | 188,923 | 1/4    | 204,011 | 1/4    | 216,188 |
| 1/2   | 8,182  | 1/2   | 23,270 | 1/2   | 38,358 | 1/2   | 53,446 | 1/2   | 68,534 | 1/2   | 83,622 | 1/2   | 98,710  | 1/2   | 113,798 | 1/2   | 128,885 | 1/2   | 143,973 | 1/2    | 159,061 | 1/2    | 174,149 | 1/2    | 189,237 | 1/2    | 204,325 | 1/2    | 216,214 |
| 3/4   | 8,497  | 3/4   | 23,585 | 3/4   | 38,672 | 3/4   | 53,760 | 3/4   | 68,848 | 3/4   | 83,936 | 3/4   | 99,024  | 3/4   | 114,112 | 3/4   | 129,200 | 3/4   | 144,288 | 3/4    | 159,376 | 3/4    | 174,463 | 3/4    | 189,551 | 3/4    | 204,639 | 3/4    | 216,240 |
| 7     | 8,811  | 7     | 23,899 | 7     | 38,987 | 7     | 54,075 | 7     | 69,163 | 7     | 84,250 | 7     | 99,338  | 7     | 114,426 | 7     | 129,514 | 7     | 144,602 | 7      | 159,690 | 7      | 174,778 | 7      | 189,866 | 7      | 204,954 | 7      | 216,267 |
| 1/4   | 9,125  | 1/4   | 24,213 | 1/4   | 39,301 | 1/4   | 54,389 | 1/4   | 69,477 | 1/4   | 84,565 | 1/4   | 99,653  | 1/4   | 114,741 | 1/4   | 129,828 | 1/4   | 144,916 | 1/4    | 160,004 | 1/4    | 175,092 | 1/4    | 190,180 | 1/4    | 205,268 | 1/4    | 216,188 |
| 1/2   | 9,440  | 1/2   | 24,528 | 1/2   | 39,615 | 1/2   | 54,703 | 1/2   | 69,791 | 1/2   | 84,879 | 1/2   | 99,967  | 1/2   | 115,055 | 1/2   | 130,143 | 1/2   | 145,231 | 1/2    | 160,319 | 1/2    | 175,406 | 1/2    | 190,494 | 1/2    | 205,582 | 1/2    | 216,210 |
| 3/4   | 9,754  | 3/4   | 24,842 | 3/4   | 39,930 | 3/4   | 55,018 | 3/4   | 70,106 | 3/4   | 85,193 | 3/4   | 100,281 | 3/4   | 115,369 | 3/4   | 130,457 | 3/4   | 145,545 | 3/4    | 160,633 | 3/4    | 175,721 | 3/4    | 190,809 | 3/4    | 205,897 | 3/4    | 216,234 |
| 8     | 10,068 | 8     | 25,156 | 8     | 40,244 | 8     | 55,332 | 8     | 70,420 | 8     | 85,508 | 8     | 100,596 | 8     | 115,684 | 8     | 130,771 | 8     | 145,859 | 8      | 160,947 | 8      | 176,035 | 8      | 191,123 | 8      | 206,211 | 8      | 216,258 |
| 1/4   | 10,383 | 1/4   | 25,471 | 1/4   | 40,558 | 1/4   | 55,646 | 1/4   | 70,734 | 1/4   | 85,822 | 1/4   | 100,910 | 1/4   | 115,998 | 1/4   | 131,086 | 1/4   | 146,174 | 1/4    | 161,262 | 1/4    | 176,349 | 1/4    | 191,437 | 1/4    | 206,525 | 1/4    | 216,285 |
| 1/2   | 10,697 | 1/2   | 25,785 | 1/2   | 40,873 | 1/2   | 55,961 | 1/2   | 71,049 | 1/2   | 86,136 | 1/2   | 101,224 | 1/2   | 116,312 | 1/2   | 131,400 | 1/2   | 146,488 | 1/2    |         |        |         |        |         |        |         |        |         |



