



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

Certification Date: 10 Jan 2025

Expiration Date: 10 Jan 2030

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 417 T	1298307			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
GALVESTON, TX	27Dec2019	03Jul2019	R-1769	R-1769		R-300.0
UNITED STATES			I-	I-		I-0

Owner	Operator
CHEM CARRIERS LLC 1237 HIGHWAY 75 SUNSHINE, LA 70780 UNITED STATES	CHEM CARRIERS LLC 1237 Hwy 75 Sunshine, LA 70780 UNITED STATES

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

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

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

Route Permitted And Conditions Of Operation:
---Lakes, Bays, and Sounds---
 Also, in fair weather only, not more twelve (12) miles from shore between St. Marks and Carrabelle, Florida.
 This vessel has been granted a fresh water service examination interval in accordance with 46 CFR 31.10-21(a) (2). If this vessel is operated in salt water more than six (6) months in any twelve (12) month period, the vessel must be inspected using salt water intervals per 46 CFR 31.10-21(a)(1) and the cognizant OCMI must be notified in writing as soon as this change in status occurs.
 SEE NEXT PAGE FOR ADDITIONAL CERTIFICATE INFORMATION

With this Inspection for Certification having been completed at Baton Rouge, LA, UNITED STATES, the Officer in Charge, Marine Inspection, New Orleans, LA certified the vessel, in all respects, is in conformity with the applicable vessel inspection laws and the rules and regulations prescribed thereunder.

Annual/Periodic/Re-Inspection				This certificate issued by: <i>M. J. Novak</i> M. J. NOVAK CDR, USCG, by direction Officer in Charge, Marine Inspection New Orleans, LA Inspection Zone
Date	Zone	A/P/R	Signature	



Certificate of Inspection

Vessel Name: CCL 417 T

---Hull Exams---

Exam Type	Next Exam	Last Exam	Prior Exam
DryDock	31Dec2029	30Dec2019	
Internal Structure	31Dec2029	10Jan2025	30Dec2019

--- 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
27416	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	853	14.07
2 P/S	858	14.07
3 P/S	806	14.07

Loading Constraints - Stability

Hull Type	Maximum Load (short tons)	Maximum Draft (ft/in)	Max Density (lbs/gal)	Route Description
I	3861	10ft 0in	14.07	R,LBS
II	4114	10ft 6in	14.07	R,LBS
III	4802	11ft 10in	14.07	R

Conditions Of Carriage

Only those cargoes named in the vessel's Cargo Authority Attachment (CAA), Serial #C1-1901188, dated 23 APR 2019, may be carried, and then only in the tanks indicated. 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 part 197, Subpart C are applied.

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 Group No" column listed in the vessel's CAA.

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

In accordance with 46 CFR Part 39, excluding Part 39.4000, this vessel's vapor collection system has been inspected to the plans approved by MSC Letter C1-1901188 dated April 23, 2019, and has been found acceptable for the collection of bulk liquid cargo vapors annotated with "Yes" in the CAA's VCS column. The VCS system has been approved with a pressure side of 6 psig P/V valve with Coast Guard Approval 162.017/107/2. The cargo tank top is suitable for a maximum allowable working pressure (MAWP) of 6.5 psig.

--- Inspection Status ---



Certificate of Inspection

Vessel Name: CCL 417 T

Cargo Tanks

Tank Id	Internal Exam			External Exam		
	Previous	Last	Next	Previous	Last	Next
1 P/S	-	30Dec2019	31Dec2029	-	-	-
2 P/S	-	30Dec2019	31Dec2029	-	-	-
3 P/S	-	30Dec2019	31Dec2029	-	-	-

Hydro Test

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

--- Fire Fighting Equipment ---

Fire Extinguishers - Hand portable and semi-portable

Quantity	Class Type
2	40-B

END



Certificate of Inspection

Cargo Authority Attachment

Vessel Name: **CCL 417T**
Official #: 1298307

Shipyard: WEST GULF MARINE
Hull #: 285

46 CFR 151 Tank Group Characteristics

Tank Group Information		Cargo Identification			Hull Typ	Tanks				Cargo Transfer		Environmental Control		Fire Protection Provided	Special Requirements			Elec Haz	Temp Cont
Tnk Grp	Tanks in Group	Density	Press.	Temp.		Cargo Seg Tank	Type	Vent	Gauge	Pipe Class	Cont	Tanks	Handling Space		General	Materials of Construction			
A	1P/S, 2P/S, 3P/S	14.07	Atmos.	Elev	I	1ii 2ii	Integral Gravity	PV	Closed	II	G-1	NR	NA	Portable	40-1(f)(1), .50-80, .50-70(a), .50-70(b), .50-73,	55-1(b), (c), (e), (f), (h), (j), 56-1(a), (b), (c), (d), (e), (f), (g).	NR	Yes	

- 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's of	Insp. Period	
							App'd (Y or N)	VCS Category			

Authorized Subchapter O Cargoes

Sodium acetate solution	SAN	34	D/O 3	#		A	No	N/A		
Acetonitrile	ATN	37	O	C	III	A	Yes	3	No	G
Acrylonitrile	ACN	15 ²	O	C	II	A	Yes	4	.50-70(a), .55-1(e)	G
Adiponitrile	ADN	37	O	E	II	A	Yes	1	No	G
Alkyl (C7-C9) nitrates	AKN	34 ²	O	NA	III	A	No	N/A	.50-81, .50-86	G
Aminoethyl ethanolamine	AEE	8	O	E	III	A	Yes	1	.55-1(b)	G
Ammonium bisulfite solution (70% or less)	ABX	43 ²	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	.50-60	G
Benzene or hydrocarbon mixtures (having 10% Benzene or more)	BHB	32 ²	O	C	III	A	Yes	1	.50-60	G
Benzene or hydrocarbon mixtures (containing Acetylene and 10% Benzene or more)	BHA	32 ²	O	C	III	A	Yes	1	.50-60, .56-1(b), (d), (f), (g)	G
Benzene, Toluene, Xylene mixtures (10% Benzene or more)	BTX	32	O	B/C	III	A	Yes	1	.50-60	G
Butyl acrylate (all isomers)	BAR	14	O	D	III	A	Yes	2	.50-70(a), .50-81(a), (b)	G
Butyl methacrylate	BMH	14	O	D	III	A	Yes	2	.50-70(a), .50-81(a), (b)	G
Butyraldehyde (all isomers)	BAE	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	Yes	3	No	G
Caustic potash solution	CPS	5 ²	O	NA	III	A	No	N/A	.50-73, .55-1(j)	G
Caustic soda solution	CSS	5 ²	O	NA	III	A	No	N/A	.50-73, .55-1(j)	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
Coal tar pitch (molten)	CTP	33	O	E	III	A	No	N/A	.50-73	G
Creosote	CCW	21 ²	O	E	III	A	Yes	1	No	G
Cresols (all isomers)	CRS	21	O	E	III	A	Yes	1	No	G
Cresylate spent caustic	CSC	5	O	NA	III	A	No	N/A	.50-73, .55-1(b)	G
Cresylic acid tar	CRX	21	O	E	III	A	Yes	1	.55-1(f)	G
Crotonaldehyde	CTA	19 ²	O	C	II	A	Yes	4	.55-1(h)	G
Crude hydrocarbon feedstock (containing Butyraldehydes and Ethylpropyl acrolein)	CHG	19 ²	O	C	III	A	Yes	1	No	G
Cyclohexanone	CCH	18	O	D	III	A	Yes	1	.56-1(a), (b)	G
Cyclohexanone, Cyclohexanol mixture	CYX	18 ²	O	E	III	A	Yes	1	.56-1 (b)	G



Certificate of Inspection

Cargo Authority Attachment

Vessel Name: CCL 417T

Shipyards: WEST GULF
MARINE

Official #: 1298307

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Hull #: 285

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 Construction	Insp. Period	
							App'd (Y or N)	VCS Category			
Cyclohexylamine	CHA	7	O	D	III	A	Yes	1	.56-1(a), (b), (c), (g)	G	
Cyclopentadiene, Styrene, Benzene mixture	CSB	30	O	D	III	A	Yes	1	.50-60, .56-1(b)	G	
iso-Decyl acrylate	IAI	14	O	E	III	A	Yes	2	.50-70(a), .50-81(a), (b), .55-1(c)	G	
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(e)	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	
Dodecyl dimethylamine, 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 solutions (72% or less)	EAN	7	O	A	II	A	Yes	6	.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(e)	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 solutions (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(e)	G	
Hexamethyleneimine	HMI	7	O	C	II	A	Yes	1	.56-1(b), (c)	G	

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



Certificate of Inspection

Cargo Authority Attachment

Vessel Name: CCL 417T

Shipyard: WEST GULF
MARINE

Official #: 1298307

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Hull #: 285

Cargo Identification							Conditions of Carriage				
Name	Chem Code	Compat Group No	Sub Chapter	Grade	Hull Type	Tank Group	Vapor Recovery		Special Requirements in 46 CFR 151 General and Mat'ls of Construction	Insp. Period	
							App'd (Y or N)	VCS Category			
Isoprene	IPR	30	O	A	III	A	Yes	7	.50-70(a), .50-81(a), (b)	G	
Isoprene, Pentadiene mixture	IPN	30	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 ²	O	D	III	A	Yes	1	No	G	
Methyl acrylate	MAM	14	O	C	III	A	Yes	2	.50-70(a), .50-81(a), (b)	G	
Methylcyclopentadiene dimer	MCK	30	O	C	III	A	Yes	1	No	G	
Methyl diethanolamine	MDE	8	O	E	III	A	Yes	1	.56-1(b), (c)	G	
2-Methyl-5-ethyl pyridine	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 ²	O	D	III	A	Yes	1	.55-1(c)	G	
Naphthalene (molten)	NTM	32	O	C	III	A	Yes	1	No	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	Yes	7	.50-70(a), .50-81	G	
Perchloroethylene	PER	36	O	NA	III	A	No	N/A	No	G	
Phthalic anhydride (molten)	PAN	11	O	E	III	A	Yes	1	No	G	
Polyethylene polyamines	PEB	7 ²	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	
Isopropylamine	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	5	O		III	A	No	N/A	.50-73, .55-1(j)	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 ^{1,2}	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 ^{1,2}	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 ^{1,2}	O	NA	III	A	No	N/A	.50-73, .55-1(b)	G	
Sodium sulfide, hydrosulfide solution (H2S greater than 200 ppm)	SSJ	0 ^{1,2}	O	NA	II	A	No	N/A	.50-73, .55-1(b)	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	
Tetraethylene pentamine	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	36	O	NA	III	A	Yes	1	.50-73, .56-1(a)	G	
Trichloroethylene	TCL	36 ²	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 ²	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 ²	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	



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Shipyards: WEST GULF
MARINE

Official #: 1298307

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Hull #: 285

Cargo Identification							Conditions of Carriage				
Name	Chem Code	Compat Group No	Sub Chapter	Grade	Hull Type	Tank Group	Vapor Recovery		Special Requirements in 46 CFR 151 General and Mat'ls of Construction	Insp. Period	
							App'd (Y or N)	VCS Category			
Vanillin black liquor (free alkali content, 3% or more).	VBL	5	O	NA	III	A	No	N/A	.50-73, .56-1(a), (e), (g)	G	
Vinyl acetate	VAM	13	O	C	III	A	Yes	2	.50-70(a), .50-81(a), (b)	G	
Vinyl neodecanoate	VND	13	O	E	III	A	No	N/A	.50-70(a), .50-81(a), (b)	G	
Vinyltoluene	VNT	13	O	D	III	A	Yes	2	.50-70(a), .50-81, .56-1(a), (b), (e), (G	

Subchapter D Cargoes Authorized for Vapor Control

Acetone	ACT	18 ²	D	C		A	Yes	1	
Acetophenone	ACP	18	D	E		A	Yes	1	
Alcohol (C12-C16) poly(20+) ethoxylates	APW	20	D	E		A	Yes	1	
Alcohol (C6-C17) (secondary) poly(3-6) ethoxylates	AEA	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 acetate	BZE	34	D	E		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)	BFY	20	D	E		A	Yes	1	
Butyl acetate (all isomers)	BAX	34	D	D		A	Yes	1	
Isobutyl alcohol	IAL	20 ²	D	D		A	Yes	1	
Butyl alcohol (n-)	BAN	20 ²	D	D		A	Yes	1	
Butyl alcohol (sec-)	BAS	20 ²	D	C		A	Yes	1	
Butyl alcohol (tert-)	BAT	20 ²	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	
Cycloheptane	CYE	31	D	C		A	Yes	1	
Cyclohexane	CHX	31	D	C		A	Yes	1	
Cyclohexanol	CHN	20	D	E		A	Yes	1	
Cyclohexyl acetate	CYC	34	D	D		A	Yes	1	
1,3-Cyclopentadiene dimer (molten)	CPD	30	D	D/E		A	Yes	2	
Cyclopentane	CYP	31	D	B		A	Yes	1	
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	
Decanoic acid	DCO	4	D	#		A	Yes	1	
Decene	DCE	30	D	D		A	Yes	1	
Decyl alcohol (all isomers)	DAX	20 ²	D	E		A	Yes	1	
n-Decylbenzene, see Alkyl(C9+)benzenes	DBZ	32	D	E		A	Yes	1	
Diacetone alcohol	DAA	20 ²	D	D		A	Yes	1	
Dibutyl phthalate	DPA	34	D	E		A	Yes	1	
Diethylbenzene	DEB	32	D	D		A	Yes	1	

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



Certificate of Inspection

Cargo Authority Attachment

Vessel Name: CCL 417T

Shipyard: WEST GULF
MARINE

Official #: 1298307

Page 5 of 9

Hull #: 285

Cargo Identification							Conditions of Carriage				
Name	Chem Code	Compat Group No	Sub Chapter	Grade	Hull Type	Tank Group	Vapor Recovery App'd (Y or N)	VCS Category	Special Requirements in 46 CFR 151 General and Mat'ls of Construction	Insp. Period	
Diethylene glycol	DEG	40 ²	D	E		A	Yes	1			
Diisobutylene	DBL	30	D	C		A	Yes	1			
Diisobutyl ketone	DIK	18	D	D		A	Yes	1			
Diisopropylbenzene (all isomers)	DIX	32	D	E		A	Yes	1			
Dimethyl phthalate	DTL	34	D	E		A	Yes	1			
Dioctyl 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	DFE	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			
Ethoxy triglycol (crude)	ETG	40	D	E		A	Yes	1			
Ethyl acetate	ETA	34	D	C		A	Yes	1			
Ethyl acetoacetate	EAA	34	D	E		A	Yes	1			
Ethyl alcohol	EAL	20 ²	D	C		A	Yes	1			
Ethylbenzene	ETB	32	D	C		A	Yes	1			
Ethyl butanol	EBT	20	D	D		A	Yes	1			
Ethyl tert-butyl ether	EBE	41	D	C		A	Yes	1			
Ethyl butyrate	EBR	34	D	D		A	Yes	1			
Ethyl cyclohexane	ECY	31	D	D		A	Yes	1			
Ethylene glycol	EGL	20 ²	D	E		A	Yes	1			
Ethylene glycol butyl ether acetate	EMA	34	D	E		A	Yes	1			
Ethylene glycol diacetate	EGY	34	D	E		A	Yes	1			
Ethylene glycol phenyl ether	EPE	40	D	E		A	Yes	1			
Ethyl-3-ethoxypropionate	EEP	34	D	D		A	Yes	1			
2-Ethylhexanol	EHX	20	D	E		A	Yes	1			
Ethyl propionate	EPR	34	D	C		A	Yes	1			
Ethyl toluene	ETE	32	D	D		A	Yes	1			
Formamide	FAM	10	D	E		A	Yes	1			
Furfuryl alcohol	FAL	20 ²	D	E		A	Yes	1			
Gasoline blending stocks: Alkylates	GAK	33	D	A/C		A	Yes	1			
Gasoline blending stocks: Reformates	GRF	33	D	A/C		A	Yes	1			
Gasolines: Automotive (containing not over 4.23 grams lead per	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			



Certificate of Inspection

Cargo Authority Attachment

Vessel Name: CCL 417T

Shipyard: WEST GULF
MARINE

Official #: 1298307

Page 6 of 9

Hull #: 285

Cargo Identification						Conditions of Carriage				
Name	Chem Code	Compat Group No	Sub Chapter	Grade	Hull Type	Tank Group	Vapor Recovery		Special Requirements in 46 CFR 151 General and Mat'ls of Construction	Insp. Period
							App'd (Y or N)	VCS Category		
Gasolines: Polymer	GPL	33	D	A/C		A	Yes	1		
Gasolines: Straight run	GSR	33	D	A/C		A	Yes	1		
Glycerine	GCR	20 ²	D	E		A	Yes	1		
Heptane (all isomers), see Alkanes (C6-C9) (all isomers)	HMX	31	D	C		A	Yes	1		
n-Heptanoic acid	HEN	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 ²	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 ²	D	E		A	Yes	1		
Jet fuel: JP-4	JPF	33	D	E		A	Yes	1		
Jet fuel: JP-5 (kerosene, heavy)	JPV	33	D	D		A	Yes	1		
Kerosene	KRS	33	D	D		A	Yes	1		
Methyl acetate	MTT	34	D	D		A	Yes	1		
Methyl alcohol	MAL	20 ²	D	C		A	Yes	1		
Methylamyl acetate	MAC	34	D	D		A	Yes	1		
Methylamyl alcohol	MAA	20	D	D		A	Yes	1		
Methyl amyl ketone	MAK	18	D	D		A	Yes	1		
Methyl tert-butyl ether	MBE	41 ²	D	C		A	Yes	1		
Methyl butyl ketone	MBK	18	D	C		A	Yes	1		
Methyl butyrate	MBU	34	D	C		A	Yes	1		
Methylcyclohexane	MCY	31	D	C		A	Yes	1		
Methyl ethyl ketone	MEK	18 ²	D	C		A	Yes	1		
Methyl heptyl ketone	MHK	18	D	D		A	Yes	1		
Methyl isobutyl ketone	MIK	18 ²	D	C		A	Yes	1		
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 (C6-C9)	NAX	31	D	D		A	Yes	1		
Nonene (all isomers)	NON	30	D	D		A	Yes	2		
Nonyl alcohol (all isomers)	NNS	20 ²	D	E		A	Yes	1		
Nonyl phenol	NNP	21	D	E		A	Yes	1		