Barge "CCL-406"  
CHEM CARRIERS, LLC

INNAGE TABLE

3 PORT OR STAR

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

HULL NO. 2199-1

| N      | 0 FT.  | N      | 1 FT.  | N      | 2 FT.  | N      | 3 FT.  | N      | 4 FT.  | N      | 5 FT.  | N      | 6 FT.   | N      | 7 FT.   | N      | 8 FT.   | N      | 9 FT.   | N      | 10 FT.  | N      | 11 FT.  | N      | 12 FT.  | N      | 13 FT.  | N      | 14 FT.  |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|
| 0      | 639    | 0      | 15,087 | 0      | 30,165 | 0      | 45,243 | 0      | 60,321 | 0      | 75,399 | 0      | 90,477  | 0      | 105,556 | 0      | 120,634 | 0      | 135,712 | 0      | 149,398 | 0      | 160,973 | 0      | 172,345 | 0      | 183,698 | 0      | 195,052 |
| 1/4    | 835    | 1/4    | 15,401 | 1/4    | 30,479 | 1/4    | 45,557 | 1/4    | 60,635 | 1/4    | 75,714 | 1/4    | 90,792  | 1/4    | 105,870 | 1/4    | 120,948 | 1/4    | 136,026 | 1/4    | 149,641 | 1/4    | 161,214 | 1/4    | 172,581 | 1/4    | 183,935 | 1/4    | 195,289 |
| 1/2    | 1,031  | 1/2    | 15,715 | 1/2    | 30,793 | 1/2    | 45,871 | 1/2    | 60,950 | 1/2    | 76,028 | 1/2    | 91,106  | 1/2    | 106,184 | 1/2    | 121,262 | 1/2    | 136,340 | 1/2    | 149,883 | 1/2    | 161,455 | 1/2    | 172,818 | 1/2    | 184,171 | 1/2    | 195,525 |
| 3/4    | 1,228  | 3/4    | 16,029 | 3/4    | 31,107 | 3/4    | 46,186 | 3/4    | 61,264 | 3/4    | 76,342 | 3/4    | 91,420  | 3/4    | 106,498 | 3/4    | 121,576 | 3/4    | 136,654 | 3/4    | 150,124 | 3/4    | 161,696 | 3/4    | 173,054 | 3/4    | 184,408 | 3/4    | 195,762 |
| 1      | 1,424  | 1      | 16,344 | 1      | 31,422 | 1      | 46,500 | 1      | 61,578 | 1      | 76,656 | 1      | 91,734  | 1      | 106,812 | 1      | 121,890 | 1      | 136,968 | 1      | 150,366 | 1      | 161,937 | 1      | 173,291 | 1      | 184,645 | 1      | 195,998 |
| 1 1/4  | 1,698  | 1 1/4  | 16,658 | 1 1/4  | 31,736 | 1 1/4  | 46,814 | 1 1/4  | 61,892 | 1 1/4  | 76,970 | 1 1/4  | 92,048  | 1 1/4  | 107,126 | 1 1/4  | 122,204 | 1 1/4  | 137,282 | 1 1/4  | 150,607 | 1 1/4  | 162,174 | 1 1/4  | 173,527 | 1 1/4  | 184,881 | 1 1/4  | 196,215 |
| 1 1/2  | 1,973  | 1 1/2  | 16,972 | 1 1/2  | 32,050 | 1 1/2  | 47,128 | 1 1/2  | 62,206 | 1 1/2  | 77,284 | 1 1/2  | 92,362  | 1 1/2  | 107,440 | 1 1/2  | 122,518 | 1 1/2  | 137,597 | 1 1/2  | 150,848 | 1 1/2  | 162,410 | 1 1/2  | 173,764 | 1 1/2  | 185,118 | 1 1/2  | 196,431 |
| 2      | 2,247  | 2      | 17,286 | 2      | 32,364 | 2      | 47,442 | 2      | 62,520 | 2      | 77,598 | 2      | 92,676  | 2      | 107,754 | 2      | 122,833 | 2      | 137,911 | 2      | 151,089 | 2      | 162,647 | 2      | 174,000 | 2      | 185,354 | 2      | 196,648 |
| 2 1/4  | 2,522  | 2 1/4  | 17,600 | 2 1/4  | 32,678 | 2 1/4  | 47,756 | 2 1/4  | 62,834 | 2 1/4  | 77,912 | 2 1/4  | 92,990  | 2 1/4  | 108,069 | 2 1/4  | 123,147 | 2 1/4  | 138,225 | 2 1/4  | 151,330 | 2 1/4  | 162,883 | 2 1/4  | 174,237 | 2 1/4  | 185,591 | 2 1/4  | 196,864 |
| 2 1/2  | 2,836  | 2 1/2  | 17,914 | 2 1/2  | 32,992 | 2 1/2  | 48,070 | 2 1/2  | 63,148 | 2 1/2  | 78,227 | 2 1/2  | 93,305  | 2 1/2  | 108,383 | 2 1/2  | 123,461 | 2 1/2  | 138,539 | 2 1/2  | 151,571 | 2 1/2  | 163,120 | 2 1/2  | 174,473 | 2 1/2  | 185,827 | 2 1/2  | 197,040 |
| 3      | 3,160  | 3      | 18,228 | 3      | 33,306 | 3      | 48,384 | 3      | 63,463 | 3      | 78,541 | 3      | 93,619  | 3      | 108,697 | 3      | 123,775 | 3      | 138,853 | 3      | 151,812 | 3      | 163,356 | 3      | 174,710 | 3      | 186,064 | 3      | 197,217 |
| 3 1/4  | 3,464  | 3 1/4  | 18,542 | 3 1/4  | 33,620 | 3 1/4  | 48,699 | 3 1/4  | 63,777 | 3 1/4  | 78,855 | 3 1/4  | 93,933  | 3 1/4  | 109,011 | 3 1/4  | 124,089 | 3 1/4  | 139,167 | 3 1/4  | 152,053 | 3 1/4  | 163,593 | 3 1/4  | 174,947 | 3 1/4  | 186,300 | 3 1/4  | 197,393 |
| 3 1/2  | 3,778  | 3 1/2  | 18,857 | 3 1/2  | 33,935 | 3 1/2  | 49,013 | 3 1/2  | 64,091 | 3 1/2  | 79,169 | 3 1/2  | 94,247  | 3 1/2  | 109,325 | 3 1/2  | 124,403 | 3 1/2  | 139,481 | 3 1/2  | 152,294 | 3 1/2  | 163,829 | 3 1/2  | 175,183 | 3 1/2  | 186,537 | 3 1/2  | 197,569 |
| 4      | 4,093  | 4      | 19,171 | 4      | 34,249 | 4      | 49,327 | 4      | 64,405 | 4      | 79,483 | 4      | 94,561  | 4      | 109,639 | 4      | 124,717 | 4      | 139,795 | 4      | 152,535 | 4      | 164,066 | 4      | 175,420 | 4      | 186,773 | 4      | 197,705 |
| 4 1/4  | 4,407  | 4 1/4  | 19,485 | 4 1/4  | 34,563 | 4 1/4  | 49,641 | 4 1/4  | 64,719 | 4 1/4  | 79,797 | 4 1/4  | 94,875  | 4 1/4  | 109,953 | 4 1/4  | 125,031 | 4 1/4  | 140,110 | 4 1/4  | 152,776 | 4 1/4  | 164,302 | 4 1/4  | 175,656 | 4 1/4  | 187,010 | 4 1/4  | 197,841 |
| 4 1/2  | 4,721  | 4 1/2  | 19,799 | 4 1/2  | 34,877 | 4 1/2  | 49,955 | 4 1/2  | 65,033 | 4 1/2  | 80,111 | 4 1/2  | 95,189  | 4 1/2  | 110,267 | 4 1/2  | 125,346 | 4 1/2  | 140,424 | 4 1/2  | 153,017 | 4 1/2  | 164,539 | 4 1/2  | 175,893 | 4 1/2  | 187,246 | 4 1/2  | 197,977 |