Certificate of Inspection

Cargo Authority Attachment

Vessel Name: CCL 417T

Shipyard: WEST GULF
MARINE

Official #: 1298307

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Hull #: 285

Cargo Identification						Conditions of Carriage				
Name	Chem Code	Compat Group No	Sub Chapter	Grade	Hull Type	Tank Group	Vapor Recovery		Special Requirements in 46 CFR 151 General and Mat'ls of Construction	Insp. Period
							App'd (Y or N)	VCS Category		
Nonyl phenol poly(4+)ethoxylates	NPE	40	D	E		A	Yes	1		
Octane (all isomers), see Alkanes (C6-C9)	OAX	31	D	C		A	Yes	1		
Octanoic acid (all isomers)	OAY	4	D	E		A	Yes	1		
Octanol (all isomers)	OCX	20 ²	D	E		A	Yes	1		
Octene (all isomers)	OTX	30	D	C		A	Yes	2		
Oil, fuel: No. 2	OTW	33	D	D/E		A	Yes	1		
Oil, fuel: No. 2-D	OTD	33	D	D		A	Yes	1		
Oil, fuel: No. 4	OFR	33	D	D/E		A	Yes	1		
Oil, fuel: No. 6	OSX	33	D	E		A	Yes	1		
Oil, misc: Crude	OIL	33	D	A/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		
alpha-Olefins (C6-C18) mixtures	OAM	30	D	E		A	Yes	1		
Olefins (C13+, all isomers)	OFZ	30	D	E		A	Yes	1		
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-C6) ether	PAG	40	D	E		A	Yes	1		
Poly(2-8)alkylene glycol monoalkyl (C1-C6) ether acetate	PAF	34	D	E		A	Yes	1		
Polybutene	PLB	30	D	E		A	Yes	1		
Polypropylene glycol	PGC	40	D	E		A	Yes	1		
Isopropyl acetate	IAC	34	D	C		A	Yes	1		
n-Propyl acetate	PAT	34	D	C		A	Yes	1		
Isopropyl alcohol	IPA	20 ^{2,3}	D	C		A	Yes	1		
n-Propyl alcohol	PAL	20 ²	D	C		A	Yes	1		
Propylbenzene (all isomers)	PBY	32	D	D		A	Yes	1		
Isopropylcyclohexane	IPX	31	D	D		A	Yes	1		
Propylene glycol	PPG	20 ²	D	E		A	Yes	1		
Propylene glycol methyl ether acetate	PGN	34	D	D		A	Yes	1		
Propylene tetramer	PTT	30	D	D		A	Yes	1		
Sulfolane	SFL	39	D	E		A	Yes	1		
Tetraethylene glycol	TTG	40	D	E		A	Yes	1		
Tetrahydronaphthalene	THN	32	D	E		A	Yes	1		
Toluene	TOL	32	D	C		A	Yes	1		
Tricresyl phosphate (containing less than 1% ortho isomer)	TCP	34	D	E		A	Yes	1		
Triethylbenzene	TEB	32	D	E		A	Yes	1		



Certificate of Inspection

Cargo Authority Attachment

Vessel Name: CCL 417T

Shipyard: WEST GULF
MARINE

Official #: 1298307

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Hull #: 285

Cargo Identification						Conditions of Carriage				
Name	Chem Code	Compat Group No	Sub Chapter	Grade	Hull Type	Tank Group	Vapor Recovery		Special Requirements in 46 CFR 151 General and Mat'ls of Construction	Insp. Period
							App'd (Y or N)	VCS Category		
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		
Trixylyl phosphate	TRP	34	D	E		A	Yes	1		
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 417T**
Official #: 1298307

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Shipyard: WEST GULF
Hull #: 285

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 "{" indicate a provisional assignment based upon literature sources which were not verified by manufacturers data. The Person-in-Charge shall verify the cargo grade based on Manufacturers data and ensure that the barge is authorized for carriage of that grade of cargo.
A, B, C	Flammable liquid cargoes, as defined in 46 CFR 30-10.22.
D, E	Combustible liquid cargoes, as defined in 46 CFR 30-10.15.
Note 4	The flammability/combustibility grade of these cargoes may vary depending upon the flashpoint and Reid vapor pressure. The Person-in-Charge shall verify the cargo grade based on Manufacturers data and ensure that the barge is authorized for carriage of that grade of cargo.
NA	Those subchapter O cargoes which are not classified as a flammable or combustible liquid.
#	No flammability/combustibility grade has been assigned yet, as the necessary flash point/vapor pressure data for such assignments are presently not available.
Hull Type	The required barge hull classification for carriage of the specified Subchapter O hazardous material cargo, see 46 CFR 151.10-1.
I	Designed to carry products which require the maximum preventive measures to preclude the uncontrolled release of the cargo. See 46 CFR 151.10-1(b)(1).
II	Designed to carry products which require significant preventive measures to preclude the uncontrolled release of cargo. See 46 CFR 151.10-1(b)(3).
III	Designed to carry products of sufficient hazard to require a moderate degree of control. See 46 CFR 151.10-1(b)(4).
NA	Not applicable to barges certificated under Subchapter D.

Conditions of Carriage

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

Conditions of Carriage

Tank Group	The vessel's tank group (as defined under the "46 CFR Tank Group Characteristics" listed on page 1) which is authorized for carriage of the named cargo.
Vapor Recovery	Yes: The vessel's VCS has been reviewed and approved by the MSC to control vapors of the specified cargo.
Approved (Y or N)	No: The vessel's VCS has been reviewed and is not approved by the MSC to control vapors of the specified cargo.

VCS Category:

Category 1	The specified cargo's provisional classification for vapor control systems. (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 arrester.
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.

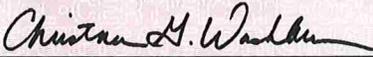


UNITED STATES OF AMERICA

DEPARTMENT OF HOMELAND SECURITY
UNITED STATES COAST GUARD

NATIONAL VESSEL DOCUMENTATION CENTER

CERTIFICATE OF DOCUMENTATION

VESSEL NAME CCL 417 T		OFFICIAL NUMBER 1298307	IMO OR OTHER NUMBER 285	YEAR COMPLETED 2019	
HAILING PORT NEW ORLEANS LA		HULL MATERIAL STEEL		MECHANICAL PROPULSION NO	
GROSS TONNAGE 1769 GRT	NET TONNAGE 1769 NRT	LENGTH 300.0	BREADTH 54.0	DEPTH 13.0	
PLACE BUILT GALVESTON TX					
OWNERS CHEM CARRIERS LLC COMPRISED OF ONE MEMBER			OPERATIONAL ENDORSEMENTS COASTWISE		
MANAGING OWNER CHEM CARRIERS LLC 1237 HIGHWAY 75 SUNSHINE LA 70780					
RESTRICTIONS NO RECREATION - BARGE, 79 FEET OR MORE IN LENGTH, MEASURED UNDER SIMPLIFIED SYSTEM					
ENTITLEMENTS NONE					
REMARKS NONE					
ISSUE DATE JANUARY 31, 2025		 DIRECTOR, NATIONAL VESSEL DOCUMENTATION CENTER			
THIS CERTIFICATE EXPIRES FEBRUARY 28, 2026					





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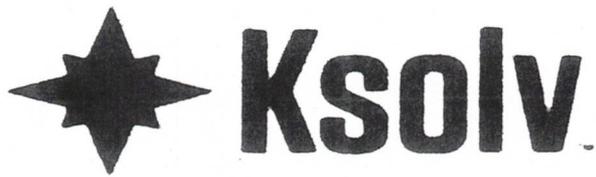
VESSEL NAME	VESSEL TYPE	HULL TYPE	GROSS TONNAGE	COFR NUMBER	EFFECTIVE DATE	EXPIRATION DATE	COFR APPLICANT	VIN	INSURANCE CANCEL FLAG
 CCL 417-T	TANK	BARGE	D 1769	841310 - 21	1/27/2023	1/27/2026	CHEM CARRIERS, L.L.C	D1298307	

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BARGE VAPOR TIGHTNESS LETTER

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

- Test date: 10-9-25
- Barge owner: CHEM CARRIERS
- Barge Name/Official Number: CCL-417 / 1298307
- Maximum load rate (BPH): 5000 (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: 19:30 Beginning Pressure: 28"
→ End Time: 20:00 Ending Pressure: 27.8

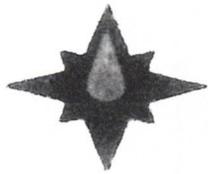
✓ This vessel has been tested in accordance with Section 61.304f and has been found to to be vapor tight.

Company of Tester:	Location:
<u>KSOLV Maritime</u>	<u>Channelview TX</u>
Name of Tester (Print):	Signature of Tester:
<u>Juan Cruz</u>	<u>Juan Cruz</u>
Name of Witness (Print):	Signature of Witness:
<u>FELIX HERRAN</u>	<u>Felix Herran</u>
Affiliation/Company of Witness (Print)	
<u>SUPERIOR / KSOLV</u>	

1015 Lakeside Dr, Channelview, TX 77530

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

Revised 10/03/2019



Ksolv

BARGE PIPING LETTER

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

BARGE OWNER/BARGE NAME: CHEM CARRIERS / CCL-417

Letter expiration date (one year from test date): 10-9-2026

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

1. Cargo Piping and Valves (actual date of test): 10-9-25

Test Pressure (188 psi): 188 psi

2. Cargo Relief Valve (actual date of test): 10-9-25

Test Pressure (125 psi): 125 psi

3. Cargo Pressure Gauge (actual date of test): 10-9-25

Percent of Accuracy (%): 98%

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

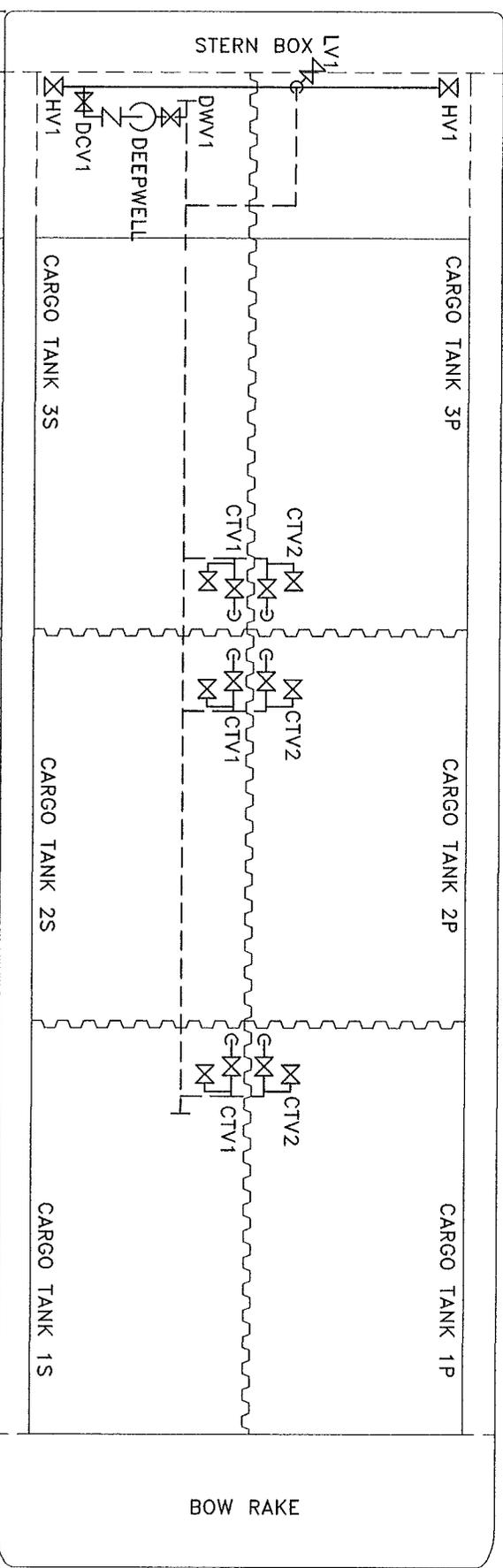
Test Pressure (125 psi): N/A

Signature of Tester:	<u>Juan Cruz</u>
Printed Name of Tester:	<u>Juan Cruz</u>
Company/Location of Tester:	<u>KSOV / Channelview TX</u>

1015 Lakeside Dr, Channelview, TX 77530

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

Revised 10/03/2019



HV1 - CARGO HEADER VALVE
 LV1 - CARGO LOAD VALVE
 CTV1 - CARGO TANK LOAD/DISCHARGE VALVE
 CTV2 - CARGO TANK HIGH LEVEL DISCHARGE VALVE
 DWV1 - DEEPWELL BLOCK VALVE
 DCV1 - CARGO PUMP DISCHARGE VALVE

LOAD BARGE:
 OPEN: HV1, LV1, CTV1, CTV2
 CLOSE: DWV1, DCV1

DISCHARGE BARGE:
 OPEN: DWV1, DCV1, HV1, CTV1
 CLOSE: LV1, CTV2

CARGO PIPING

CHEM CARRIERS

300'-0" X 54' X 13' TANK BARGE - CCL 417T

TANKERMAN'S PLAN

DATE 12/19 DR. ERC

U.S. Department of
Homeland Security

United States
Coast Guard



Commandant
United States Coast Guard

2703 Martin Luther King Jr. Ave , S.E.
Washington, DC 20593-7509
Staff Symbol: CG-ENG-5
Phone: (202) 372-1422

16714/2019-11-22T075507
December 19, 2019

Mr. Chetan Kumaria, PE, MBA
President
Marine Solutions, Inc.
Nashville, TN 37221

Subject: CARGO AUTHORIZATION REQUEST – TANK BARGE CCL 417T (VIN CG1546794)

Dear Mr. Kumaria:

This letter is in response to your letter dated November 19, 2019, in which you requested authorization to carry Desmodur 44 V 20L and Desmodur T80 on the tank barge CCL 417T (VIN CG1546794).

Based on the information that you submitted, I classify these cargoes for carriage as:

Desmodur 44 V 20L (contains Diphenylmethane Diisocyanate): ST2, Cat. Y

Desmodur T80 (contains Toluene Diisocyanate): ST2, Cat. Y

In accordance with 46 CFR 151, I have outlined the minimum carriage requirements for the carriage of these cargoes in enclosures (1) and (2). The subject vessel does not meet these minimum requirements and is therefore not authorized to carry these cargoes. Specifically, the subject vessel does not meet the following:

1. Environmental Control – Cargo Tanks
2. Environmental Control – Cargo Handling Space
3. Special Requirements
4. Electrical Hazard Class and Group

If you have any questions regarding this authorization determination, please contact a member of my staff at hazmatstandards@uscg.mil.

Sincerely,

A handwritten signature in blue ink, appearing to read "M. J. Montemerlo".

M. J. MONTEMERLO
Commander, U. S. Coast Guard
Chief, Hazardous Materials Division
By direction

Enclosure: (1) Minimum Carriage Requirements for the Carriage of Desmodur 44 V 20L
(2) Minimum Carriage Requirements for the Carriage of Desmodur 80

Copy: US Coast Guard Marine Safety Center

Subject: CARGO AUTHORIZATION REQUEST – TANK BARGE CCL 417T (VIN CG1546794)

Enclosure 1

Minimum Carriage Requirements for the Carriage of Desmodur 44 V 20L (contains Diphenylmethane Diisocyanate) 46 CFR 151

Column 46 CFR 151	Property	Value
a	Cargo Name:	Desmodur 44 V 20L (Contains: Diphenylmethane Diisocyanate)
b	Pressure	Atmospheric
c	Temperature	Elev.
d	Hull Type	II
e	Cargo Segregation Tank	1 ii; 2 i
f	Tanks – Type	Integral, Gravity
g	Tanks – Vents	PV
h	Tanks – Gauging Device	Closed
i	Cargo Transfer – Piping Class	I
j	Cargo Transfer – Control	G-1
k	Environmental Control – Cargo Tanks	Inert-Dry
l	Environmental Control – Cargo Handling Space	Vent F
m	Fire Protection Required	Yes
n	Special Requirements	.50-5; .56-1(a), (b).
o	Electrical Hazard Class and Group	NA
p	Temperature Control Installation	Yes
q	Tank Internal Inspection Period – Years	G

Properties Data Sheet

Compatibility Group	12 (Isocyanates)
Flash Point	>200 °C (from SDS)
Boiling Point	>300°C (from SDS)
Freezing Point	(Pour Point < 0°C)
Specific Gravity	1.24
Solubility	Insoluble
Flammability Grade	E

Subject: CARGO AUTHORIZATION REQUEST – TANK BARGE CCL 417T (VIN CG1546794)

Enclosure 2

Minimum Carriage Requirements for the Carriage of Desmodur T80 (contains Toluene Diisocyanate) 46 CFR 151

Column 46 CFR 151	Property	Value
a	Cargo Name	Desmodur T80 (Contains: Toluene Diisocyanate)
b	Pressure	Atmospheric
c	Temperature	Amb.
d	Hull Type	I
e	Cargo Segregation Tank	1 ii; 2 ii
f	Tanks – Type	Integral, Gravity
g	Tanks – Vents	PV
h	Tanks – Gauging Device	Closed
i	Cargo Transfer – Piping Class	I
j	Cargo Transfer – Control	G-1
k	Environmental Control – Cargo Tanks	Dry-N ₂
l	Environmental Control – Cargo Handling Space	Vent F
m	Fire Protection Required	Yes
n	Special Requirements	.50-5..... .55-1(e)
o	Electrical Hazard Class and Group	I-D
p	Temperature Control Installation	NA
q	Tank Internal Inspection Period – Years	G

Properties Data Sheet

Compatibility Group	12 (Isocyanates)
Flash Point	132 °C (from SDS)
Boiling Point	No data
Freezing Point	9.5°C (m.p.)
Specific Gravity	1.22
Solubility	Insoluble
Flammability Grade	E

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 417 T

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 417 T 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 417 T. 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 1-800-424-8802.
- 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 5000 BBL/HR for

subchapter "D" Cargoes and 5000 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 ½" 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 417 T (1298307) 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
(MEMPHIS)
MOBILE
NEW ORLEANS