| 5      | 5,035  | 5      | 20,113 | 5      | 35,191 | 5      | 50,269 | 5      | 65,347 | 5      | 80,425 | 5      | 95,504  | 5      | 110,582 | 5      | 125,660 | 5      | 140,738 | 5      | 153,258 | 5      | 164,775 | 5      | 176,129 | 5      | 187,483 | 5      | 198,113 |
| 5 1/4  | 5,349  | 5 1/4  | 20,427 | 5 1/4  | 35,505 | 5 1/4  | 50,583 | 5 1/4  | 65,661 | 5 1/4  | 80,740 | 5 1/4  | 95,818  | 5 1/4  | 110,896 | 5 1/4  | 125,974 | 5 1/4  | 141,052 | 5 1/4  | 153,499 | 5 1/4  | 165,012 | 5 1/4  | 176,366 | 5 1/4  | 187,719 | 5 1/4  | 198,209 |
| 5 1/2  | 5,663  | 5 1/2  | 20,741 | 5 1/2  | 35,819 | 5 1/2  | 50,897 | 5 1/2  | 65,976 | 5 1/2  | 81,054 | 5 1/2  | 96,132  | 5 1/2  | 111,210 | 5 1/2  | 126,288 | 5 1/2  | 141,366 | 5 1/2  | 153,741 | 5 1/2  | 165,249 | 5 1/2  | 176,602 | 5 1/2  | 187,956 | 5 1/2  | 198,305 |
| 6      | 5,977  | 6      | 21,056 | 6      | 36,134 | 6      | 51,212 | 6      | 66,290 | 6      | 81,368 | 6      | 96,446  | 6      | 111,524 | 6      | 126,602 | 6      | 141,680 | 6      | 153,982 | 6      | 165,485 | 6      | 176,839 | 6      | 188,193 | 6      | 198,401 |
| 6 1/4  | 6,291  | 6 1/4  | 21,370 | 6 1/4  | 36,448 | 6 1/4  | 51,526 | 6 1/4  | 66,604 | 6 1/4  | 81,682 | 6 1/4  | 96,760  | 6 1/4  | 111,838 | 6 1/4  | 126,916 | 6 1/4  | 141,994 | 6 1/4  | 154,223 | 6 1/4  | 165,722 | 6 1/4  | 177,075 | 6 1/4  | 188,429 | 6 1/4  | 198,497 |
| 6 1/2  | 6,606  | 6 1/2  | 21,684 | 6 1/2  | 36,762 | 6 1/2  | 51,840 | 6 1/2  | 66,918 | 6 1/2  | 81,996 | 6 1/2  | 97,074  | 6 1/2  | 112,152 | 6 1/2  | 127,230 | 6 1/2  | 142,308 | 6 1/2  | 154,464 | 6 1/2  | 165,958 | 6 1/2  | 177,312 | 6 1/2  | 188,666 | 6 1/2  | 198,553 |
| 7      | 6,920  | 7      | 21,998 | 7      | 37,076 | 7      | 52,154 | 7      | 67,232 | 7      | 82,310 | 7      | 97,388  | 7      | 112,466 | 7      | 127,544 | 7      | 142,623 | 7      | 154,705 | 7      | 166,195 | 7      | 177,548 | 7      | 188,902 | 7      | 198,608 |
| 7 1/4  | 7,234  | 7 1/4  | 22,312 | 7 1/4  | 37,390 | 7 1/4  | 52,468 | 7 1/4  | 67,546 | 7 1/4  | 82,624 | 7 1/4  | 97,702  | 7 1/4  | 112,780 | 7 1/4  | 127,859 | 7 1/4  | 142,937 | 7 1/4  | 154,946 | 7 1/4  | 166,431 | 7 1/4  | 177,785 | 7 1/4  | 189,139 | 7 1/4  | 198,664 |
| 7 1/2  | 7,548  | 7 1/2  | 22,626 | 7 1/2  | 37,704 | 7 1/2  | 52,782 | 7 1/2  | 67,860 | 7 1/2  | 82,938 | 7 1/2  | 98,017  | 7 1/2  | 113,095 | 7 1/2  | 128,173 | 7 1/2  | 143,251 | 7 1/2  | 155,187 | 7 1/2  | 166,668 | 7 1/2  | 178,022 | 7 1/2  | 189,375 | 7 1/2  | 198,720 |
| 8      | 7,862  | 8      | 22,940 | 8      | 38,018 | 8      | 53,096 | 8      | 68,174 | 8      | 83,253 | 8      | 98,331  | 8      | 113,409 | 8      | 128,487 | 8      | 143,565 | 8      | 155,428 | 8      | 166,904 | 8      | 178,258 | 8      | 189,612 | 8      | 198,735 |
| 8 1/4  | 8,176  | 8 1/4  | 23,254 | 8 1/4  | 38,332 | 8 1/4  | 53,410 | 8 1/4  | 68,489 | 8 1/4  | 83,567 | 8 1/4  | 98,645  | 8 1/4  | 113,723 | 8 1/4  | 128,801 | 8 1/4  | 143,879 | 8 1/4  | 155,669 | 8 1/4  | 167,141 | 8 1/4  | 178,495 | 8 1/4  | 189,848 | 8 1/4  | 198,751 |
| 8 1/2  | 8,490  | 8 1/2  | 23,568 | 8 1/2  | 38,647 | 8 1/2  | 53,726 | 8 1/2  | 68,803 | 8 1/2  | 83,881 | 8 1/2  | 98,959  | 8 1/2  | 114,037 | 8 1/2  | 129,115 | 8 1/2  | 144,137 | 8 1/2  | 155,910 | 8 1/2  | 167,377 | 8 1/2  | 178,731 | 8 1/2  | 190,085 | 8 1/2  | 198,766 |
| 9      | 8,804  | 9      | 23,883 | 9      | 38,961 | 9      | 54,039 | 9      | 69,117 | 9      | 84,195 | 9      | 99,273  | 9      | 114,351 | 9      | 129,429 | 9      | 144,395 | 9      | 156,151 | 9      | 167,614 | 9      | 178,968 | 9      | 190,321 | 9      | 198,782 |
| 9 1/4  | 9,119  | 9 1/4  | 24,197 | 9 1/4  | 39,275 | 9 1/4  | 54,353 | 9 1/4  | 69,431 | 9 1/4  | 84,509 | 9 1/4  | 99,587  | 9 1/4  | 114,665 | 9 1/4  | 129,743 | 9 1/4  | 144,652 | 9 1/4  | 156,392 | 9 1/4  | 167,850 | 9 1/4  | 179,204 | 9 1/4  | 190,558 | 9 1/4  | 198,794 |
| 9 1/2  | 9,433  | 9 1/2  | 24,511 | 9 1/2  | 39,589 | 9 1/2  | 54,667 | 9 1/2  | 69,745 | 9 1/2  | 84,823 | 9 1/2  | 99,901  | 9 1/2  | 114,979 | 9 1/2  | 130,057 | 9 1/2  | 144,910 | 9 1/2  | 156,633 | 9 1/2  | 168,087 | 9 1/2  | 179,441 | 9 1/2  | 190,794 | 9 1/2  | 198,812 |
| 10     | 9,747  | 10     | 24,825 | 10     | 39,903 | 10     | 54,981 | 10     | 70,059 | 10     | 85,137 | 10     | 100,215 | 10     | 115,294 | 10     | 130,372 | 10     | 145,165 | 10     | 156,875 | 10     | 168,324 | 10     | 179,677 | 10     | 191,031 | 10     | 198,834 |
| 10 1/4 | 10,061 | 10 1/4 | 25,139 | 10 1/4 | 40,217 | 10 1/4 | 55,295 | 10 1/4 | 70,373 | 10 1/4 | 85,451 | 10 1/4 | 100,530 | 10 1/4 | 115,608 | 10 1/4 | 130,686 | 10 1/4 | 145,420 | 10 1/4 | 157,116 | 10 1/4 | 168,560 | 10 1/4 | 179,914 | 10 1/4 | 191,268 | 10 1/4 | 198,858 |
| 10 1/2 | 10,375 | 10 1/2 | 25,453 | 10 1/2 | 40,531 |        |        |        |        |        |        |        |         |        |         |        |         |        |         |        |         |        |         |        |         |        |         |        |         |