OHIO VALLEY
PORT ARTHUR AND LAKE
CHARLES

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,

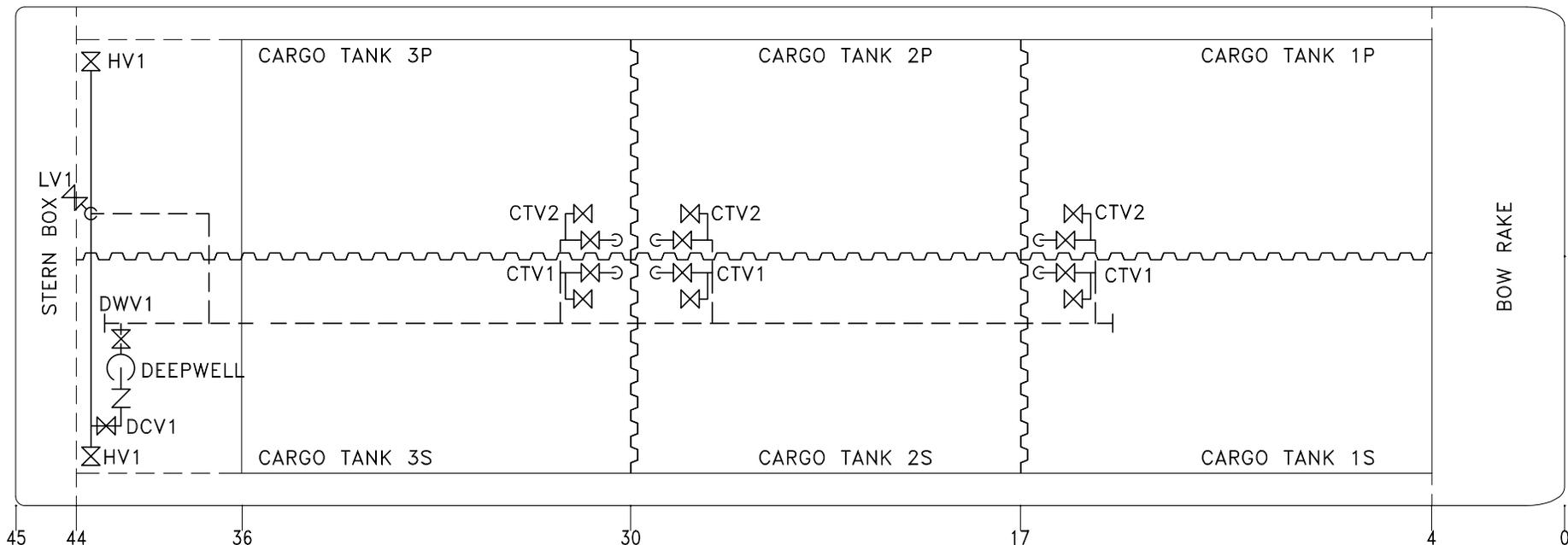
K. C. WILLIAMS
Lieutenant Commander, U.S. Coast Guard
Chief, Vessel Security Division
By direction

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

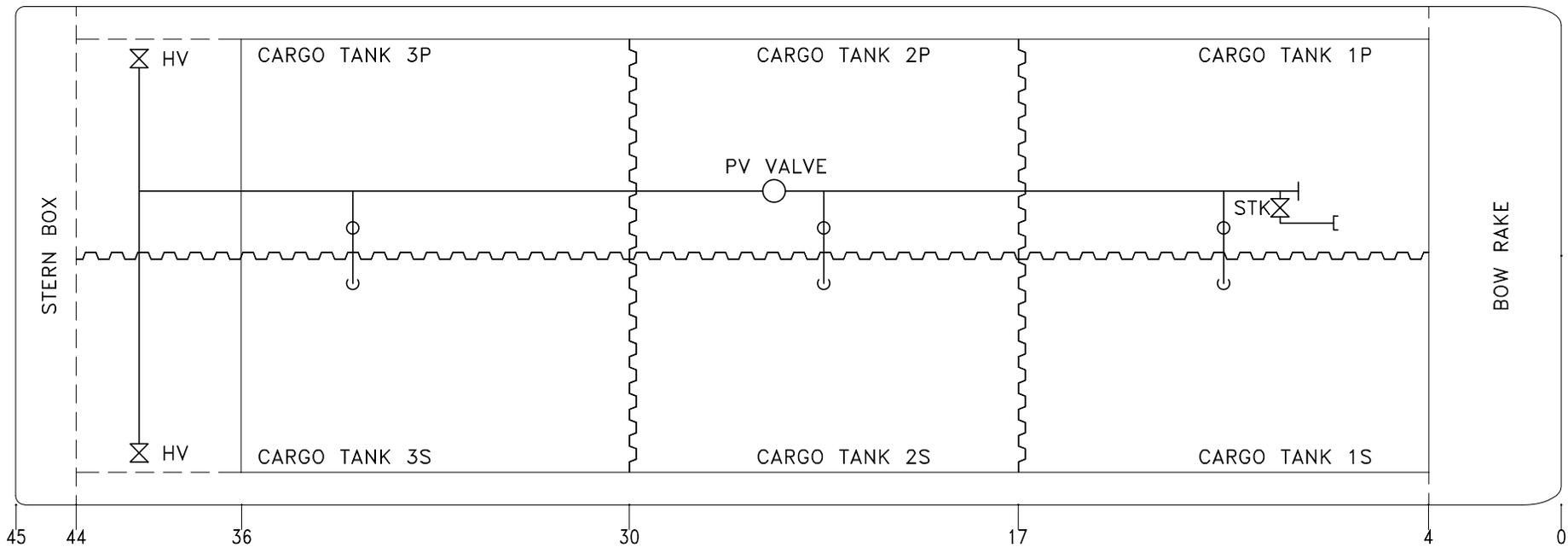


HV1 - CARGO HEADER VALVE
 LV1 - CARGO LOAD VALVE
 CTV1 - CARGO TANK LOAD/DISCHARGE VALVE
 CTV2 - CARGO TANK HIGH LEVEL DISCHARGE VALVE
 DWV1- DEEPWELL BLOCK VALVE
 DCV1- CARGO PUMP DISCHARGE VALVE

LOAD BARGE:
 OPEN: HV1, LV1, CTV1, CTV2
 CLOSE: DWV1, DCV1

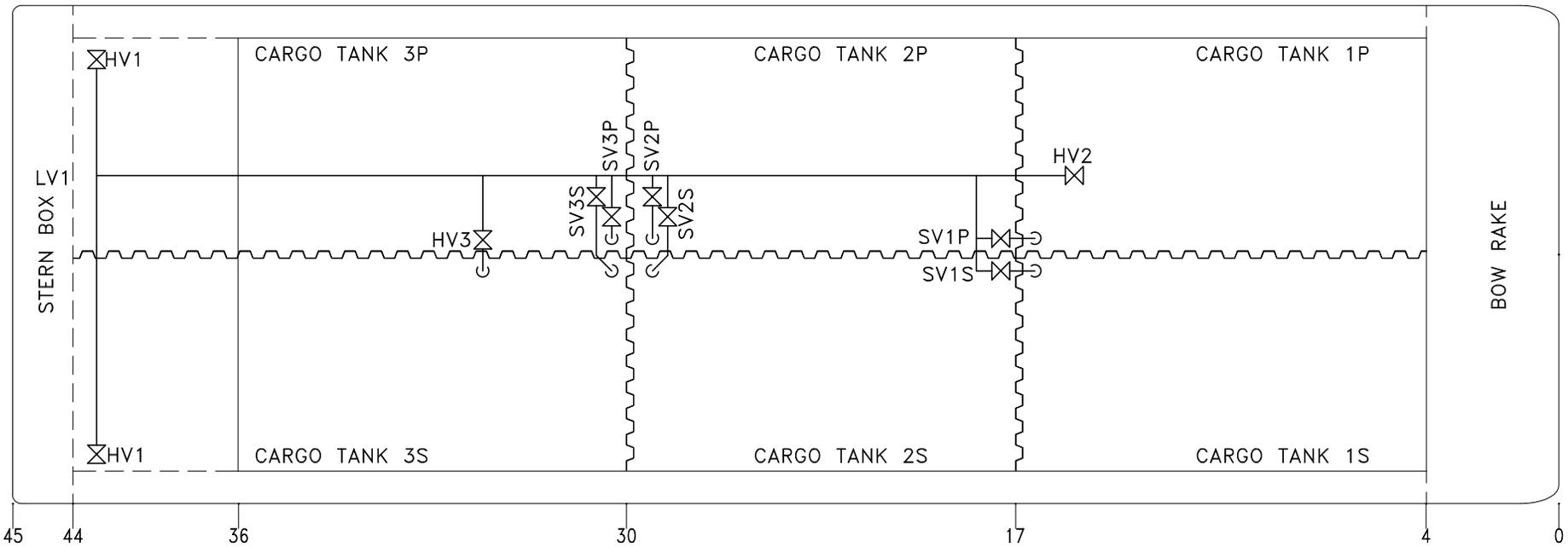
DISCHARGE BARGE:
 OPEN: DWV1, DCV1, HV1, CTV1
 CLOSE: LV1, CTV2

CARGO PIPING



HV - VAPOR HEADER VALVE
 STK - VAPOR STACK VALVE

VAPOR PIPING



- HV1 - STRIPPING HEADER VALVE
- HV2 - STRIPPING PIPE VALVE
- SV1 (P/S) - CARGO TANK SUMP VALVES
- SV2 (P/S) - CARGO TANK SUMP VALVES
- SV3 (P/S) - CARGO TANK SUMP VALVES
- HV3 - CARGO PIPE TANK #3 STBD. VALVE

STRIPPING PIPE



BARGE "CCL 417T"

FUEL TANK INNAGE TABLE

CAPACITIES GIVEN IN WHOLE GALLONS

GAUGE HEIGHT 5'-08 1/2"

IN	0 FT.	IN	1 FT.	IN	2 FT.	IN	3 FT.	IN	4 FT.	IN	5 FT.	IN	6 FT.	IN	7 FT.	IN	8 FT.	IN	9 FT.
0	0	0	2,134	0	4,268	0	6,398	0	8,528	0		0		0		0		0	
1/4	44	1/4	2,179	1/4	4,313	1/4	6,443	1/4	8,573	1/4		1/4		1/4		1/4		1/4	
1/2	89	1/2	2,223	1/2	4,357	1/2	6,487	1/2	8,617	1/2		1/2		1/2		1/2		1/2	
3/4	133	3/4	2,268	3/4	4,402	3/4	6,532	3/4	8,662	3/4		3/4		3/4		3/4		3/4	
1	178	1	2,312	1	4,446	1	6,576	1	8,706	1		1		1		1		1	
1/4	222	1/4	2,356	1/4	4,491	1/4	6,621	1/4	8,751	1/4		1/4		1/4		1/4		1/4	
1/2	267	1/2	2,401	1/2	4,535	1/2	6,665	1/2	8,795	1/2		1/2		1/2		1/2		1/2	
3/4	311	3/4	2,445	3/4	4,580	3/4	6,710	3/4	8,840	3/4		3/4		3/4		3/4		3/4	
2	356	2	2,490	2	4,624	2	6,754	2	8,884	2		2		2		2		2	
1/4	400	1/4	2,534	1/4	4,668	1/4	6,798	1/4	8,928	1/4		1/4		1/4		1/4		1/4	
1/2	445	1/2	2,579	1/2	4,712	1/2	6,843	1/2	8,973	1/2		1/2		1/2		1/2		1/2	
3/4	489	3/4	2,623	3/4	4,756	3/4	6,887	3/4	9,017	3/4		3/4		3/4		3/4		3/4	
3	534	3	2,668	3	4,800	3	6,932	3	9,062	3		3		3		3		3	
1/4	578	1/4	2,712	1/4	4,845	1/4	6,976	1/4	9,106	1/4		1/4		1/4		1/4		1/4	
1/2	622	1/2	2,757	1/2	4,889	1/2	7,021	1/2	9,151	1/2		1/2		1/2		1/2		1/2	
3/4	667	3/4	2,801	3/4	4,933	3/4	7,065	3/4	9,195	3/4		3/4		3/4		3/4		3/4	
4	711	4	2,846	4	4,977	4	7,110	4	9,240	4		4		4		4		4	
1/4	756	1/4	2,890	1/4	5,021	1/4	7,154	1/4	9,284	1/4		1/4		1/4		1/4		1/4	
1/2	800	1/2	2,934	1/2	5,065	1/2	7,199	1/2	9,329	1/2		1/2		1/2		1/2		1/2	
3/4	845	3/4	2,979	3/4	5,109	3/4	7,243	3/4	9,373	3/4		3/4		3/4		3/4		3/4	
5	889	5	3,023	5	5,153	5	7,288	5	9,418	5		5		5		5		5	
1/4	934	1/4	3,068	1/4	5,198	1/4	7,332	1/4	9,462	1/4		1/4		1/4		1/4		1/4	
1/2	978	1/2	3,112	1/2	5,242	1/2	7,376	1/2	9,506	1/2		1/2		1/2		1/2		1/2	
3/4	1,023	3/4	3,157	3/4	5,287	3/4	7,421	3/4	9,551	3/4		3/4		3/4		3/4		3/4	
6	1,067	6	3,201	6	5,331	6	7,465	6	9,595	6		6		6		6		6	
1/4	1,112	1/4	3,246	1/4	5,376	1/4	7,510	1/4	9,640	1/4		1/4		1/4		1/4		1/4	
1/2	1,156	1/2	3,290	1/2	5,420	1/2	7,554	1/2	9,684	1/2		1/2		1/2		1/2		1/2	
3/4	1,200	3/4	3,335	3/4	5,465	3/4	7,599	3/4	9,729	3/4		3/4		3/4		3/4		3/4	
7	1,245	7	3,379	7	5,509	7	7,643	7	9,773	7		7		7		7		7	
1/4	1,289	1/4	3,424	1/4	5,554	1/4	7,688	1/4	9,818	1/4		1/4		1/4		1/4		1/4	
1/2	1,334	1/2	3,468	1/2	5,598	1/2	7,732	1/2	9,862	1/2		1/2		1/2		1/2		1/2	
3/4	1,378	3/4	3,512	3/4	5,642	3/4	7,777	3/4	9,907	3/4		3/4		3/4		3/4		3/4	
8	1,423	8	3,557	8	5,687	8	7,821	8	9,951	8		8		8		8		8	
1/4	1,467	1/4	3,601	1/4	5,731	1/4	7,865	1/4	9,996	1/4		1/4		1/4		1/4		1/4	
1/2	1,512	1/2	3,646	1/2	5,776	1/2	7,909	1/2	10,040	1/2		1/2		1/2		1/2		1/2	
3/4	1,556	3/4	3,690	3/4	5,820	3/4	7,953	3/4	10,084	3/4		3/4		3/4		3/4		3/4	
9	1,601	9	3,735	9	5,865	9	7,998	9	10,129	9		9		9		9		9	
1/4	1,645	1/4	3,779	1/4	5,909	1/4	8,042	1/4	10,173	1/4		1/4		1/4		1/4		1/4	
1/2	1,690	1/2	3,824	1/2	5,954	1/2	8,086	1/2	10,218	1/2		1/2		1/2		1/2		1/2	
3/4	1,734	3/4	3,868	3/4	5,998	3/4	8,130	3/4	10,262	3/4		3/4		3/4		3/4		3/4	
10	1,778	10	3,913	10	6,043	10	8,174	10	10,307	10		10		10		10		10	
1/4	1,823	1/4	3,957	1/4	6,087	1/4	8,218	1/4	10,351	1/4		1/4		1/4		1/4		1/4	
1/2	1,867	1/2	4,002	1/2	6,132	1/2	8,262	1/2	10,396	1/2		1/2		1/2		1/2		1/2	
3/4	1,912	3/4	4,046	3/4	6,176	3/4	8,306	3/4	10,440	3/4		3/4		3/4		3/4		3/4	
11	1,956	11	4,090	11	6,220	11	8,350	11	10,485	11		11		11		11		11	
1/4	2,001	1/4	4,135	1/4	6,265	1/4	8,395	1/4	10,529	1/4		1/4		1/4		1/4		1/4	
1/2	2,045	1/2	4,179	1/2	6,309	1/2	8,439	1/2	10,574	1/2		1/2		1/2		1/2		1/2	
3/4	2,090	3/4	4,224	3/4	6,354	3/4	8,484	3/4		3/4		3/4		3/4		3/4		3/4	

BARGE STRAPPED AND COMPUTED IN ACCORDANCE WITH MPMS CHAPTER 2.7.
CAPACITY TABLE ONLY APPLIES WHEN BARGE IS ON EVEN KEEL.
CAPACITY TABLE EXTENDS TO EXTREME HEIGHT OF TANK.
CAPACITY TABLE ONLY APPLIES TO INNAGE GAUGES TAKEN @ 2" STANDPIPE

STRAPPED: 10/13/2019 SW JS

PRINTED: 10/14/2019 SW

CANCELS AND SUPERCEDES
ALL PRIOR TO 10/2019

CERTIFIED CHART FOR THE ABOVE NAMED TANK ONLY.