OWNER: Chem Carriers LLC  
DESCRIPTION Double Skin, Trail Rake, Inland Tank Barge  
SIZE: 297'-6"x54'-0"x12'-0"

CONTRACT: 38193  
HULL: 2199-1  
NAME: CCL 406  
DATE: 8-Jul-11

## PRELIMINARY

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  |      | 933  | 1400 | 1875 | 2355 | 2841 | 3332 | 3827 | 4327 | 4829  | 5332  |
| DEADWEIGHT   |       |      | 47   | 514  | 988  | 1469 | 1955 | 2446 | 2941 | 3440 | 3943  | 4446  |
| DISPLACEMENT | 1 IN  |      | 972  | 1440 | 1915 | 2396 | 2882 | 3373 | 3869 | 4369 | 4871  | 5374  |
| DEADWEIGHT   |       |      | 85   | 553  | 1028 | 1509 | 1996 | 2487 | 2982 | 3482 | 3985  | 4488  |
| DISPLACEMENT | 2 IN  |      | 1010 | 1479 | 1955 | 2436 | 2923 | 3414 | 3910 | 4411 | 4913  | 5416  |
| DEADWEIGHT   |       |      | 124  | 593  | 1068 | 1550 | 2036 | 2528 | 3024 | 3524 | 4027  | 4530  |
| DISPLACEMENT | 3 IN  |      | 1049 | 1518 | 1994 | 2476 | 2964 | 3456 | 3952 | 4452 | 4955  | 5458  |
| DEADWEIGHT   |       |      | 163  | 632  | 1108 | 1590 | 2077 | 2569 | 3065 | 3566 | 4069  | 4571  |
| DISPLACEMENT | 4 IN  |      | 1088 | 1558 | 2034 | 2517 | 3004 | 3497 | 3993 | 4494 | 4997  | 5500  |
| DEADWEIGHT   |       |      | 202  | 671  | 1148 | 1630 | 2118 | 2610 | 3107 | 3608 | 4111  | 4613  |
| DISPLACEMENT | 5 IN  |      | 1127 | 1597 | 2074 | 2557 | 3045 | 3538 | 4035 | 4536 | 5039  | 5542  |
| DEADWEIGHT   |       |      | 240  | 711  | 1188 | 1671 | 2159 | 2651 | 3149 | 3650 | 4152  | 4655  |
| DISPLACEMENT | 6 IN  |      | 1166 | 1637 | 2114 | 2598 | 3086 | 3579 | 4077 | 4578 | 5081  | 5584  |
| DEADWEIGHT   |       |      | 279  | 750  | 1228 | 1711 | 2200 | 2693 | 3190 | 3692 | 4194  | 4697  |
| DISPLACEMENT | 7 IN  |      | 1205 | 1676 | 2155 | 2638 | 3127 | 3620 | 4118 | 4620 | 5123  | 5626  |
| DEADWEIGHT   |       |      | 318  | 790  | 1268 | 1752 | 2241 | 2734 | 3232 | 3733 | 4236  | 4739  |
| DISPLACEMENT | 8 IN  |      | 1244 | 1716 | 2195 | 2679 | 3168 | 3662 | 4160 | 4662 | 5165  | 5667  |
| DEADWEIGHT   |       |      | 357  | 830  | 1308 | 1792 | 2282 | 2775 | 3273 | 3775 | 4278  | 4781  |
| DISPLACEMENT | 9 IN  |      | 1283 | 1756 | 2235 | 2719 | 3209 | 3703 | 4202 | 4704 | 5206  | 5709  |
| DEADWEIGHT   |       |      | 396  | 869  | 1348 | 1833 | 2323 | 2817 | 3315 | 3817 | 4320  | 4823  |
| DISPLACEMENT | 10 IN |      | 1322 | 1795 | 2275 | 2760 | 3250 | 3745 | 4243 | 4746 | 5248  |       |
| DEADWEIGHT   |       |      | 436  | 909  | 1388 | 1874 | 2364 | 2858 | 3357 | 3859 | 4362  |       |
| DISPLACEMENT | 11 IN | 895  | 1361 | 1835 | 2315 | 2801 | 3291 | 3786 | 4285 | 4787 | 5290  |       |
| DEADWEIGHT   |       | 8    | 475  | 949  | 1429 | 1914 | 2405 | 2899 | 3399 | 3901 | 4404  |       |

DISPLACEMENT & DEADWEIGHT ARE IN SHORT TONS. ONE SHORT TON (S.TON) = 2000 POUNDS  
LIGHTSHIP WEIGHT (LWT) IS DERIVED FROM FREEBOARD READINGS

LWT = 886 S.TON

### NOTES:

1. TABLE DATA IS BASED ON DRAFTS IN FRESH WATER AT 32.05 (CU. FT. PER S. TON) OR 62.4 (LBS PER CU. FT.).
2. TO OBTAIN DISPLACEMENT IN SEA WATER AT 31.25 (CU. FT. PER S. TON) OR 64.0 (LBS PER CU. FT.), MULTIPLY THE TABLE DISPLACEMENT BY 1.025, TO OBTAIN THE CORRESPONDING CARGO DEADWEIGHT, SUBTRACT THE LIGHTSHIP WEIGHT (LWT) FROM THE CALCULATED DISPLACEMENT IN SEA WATER.
3. ACTUAL DISPLACEMENTS AND DEADWEIGHTS MAY VARY DUE TO ACCURACY OF DRAFT READINGS, WEATHER CONDITIONS, SPECIFIC GRAVITY OF WATER, DECK LOADS, RESIDUE IN BILGES ALTERATIONS OR CHANGES TO THE VESSEL SINCE REFERENCE FREEBOARD READINGS WERE TAKEN, etc.
4. ALL DATA IS BASED ON ZERO TRIM.

# Shell Deer Park Refinery Company

A Division of Shell Oil Products Company

## Vessel Marine Vapor Recovery System Checklist

Richard.arnold@shell.com

E-mail To

gxsdprlogisticscargoinspectors@shell.com

**Note: Vessels MUST arrive with tank IG pressure of LESS than 300 mm WG/**

**0.4 psi or vessel will not be accepted.**

1. Name of Vessel: CCL 406  
a. Vessel Flag/Registry: United States  
b. Vessel Owner/Operator: Chem Carriers LLC
2. Is Certificate of Inspection or Certificate of Compliance on board? ☒ Yes No
3. Is vessel Marine Vapor Recovery System USCG approved? ☒ Yes No
4. Is Certificate of Tightness on board?  
(Photocopy must be faxed prior to arrival at SDPRC) ☒ Yes No
5. What is vessel Vapor header flange size? 8" inches  
(Facility has capability to connect to either 6", 8" or 12" flange size)
6. What is vessel liquid header flange size? 8" inches
7. Regulated products minimum loading rate?  
1. Product N/A bbls / hour  
2. Product \_\_\_\_\_ bbls / hour  
3. Product \_\_\_\_\_ bbls / hour
8. Regulated products maximum loading rate?  
1. Product 4,000 bbls / hour  
2. Product \_\_\_\_\_ bbls / hour  
3. Product \_\_\_\_\_ bbls / hour
9. Vessel pressure safety valve setting – high? 3 LB. psig
10. Vessel pressure safety valve setting – low? 3 LB. psig
11. Vessel manifold pressure drop at vessel maximum loading rate? 1 LB. psig
12. Type of vessel overfill protection?  
a. Overfill connection (5 pin plug cable connection) YES  
b. Spill Valve \_\_\_\_\_  
c. Independent alarm \_\_\_\_\_
13. Prior Cargo ? NAPHTHA
14. Condition of cargo tanks prior to being loaded (i.e. cleaned, washed, gas freed, etc.)?  
Cargo Tanks have NOT been cleaned or stripped liquid free

*John Whitman 2/2/2013*  
*Chem Carriers*

U.S. Department of  
Homeland Security

United States  
Coast Guard



Commanding Officer  
United States Coast Guard  
Marine Safety Center

2100 2nd Street, S.W. Stop 7102  
Washington, DC 20593-7102  
Staff Symbol: MSC-3  
Phone: (202) 475-3403  
Fax: (202) 475-3920  
Email: [msc@uscg.mil](mailto:msc@uscg.mil)

16710/P016203  
Serial: C1-1303247  
September 23, 2013

M. Dan Jones & Associates  
Attn: Mr. M. Dan Jones  
7519 Old Bridge Court  
Sugar Land, TX 77479  
Email: [matdjones@aol.com](mailto:matdjones@aol.com)

Subj: CCL 403, O.N. 1231311, Trinity Ashland City Hull 4772  
CCL 404, O.N. 1231312, Trinity Ashland City Hull 4773  
CCL 405, O.N. 1236867, Trinity Ashland City Hull 2196-1  
CCL 406, O.N. 1236866, Trinity Ashland City Hull 2199-1  
297' x 54' x 12' Unmanned Double Hull Type II/III Tank Barges (O/D)  
Grade A (max. 25 psia Reid) and Lower Flammable or Combustible Liquids Identified in  
46 CFR Table 30.25-1 or 46 CFR Part 153 Table 2 and Specified Hazardous Cargoes  
Design Density 8.7 lbs/gal; Maximum Density (slack load) 13.6 lbs/gal  
Rivers; Lakes, Bays, and Sounds; Limited Coastwise on unmanned fair weather voyages  
only, not more than 12 miles offshore between St. Marks and Carrabelle, Florida  
Multi-breasted Tandem Loading

Ref: (a) M. Dan Jones & Associates Doc. 13-36-2, "Vapor Collection Calculation on the Dual  
Loading of Trinity Marine Products, Inc. Hulls 2196 & 2199" dated September 16,  
2013  
(b) Marine Safety Center Letter Serial: C1-1100183, dated January 21, 2011  
(c) Marine Safety Center Letter Serial: C1-1103805, dated November 14, 2011  
(d) Marine Safety Center Letter Serial: C1-1103914, dated November 22, 2011

Dear Mr. Jones:

In response to your electronic submission dated September 16, 2013, we have reviewed the pressure drop calculations for multi-breasted tandem loading. Reference (a) is "**Examined**". Calculations such as these are not normally marked approved, but are used to verify that the system meets the applicable regulations.

These barges have vapor control systems previously approved by references (b) through (d), and are acceptable for dual loading operations. Based on the calculations in reference (a), tandem loading is limited to simultaneous collection of those cargoes listed in the vessels' CAA at a maximum transfer rate of **5000 bbl/hr** per barge.

For final approval you must submit your request to Commandant (CG-ENG-5) with the name of the facility where the vessels will be conducting dual loading operations. For more information, please email the Coast Guard Hazardous Materials Standards division at [HazmatStandards@uscg.mil](mailto:HazmatStandards@uscg.mil).

16710/P016203  
Serial: C1-1303247  
September 23, 2013

Subj: CCL 403, O.N. 1231311, Trinity Ashland City Hull 4772  
CCL 404, O.N. 1231312, Trinity Ashland City Hull 4773  
CCL 405, O.N. 1236867, Trinity Ashland City Hull 2196-1  
CCL 406, O.N. 1236866, Trinity Ashland City Hull 2199-1  
Multi-breasted Tandem Loading

If you have any questions concerning our review, please contact Lieutenant Ryan Mowbray at the number listed above.

Sincerely,

M. J. SEXTON  
Lieutenant, U. S. Coast Guard  
Assistant Chief, Tank Vessel and Offshore Division  
By direction

Copy: Supervisor, Coast Guard Marine Safety Detachment Nashville  
Commandant, U. S. Coast Guard (CG-ENG-5)

**TRINITY MARINE PRODUCTS, INC.**

**ASHLAND CITY, TN - MADISONVILLE, LA  
CARUTHERSVILLE, MO – PORT ALLEN, LA**

**VAPOR CONTROL SYSTEM (VCS) CALCULATIONS**

**FOR  
SINGLE LOADING AND DISCHARGE  
OF  
SUBCHAPTER "D" & "O" PRODUCTS  
FOR  
Chem Carriers, LLC**

**TRINITY MARINE PRODUCTS TAG No.: 38193**

**TRINITY - MADISONVILLE HULL No.: 2199-1**

**USCG MSC PROJECT No.: Pending**

**October 26, 2011**

Prepared By:

Matthew Crist P.E.  
Naval Architect  
Trinity Marine Products  
1050 Trinity Rd, Ashland City, TN 37015  
Phone: 615.792.4320 - Fax: 615.792.8251  
E-Mail: matthew.crist@trin.net

OWNER: Chem Carriers, LLC  
DESCRIPTION: Double Skin Trail Rake Inland Tank Barge  
SIZE: 297'-6"x54'-0"x12'-0"  
HULL/NAME: 2199-1/CCL 406

CONTRACT: 38193  
BY: MEC  
DATE: 26-Oct-11

## VCS SYSTEM INFORMATION

### 1. GENERAL DESCRIPTION OF VESSEL:

A. TMP HULL NUMBERS 2199-1  
B. NAME (S): CCL 406  
C. OFFICIAL NUMBER: Pending  
D. USCG MSC FILE NUMBER: Pending  
E. DIMENSIONS: 297'-6"x54'-0"x12'-0"  
F. SERVICE: Rivers, Lakes, Bays and Sounds, Subchapter "D" and "O"  
G. MAX. ALLOWABLE WORKING PRESSURE: 3.50 psig  
H. PV VALVE PRESSURE SETTING: 3.00 psig  
I. PV VALVE VACUUM SETTING: 3.00 psi  
J. MAX. DISCHARGE RATE: 5000 bbl/hr 468cuft/min  
K. MAX. LIQUID LOADING RATE: 5000 bbl/hr 468cuft/min

### 2. VAPOR CONTROL SYSTEM

A. PIPE DIAMETER: 7.981 in  
B. PIPE LENGTHS: See Trinity Drawing 38193P-06  
C. P/V VALVE ERL SUPERAC II PV-6

| COMP                | MAX FLOW<br>@ PRESSURE SETTING | MAX PRESSURE DROP ACROSS VALVE<br>@ MAX TRANSFER |
|---------------------|--------------------------------|--------------------------------------------------|
| ERL SUPERAC II PV-6 | 18875bbl/hr @ 3.0psi           | 3.139psi @ 13335bbl/hr Air                       |
| ERL SUPERAC II PV-6 | 17169bbl/hr @ 3.0psi           | 2.488psi @ 5000bbl/hr Air                        |

D. MAX. VAPOR-AIR MIXTURE DENSITY: 0.378 lbs/ft<sup>3</sup>

F. VCS CARGOES: SEE TABLE 1

G. SPILL VALVE None Installed

#### H. ADDITIONAL INFORMATION:

- 46CFR39.20-1(a)(4) SYSTEM IS DESIGNED WITH SEVERAL LOW POINT CONDENSATE DRAINS.
- 46CFR39.20-1(a)(5) SYSTEM IS ELECTRICALLY BONDED TO THE VESSEL DUE TO WELDED STEEL CONSTRUCTION
- 46CFR39.20-1(c) SYSTEM INCLUDES AN ISOLATION VALVE, MANUALLY OPERATED BUTTERFLY VALVE, AT EACH FACILITY CONNECTION
- 46CFR39.20-1(d) VAPOR HEADER MARKED AS SHOWN IN TRINITY DWG P-6 (SUBMITTED SEPARATELY)
- 46CFR39.20-1(e) FACILITY CONNECTION FLANGE FITTED WITH 1/2" STUD 1" LONG AT LOCATION OUTLINED IN REGULATION
- SYSTEM IS DESIGNED TO ACCOMMODATE INTERNAL VISUAL INSPECTION AS REQUIRED FOR CARRIAGE OF POLYMERIZING CARGOES.

**OWNER: Chem Carriers, LLC**  
**DESCRIPTION: Double Skin Trail Rake Inland Tank Barge**  
**SIZE: 297'-6"x54'-0"x12'-0"**  
**HULL/NAME: 2199-1/CCL 406**

**CONTRACT: 38193**  
**BY: MEC**  
**DATE: 26-Oct-11**

## VCS CALCULATIONS

### 1. CARGO AUTHORITY:

The vapor collection system installed on this vessel is designed to carry the cargoes listed in Table 1. These Cargoes are to be listed on the vessel's Certificate of Inspection.