PRECISION MEASUREMENT
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Pearland, Texas 77588
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BARGE "CCL 417T"

INNAGE TRIM TABLE

	1 FT.		2 FT.		3 FT.		4 FT.		5 FT.		6 FT.	
	<u>BOW</u>	<u>STERN</u>										
1 PORT	00-1/8	- 00-1/8	00-1/4	- 00-1/4	00-1/4	- 00-1/4	00-3/8	- 00-3/8	00-1/2	- 00-1/2	00-5/8	- 00-5/8
1 STBD	00-1/8	- 00-1/8	00-1/4	- 00-1/4	00-1/4	- 00-1/4	00-3/8	- 00-3/8	00-1/2	- 00-1/2	00-5/8	- 00-5/8
2 PORT	- 00-1/8	00-1/8	- 00-1/4	00-1/4	- 00-3/8	00-3/8	- 00-1/2	00-1/2	- 00-5/8	00-5/8	- 00-3/4	00-3/4
2 STBD	- 00-1/8	00-1/8	- 00-1/4	00-1/4	- 00-3/8	00-3/8	- 00-1/2	00-1/2	- 00-5/8	00-5/8	- 00-3/4	00-3/4
3 PORT	- 00-3/8	00-3/8	- 00-3/4	00-3/4	- 01-1/8	01-1/8	- 01-1/2	01-1/2	- 01-7/8	01-7/8	- 02-1/4	02-1/4
3 STBD	- 00-3/8	00-3/8	- 00-3/4	00-3/4	- 01-1/8	01-1/8	- 01-1/2	01-1/2	- 01-7/8	01-7/8	- 02-1/4	02-1/4

(ALL MEASUREMENTS ABOVE ARE IN INCHES)

EXAMPLE FOR ABOVE TRIM CORRECTIONS:

FWD. DRAFT = 2'-00"
 AFT DRAFT = 4'-00"
 DIFF. = 2'-00" (DOWN BY STERN)

THE CORRECTION FOR 2'-00" TRIM DOWN BY STERN FOR 1 PORT IS - 00-1/4"
 FOR A MEASURED INNAGE GAUGE OF 4'-00" ON 1 PORT, THE TRIM CORRECTED INNAGE IS 3'-11 3/4"

October 13, 2019

PRECISION MEASUREMENT
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 Pearland, Texas 77588

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BARGE "CCL 417T"

1 PORT INNAGE TABLE

CAPACITIES GIVEN IN BARRELS OF 42 U.S. GALLONS

GAUGE HEIGHT 15'-01 1/4"

IN	0 FT.	IN	1 FT.	IN	2 FT.	IN	3 FT.	IN	4 FT.	IN	5 FT.	IN	6 FT.	IN	7 FT.	IN	8 FT.	IN	9 FT.
0	7.71	0	300.11	0	647.36	0	997.40	0	1,348.08	0	1,698.76	0	2,049.44	0	2,398.41	0	2,749.11	0	3,099.80
1/4	11.55	1/4	307.07	1/4	654.63	1/4	1,004.71	1/4	1,355.39	1/4	1,706.06	1/4	2,056.74	1/4	2,405.72	1/4	2,756.41	1/4	3,107.11
1/2	15.39	1/2	314.03	1/2	661.90	1/2	1,012.01	1/2	1,362.69	1/2	1,713.37	1/2	2,064.05	1/2	2,413.02	1/2	2,763.72	1/2	3,114.42
3/4	19.23	3/4	320.99	3/4	669.17	3/4	1,019.32	3/4	1,370.00	3/4	1,720.68	3/4	2,071.35	3/4	2,420.33	3/4	2,771.03	3/4	3,121.72
1	23.08	1	327.94	1	676.44	1	1,026.63	1	1,377.30	1	1,727.98	1	2,078.65	1	2,427.63	1	2,778.33	1	3,129.03
1/4	28.76	1/4	335.01	1/4	683.71	1/4	1,033.93	1/4	1,384.61	1/4	1,735.29	1/4	2,085.96	1/4	2,434.94	1/4	2,785.64	1/4	3,136.34
1/2	34.44	1/2	342.07	1/2	690.98	1/2	1,041.24	1/2	1,391.92	1/2	1,742.59	1/2	2,093.26	1/2	2,442.25	1/2	2,792.94	1/2	3,143.64
3/4	40.12	3/4	349.14	3/4	698.25	3/4	1,048.54	3/4	1,399.22	3/4	1,749.90	3/4	2,100.56	3/4	2,449.55	3/4	2,800.25	3/4	3,150.95
2	45.80	2	356.20	2	705.52	2	1,055.85	2	1,406.53	2	1,757.21	2	2,107.86	2	2,456.86	2	2,807.56	2	3,158.25
1/4	51.64	1/4	363.38	1/4	712.79	1/4	1,063.15	1/4	1,413.83	1/4	1,764.51	1/4	2,115.14	1/4	2,464.17	1/4	2,814.86	1/4	3,165.56
1/2	57.47	1/2	370.55	1/2	720.06	1/2	1,070.46	1/2	1,421.14	1/2	1,771.82	1/2	2,122.42	1/2	2,471.47	1/2	2,822.17	1/2	3,172.87
3/4	63.30	3/4	377.72	3/4	727.33	3/4	1,077.77	3/4	1,428.44	3/4	1,779.12	3/4	2,129.70	3/4	2,478.78	3/4	2,829.48	3/4	3,180.17
3	69.13	3	384.89	3	734.60	3	1,085.07	3	1,435.75	3	1,786.43	3	2,136.97	3	2,486.08	3	2,836.78	3	3,187.48
1/4	75.10	1/4	392.17	1/4	741.88	1/4	1,092.38	1/4	1,443.06	1/4	1,793.73	1/4	2,144.17	1/4	2,493.39	1/4	2,844.09	1/4	3,194.79
1/2	81.06	1/2	399.44	1/2	749.16	1/2	1,099.68	1/2	1,450.36	1/2	1,801.04	1/2	2,151.37	1/2	2,500.70	1/2	2,851.39	1/2	3,202.09
3/4	87.02	3/4	406.72	3/4	756.44	3/4	1,106.99	3/4	1,457.67	3/4	1,808.35	3/4	2,158.57	3/4	2,508.00	3/4	2,858.70	3/4	3,209.40
4	92.99	4	413.99	4	763.72	4	1,114.30	4	1,464.97	4	1,815.65	4	2,165.77	4	2,515.31	4	2,866.01	4	3,216.70
1/4	99.07	1/4	421.30	1/4	771.00	1/4	1,121.60	1/4	1,472.28	1/4	1,822.96	1/4	2,172.98	1/4	2,522.61	1/4	2,873.31	1/4	3,224.01
1/2	105.16	1/2	428.61	1/2	778.28	1/2	1,128.91	1/2	1,479.59	1/2	1,830.26	1/2	2,180.18	1/2	2,529.92	1/2	2,880.62	1/2	3,231.32
3/4	111.25	3/4	435.91	3/4	785.56	3/4	1,136.21	3/4	1,486.89	3/4	1,837.57	3/4	2,187.38	3/4	2,537.23	3/4	2,887.92	3/4	3,238.62
5	117.33	5	443.22	5	792.84	5	1,143.52	5	1,494.20	5	1,844.88	5	2,194.58	5	2,544.53	5	2,895.23	5	3,245.93
1/4	123.53	1/4	450.52	1/4	800.14	1/4	1,150.82	1/4	1,501.50	1/4	1,852.18	1/4	2,201.78	1/4	2,551.84	1/4	2,902.54	1/4	3,253.23
1/2	129.74	1/2	457.83	1/2	807.45	1/2	1,158.13	1/2	1,508.81	1/2	1,859.49	1/2	2,208.98	1/2	2,559.15	1/2	2,909.84	1/2	3,260.54
3/4	135.94	3/4	465.14	3/4	814.75	3/4	1,165.44	3/4	1,516.11	3/4	1,866.79	3/4	2,216.18	3/4	2,566.45	3/4	2,917.15	3/4	3,267.85
6	142.14	6	472.44	6	822.06	6	1,172.74	6	1,523.42	6	1,874.10	6	2,223.38	6	2,573.76	6	2,924.46	6	3,275.15
1/4	148.46	1/4	479.75	1/4	829.37	1/4	1,180.05	1/4	1,530.73	1/4	1,881.40	1/4	2,230.60	1/4	2,581.06	1/4	2,931.76	1/4	3,282.46
1/2	154.77	1/2	487.05	1/2	836.67	1/2	1,187.35	1/2	1,538.03	1/2	1,888.71	1/2	2,237.83	1/2	2,588.37	1/2	2,939.07	1/2	3,289.77
3/4	161.08	3/4	494.36	3/4	843.98	3/4	1,194.66	3/4	1,545.34	3/4	1,896.02	3/4	2,245.06	3/4	2,595.68	3/4	2,946.37	3/4	3,297.07
7	167.40	7	501.67	7	851.28	7	1,201.96	7	1,552.64	7	1,903.32	7	2,252.29	7	2,602.98	7	2,953.68	7	3,304.38
1/4	173.82	1/4	508.97	1/4	858.59	1/4	1,209.27	1/4	1,559.95	1/4	1,910.63	1/4	2,259.59	1/4	2,610.29	1/4	2,960.99	1/4	3,311.68
1/2	180.24	1/2	516.28	1/2	865.90	1/2	1,216.58	1/2	1,567.25	1/2	1,917.93	1/2	2,266.90	1/2	2,617.60	1/2	2,968.29	1/2	3,318.99
3/4	186.66	3/4	523.58	3/4	873.20	3/4	1,223.88	3/4	1,574.56	3/4	1,925.24	3/4	2,274.20	3/4	2,624.90	3/4	2,975.60	3/4	3,326.30
8	193.08	8	530.89	8	880.51	8	1,231.19	8	1,581.87	8	1,932.54	8	2,281.51	8	2,632.21	8	2,982.91	8	3,333.60
1/4	199.61	1/4	538.19	1/4	887.81	1/4	1,238.49	1/4	1,589.17	1/4	1,939.85	1/4	2,288.82	1/4	2,639.51	1/4	2,990.21	1/4	3,340.91
1/2	206.14	1/2	545.50	1/2	895.12	1/2	1,245.80	1/2	1,596.48	1/2	1,947.16	1/2	2,296.12	1/2	2,646.82	1/2	2,997.52	1/2	3,348.22
3/4	212.67	3/4	552.81	3/4	902.43	3/4	1,253.11	3/4	1,603.78	3/4	1,954.46	3/4	2,303.43	3/4	2,654.13	3/4	3,004.82	3/4	3,355.52
9	219.20	9	560.11	9	909.73	9	1,260.41	9	1,611.09	9	1,961.77	9	2,310.74	9	2,661.43	9	3,012.13	9	3,362.83
1/4	225.83	1/4	567.38	1/4	917.04	1/4	1,267.72	1/4	1,618.40	1/4	1,969.07	1/4	2,318.04	1/4	2,668.74	1/4	3,019.44	1/4	3,370.13
1/2	232.47	1/2	574.65	1/2	924.34	1/2	1,275.02	1/2	1,625.70	1/2	1,976.38	1/2	2,325.35	1/2	2,676.05	1/2	3,026.74	1/2	3,377.44
3/4	239.11	3/4	581.92	3/4	931.65	3/4	1,282.33	3/4	1,633.01	3/4	1,983.69	3/4	2,332.65	3/4	2,683.35	3/4	3,034.05	3/4	3,384.75
10	245.74	10	589.19	10	938.96	10	1,289.63	10	1,640.31	10	1,990.99	10	2,339.96	10	2,690.66	10	3,041.36	10	3,392.05
1/4	252.48	1/4	596.46	1/4	946.26	1/4	1,296.94	1/4	1,647.62	1/4	1,998.30	1/4	2,347.27	1/4	2,697.96	1/4	3,048.66	1/4	3,399.36
1/2	259.23	1/2	603.74	1/2	953.57	1/2	1,304.25	1/2	1,654.92	1/2	2,005.60	1/2	2,354.57	1/2	2,705.27	1/2	3,055.97	1/2	3,406.67
3/4	265.97	3/4	611.01	3/4	960.87	3/4	1,311.55	3/4	1,662.23	3/4	2,012.91	3/4	2,361.88	3/4	2,712.58	3/4	3,063.27	3/4	3,413.97
11	272.71	11	618.28	11	968.18	11	1,318.86	11	1,669.54	11	2,020.21	11	2,369.18	11	2,719.88	11	3,070.58	11	3,421.28
1/4	279.56	1/4	625.55	1/4	975.48	1/4	1,326.16	1/4	1,676.84	1/4	2,027.52	1/4	2,376.49	1/4	2,727.19	1/4	3,077.89	1/4	3,428.58
1/2	286.41	1/2	632.82	1/2	982.79	1/2	1,333.47	1/2	1,684.15	1/2	2,034.83	1/2	2,383.80	1/2	2,734.49	1/2	3,085.19	1/2	3,435.89
3/4	293.26	3/4	640.09	3/4	990.10	3/4	1,340.77	3/4	1,691.45	3/4	2,042.14	3/4	2,391.10	3/4	2,741.80	3/4	3,092.50	3/4	3,443.20

CERTIFIED CHART FOR THE ABOVE NAMED TANK ONLY.

BARGE STRAPPED AND COMPUTED IN ACCORDANCE WITH MPMS CHAPTER 2.7.
 CAPACITY TABLE ONLY APPLIES WHEN BARGE IS ON EVEN KEEL.
 CAPACITY TABLE EXTENDS TO EXTREME HEIGHT OF TANK.
 CAPACITY TABLE ONLY APPLIES TO INNAGE GAUGES TAKEN TO TOP OF 2" HERMETIC VALVE.
 GAUGE POINT: (HERMETIC) LOCATED 11'-06" OFF CENTERLINE AND 41'-00" FORWARD OF AFT BULKHEAD.

PRECISION MEASUREMENT
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BARGE "CCL 417T"

1 PORT INNAGE TABLE

CAPACITIES GIVEN IN BARRELS OF 42 U.S. GALLONS

GAUGE HEIGHT 15'-01 1/4"

IN	10 FT.	IN	11 FT.	IN	12 FT.	IN	13 FT.	IN	14 FT.	IN	15 FT.	IN	16 FT.	IN	17 FT.	IN	18 FT.	IN	19 FT.
0	3,450.50	0	3,801.20	0	4,150.29	0	4,484.14	0	4,798.43	0		0		0		0		0	
1/4	3,457.81	1/4	3,808.51	1/4	4,157.42	1/4	4,490.88	1/4	4,804.72	1/4		1/4		1/4		1/4		1/4	
1/2	3,465.11	1/2	3,815.81	1/2	4,164.55	1/2	4,497.63	1/2	4,811.01	1/2		1/2		1/2		1/2		1/2	
3/4	3,472.42	3/4	3,823.12	3/4	4,171.68	3/4	4,504.38	3/4	4,817.31	3/4		3/4		3/4		3/4		3/4	
1	3,479.73	1	3,830.42	1	4,178.81	1	4,511.13	1	4,823.60	1		1		1		1		1	
1/4	3,487.03	1/4	3,837.73	1/4	4,185.91	1/4	4,517.84	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,494.34	1/2	3,845.04	1/2	4,193.01	1/2	4,524.56	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,501.65	3/4	3,852.34	3/4	4,200.11	3/4	4,531.27	3/4		3/4		3/4		3/4		3/4		3/4	
2	3,508.95	2	3,859.65	2	4,207.21	2	4,537.99	2		2		2		2		2		2	
1/4	3,516.26	1/4	3,866.96	1/4	4,214.27	1/4	4,544.67	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,523.56	1/2	3,874.26	1/2	4,221.34	1/2	4,551.36	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,530.87	3/4	3,881.57	3/4	4,228.41	3/4	4,558.04	3/4		3/4		3/4		3/4		3/4		3/4	
3	3,538.18	3	3,888.87	3	4,235.47	3	4,564.72	3		3		3		3		3		3	
1/4	3,545.48	1/4	3,896.18	1/4	4,242.51	1/4	4,571.38	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,552.79	1/2	3,903.49	1/2	4,249.54	1/2	4,578.03	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,560.10	3/4	3,910.79	3/4	4,256.58	3/4	4,584.68	3/4		3/4		3/4		3/4		3/4		3/4	
4	3,567.40	4	3,918.10	4	4,263.61	4	4,591.33	4		4		4		4		4		4	
1/4	3,574.71	1/4	3,925.41	1/4	4,270.62	1/4	4,597.95	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,582.01	1/2	3,932.71	1/2	4,277.62	1/2	4,604.57	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,589.32	3/4	3,940.02	3/4	4,284.62	3/4	4,611.19	3/4		3/4		3/4		3/4		3/4		3/4	
5	3,596.63	5	3,947.32	5	4,291.63	5	4,617.81	5		5		5		5		5		5	
1/4	3,603.93	1/4	3,954.63	1/4	4,298.60	1/4	4,624.40	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,611.24	1/2	3,961.94	1/2	4,305.57	1/2	4,630.99	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,618.54	3/4	3,969.24	3/4	4,312.54	3/4	4,637.58	3/4		3/4		3/4		3/4		3/4		3/4	
6	3,625.85	6	3,976.55	6	4,319.51	6	4,644.17	6		6		6		6		6		6	
1/4	3,633.16	1/4	3,983.85	1/4	4,326.45	1/4	4,650.72	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,640.46	1/2	3,991.16	1/2	4,333.39	1/2	4,657.28	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,647.77	3/4	3,998.47	3/4	4,340.33	3/4	4,663.83	3/4		3/4		3/4		3/4		3/4		3/4	
7	3,655.08	7	4,005.77	7	4,347.27	7	4,670.39	7		7		7		7		7		7	
1/4	3,662.38	1/4	4,013.06	1/4	4,354.17	1/4	4,676.91	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,669.69	1/2	4,020.35	1/2	4,361.08	1/2	4,683.44	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,676.99	3/4	4,027.64	3/4	4,367.99	3/4	4,689.96	3/4		3/4		3/4		3/4		3/4		3/4	
8	3,684.30	8	4,034.92	8	4,374.90	8	4,696.49	8		8		8		8		8		8	
1/4	3,691.61	1/4	4,042.18	1/4	4,381.77	1/4	4,702.91	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,698.91	1/2	4,049.44	1/2	4,388.65	1/2	4,709.33	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,706.22	3/4	4,056.70	3/4	4,395.52	3/4	4,715.75	3/4		3/4		3/4		3/4		3/4		3/4	
9	3,713.53	9	4,063.96	9	4,402.40	9	4,722.17	9		9		9		9		9		9	
1/4	3,720.83	1/4	4,071.18	1/4	4,409.24	1/4	4,728.55	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,728.14	1/2	4,078.41	1/2	4,416.08	1/2	4,734.94	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,735.44	3/4	4,085.63	3/4	4,422.93	3/4	4,741.33	3/4		3/4		3/4		3/4		3/4		3/4	
10	3,742.75	10	4,092.86	10	4,429.77	10	4,747.71	10		10		10		10		10		10	
1/4	3,750.06	1/4	4,100.06	1/4	4,436.58	1/4	4,754.07	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,757.36	1/2	4,107.25	1/2	4,443.39	1/2	4,760.43	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,764.67	3/4	4,114.44	3/4	4,450.21	3/4	4,766.78	3/4		3/4		3/4		3/4		3/4		3/4	
11	3,771.98	11	4,121.64	11	4,457.02	11	4,773.14	11		11		11		11		11		11	
1/4	3,779.28	1/4	4,128.80	1/4	4,463.80	1/4	4,779.46	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,786.59	1/2	4,135.96	1/2	4,470.58	1/2	4,785.78	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,793.89	3/4	4,143.13	3/4	4,477.36	3/4	4,792.11	3/4		3/4		3/4		3/4		3/4		3/4	

CERTIFIED CHART FOR THE ABOVE NAMED TANK ONLY.