### 2. DETERMINING VAPOR AIR MIXTURE DENSITY AND VAPOR GROWTH RATE:

iso-Pentane has the heaviest vapor-air mixture density. iso-Pentane has the highest vapor growth rate (see Table 1 for Calculations)

### 3. THE MAXIMUM LIQUID TRANSFER RATE AS IMPOSED BY THE CAPACITY OF THE CARGO VENTING SYSTEM 46CFR39.30-1:

#### A: PRESSURE DROP FROM TANK TO PV VALVE

Tank 3 is the farthest tank from the P/V valve. Using Crane's Technical Paper No. 410, the total equivalent length (L) for the path is shown in Table 2.

**TABLE 2**

| PIPE/FITTINGS        | QUANTITY | K    | D<br>(in) | UNIT EQ.<br>LENGTH<br>(FT) | TOTAL EQ.<br>LENGTH<br>(FT) |           |
|----------------------|----------|------|-----------|----------------------------|-----------------------------|-----------|
| Entrance, Projecting | 1.00     | 0.78 | 7.981     | 37.05                      | 37.05                       |           |
| Straight Pipe        | 12.75    |      | 7.981     | 1.00                       | 12.75                       |           |
| Tee Branch Con       | 2.00     | 1.10 | 7.981     | 52.26                      | 104.51                      |           |
| Tee Run Con          | 1.00     | 0.55 | 7.981     | 26.13                      | 26.13                       | Tank Drop |
| Straight Pipe        | 99.00    |      | 7.981     | 1.00                       | 99.00                       | 180.45    |
| Tee Branch Con       | 2.00     | 1.10 | 7.981     | 52.26                      | 104.51                      |           |
| Tee Branch Div       | 1.00     | 1.04 | 6.065     | 37.55                      | 37.55                       |           |
| Straight Pipe        | 3.50     |      | 6.065     | 3.00                       | 10.49                       |           |
| <b>Total</b>         |          |      |           |                            | <b>432.00</b>               |           |

Using Darcy's Equation, with a 0.014 friction factor and the maximum liquid transfer rate, the pressure drop along the VCS piping between the #3 cargo tank and the P/V valve for each cargo is shown in Table 1.

Using a 5000 bbl/h liquid transfer rate, the vapor-air mixture and air-equivalent volumetric flow rate for each cargo are given in Table 1. At a setting of 3.0 psig, the ERL SUPERAC II PV-6 has an adequate pressure relieving capacity of air for each cargo listed in Table 1. The maximum pressure in the tank, 3.1 psi, based on a pressure drop of 0.0 psig in piping and 3.1 psig across the PV Valve at 1038 bbl air equivalent, does not exceed the cargo tank maximum design working pressure of 3.5 psi.

#### Pressure Drop of Air Flow Into Tanks During Discharge

| NAME | $\rho$ @ 115°F<br>(LBS/CUFT) | f     | PIPE DIA<br>(FT) | TOTAL EQ.<br>LENGTH<br>(FT) | FLOW<br>RATE<br>(CUFT/SEC) | V<br>(FT/SEC) | PRESSURE<br>DROP<br>(PSI) |
|------|------------------------------|-------|------------------|-----------------------------|----------------------------|---------------|---------------------------|
| Air  | 0.069                        | 0.014 | 0.665            | 432.00                      | 7.80                       | 22.45         | 0.034                     |

Using a 5000 bbl/h liquid transfer rate as the air flow rate. At a setting of 3.0 psig, the ERL SUPERAC II PV-6 has an adequate pressure relieving capacity of air. The maximum vacuum in the tank, 2.5 psi based on a pressure drop of 0.0 psig in piping and 2.5 psig across the PV Valve at 5000 bbl air, does not exceed the cargo tank maximum design working pressure of 3.5 psi.

**OWNER: Chem Carriers, LLC**  
**DESCRIPTION: Double Skin Trail Rake Inland Tank Barge**  
**SIZE: 297'-6"x54'-0"x12'-0"**  
**HULL/NAME: 2199-1/CCL 406**

**CONTRACT: 38193**  
**BY: MEC**  
**DATE: 26-Oct-11**

### VCS CALCULATIONS (CONT)

#### B: PRESSURE DROP FROM TANK TO FACILITY VAPOR CONNECTION

The sum of the pressure drop along the longest path and the pressure at the facility vapor connection may not exceed 80 percent of the P/V valve setting. The total equivalent length from cargo tank #1 to the vapor connection is given in Table 3.

**TABLE 3**

| PIPE/FITTINGS         | QUANTITY | K     | D<br>(in) | UNIT EQ.<br>LENGTH<br>(FT) | TOTAL EQ.<br>LENGTH<br>(FT) |
|-----------------------|----------|-------|-----------|----------------------------|-----------------------------|
| Tank Drop             | 180.45   |       | 7.981     | 1.00                       | 180.45 (From Above)         |
| Straight Pipe         | 209.00   |       | 7.981     | 1.00                       | 209.00                      |
| Tee Run Con           | 2.00     | 0.550 | 7.981     | 26.13                      | 52.26                       |
| Tee Branch Con        | 1.00     | 1.100 | 7.981     | 52.26                      | 52.26                       |
| Tee Branch Div        | 1.00     | 1.040 | 7.981     | 49.41                      | 49.41                       |
| Tee Branch Div        | 1.00     | 1.040 | 6.065     | 37.55                      | 37.55                       |
| 45° Long Radius Elbow | 1.00     | 0.224 | 7.981     | 10.64                      | 10.64                       |
| Straight Pipe         | 33.00    |       | 7.981     | 1.00                       | 33.00                       |
| 8" Butterfly Valve    | 1.00     | 0.630 | 7.981     | 29.93                      | 29.93                       |
|                       |          |       |           | <b>Total</b>               | <b>654.481</b>              |

Pressure drop at the maximum liquid loading rate of 5000bbl/h from Tank 1 to the Vapor Header Connection for each cargo is given in Table 1.

The largest pressure drop (0.4psi) does not exceed 80 percent of the P/V valve pressure setting (2.4psig).

#### 4. THE MAXIMUM LIQUID TRANSFER RATE AS IMPOSED BY THE RELIEVING CAPACITY OF THE CARGO TANK SPILL VALVE OR RUPTURE DISK.