STRAPPED: 10/13/2019 SW - JS
CALCULATED: 10/14/2019 CL
PRINTED: 10/16/2019 SW

CANCELS AND SUPERCEDES
ALL PRIOR TO 10/2019

PRECISION MEASUREMENT
& ANALYSIS, INC.
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BARGE "CCL 417T"

1 STBD INNAGE TABLE

CAPACITIES GIVEN IN BARRELS OF 42 U.S. GALLONS

GAUGE HEIGHT 15'-01 1/2"

IN	0 FT.	IN	1 FT.	IN	2 FT.	IN	3 FT.	IN	4 FT.	IN	5 FT.	IN	6 FT.	IN	7 FT.	IN	8 FT.	IN	9 FT.
0	7.71	0	300.11	0	647.36	0	997.40	0	1,346.92	0	1,696.44	0	2,047.11	0	2,397.77	0	2,746.77	0	3,097.47
1/4	11.55	1/4	307.07	1/4	654.63	1/4	1,004.71	1/4	1,354.18	1/4	1,703.74	1/4	2,054.42	1/4	2,405.08	1/4	2,754.08	1/4	3,104.77
1/2	15.39	1/2	314.03	1/2	661.90	1/2	1,012.01	1/2	1,361.43	1/2	1,711.05	1/2	2,061.72	1/2	2,412.39	1/2	2,761.39	1/2	3,112.08
3/4	19.23	3/4	320.99	3/4	669.17	3/4	1,019.32	3/4	1,368.69	3/4	1,718.35	3/4	2,069.02	3/4	2,419.69	3/4	2,768.69	3/4	3,119.38
1	23.08	1	327.94	1	676.44	1	1,026.63	1	1,375.95	1	1,725.66	1	2,076.32	1	2,427.00	1	2,776.00	1	3,126.69
1/4	28.76	1/4	335.01	1/4	683.71	1/4	1,033.93	1/4	1,383.21	1/4	1,732.96	1/4	2,083.63	1/4	2,434.25	1/4	2,783.30	1/4	3,134.00
1/2	34.44	1/2	342.07	1/2	690.98	1/2	1,041.24	1/2	1,390.46	1/2	1,740.27	1/2	2,090.93	1/2	2,441.50	1/2	2,790.61	1/2	3,141.30
3/4	40.12	3/4	349.14	3/4	698.25	3/4	1,048.54	3/4	1,397.72	3/4	1,747.58	3/4	2,098.23	3/4	2,448.76	3/4	2,797.92	3/4	3,148.61
2	45.80	2	356.20	2	705.52	2	1,055.85	2	1,404.98	2	1,754.88	2	2,105.54	2	2,456.01	2	2,805.22	2	3,155.91
1/4	51.64	1/4	363.38	1/4	712.79	1/4	1,063.15	1/4	1,412.24	1/4	1,762.19	1/4	2,112.84	1/4	2,463.21	1/4	2,812.53	1/4	3,163.22
1/2	57.47	1/2	370.55	1/2	720.06	1/2	1,070.46	1/2	1,419.49	1/2	1,769.49	1/2	2,120.14	1/2	2,470.41	1/2	2,819.83	1/2	3,170.53
3/4	63.30	3/4	377.72	3/4	727.33	3/4	1,077.77	3/4	1,426.75	3/4	1,776.80	3/4	2,127.45	3/4	2,477.61	3/4	2,827.14	3/4	3,177.83
3	69.13	3	384.89	3	734.60	3	1,085.07	3	1,434.01	3	1,784.11	3	2,134.75	3	2,484.81	3	2,834.45	3	3,185.14
1/4	75.10	1/4	392.17	1/4	741.88	1/4	1,092.38	1/4	1,441.27	1/4	1,791.41	1/4	2,142.06	1/4	2,492.01	1/4	2,841.75	1/4	3,192.45
1/2	81.06	1/2	399.44	1/2	749.16	1/2	1,099.68	1/2	1,448.52	1/2	1,798.72	1/2	2,149.36	1/2	2,499.21	1/2	2,849.06	1/2	3,199.75
3/4	87.02	3/4	406.72	3/4	756.44	3/4	1,106.99	3/4	1,455.78	3/4	1,806.02	3/4	2,156.67	3/4	2,506.41	3/4	2,856.36	3/4	3,207.06
4	92.99	4	413.99	4	763.72	4	1,114.30	4	1,463.04	4	1,813.33	4	2,163.97	4	2,513.61	4	2,863.67	4	3,214.36
1/4	99.07	1/4	421.30	1/4	771.00	1/4	1,121.60	1/4	1,470.29	1/4	1,820.63	1/4	2,171.28	1/4	2,520.81	1/4	2,870.98	1/4	3,221.67
1/2	105.16	1/2	428.61	1/2	778.28	1/2	1,128.91	1/2	1,477.55	1/2	1,827.94	1/2	2,178.59	1/2	2,528.01	1/2	2,878.28	1/2	3,228.98
3/4	111.25	3/4	435.91	3/4	785.56	3/4	1,136.21	3/4	1,484.81	3/4	1,835.25	3/4	2,185.89	3/4	2,535.21	3/4	2,885.59	3/4	3,236.28
5	117.33	5	443.22	5	792.84	5	1,143.52	5	1,492.07	5	1,842.55	5	2,193.20	5	2,542.41	5	2,892.90	5	3,243.59
1/4	123.53	1/4	450.52	1/4	800.14	1/4	1,150.82	1/4	1,499.32	1/4	1,849.86	1/4	2,200.51	1/4	2,549.67	1/4	2,900.20	1/4	3,250.89
1/2	129.74	1/2	457.83	1/2	807.45	1/2	1,158.13	1/2	1,506.58	1/2	1,857.16	1/2	2,207.81	1/2	2,556.92	1/2	2,907.51	1/2	3,258.20
3/4	135.94	3/4	465.14	3/4	814.75	3/4	1,165.44	3/4	1,513.84	3/4	1,864.47	3/4	2,215.12	3/4	2,564.17	3/4	2,914.81	3/4	3,265.51
6	142.14	6	472.44	6	822.06	6	1,172.74	6	1,521.10	6	1,871.78	6	2,222.42	6	2,571.43	6	2,922.12	6	3,272.81
1/4	148.46	1/4	479.75	1/4	829.37	1/4	1,180.00	1/4	1,528.40	1/4	1,879.08	1/4	2,229.73	1/4	2,578.73	1/4	2,929.43	1/4	3,280.12
1/2	154.77	1/2	487.05	1/2	836.67	1/2	1,187.26	1/2	1,535.71	1/2	1,886.39	1/2	2,237.04	1/2	2,586.04	1/2	2,936.73	1/2	3,287.42
3/4	161.08	3/4	494.36	3/4	843.98	3/4	1,194.51	3/4	1,543.01	3/4	1,893.69	3/4	2,244.34	3/4	2,593.35	3/4	2,944.04	3/4	3,294.73
7	167.40	7	501.67	7	851.28	7	1,201.77	7	1,550.32	7	1,901.00	7	2,251.65	7	2,600.65	7	2,951.34	7	3,302.04
1/4	173.82	1/4	508.97	1/4	858.59	1/4	1,209.03	1/4	1,557.63	1/4	1,908.30	1/4	2,258.95	1/4	2,607.96	1/4	2,958.65	1/4	3,309.34
1/2	180.24	1/2	516.28	1/2	865.90	1/2	1,216.29	1/2	1,564.93	1/2	1,915.61	1/2	2,266.26	1/2	2,615.26	1/2	2,965.96	1/2	3,316.65
3/4	186.66	3/4	523.58	3/4	873.20	3/4	1,223.54	3/4	1,572.24	3/4	1,922.92	3/4	2,273.57	3/4	2,622.57	3/4	2,973.26	3/4	3,323.96
8	193.08	8	530.89	8	880.51	8	1,230.80	8	1,579.54	8	1,930.22	8	2,280.87	8	2,629.88	8	2,980.57	8	3,331.26
1/4	199.61	1/4	538.19	1/4	887.81	1/4	1,238.06	1/4	1,586.85	1/4	1,937.53	1/4	2,288.18	1/4	2,637.18	1/4	2,987.87	1/4	3,338.57
1/2	206.14	1/2	545.50	1/2	895.12	1/2	1,245.32	1/2	1,594.15	1/2	1,944.83	1/2	2,295.49	1/2	2,644.49	1/2	2,995.18	1/2	3,345.87
3/4	212.67	3/4	552.81	3/4	902.43	3/4	1,252.57	3/4	1,601.46	3/4	1,952.14	3/4	2,302.79	3/4	2,651.79	3/4	3,002.49	3/4	3,353.18
9	219.20	9	560.11	9	909.73	9	1,259.83	9	1,608.77	9	1,959.44	9	2,310.10	9	2,659.10	9	3,009.79	9	3,360.49
1/4	225.83	1/4	567.38	1/4	917.04	1/4	1,267.09	1/4	1,616.07	1/4	1,966.75	1/4	2,317.40	1/4	2,666.41	1/4	3,017.10	1/4	3,367.79
1/2	232.47	1/2	574.65	1/2	924.34	1/2	1,274.35	1/2	1,623.38	1/2	1,974.06	1/2	2,324.71	1/2	2,673.71	1/2	3,024.41	1/2	3,375.10
3/4	239.11	3/4	581.92	3/4	931.65	3/4	1,281.60	3/4	1,630.68	3/4	1,981.36	3/4	2,332.02	3/4	2,681.02	3/4	3,031.71	3/4	3,382.40
10	245.74	10	589.19	10	938.96	10	1,288.86	10	1,637.99	10	1,988.67	10	2,339.32	10	2,688.32	10	3,039.02	10	3,389.71
1/4	252.48	1/4	596.46	1/4	946.26	1/4	1,296.12	1/4	1,645.30	1/4	1,995.97	1/4	2,346.63	1/4	2,695.63	1/4	3,046.32	1/4	3,397.02
1/2	259.23	1/2	603.74	1/2	953.57	1/2	1,303.37	1/2	1,652.60	1/2	2,003.28	1/2	2,353.94	1/2	2,702.94	1/2	3,053.63	1/2	3,404.32
3/4	265.97	3/4	611.01	3/4	960.87	3/4	1,310.63	3/4	1,659.91	3/4	2,010.59	3/4	2,361.24	3/4	2,710.24	3/4	3,060.94	3/4	3,411.63
11	272.71	11	618.28	11	968.18	11	1,317.89	11	1,667.21	11	2,017.89	11	2,368.55	11	2,717.55	11	3,068.24	11	3,418.93
1/4	279.56	1/4	625.55	1/4	975.48	1/4	1,325.15	1/4	1,674.52	1/4	2,025.20	1/4	2,375.85	1/4	2,724.86	1/4	3,075.55	1/4	3,426.24
1/2	286.41	1/2	632.82	1/2	982.79	1/2	1,332.40	1/2	1,681.82	1/2	2,032.50	1/2	2,383.16	1/2	2,732.16	1/2	3,082.85	1/2	3,433.55
3/4	293.26	3/4	640.09	3/4	990.10	3/4	1,339.66	3/4	1,689.13	3/4	2,039.81	3/4	2,390.47	3/4	2,739.47	3/4	3,090.16	3/4	3,440.85

CERTIFIED CHART FOR THE ABOVE NAMED TANK ONLY.

BARGE STRAPPED AND COMPUTED IN ACCORDANCE WITH MPMS CHAPTER 2.7.
 CAPACITY TABLE ONLY APPLIES WHEN BARGE IS ON EVEN KEEL.
 CAPACITY TABLE EXTENDS TO EXTREME HEIGHT OF TANK.
 CAPACITY TABLE ONLY APPLIES TO INNAGE GAUGES TAKEN TO TOP OF 2" HERMETIC VALVE.
 GAUGE POINT: (HERMETIC) LOCATED 11'-06" OFF CENTERLINE AND 41'-00" FORWARD OF AFT BULKHEAD.

PRECISION MEASUREMENT
 & ANALYSIS, INC.
 P.O. Box 2092
 Pearland, Texas 77588
<http://www.pmacorp.net>



BARGE "CCL 417T"

1 STBD INNAGE TABLE

CAPACITIES GIVEN IN BARRELS OF 42 U.S. GALLONS

GAUGE HEIGHT 15'-01 1/2"

IN	10 FT.	IN	11 FT.	IN	12 FT.	IN	13 FT.	IN	14 FT.	IN	15 FT.	IN	16 FT.	IN	17 FT.	IN	18 FT.	IN	19 FT.
0	3,448.16	0	3,798.85	0	4,147.96	0	4,481.81	0	4,796.10	0		0		0		0		0	
1/4	3,455.47	1/4	3,806.16	1/4	4,155.09	1/4	4,488.55	1/4	4,802.39	1/4		1/4		1/4		1/4		1/4	
1/2	3,462.77	1/2	3,813.46	1/2	4,162.22	1/2	4,495.30	1/2	4,808.68	1/2		1/2		1/2		1/2		1/2	
3/4	3,470.08	3/4	3,820.77	3/4	4,169.35	3/4	4,502.05	3/4	4,814.98	3/4		3/4		3/4		3/4		3/4	
1	3,477.38	1	3,828.08	1	4,176.48	1	4,508.80	1	4,821.27	1		1		1		1		1	
1/4	3,484.69	1/4	3,835.38	1/4	4,183.58	1/4	4,515.51	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,492.00	1/2	3,842.69	1/2	4,190.68	1/2	4,522.23	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,499.30	3/4	3,849.99	3/4	4,197.78	3/4	4,528.94	3/4		3/4		3/4		3/4		3/4		3/4	
2	3,506.61	2	3,857.30	2	4,204.88	2	4,535.66	2		2		2		2		2		2	
1/4	3,513.91	1/4	3,864.61	1/4	4,211.94	1/4	4,542.34	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,521.22	1/2	3,871.91	1/2	4,219.01	1/2	4,549.03	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,528.53	3/4	3,879.22	3/4	4,226.08	3/4	4,555.71	3/4		3/4		3/4		3/4		3/4		3/4	
3	3,535.83	3	3,886.52	3	4,233.14	3	4,562.40	3		3		3		3		3		3	
1/4	3,543.14	1/4	3,893.83	1/4	4,240.18	1/4	4,569.05	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,550.44	1/2	3,901.14	1/2	4,247.21	1/2	4,575.70	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,557.75	3/4	3,908.44	3/4	4,254.25	3/4	4,582.35	3/4		3/4		3/4		3/4		3/4		3/4	
4	3,565.06	4	3,915.75	4	4,261.28	4	4,589.00	4		4		4		4		4		4	
1/4	3,572.36	1/4	3,923.06	1/4	4,268.29	1/4	4,595.62	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,579.67	1/2	3,930.36	1/2	4,275.29	1/2	4,602.24	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,586.97	3/4	3,937.67	3/4	4,282.29	3/4	4,608.86	3/4		3/4		3/4		3/4		3/4		3/4	
5	3,594.28	5	3,944.97	5	4,289.30	5	4,615.48	5		5		5		5		5		5	
1/4	3,601.59	1/4	3,952.28	1/4	4,296.27	1/4	4,622.07	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,608.89	1/2	3,959.59	1/2	4,303.24	1/2	4,628.66	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,616.20	3/4	3,966.89	3/4	4,310.21	3/4	4,635.25	3/4		3/4		3/4		3/4		3/4		3/4	
6	3,623.51	6	3,974.20	6	4,317.18	6	4,641.84	6		6		6		6		6		6	
1/4	3,630.81	1/4	3,981.50	1/4	4,324.12	1/4	4,648.39	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,638.12	1/2	3,988.81	1/2	4,331.06	1/2	4,654.95	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,645.42	3/4	3,996.12	3/4	4,338.00	3/4	4,661.51	3/4		3/4		3/4		3/4		3/4		3/4	
7	3,652.73	7	4,003.42	7	4,344.94	7	4,668.06	7		7		7		7		7		7	
1/4	3,660.04	1/4	4,010.72	1/4	4,351.84	1/4	4,674.59	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,667.34	1/2	4,018.01	1/2	4,358.75	1/2	4,681.11	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,674.65	3/4	4,025.30	3/4	4,365.66	3/4	4,687.63	3/4		3/4		3/4		3/4		3/4		3/4	
8	3,681.95	8	4,032.59	8	4,372.57	8	4,694.16	8		8		8		8		8		8	
1/4	3,689.26	1/4	4,039.85	1/4	4,379.44	1/4	4,700.58	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,696.57	1/2	4,047.11	1/2	4,386.32	1/2	4,707.00	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,703.87	3/4	4,054.37	3/4	4,393.19	3/4	4,713.42	3/4		3/4		3/4		3/4		3/4		3/4	
9	3,711.18	9	4,061.63	9	4,400.07	9	4,719.84	9		9		9		9		9		9	
1/4	3,718.48	1/4	4,068.85	1/4	4,406.91	1/4	4,726.22	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,725.79	1/2	4,076.08	1/2	4,413.75	1/2	4,732.61	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,733.10	3/4	4,083.31	3/4	4,420.60	3/4	4,739.00	3/4		3/4		3/4		3/4		3/4		3/4	
10	3,740.40	10	4,090.53	10	4,427.44	10	4,745.39	10		10		10		10		10		10	
1/4	3,747.71	1/4	4,097.73	1/4	4,434.25	1/4	4,751.74	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,755.02	1/2	4,104.92	1/2	4,441.06	1/2	4,758.10	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,762.32	3/4	4,112.11	3/4	4,447.88	3/4	4,764.45	3/4		3/4		3/4		3/4		3/4		3/4	
11	3,769.63	11	4,119.31	11	4,454.69	11	4,770.81	11		11		11		11		11		11	
1/4	3,776.93	1/4	4,126.47	1/4	4,461.47	1/4	4,777.13	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,784.24	1/2	4,133.63	1/2	4,468.25	1/2	4,783.45	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,791.55	3/4	4,140.80	3/4	4,475.03	3/4	4,789.78	3/4		3/4		3/4		3/4		3/4		3/4	

CERTIFIED CHART FOR THE ABOVE NAMED TANK ONLY.

STRAPPED: 10/13/2019 SW - JS
CALCULATED: 10/14/2019 CL
PRINTED: 10/16/2019 SW

CANCELS AND SUPERCEDES
ALL PRIOR TO 10/2019

PRECISION MEASUREMENT
& ANALYSIS, INC.
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BARGE "CCL 417T"

2 PORT INNAGE TABLE

CAPACITIES GIVEN IN BARRELS OF 42 U.S. GALLONS

GAUGE HEIGHT 15'-00 3/4"

IN	0 FT.	IN	1 FT.	IN	2 FT.	IN	3 FT.	IN	4 FT.	IN	5 FT.	IN	6 FT.	IN	7 FT.	IN	8 FT.	IN	9 FT.
0	7.74	0	351.73	0	703.43	0	1,054.92	0	1,407.04	0	1,759.17	0	2,111.30	0	2,461.66	0	2,813.80	0	3,165.95
1/4	13.24	1/4	359.06	1/4	710.73	1/4	1,062.26	1/4	1,414.38	1/4	1,766.50	1/4	2,118.63	1/4	2,469.00	1/4	2,821.14	1/4	3,173.28
1/2	18.74	1/2	366.40	1/2	718.03	1/2	1,069.59	1/2	1,421.72	1/2	1,773.84	1/2	2,125.96	1/2	2,476.33	1/2	2,828.48	1/2	3,180.62
3/4	24.24	3/4	373.74	3/4	725.33	3/4	1,076.93	3/4	1,429.05	3/4	1,781.18	3/4	2,133.29	3/4	2,483.67	3/4	2,835.81	3/4	3,187.96
1	29.74	1	381.07	1	732.64	1	1,084.26	1	1,436.39	1	1,788.51	1	2,140.63	1	2,491.01	1	2,843.15	1	3,195.29
1/4	36.97	1/4	388.41	1/4	739.94	1/4	1,091.60	1/4	1,443.72	1/4	1,795.85	1/4	2,147.96	1/4	2,498.34	1/4	2,850.49	1/4	3,202.63
1/2	44.21	1/2	395.74	1/2	747.24	1/2	1,098.94	1/2	1,451.06	1/2	1,803.18	1/2	2,155.29	1/2	2,505.68	1/2	2,857.82	1/2	3,209.96
3/4	51.45	3/4	403.08	3/4	754.54	3/4	1,106.27	3/4	1,458.40	3/4	1,810.52	3/4	2,162.63	3/4	2,513.02	3/4	2,865.16	3/4	3,217.30
2	58.69	2	410.42	2	761.84	2	1,113.61	2	1,465.73	2	1,817.85	2	2,169.96	2	2,520.35	2	2,872.49	2	3,224.64
1/4	65.98	1/4	417.75	1/4	769.14	1/4	1,120.94	1/4	1,473.07	1/4	1,825.19	1/4	2,177.27	1/4	2,527.69	1/4	2,879.83	1/4	3,231.97
1/2	73.26	1/2	425.09	1/2	776.44	1/2	1,128.28	1/2	1,480.40	1/2	1,832.53	1/2	2,184.57	1/2	2,535.02	1/2	2,887.17	1/2	3,239.31
3/4	80.54	3/4	432.42	3/4	783.74	3/4	1,135.62	3/4	1,487.74	3/4	1,839.86	3/4	2,191.88	3/4	2,542.36	3/4	2,894.50	3/4	3,246.65
3	87.82	3	439.76	3	791.04	3	1,142.95	3	1,495.08	3	1,847.20	3	2,199.18	3	2,549.70	3	2,901.84	3	3,253.98
1/4	95.13	1/4	447.10	1/4	798.35	1/4	1,150.29	1/4	1,502.41	1/4	1,854.53	1/4	2,206.41	1/4	2,557.03	1/4	2,909.18	1/4	3,261.32
1/2	102.44	1/2	454.43	1/2	805.66	1/2	1,157.62	1/2	1,509.75	1/2	1,861.87	1/2	2,213.64	1/2	2,564.37	1/2	2,916.51	1/2	3,268.65
3/4	109.74	3/4	461.77	3/4	812.97	3/4	1,164.96	3/4	1,517.08	3/4	1,869.21	3/4	2,220.87	3/4	2,571.71	3/4	2,923.85	3/4	3,275.99
4	117.05	4	469.10	4	820.28	4	1,172.30	4	1,524.42	4	1,876.54	4	2,228.10	4	2,579.04	4	2,931.18	4	3,283.33
1/4	124.37	1/4	476.44	1/4	827.59	1/4	1,179.63	1/4	1,531.75	1/4	1,883.88	1/4	2,235.32	1/4	2,586.38	1/4	2,938.52	1/4	3,290.66
1/2	131.70	1/2	483.78	1/2	834.89	1/2	1,186.97	1/2	1,539.09	1/2	1,891.21	1/2	2,242.55	1/2	2,593.71	1/2	2,945.86	1/2	3,298.00
3/4	139.02	3/4	491.11	3/4	842.20	3/4	1,194.30	3/4	1,546.43	3/4	1,898.55	3/4	2,249.78	3/4	2,601.05	3/4	2,953.19	3/4	3,305.34
5	146.34	5	498.45	5	849.51	5	1,201.64	5	1,553.76	5	1,905.89	5	2,257.01	5	2,608.39	5	2,960.53	5	3,312.67
1/4	153.67	1/4	505.78	1/4	856.85	1/4	1,208.98	1/4	1,561.10	1/4	1,913.22	1/4	2,264.23	1/4	2,615.72	1/4	2,967.87	1/4	3,320.01
1/2	161.00	1/2	513.12	1/2	864.18	1/2	1,216.31	1/2	1,568.43	1/2	1,920.56	1/2	2,271.46	1/2	2,623.06	1/2	2,975.20	1/2	3,327.34
3/4	168.33	3/4	520.46	3/4	871.52	3/4	1,223.65	3/4	1,575.77	3/4	1,927.89	3/4	2,278.69	3/4	2,630.40	3/4	2,982.54	3/4	3,334.68
6	175.67	6	527.79	6	878.86	6	1,230.98	6	1,583.11	6	1,935.23	6	2,285.92	6	2,637.73	6	2,989.88	6	3,342.02
1/4	183.00	1/4	535.13	1/4	886.19	1/4	1,238.32	1/4	1,590.44	1/4	1,942.57	1/4	2,293.17	1/4	2,645.07	1/4	2,997.21	1/4	3,349.35
1/2	190.34	1/2	542.46	1/2	893.53	1/2	1,245.65	1/2	1,597.78	1/2	1,949.90	1/2	2,300.43	1/2	2,652.41	1/2	3,004.55	1/2	3,356.69
3/4	197.67	3/4	549.80	3/4	900.86	3/4	1,252.99	3/4	1,605.11	3/4	1,957.24	3/4	2,307.68	3/4	2,659.74	3/4	3,011.88	3/4	3,364.03
7	205.01	7	557.14	7	908.20	7	1,260.33	7	1,612.45	7	1,964.57	7	2,314.94	7	2,667.08	7	3,019.22	7	3,371.36
1/4	212.34	1/4	564.47	1/4	915.54	1/4	1,267.66	1/4	1,619.79	1/4	1,971.91	1/4	2,322.27	1/4	2,674.41	1/4	3,026.56	1/4	3,378.70
1/2	219.68	1/2	571.81	1/2	922.87	1/2	1,275.00	1/2	1,627.12	1/2	1,979.24	1/2	2,329.61	1/2	2,681.75	1/2	3,033.89	1/2	3,386.04
3/4	227.02	3/4	579.14	3/4	930.21	3/4	1,282.33	3/4	1,634.46	3/4	1,986.58	3/4	2,336.94	3/4	2,689.09	3/4	3,041.23	3/4	3,393.37
8	234.35	8	586.48	8	937.55	8	1,289.67	8	1,641.79	8	1,993.92	8	2,344.28	8	2,696.42	8	3,048.57	8	3,400.71
1/4	241.69	1/4	593.82	1/4	944.88	1/4	1,297.01	1/4	1,649.13	1/4	2,001.25	1/4	2,351.62	1/4	2,703.76	1/4	3,055.90	1/4	3,408.04
1/2	249.02	1/2	601.15	1/2	952.22	1/2	1,304.34	1/2	1,656.46	1/2	2,008.59	1/2	2,358.95	1/2	2,711.10	1/2	3,063.24	1/2	3,415.38
3/4	256.36	3/4	608.49	3/4	959.55	3/4	1,311.68	3/4	1,663.80	3/4	2,015.92	3/4	2,366.29	3/4	2,718.43	3/4	3,070.57	3/4	3,422.72
9	263.70	9	615.82	9	966.89	9	1,319.01	9	1,671.14	9	2,023.26	9	2,373.63	9	2,725.77	9	3,077.91	9	3,430.05
1/4	271.03	1/4	623.13	1/4	974.23	1/4	1,326.35	1/4	1,678.47	1/4	2,030.60	1/4	2,380.96	1/4	2,733.10	1/4	3,085.25	1/4	3,437.39
1/2	278.37	1/2	630.43	1/2	981.56	1/2	1,333.69	1/2	1,685.81	1/2	2,037.93	1/2	2,388.30	1/2	2,740.44	1/2	3,092.58	1/2	3,444.73
3/4	285.70	3/4	637.73	3/4	988.90	3/4	1,341.02	3/4	1,693.14	3/4	2,045.27	3/4	2,395.63	3/4	2,747.78	3/4	3,099.92	3/4	3,452.06
10	293.04	10	645.03	10	996.23	10	1,348.36	10	1,700.48	10	2,052.60	10	2,402.97	10	2,755.11	10	3,107.26	10	3,459.40
1/4	300.38	1/4	652.33	1/4	1,003.57	1/4	1,355.69	1/4	1,707.82	1/4	2,059.94	1/4	2,410.31	1/4	2,762.45	1/4	3,114.59	1/4	3,466.73
1/2	307.71	1/2	659.63	1/2	1,010.91	1/2	1,363.03	1/2	1,715.15	1/2	2,067.28	1/2	2,417.64	1/2	2,769.79	1/2	3,121.93	1/2	3,474.07
3/4	315.05	3/4	666.93	3/4	1,018.24	3/4	1,370.36	3/4	1,722.49	3/4	2,074.61	3/4	2,424.98	3/4	2,777.12	3/4	3,129.26	3/4	3,481.41
11	322.38	11	674.23	11	1,025.58	11	1,377.70	11	1,729.82	11	2,081.95	11	2,432.32	11	2,784.46	11	3,136.60	11	3,488.74
1/4	329.72	1/4	681.53	1/4	1,032.91	1/4	1,385.04	1/4	1,737.16	1/4	2,089.28	1/4	2,439.65	1/4	2,791.80	1/4	3,143.94	1/4	3,496.08
1/2	337.06	1/2	688.83	1/2	1,040.25	1/2	1,392.37	1/2	1,744.50	1/2	2,096.62	1/2	2,446.99	1/2	2,799.13	1/2	3,151.27	1/2	3,503.42
3/4	344.39	3/4	696.13	3/4	1,047.59	3/4	1,399.71	3/4	1,751.83	3/4	2,103.96	3/4	2,454.33	3/4	2,806.47	3/4	3,158.61	3/4	3,510.75

CERTIFIED CHART FOR THE ABOVE NAMED TANK ONLY.

BARGE STRAPPED AND COMPUTED IN ACCORDANCE WITH MPMS CHAPTER 2.7.
 CAPACITY TABLE ONLY APPLIES WHEN BARGE IS ON EVEN KEEL.
 CAPACITY TABLE EXTENDS TO EXTREME HEIGHT OF TANK.
 CAPACITY TABLE ONLY APPLIES TO INNAGE GAUGES TAKEN TO TOP OF 2" HERMETIC VALVE.
 GAUGE POINT: (HERMETIC) LOCATED 11'-06" OFF CENTERLINE AND 46'-00" FORWARD OF AFT BULKHEAD.

PRECISION MEASUREMENT
 & ANALYSIS, INC.
 P.O. Box 2092
 Pearland, Texas 77588
<http://www.pmacorp.net>



BARGE "CCL 417T"

2 PORT INNAGE TABLE

CAPACITIES GIVEN IN BARRELS OF 42 U.S. GALLONS

GAUGE HEIGHT 15'-00 3/4"

IN	10 FT.	IN	11 FT.	IN	12 FT.	IN	13 FT.	IN	14 FT.	IN	15 FT.	IN	16 FT.	IN	17 FT.	IN	18 FT.	IN	19 FT.
0	3,518.09	0	3,870.23	0	4,220.76	0	4,555.98	0	4,871.59	0		0		0		0		0	
1/4	3,525.43	1/4	3,877.57	1/4	4,227.92	1/4	4,562.76	1/4	4,877.91	1/4		1/4		1/4		1/4		1/4	
1/2	3,532.76	1/2	3,884.90	1/2	4,235.08	1/2	4,569.54	1/2	4,884.22	1/2		1/2		1/2		1/2		1/2	
3/4	3,540.10	3/4	3,892.24	3/4	4,242.24	3/4	4,576.31	3/4	4,890.54	3/4		3/4		3/4		3/4		3/4	
1	3,547.43	1	3,899.58	1	4,249.40	1	4,583.09	1	4,896.86	1		1		1		1		1	
1/4	3,554.77	1/4	3,906.91	1/4	4,256.53	1/4	4,589.83	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,562.11	1/2	3,914.25	1/2	4,263.66	1/2	4,596.57	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,569.44	3/4	3,921.59	3/4	4,270.78	3/4	4,603.32	3/4		3/4		3/4		3/4		3/4		3/4	
2	3,576.78	2	3,928.92	2	4,277.91	2	4,610.06	2		2		2		2		2		2	
1/4	3,584.12	1/4	3,936.26	1/4	4,285.01	1/4	4,616.77	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,591.45	1/2	3,943.59	1/2	4,292.10	1/2	4,623.48	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,598.79	3/4	3,950.93	3/4	4,299.20	3/4	4,630.20	3/4		3/4		3/4		3/4		3/4		3/4	
3	3,606.12	3	3,958.27	3	4,306.30	3	4,636.91	3		3		3		3		3		3	
1/4	3,613.46	1/4	3,965.60	1/4	4,313.36	1/4	4,643.59	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,620.80	1/2	3,972.94	1/2	4,320.42	1/2	4,650.27	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,628.13	3/4	3,980.28	3/4	4,327.49	3/4	4,656.95	3/4		3/4		3/4		3/4		3/4		3/4	
4	3,635.47	4	3,987.61	4	4,334.55	4	4,663.63	4		4		4		4		4		4	
1/4	3,642.81	1/4	3,994.95	1/4	4,341.58	1/4	4,670.27	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,650.14	1/2	4,002.28	1/2	4,348.61	1/2	4,676.92	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,657.48	3/4	4,009.62	3/4	4,355.65	3/4	4,683.57	3/4		3/4		3/4		3/4		3/4		3/4	
5	3,664.81	5	4,016.96	5	4,362.68	5	4,690.22	5		5		5		5		5		5	
1/4	3,672.15	1/4	4,024.29	1/4	4,369.68	1/4	4,696.83	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,679.49	1/2	4,031.63	1/2	4,376.68	1/2	4,703.45	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,686.82	3/4	4,038.97	3/4	4,383.68	3/4	4,710.06	3/4		3/4		3/4		3/4		3/4		3/4	
6	3,694.16	6	4,046.30	6	4,390.68	6	4,716.68	6		6		6		6		6		6	
1/4	3,701.50	1/4	4,053.64	1/4	4,397.65	1/4	4,723.26	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,708.83	1/2	4,060.97	1/2	4,404.61	1/2	4,729.84	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,716.17	3/4	4,068.31	3/4	4,411.58	3/4	4,736.43	3/4		3/4		3/4		3/4		3/4		3/4	
7	3,723.51	7	4,075.65	7	4,418.55	7	4,743.01	7		7		7		7		7		7	
1/4	3,730.84	1/4	4,082.96	1/4	4,425.49	1/4	4,749.56	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,738.18	1/2	4,090.28	1/2	4,432.42	1/2	4,756.11	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,745.51	3/4	4,097.60	3/4	4,439.36	3/4	4,762.67	3/4		3/4		3/4		3/4		3/4		3/4	
8	3,752.85	8	4,104.92	8	4,446.29	8	4,769.22	8		8		8		8		8		8	
1/4	3,760.19	1/4	4,112.20	1/4	4,453.20	1/4	4,775.66	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,767.52	1/2	4,119.49	1/2	4,460.10	1/2	4,782.11	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,774.86	3/4	4,126.78	3/4	4,467.00	3/4	4,788.56	3/4		3/4		3/4		3/4		3/4		3/4	
9	3,782.20	9	4,134.07	9	4,473.91	9	4,795.00	9		9		9		9		9		9	
1/4	3,789.53	1/4	4,141.33	1/4	4,480.78	1/4	4,801.42	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,796.87	1/2	4,148.58	1/2	4,487.65	1/2	4,807.83	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,804.20	3/4	4,155.84	3/4	4,494.52	3/4	4,814.24	3/4		3/4		3/4		3/4		3/4		3/4	
10	3,811.54	10	4,163.09	10	4,501.40	10	4,820.66	10		10		10		10		10		10	
1/4	3,818.88	1/4	4,170.32	1/4	4,508.23	1/4	4,827.04	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,826.21	1/2	4,177.54	1/2	4,515.07	1/2	4,833.42	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,833.55	3/4	4,184.77	3/4	4,521.91	3/4	4,839.81	3/4		3/4		3/4		3/4		3/4		3/4	
11	3,840.89	11	4,191.99	11	4,528.75	11	4,846.19	11		11		11		11		11		11	
1/4	3,848.22	1/4	4,199.18	1/4	4,535.56	1/4	4,852.54	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,855.56	1/2	4,206.37	1/2	4,542.37	1/2	4,858.89	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,862.89	3/4	4,213.57	3/4	4,549.18	3/4	4,865.24	3/4		3/4		3/4		3/4		3/4		3/4	

CERTIFIED CHART FOR THE ABOVE NAMED TANK ONLY.