MANUFACTURER / MODEL: None Installed

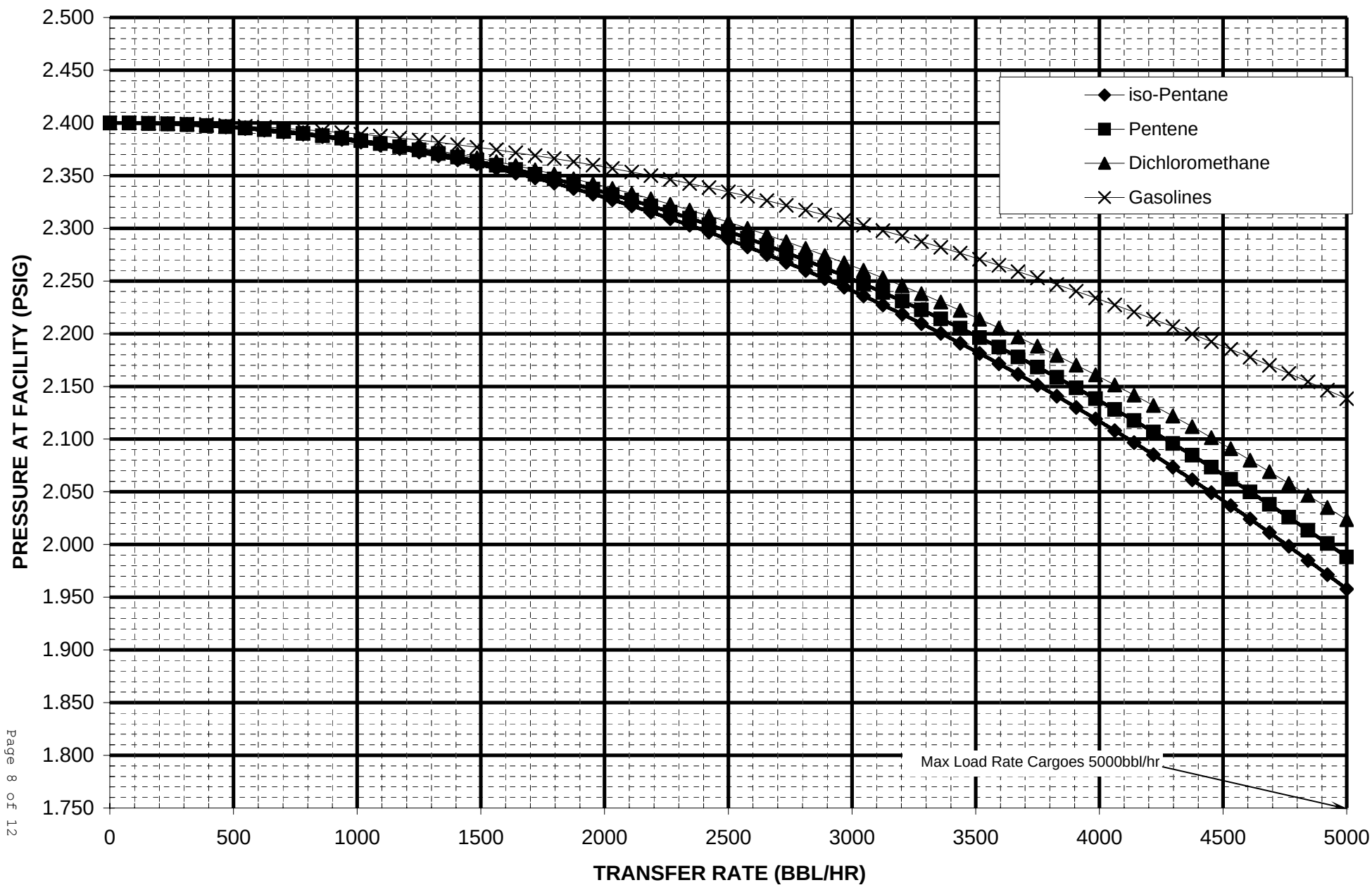
#### 5. THE MAXIMUM LIQUID TRANSFER RATE AS IMPOSED BY THE SET POINT OF THE OVERFILL ALARM

|                                 |                                   |
|---------------------------------|-----------------------------------|
| SMALLEST TANK:                  | Tank No. 3                        |
| SET POINT OF OVERFILL SHUTDOWN: | 9.60* IN ULLAGE FROM GAUGE FLANGE |
| REMAINING CAPACITY AT SHUTDOWN: | 469 CUFT                          |
| MAX LOAD RATE:                  | 468 CUFT/MIN                      |
| MAX LOAD RATE PER TANK:         | 5000 BBL/HR                       |
| TIME REMAINING FOR SHUTDOWN     | 1.0 MIN                           |
| TIME REQUIRED BY 46CFR39.20-9:  | 1.0 MIN                           |
| MARGIN:                         | 0.0 MIN                           |

\*Note: Setpoint is minimum required setpoint. Actual setting will be done by Owner prior to COI.

The #3 cargo tank has a set point for the overfill shutdown set at 0.80ft BELOW THE FLANGE OF THE GAUGE. The tank capacity above this level is 469cuft. With a liquid transfer rate of 5000 bbl/h per tank based on loading into a single tank only, the person in charge of transfer operations has at least 1 minute to stop the transfer operation before the tank overflows. Thus the VCS meets the requirements of 46CFR 39.20-9.

# **LIQUID TRANSFER RATE vs FACILITY PRESSURE FOR SINGLE LOADING** **BASED ON PRESSURE DROP FROM CARGO TANK #1 TO FACILITY CONNECTION**



Max Load Rate Cargoes 5000bbl/hr

PORT TANKS SHOWN STBD TANK SIMILAR

TANK LIST

| Part  | Type        | Long    | Trans  | Vert  |
|-------|-------------|---------|--------|-------|
| CT1.P | INTACT TANK | 75.62a  | 12.75p | 17.44 |
| CT2.P | INTACT TANK | 161.75a | 12.75p | 17.44 |
| CT3.P | INTACT TANK | 247.83a | 12.75p | 17.44 |

Reference Point

Distances in FEET.

FULL LOAD TANKS AT 100%

TANK STATUS

Trim: zero, Heel: zero

| Part        | BBLs   | SpGr  | Weight(ST) | LCG     | TCG    | VCG  | RefHt |
|-------------|--------|-------|------------|---------|--------|------|-------|
| CT1.P       | 5414.6 | 1.050 | 996.38     | 71.67a  | 11.61p | 9.85 |       |
| CT2.P       | 5105.3 | 1.050 | 939.46     | 160.47a | 11.61p | 9.78 |       |
| CT3.P       | 4714.1 | 1.050 | 867.47     | 243.77a | 11.60p | 9.39 |       |
| Total Tanks |        |       | 2,803.31   | 154.69a | 11.60p | 9.69 |       |

Distances in FEET.

HIGH LEVEL SETPOINT AT 0.95 OF FULL LOAD 46CFR39.20-7(c)(1)

TANK STATUS

Trim: zero, Heel: zero

| Part        | BBLs   | SpGr  | Weight(ST) | LCG     | TCG    | VCG  | RefHt |
|-------------|--------|-------|------------|---------|--------|------|-------|
| CT1.P       | 5143.9 | 1.050 | 946.56     | 71.67a  | 11.69p | 9.50 | 1.21  |
| CT2.P       | 4850.1 | 1.050 | 892.49     | 160.44a | 11.69p | 9.42 | 1.22  |
| CT3.P       | 4478.4 | 1.050 | 824.10     | 244.18a | 11.67p | 9.02 | 1.36  |
| Total Tanks |        |       | 2,663.15   | 154.80a | 11.68p | 9.32 |       |

Distances in FEET.

OVERFILL SETPOINT BASED ON 0.985 OF FULL LOAD 46CFR39.30-1(e)(1)

TANK STATUS

Trim: zero, Heel: zero

| Part        | BBLs   | SpGr  | Weight(ST) | LCG     | TCG    | VCG  | RefHt |
|-------------|--------|-------|------------|---------|--------|------|-------|
| CT1.P       | 5333.1 | 1.050 | 981.37     | 71.65a  | 11.68p | 9.74 | 0.71  |
| CT2.P       | 5028.4 | 1.050 | 925.31     | 160.44a | 11.68p | 9.67 | 0.71  |
| CT3.P       | 4642.8 | 1.050 | 854.34     | 243.91a | 11.67p | 9.28 | 0.76  |
| Total Tanks |        |       | 2,761.02   | 154.71a | 11.68p | 9.58 |       |

Distances in FEET.