STRAPPED: 10/13/2019 SW - JS
CALCULATED: 10/14/2019 CL
PRINTED: 10/16/2019 SW

CANCELS AND SUPERCEDES
ALL PRIOR TO 10/2019

PRECISION MEASUREMENT
& ANALYSIS, INC.
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BARGE "CCL 417T"

2 STBD INNAGE TABLE

CAPACITIES GIVEN IN BARRELS OF 42 U.S. GALLONS

GAUGE HEIGHT 15'-01 3/4"

IN	0 FT.	IN	1 FT.	IN	2 FT.	IN	3 FT.	IN	4 FT.	IN	5 FT.	IN	6 FT.	IN	7 FT.	IN	8 FT.	IN	9 FT.
0	7.74	0	351.56	0	700.94	0	1,043.65	0	1,391.30	0	1,743.25	0	2,095.20	0	2,447.14	0	2,797.37	0	3,149.34
1/4	13.23	1/4	358.89	1/4	708.06	1/4	1,050.80	1/4	1,398.63	1/4	1,750.58	1/4	2,102.53	1/4	2,454.47	1/4	2,804.70	1/4	3,156.67
1/2	18.73	1/2	366.22	1/2	715.18	1/2	1,057.95	1/2	1,405.96	1/2	1,757.92	1/2	2,109.86	1/2	2,461.80	1/2	2,812.03	1/2	3,164.00
3/4	24.22	3/4	373.56	3/4	722.29	3/4	1,065.11	3/4	1,413.29	3/4	1,765.25	3/4	2,117.19	3/4	2,469.13	3/4	2,819.37	3/4	3,171.34
1	29.72	1	380.89	1	729.41	1	1,072.26	1	1,420.63	1	1,772.58	1	2,124.52	1	2,476.47	1	2,826.70	1	3,178.67
1/4	36.96	1/4	388.22	1/4	736.53	1/4	1,079.41	1/4	1,427.96	1/4	1,779.91	1/4	2,131.85	1/4	2,483.75	1/4	2,834.03	1/4	3,186.00
1/2	44.19	1/2	395.55	1/2	743.65	1/2	1,086.57	1/2	1,435.29	1/2	1,787.25	1/2	2,139.18	1/2	2,491.02	1/2	2,841.36	1/2	3,193.33
3/4	51.43	3/4	402.89	3/4	750.76	3/4	1,093.72	3/4	1,442.62	3/4	1,794.58	3/4	2,146.51	3/4	2,498.30	3/4	2,848.70	3/4	3,200.67
2	58.67	2	410.22	2	757.88	2	1,100.87	2	1,449.96	2	1,801.91	2	2,153.84	2	2,505.58	2	2,856.03	2	3,208.00
1/4	65.94	1/4	417.55	1/4	765.00	1/4	1,108.02	1/4	1,457.29	1/4	1,809.24	1/4	2,161.17	1/4	2,512.80	1/4	2,863.36	1/4	3,215.33
1/2	73.22	1/2	424.88	1/2	772.12	1/2	1,115.18	1/2	1,464.62	1/2	1,816.58	1/2	2,168.50	1/2	2,520.03	1/2	2,870.70	1/2	3,222.66
3/4	80.50	3/4	432.22	3/4	779.23	3/4	1,122.33	3/4	1,471.95	3/4	1,823.91	3/4	2,175.83	3/4	2,527.25	3/4	2,878.03	3/4	3,230.00
3	87.78	3	439.55	3	786.35	3	1,129.48	3	1,479.29	3	1,831.24	3	2,183.16	3	2,534.48	3	2,885.36	3	3,237.33
1/4	95.09	1/4	446.88	1/4	793.48	1/4	1,136.64	1/4	1,486.62	1/4	1,838.57	1/4	2,190.49	1/4	2,541.70	1/4	2,892.69	1/4	3,244.66
1/2	102.39	1/2	454.21	1/2	800.60	1/2	1,143.79	1/2	1,493.95	1/2	1,845.91	1/2	2,197.82	1/2	2,548.93	1/2	2,900.03	1/2	3,252.00
3/4	109.69	3/4	461.55	3/4	807.73	3/4	1,150.94	3/4	1,501.28	3/4	1,853.24	3/4	2,205.16	3/4	2,556.15	3/4	2,907.36	3/4	3,259.33
4	117.00	4	468.88	4	814.86	4	1,158.10	4	1,508.62	4	1,860.57	4	2,212.49	4	2,563.37	4	2,914.69	4	3,266.66
1/4	124.31	1/4	476.21	1/4	821.98	1/4	1,165.25	1/4	1,515.95	1/4	1,867.90	1/4	2,219.82	1/4	2,570.60	1/4	2,922.02	1/4	3,273.99
1/2	131.63	1/2	483.54	1/2	829.11	1/2	1,172.40	1/2	1,523.28	1/2	1,875.24	1/2	2,227.16	1/2	2,577.82	1/2	2,929.36	1/2	3,281.33
3/4	138.95	3/4	490.88	3/4	836.23	3/4	1,179.55	3/4	1,530.61	3/4	1,882.57	3/4	2,234.49	3/4	2,585.05	3/4	2,936.69	3/4	3,288.66
5	146.27	5	498.21	5	843.36	5	1,186.71	5	1,537.94	5	1,889.90	5	2,241.82	5	2,592.27	5	2,944.02	5	3,295.99
1/4	153.60	1/4	505.54	1/4	850.51	1/4	1,193.86	1/4	1,545.28	1/4	1,897.23	1/4	2,249.15	1/4	2,599.55	1/4	2,951.36	1/4	3,303.32
1/2	160.93	1/2	512.87	1/2	857.67	1/2	1,201.01	1/2	1,552.61	1/2	1,904.56	1/2	2,256.49	1/2	2,606.83	1/2	2,958.69	1/2	3,310.66
3/4	168.25	3/4	520.21	3/4	864.82	3/4	1,208.17	3/4	1,559.94	3/4	1,911.90	3/4	2,263.82	3/4	2,614.11	3/4	2,966.02	3/4	3,317.99
6	175.58	6	527.54	6	871.97	6	1,215.32	6	1,567.27	6	1,919.23	6	2,271.15	6	2,621.38	6	2,973.35	6	3,325.32
1/4	182.91	1/4	534.87	1/4	879.13	1/4	1,222.65	1/4	1,574.61	1/4	1,926.56	1/4	2,278.48	1/4	2,628.72	1/4	2,980.69	1/4	3,332.66
1/2	190.25	1/2	542.20	1/2	886.28	1/2	1,229.98	1/2	1,581.94	1/2	1,933.89	1/2	2,285.82	1/2	2,636.05	1/2	2,988.02	1/2	3,339.99
3/4	197.58	3/4	549.54	3/4	893.43	3/4	1,237.32	3/4	1,589.27	3/4	1,941.23	3/4	2,293.15	3/4	2,643.38	3/4	2,995.35	3/4	3,347.32
7	204.91	7	556.87	7	900.59	7	1,244.65	7	1,596.60	7	1,948.56	7	2,300.48	7	2,650.71	7	3,002.68	7	3,354.65
1/4	212.24	1/4	564.20	1/4	907.74	1/4	1,251.98	1/4	1,603.94	1/4	1,955.89	1/4	2,307.82	1/4	2,658.05	1/4	3,010.02	1/4	3,361.99
1/2	219.57	1/2	571.53	1/2	914.89	1/2	1,259.31	1/2	1,611.27	1/2	1,963.22	1/2	2,315.15	1/2	2,665.38	1/2	3,017.35	1/2	3,369.32
3/4	226.91	3/4	578.87	3/4	922.05	3/4	1,266.65	3/4	1,618.60	3/4	1,970.56	3/4	2,322.48	3/4	2,672.71	3/4	3,024.68	3/4	3,376.65
8	234.24	8	586.20	8	929.20	8	1,273.98	8	1,625.93	8	1,977.89	8	2,329.81	8	2,680.05	8	3,032.01	8	3,383.98
1/4	241.57	1/4	593.53	1/4	936.35	1/4	1,281.31	1/4	1,633.27	1/4	1,985.22	1/4	2,337.15	1/4	2,687.38	1/4	3,039.35	1/4	3,391.32
1/2	248.90	1/2	600.86	1/2	943.51	1/2	1,288.64	1/2	1,640.60	1/2	1,992.55	1/2	2,344.48	1/2	2,694.71	1/2	3,046.68	1/2	3,398.65
3/4	256.24	3/4	608.20	3/4	950.66	3/4	1,295.98	3/4	1,647.93	3/4	1,999.89	3/4	2,351.81	3/4	2,702.04	3/4	3,054.01	3/4	3,405.98
9	263.57	9	615.53	9	957.81	9	1,303.31	9	1,655.26	9	2,007.22	9	2,359.14	9	2,709.38	9	3,061.35	9	3,413.32
1/4	270.90	1/4	622.65	1/4	964.96	1/4	1,310.64	1/4	1,662.60	1/4	2,014.55	1/4	2,366.48	1/4	2,716.71	1/4	3,068.68	1/4	3,420.65
1/2	278.23	1/2	629.76	1/2	972.12	1/2	1,317.97	1/2	1,669.93	1/2	2,021.88	1/2	2,373.81	1/2	2,724.04	1/2	3,076.01	1/2	3,427.98
3/4	285.57	3/4	636.88	3/4	979.27	3/4	1,325.31	3/4	1,677.26	3/4	2,029.22	3/4	2,381.14	3/4	2,731.37	3/4	3,083.34	3/4	3,435.31
10	292.90	10	644.00	10	986.42	10	1,332.64	10	1,684.59	10	2,036.55	10	2,388.47	10	2,738.71	10	3,090.68	10	3,442.65
1/4	300.23	1/4	651.12	1/4	993.58	1/4	1,339.97	1/4	1,691.93	1/4	2,043.88	1/4	2,395.81	1/4	2,746.04	1/4	3,098.01	1/4	3,449.98
1/2	307.56	1/2	658.24	1/2	1,000.73	1/2	1,347.30	1/2	1,699.26	1/2	2,051.21	1/2	2,403.14	1/2	2,753.37	1/2	3,105.34	1/2	3,457.31
3/4	314.90	3/4	665.35	3/4	1,007.88	3/4	1,354.63	3/4	1,706.59	3/4	2,058.55	3/4	2,410.47	3/4	2,760.70	3/4	3,112.67	3/4	3,464.64
11	322.23	11	672.47	11	1,015.04	11	1,361.97	11	1,713.92	11	2,065.88	11	2,417.81	11	2,768.04	11	3,120.01	11	3,471.98
1/4	329.56	1/4	679.59	1/4	1,022.19	1/4	1,369.30	1/4	1,721.25	1/4	2,073.21	1/4	2,425.14	1/4	2,775.37	1/4	3,127.34	1/4	3,479.31
1/2	336.89	1/2	686.71	1/2	1,029.34	1/2	1,376.63	1/2	1,728.59	1/2	2,080.54	1/2	2,432.47	1/2	2,782.70	1/2	3,134.67	1/2	3,486.64
3/4	344.23	3/4	693.82	3/4	1,036.49	3/4	1,383.96	3/4	1,735.92	3/4	2,087.87	3/4	2,439.80	3/4	2,790.04	3/4	3,142.01	3/4	3,493.97

CERTIFIED CHART FOR THE ABOVE NAMED TANK ONLY.

BARGE STRAPPED AND COMPUTED IN ACCORDANCE WITH MPMS CHAPTER 2.7.
 CAPACITY TABLE ONLY APPLIES WHEN BARGE IS ON EVEN KEEL.
 CAPACITY TABLE EXTENDS TO EXTREME HEIGHT OF TANK.
 CAPACITY TABLE ONLY APPLIES TO INNAGE GAUGES TAKEN TO TOP OF 2" HERMETIC VALVE.
 GAUGE POINT: (HERMETIC) LOCATED 11'-06" OFF CENTERLINE AND 46'-00" FORWARD OF AFT BULKHEAD.

PRECISION MEASUREMENT
 & ANALYSIS, INC.
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 Pearland, Texas 77588
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BARGE "CCL 417T"

2 STBD INNAGE TABLE

CAPACITIES GIVEN IN BARRELS OF 42 U.S. GALLONS

GAUGE HEIGHT 15'-01 3/4"

IN	10 FT.	IN	11 FT.	IN	12 FT.	IN	13 FT.	IN	14 FT.	IN	15 FT.	IN	16 FT.	IN	17 FT.	IN	18 FT.	IN	19 FT.
0	3,501.31	0	3,853.28	0	4,203.65	0	4,538.70	0	4,854.13	0		0		0		0		0	
1/4	3,508.64	1/4	3,860.61	1/4	4,210.80	1/4	4,545.47	1/4	4,860.45	1/4		1/4		1/4		1/4		1/4	
1/2	3,515.97	1/2	3,867.94	1/2	4,217.96	1/2	4,552.24	1/2	4,866.76	1/2		1/2		1/2		1/2		1/2	
3/4	3,523.31	3/4	3,875.28	3/4	4,225.11	3/4	4,559.02	3/4	4,873.08	3/4		3/4		3/4		3/4		3/4	
1	3,530.64	1	3,882.61	1	4,232.27	1	4,565.79	1	4,879.39	1		1		1		1		1	
1/4	3,537.97	1/4	3,889.94	1/4	4,239.40	1/4	4,572.53	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,545.30	1/2	3,897.27	1/2	4,246.52	1/2	4,579.27	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,552.64	3/4	3,904.61	3/4	4,253.64	3/4	4,586.01	3/4		3/4		3/4		3/4		3/4		3/4	
2	3,559.97	2	3,911.94	2	4,260.77	2	4,592.75	2		2		2		2		2		2	
1/4	3,567.30	1/4	3,919.27	1/4	4,267.86	1/4	4,599.46	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,574.63	1/2	3,926.60	1/2	4,274.95	1/2	4,606.17	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,581.97	3/4	3,933.94	3/4	4,282.05	3/4	4,612.87	3/4		3/4		3/4		3/4		3/4		3/4	
3	3,589.30	3	3,941.27	3	4,289.14	3	4,619.58	3		3		3		3		3		3	
1/4	3,596.63	1/4	3,948.60	1/4	4,296.20	1/4	4,626.26	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,603.97	1/2	3,955.93	1/2	4,303.26	1/2	4,632.93	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,611.30	3/4	3,963.27	3/4	4,310.32	3/4	4,639.61	3/4		3/4		3/4		3/4		3/4		3/4	
4	3,618.63	4	3,970.60	4	4,317.38	4	4,646.29	4		4		4		4		4		4	
1/4	3,625.96	1/4	3,977.93	1/4	4,324.41	1/4	4,652.93	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,633.30	1/2	3,985.27	1/2	4,331.44	1/2	4,659.57	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,640.63	3/4	3,992.60	3/4	4,338.47	3/4	4,666.22	3/4		3/4		3/4		3/4		3/4		3/4	
5	3,647.96	5	3,999.93	5	4,345.49	5	4,672.86	5		5		5		5		5		5	
1/4	3,655.29	1/4	4,007.26	1/4	4,352.49	1/4	4,679.47	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,662.63	1/2	4,014.60	1/2	4,359.49	1/2	4,686.08	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,669.96	3/4	4,021.93	3/4	4,366.48	3/4	4,692.70	3/4		3/4		3/4		3/4		3/4		3/4	
6	3,677.29	6	4,029.26	6	4,373.48	6	4,699.31	6		6		6		6		6		6	
1/4	3,684.63	1/4	4,036.59	1/4	4,380.44	1/4	4,705.89	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,691.96	1/2	4,043.93	1/2	4,387.41	1/2	4,712.47	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,699.29	3/4	4,051.26	3/4	4,394.37	3/4	4,719.05	3/4		3/4		3/4		3/4		3/4		3/4	
7	3,706.62	7	4,058.59	7	4,401.34	7	4,725.63	7		7		7		7		7		7	
1/4	3,713.96	1/4	4,065.91	1/4	4,408.27	1/4	4,732.18	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,721.29	1/2	4,073.23	1/2	4,415.20	1/2	4,738.72	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,728.62	3/4	4,080.54	3/4	4,422.13	3/4	4,745.27	3/4		3/4		3/4		3/4		3/4		3/4	
8	3,735.95	8	4,087.86	8	4,429.07	8	4,751.82	8		8		8		8		8		8	
1/4	3,743.29	1/4	4,095.14	1/4	4,435.97	1/4	4,758.26	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,750.62	1/2	4,102.43	1/2	4,442.87	1/2	4,764.70	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,757.95	3/4	4,109.71	3/4	4,449.77	3/4	4,771.15	3/4		3/4		3/4		3/4		3/4		3/4	
9	3,765.28	9	4,117.00	9	4,456.67	9	4,777.59	9		9		9		9		9		9	
1/4	3,772.62	1/4	4,124.25	1/4	4,463.53	1/4	4,784.00	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,779.95	1/2	4,131.50	1/2	4,470.40	1/2	4,790.41	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,787.28	3/4	4,138.76	3/4	4,477.27	3/4	4,796.82	3/4		3/4		3/4		3/4		3/4		3/4	
10	3,794.62	10	4,146.01	10	4,484.14	10	4,803.23	10		10		10		10		10		10	
1/4	3,801.95	1/4	4,153.23	1/4	4,490.98	1/4	4,809.61	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,809.28	1/2	4,160.45	1/2	4,497.81	1/2	4,815.99	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,816.61	3/4	4,167.67	3/4	4,504.65	3/4	4,822.37	3/4		3/4		3/4		3/4		3/4		3/4	
11	3,823.95	11	4,174.89	11	4,511.48	11	4,828.75	11		11		11		11		11		11	
1/4	3,831.28	1/4	4,182.08	1/4	4,518.29	1/4	4,835.09	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,838.61	1/2	4,189.27	1/2	4,525.09	1/2	4,841.44	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,845.94	3/4	4,196.46	3/4	4,531.90	3/4	4,847.79	3/4		3/4		3/4		3/4		3/4		3/4	

CERTIFIED CHART FOR THE ABOVE NAMED TANK ONLY.