OVERFILL SETPOINT BASED ON 60SEC AT 5000BBL/HR 46CFR39.20-9(b)(2)

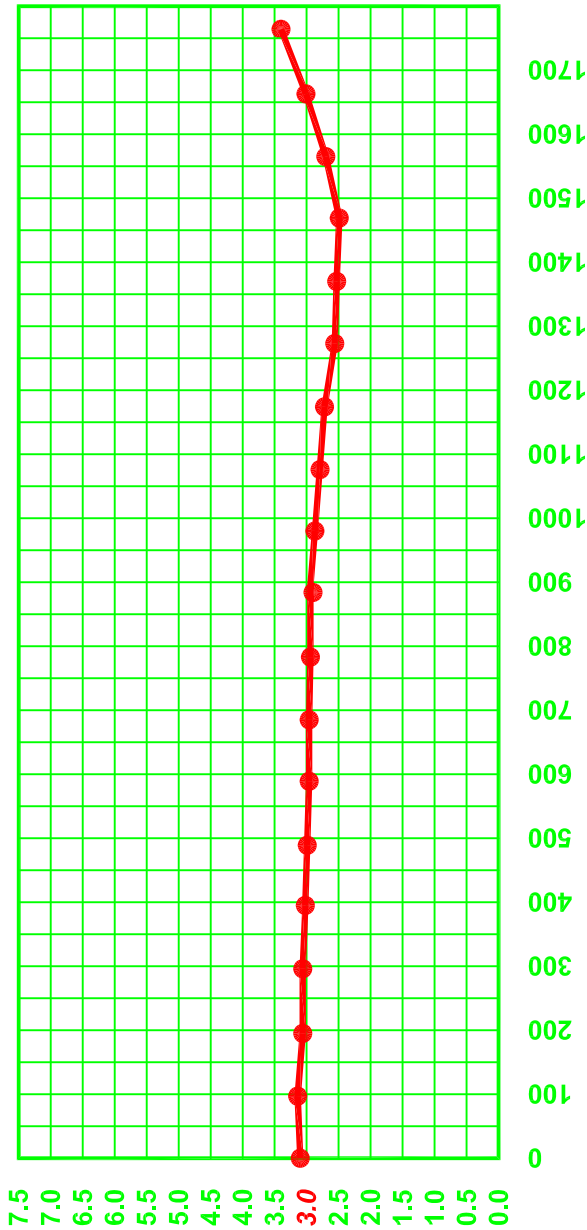
TANK STATUS

Trim: zero, Heel: zero

| Part        | BBLs   | SpGr  | Weight(ST) | LCG     | TCG    | VCG  | RefHt |
|-------------|--------|-------|------------|---------|--------|------|-------|
| CT1.P       | 5331.0 | 1.050 | 980.99     | 71.65a  | 11.68p | 9.74 | 0.71  |
| CT2.P       | 5021.8 | 1.050 | 924.10     | 160.44a | 11.69p | 9.66 | 0.73  |
| CT3.P       | 4630.5 | 1.050 | 852.10     | 243.93a | 11.67p | 9.26 | 0.80  |
| Total Tanks |        |       | 2,757.18   | 154.65a | 11.68p | 9.57 |       |

Distances in FEET.

P.S.I.



FLOW IN FT.³ /MIN.

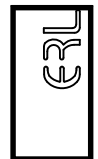
Curve for PRESSURE side of 6" PV Valve - 3.0 PSI

CEESI - Colorado Engineering

data based on air flow

| BARRELS<br>PER<br>HOUR | FLOW<br>FT.³<br>per MIN. | P.S.I. |
|------------------------|--------------------------|--------|
|------------------------|--------------------------|--------|

|       |      |      |
|-------|------|------|
| 0     | 0    | 3.10 |
| 1038  | 97   | 3.14 |
| 2086  | 195  | 3.06 |
| 3167  | 296  | 3.06 |
| 4227  | 395  | 3.02 |
| 5232  | 489  | 2.99 |
| 6302  | 589  | 2.96 |
| 7330  | 685  | 2.96 |
| 8378  | 783  | 2.94 |
| 9459  | 884  | 2.90 |
| 10486 | 980  | 2.87 |
| 11513 | 1076 | 2.79 |
| 12562 | 1174 | 2.72 |
| 13621 | 1273 | 2.56 |
| 14659 | 1370 | 2.53 |
| 15718 | 1469 | 2.49 |
| 16746 | 1565 | 2.70 |
| 17794 | 1663 | 3.01 |
| 18875 | 1764 | 3.40 |



**ELECTROMECHANICAL  
RESEARCH LABORATORIES, INC.**  
P.O. 1026 NEW ALBANY, IN 47150

DATE

7/12/10

DRAWN

D. URBAN

PART NAME

Flow Curve 3.0 PSI Pressure

APPROVED

SCALE

UNIT NAME

6" PV Valve MDII

ITEM NO.

DRAWING NO.

193V152B

# Calibration of a Valve

Model: Serial Number: 2422

For: ERL Commercial Marine, Inc. Order: 00062654

Data File: 09ERL2-0007\_1 Job: CE08812 Date: 10 March 2009

Inlet Diameter: 6.0 inches Throat Diameter: 6.0 inches

Test gas: AIR Standard density= 0.074895 lbm/ft<sup>3</sup>

at standard conditions of 529.67 °R, and 14.696 Psia

Press: Meter INLET static pressure in psia

Temp: INLET temperature, degrees Rankine

LBMS: Mass flowrate in pounds mass per second

SCFM: Mass flowrate in standard cubic feet per minute

dP (psid): Differential Pressure across valve in psid

dP (psid): Differential Pressure across valve in inches of water at 68° F

| Pt. | Press1 | Temp  | LBMS     | SCFM   | Press2 | dP<br>Psid | dP<br>" of H2O |
|-----|--------|-------|----------|--------|--------|------------|----------------|
| 1   | 15.539 | 540.8 | 2.0054   | 1606.6 | 12.051 | 3.488      | 96.722         |
| 2   | 14.797 | 538.2 | 1.754    | 1405.2 | 12.051 | 2.746      | 76.147         |
| 3   | 14.32  | 536.4 | 1.5007   | 1202.2 | 12.051 | 2.269      | 62.919         |
| 4   | 14.423 | 535.1 | 1.2487   | 1000.3 | 12.051 | 2.372      | 65.776         |
| 5   | 14.466 | 534   | 1.0015   | 802.35 | 12.051 | 2.415      | 66.968         |
| 6   | 14.447 | 533.1 | 0.87634  | 702.05 | 12.051 | 2.396      | 66.441         |
| 7   | 14.495 | 532.5 | 0.74991  | 600.77 | 12.051 | 2.444      | 67.772         |
| 8   | 14.52  | 532   | 0.62513  | 500.8  | 12.051 | 2.469      | 68.465         |
| 9   | 14.567 | 531.7 | 0.50097  | 401.33 | 12.051 | 2.516      | 69.769         |
| 10  | 14.131 | 531.6 | 0.37586  | 301.11 | 12.051 | 2.08       | 57.678         |
| 11  | 14.834 | 531.7 | 0.25052  | 200.7  | 12.051 | 2.783      | 77.173         |
| 12  | 14.802 | 531.7 | 0.12535  | 100.42 | 12.048 | 2.754      | 76.368         |
| 13  | 14.793 | 531.7 | 0.093596 | 74.982 | 12.048 | 2.745      | 76.119         |

Average values for above results:

Press: 14.626 Psia Density: 0.073943 lbm/ft<sup>3</sup>

Temp: 533.89 °R Viscosity: 1.0312E-06 lbm/(inch\*sec)

Compressibility factor: 0.99969