STRAPPED: 10/13/2019 SW - JS
CALCULATED: 10/14/2019 CL
PRINTED: 10/16/2019 SW

CANCELS AND SUPERCEDES
ALL PRIOR TO 10/2019

PRECISION MEASUREMENT
& ANALYSIS, INC.
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BARGE "CCL 417T"

3 PORT INNAGE TABLE

CAPACITIES GIVEN IN BARRELS OF 42 U.S. GALLONS

GAUGE HEIGHT 15'-00 3/4"

IN	0 FT.	IN	1 FT.	IN	2 FT.	IN	3 FT.	IN	4 FT.	IN	5 FT.	IN	6 FT.	IN	7 FT.	IN	8 FT.	IN	9 FT.
0	8.34	0	380.33	0	760.71	0	1,140.87	0	1,521.67	0	1,902.47	0	2,283.26	0	2,662.33	0	3,043.10	0	3,423.43
1/4	14.28	1/4	388.27	1/4	768.61	1/4	1,148.80	1/4	1,529.60	1/4	1,910.40	1/4	2,291.19	1/4	2,670.27	1/4	3,051.03	1/4	3,431.36
1/2	20.23	1/2	396.20	1/2	776.50	1/2	1,156.74	1/2	1,537.54	1/2	1,918.33	1/2	2,299.12	1/2	2,678.20	1/2	3,058.96	1/2	3,439.28
3/4	26.18	3/4	404.13	3/4	784.40	3/4	1,164.67	3/4	1,545.47	3/4	1,926.27	3/4	2,307.05	3/4	2,686.13	3/4	3,066.89	3/4	3,447.20
1	32.12	1	412.07	1	792.30	1	1,172.60	1	1,553.40	1	1,934.20	1	2,314.98	1	2,694.06	1	3,074.82	1	3,455.12
1/4	39.95	1/4	420.00	1/4	800.20	1/4	1,180.54	1/4	1,561.34	1/4	1,942.13	1/4	2,322.91	1/4	2,702.00	1/4	3,082.75	1/4	3,463.04
1/2	47.78	1/2	427.93	1/2	808.10	1/2	1,188.47	1/2	1,569.27	1/2	1,950.07	1/2	2,330.84	1/2	2,709.93	1/2	3,090.69	1/2	3,470.96
3/4	55.61	3/4	435.87	3/4	815.99	3/4	1,196.40	3/4	1,577.20	3/4	1,958.00	3/4	2,338.77	3/4	2,717.86	3/4	3,098.62	3/4	3,478.88
2	63.44	2	443.80	2	823.89	2	1,204.34	2	1,585.14	2	1,965.93	2	2,346.70	2	2,725.80	2	3,106.55	2	3,486.80
1/4	71.32	1/4	451.73	1/4	831.79	1/4	1,212.27	1/4	1,593.07	1/4	1,973.87	1/4	2,354.61	1/4	2,733.73	1/4	3,114.49	1/4	3,494.72
1/2	79.19	1/2	459.67	1/2	839.69	1/2	1,220.20	1/2	1,601.00	1/2	1,981.80	1/2	2,362.51	1/2	2,741.66	1/2	3,122.42	1/2	3,502.64
3/4	87.07	3/4	467.60	3/4	847.59	3/4	1,228.14	3/4	1,608.94	3/4	1,989.73	3/4	2,370.42	3/4	2,749.60	3/4	3,130.35	3/4	3,510.56
3	94.94	3	475.53	3	855.48	3	1,236.07	3	1,616.87	3	1,997.67	3	2,378.32	3	2,757.53	3	3,138.29	3	3,518.48
1/4	102.84	1/4	483.47	1/4	863.39	1/4	1,244.00	1/4	1,624.80	1/4	2,005.60	1/4	2,386.15	1/4	2,765.46	1/4	3,146.21	1/4	3,526.40
1/2	110.75	1/2	491.40	1/2	871.30	1/2	1,251.94	1/2	1,632.74	1/2	2,013.53	1/2	2,393.98	1/2	2,773.40	1/2	3,154.13	1/2	3,534.33
3/4	118.65	3/4	499.33	3/4	879.20	3/4	1,259.87	3/4	1,640.67	3/4	2,021.47	3/4	2,401.80	3/4	2,781.33	3/4	3,162.05	3/4	3,542.25
4	126.55	4	507.27	4	887.11	4	1,267.80	4	1,648.60	4	2,029.40	4	2,409.63	4	2,789.26	4	3,169.97	4	3,550.17
1/4	134.47	1/4	515.20	1/4	895.02	1/4	1,275.74	1/4	1,656.54	1/4	2,037.33	1/4	2,417.46	1/4	2,797.20	1/4	3,177.89	1/4	3,558.09
1/2	142.39	1/2	523.13	1/2	902.92	1/2	1,283.67	1/2	1,664.47	1/2	2,045.27	1/2	2,425.29	1/2	2,805.13	1/2	3,185.81	1/2	3,566.01
3/4	150.30	3/4	531.07	3/4	910.83	3/4	1,291.60	3/4	1,672.40	3/4	2,053.20	3/4	2,433.11	3/4	2,813.06	3/4	3,193.73	3/4	3,573.93
5	158.22	5	539.00	5	918.74	5	1,299.54	5	1,680.34	5	2,061.13	5	2,440.94	5	2,820.99	5	3,201.65	5	3,581.85
1/4	166.15	1/4	546.93	1/4	926.67	1/4	1,307.47	1/4	1,688.27	1/4	2,069.07	1/4	2,448.77	1/4	2,828.93	1/4	3,209.57	1/4	3,589.77
1/2	174.08	1/2	554.87	1/2	934.60	1/2	1,315.40	1/2	1,696.20	1/2	2,077.00	1/2	2,456.60	1/2	2,836.86	1/2	3,217.49	1/2	3,597.69
3/4	182.01	3/4	562.80	3/4	942.54	3/4	1,323.34	3/4	1,704.14	3/4	2,084.93	3/4	2,464.43	3/4	2,844.79	3/4	3,225.41	3/4	3,605.61
6	189.94	6	570.73	6	950.47	6	1,331.27	6	1,712.07	6	2,092.87	6	2,472.25	6	2,852.73	6	3,233.34	6	3,613.53
1/4	197.87	1/4	578.67	1/4	958.40	1/4	1,339.20	1/4	1,720.00	1/4	2,100.80	1/4	2,480.11	1/4	2,860.66	1/4	3,241.26	1/4	3,621.45
1/2	205.80	1/2	586.60	1/2	966.34	1/2	1,347.14	1/2	1,727.94	1/2	2,108.73	1/2	2,487.96	1/2	2,868.59	1/2	3,249.18	1/2	3,629.38
3/4	213.74	3/4	594.53	3/4	974.27	3/4	1,355.07	3/4	1,735.87	3/4	2,116.67	3/4	2,495.82	3/4	2,876.53	3/4	3,257.10	3/4	3,637.30
7	221.67	7	602.47	7	982.20	7	1,363.00	7	1,743.80	7	2,124.60	7	2,503.67	7	2,884.46	7	3,265.02	7	3,645.22
1/4	229.60	1/4	610.40	1/4	990.14	1/4	1,370.94	1/4	1,751.74	1/4	2,132.53	1/4	2,511.60	1/4	2,892.39	1/4	3,272.94	1/4	3,653.14
1/2	237.53	1/2	618.33	1/2	998.07	1/2	1,378.87	1/2	1,759.67	1/2	2,140.47	1/2	2,519.54	1/2	2,900.33	1/2	3,280.86	1/2	3,661.06
3/4	245.47	3/4	626.27	3/4	1,006.00	3/4	1,386.80	3/4	1,767.60	3/4	2,148.40	3/4	2,527.47	3/4	2,908.26	3/4	3,288.78	3/4	3,668.98
8	253.40	8	634.20	8	1,013.94	8	1,394.74	8	1,775.54	8	2,156.33	8	2,535.40	8	2,916.19	8	3,296.70	8	3,676.90
1/4	261.33	1/4	642.13	1/4	1,021.87	1/4	1,402.67	1/4	1,783.47	1/4	2,164.27	1/4	2,543.34	1/4	2,924.12	1/4	3,304.62	1/4	3,684.82
1/2	269.27	1/2	650.07	1/2	1,029.81	1/2	1,410.60	1/2	1,791.40	1/2	2,172.20	1/2	2,551.27	1/2	2,932.06	1/2	3,312.54	1/2	3,692.74
3/4	277.20	3/4	658.00	3/4	1,037.74	3/4	1,418.54	3/4	1,799.34	3/4	2,180.13	3/4	2,559.20	3/4	2,939.99	3/4	3,320.46	3/4	3,700.66
9	285.13	9	665.93	9	1,045.67	9	1,426.47	9	1,807.27	9	2,188.07	9	2,567.14	9	2,947.92	9	3,328.38	9	3,708.58
1/4	293.07	1/4	673.83	1/4	1,053.61	1/4	1,434.40	1/4	1,815.20	1/4	2,196.00	1/4	2,575.07	1/4	2,955.86	1/4	3,336.31	1/4	3,716.50
1/2	301.00	1/2	681.73	1/2	1,061.54	1/2	1,442.34	1/2	1,823.14	1/2	2,203.93	1/2	2,583.00	1/2	2,963.79	1/2	3,344.23	1/2	3,724.42
3/4	308.93	3/4	689.63	3/4	1,069.47	3/4	1,450.27	3/4	1,831.07	3/4	2,211.87	3/4	2,590.93	3/4	2,971.72	3/4	3,352.15	3/4	3,732.35
10	316.87	10	697.52	10	1,077.40	10	1,458.20	10	1,839.00	10	2,219.80	10	2,598.87	10	2,979.66	10	3,360.07	10	3,740.27
1/4	324.80	1/4	705.42	1/4	1,085.34	1/4	1,466.14	1/4	1,846.93	1/4	2,227.73	1/4	2,606.80	1/4	2,987.59	1/4	3,367.99	1/4	3,748.15
1/2	332.73	1/2	713.32	1/2	1,093.27	1/2	1,474.07	1/2	1,854.87	1/2	2,235.67	1/2	2,614.73	1/2	2,995.52	1/2	3,375.91	1/2	3,756.03
3/4	340.67	3/4	721.22	3/4	1,101.20	3/4	1,482.00	3/4	1,862.80	3/4	2,243.60	3/4	2,622.67	3/4	3,003.45	3/4	3,383.83	3/4	3,763.91
11	348.60	11	729.12	11	1,109.14	11	1,489.94	11	1,870.73	11	2,251.53	11	2,630.60	11	3,011.38	11	3,391.75	11	3,771.79
1/4	356.53	1/4	737.01	1/4	1,117.07	1/4	1,497.87	1/4	1,878.67	1/4	2,259.46	1/4	2,638.53	1/4	3,019.31	1/4	3,399.67	1/4	3,779.66
1/2	364.47	1/2	744.91	1/2	1,125.00	1/2	1,505.80	1/2	1,886.60	1/2	2,267.40	1/2	2,646.47	1/2	3,027.24	1/2	3,407.59	1/2	3,787.54
3/4	372.40	3/4	752.81	3/4	1,132.94	3/4	1,513.74	3/4	1,894.53	3/4	2,275.33	3/4	2,654.40	3/4	3,035.17	3/4	3,415.51	3/4	3,795.42

CERTIFIED CHART FOR THE ABOVE NAMED TANK ONLY.

BARGE STRAPPED AND COMPUTED IN ACCORDANCE WITH MPMS CHAPTER 2.7.
 CAPACITY TABLE ONLY APPLIES WHEN BARGE IS ON EVEN KEEL.
 CAPACITY TABLE EXTENDS TO EXTREME HEIGHT OF TANK.
 CAPACITY TABLE ONLY APPLIES TO INNAGE GAUGES TAKEN TO TOP OF 2" HERMETIC VALVE.
 GAUGE POINT: (HERMETIC) LOCATED 11'-06" OFF CENTERLINE AND 54'-09" FORWARD OF AFT BULKHEAD.

PRECISION MEASUREMENT
 & ANALYSIS, INC.
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 Pearland, Texas 77588
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BARGE "CCL 417T"

3 PORT INNAGE TABLE

CAPACITIES GIVEN IN BARRELS OF 42 U.S. GALLONS

GAUGE HEIGHT 15'-00 3/4"

IN	10 FT.	IN	11 FT.	IN	12 FT.	IN	13 FT.	IN	14 FT.	IN	15 FT.	IN	16 FT.	IN	17 FT.	IN	18 FT.	IN	19 FT.
0	3,803.30	0	4,146.99	0	4,310.98	0	4,467.81	0	4,614.91	0		0		0		0		0	
1/4	3,811.18	1/4	4,150.42	1/4	4,314.33	1/4	4,470.98	1/4	4,617.90	1/4		1/4		1/4		1/4		1/4	
1/2	3,819.06	1/2	4,153.85	1/2	4,317.68	1/2	4,474.15	1/2	4,620.89	1/2		1/2		1/2		1/2		1/2	
3/4	3,826.94	3/4	4,157.28	3/4	4,321.03	3/4	4,477.32	3/4	4,623.88	3/4		3/4		3/4		3/4		3/4	
1	3,834.82	1	4,160.71	1	4,324.38	1	4,480.49	1	4,626.87	1		1		1		1		1	
1/4	3,842.70	1/4	4,164.15	1/4	4,327.72	1/4	4,483.65	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,850.58	1/2	4,167.58	1/2	4,331.05	1/2	4,486.80	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,858.46	3/4	4,171.01	3/4	4,334.39	3/4	4,489.96	3/4		3/4		3/4		3/4		3/4		3/4	
2	3,866.34	2	4,174.44	2	4,337.72	2	4,493.11	2		2		2		2		2		2	
1/4	3,874.22	1/4	4,177.88	1/4	4,341.04	1/4	4,496.25	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,882.10	1/2	4,181.31	1/2	4,344.36	1/2	4,499.39	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,889.98	3/4	4,184.74	3/4	4,347.68	3/4	4,502.53	3/4		3/4		3/4		3/4		3/4		3/4	
3	3,897.86	3	4,188.17	3	4,351.00	3	4,505.67	3		3		3		3		3		3	
1/4	3,905.75	1/4	4,191.61	1/4	4,354.31	1/4	4,508.80	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,913.64	1/2	4,195.04	1/2	4,357.61	1/2	4,511.92	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,921.54	3/4	4,198.47	3/4	4,360.92	3/4	4,515.05	3/4		3/4		3/4		3/4		3/4		3/4	
4	3,929.43	4	4,201.90	4	4,364.22	4	4,518.17	4		4		4		4		4		4	
1/4	3,937.32	1/4	4,205.33	1/4	4,367.51	1/4	4,521.25	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,945.21	1/2	4,208.77	1/2	4,370.80	1/2	4,524.32	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,953.11	3/4	4,212.20	3/4	4,374.09	3/4	4,527.40	3/4		3/4		3/4		3/4		3/4		3/4	
5	3,961.00	5	4,215.63	5	4,377.38	5	4,530.47	5		5		5		5		5		5	
1/4	3,968.89	1/4	4,219.06	1/4	4,380.65	1/4	4,533.53	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,976.78	1/2	4,222.50	1/2	4,383.93	1/2	4,536.60	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,984.67	3/4	4,225.93	3/4	4,387.20	3/4	4,539.66	3/4		3/4		3/4		3/4		3/4		3/4	
6	3,992.57	6	4,229.36	6	4,390.48	6	4,542.72	6		6		6		6		6		6	
1/4	4,000.50	1/4	4,232.79	1/4	4,393.74	1/4	4,545.76	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	4,008.44	1/2	4,236.23	1/2	4,397.00	1/2	4,548.81	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	4,016.37	3/4	4,239.66	3/4	4,400.26	3/4	4,551.85	3/4		3/4		3/4		3/4		3/4		3/4	
7	4,024.31	7	4,243.09	7	4,403.52	7	4,554.90	7		7		7		7		7		7	
1/4	4,032.24	1/4	4,246.51	1/4	4,406.76	1/4	4,557.93	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	4,040.18	1/2	4,249.94	1/2	4,410.01	1/2	4,560.96	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	4,048.11	3/4	4,253.36	3/4	4,413.25	3/4	4,563.99	3/4		3/4		3/4		3/4		3/4		3/4	
8	4,056.05	8	4,256.79	8	4,416.50	8	4,567.02	8		8		8		8		8		8	
1/4	4,063.98	1/4	4,260.20	1/4	4,419.73	1/4	4,570.04	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	4,071.92	1/2	4,263.61	1/2	4,422.96	1/2	4,573.05	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	4,079.85	3/4	4,267.02	3/4	4,426.19	3/4	4,576.07	3/4		3/4		3/4		3/4		3/4		3/4	
9	4,087.79	9	4,270.43	9	4,429.42	9	4,579.08	9		9		9		9		9		9	
1/4	4,095.72	1/4	4,273.82	1/4	4,432.63	1/4	4,582.08	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	4,103.66	1/2	4,277.22	1/2	4,435.85	1/2	4,585.08	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	4,111.59	3/4	4,280.61	3/4	4,439.06	3/4	4,588.08	3/4		3/4		3/4		3/4		3/4		3/4	
10	4,119.53	10	4,284.01	10	4,442.28	10	4,591.08	10		10		10		10		10		10	
1/4	4,122.96	1/4	4,287.39	1/4	4,445.48	1/4	4,594.07	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	4,126.39	1/2	4,290.77	1/2	4,448.68	1/2	4,597.05	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	4,129.82	3/4	4,294.15	3/4	4,451.88	3/4	4,600.04	3/4		3/4		3/4		3/4		3/4		3/4	
11	4,133.26	11	4,297.52	11	4,455.08	11	4,603.03	11		11		11		11		11		11	
1/4	4,136.69	1/4	4,300.89	1/4	4,458.26	1/4	4,606.00	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	4,140.12	1/2	4,304.25	1/2	4,461.45	1/2	4,608.97	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	4,143.55	3/4	4,307.62	3/4	4,464.63	3/4	4,611.94	3/4		3/4		3/4		3/4		3/4		3/4	

CERTIFIED CHART FOR THE ABOVE NAMED TANK ONLY.

STRAPPED: 10/13/2019 SW - JS
CALCULATED: 10/14/2019 CL
PRINTED: 10/16/2019 SW

CANCELS AND SUPERCEDES
ALL PRIOR TO 10/2019

PRECISION MEASUREMENT
& ANALYSIS, INC.
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BARGE "CCL 417T"

3 STBD INNAGE TABLE

CAPACITIES GIVEN IN BARRELS OF 42 U.S. GALLONS

GAUGE HEIGHT 15'-01 1/4"

IN	0 FT.	IN	1 FT.	IN	2 FT.	IN	3 FT.	IN	4 FT.	IN	5 FT.	IN	6 FT.	IN	7 FT.	IN	8 FT.	IN	9 FT.
0	8.34	0	380.14	0	757.61	0	1,128.00	0	1,500.74	0	1,875.77	0	2,250.41	0	2,627.57	0	3,005.74	0	3,385.83
1/4	14.29	1/4	388.06	1/4	765.30	1/4	1,135.73	1/4	1,508.56	1/4	1,883.58	1/4	2,258.21	1/4	2,635.48	1/4	3,013.66	1/4	3,393.75
1/2	20.24	1/2	395.98	1/2	773.00	1/2	1,143.46	1/2	1,516.37	1/2	1,891.39	1/2	2,266.00	1/2	2,643.40	1/2	3,021.58	1/2	3,401.67
3/4	26.18	3/4	403.90	3/4	780.69	3/4	1,151.18	3/4	1,524.18	3/4	1,899.21	3/4	2,273.80	3/4	2,651.32	3/4	3,029.50	3/4	3,409.59
1	32.13	1	411.82	1	788.39	1	1,158.91	1	1,532.00	1	1,907.02	1	2,281.60	1	2,659.23	1	3,037.41	1	3,417.51
1/4	39.96	1/4	419.74	1/4	796.08	1/4	1,166.65	1/4	1,539.81	1/4	1,914.83	1/4	2,289.39	1/4	2,667.09	1/4	3,045.33	1/4	3,425.43
1/2	47.78	1/2	427.66	1/2	803.78	1/2	1,174.39	1/2	1,547.62	1/2	1,922.65	1/2	2,297.19	1/2	2,674.96	1/2	3,053.25	1/2	3,433.34
3/4	55.61	3/4	435.58	3/4	811.47	3/4	1,182.12	3/4	1,555.44	3/4	1,930.46	3/4	2,304.99	3/4	2,682.82	3/4	3,061.17	3/4	3,441.26
2	63.44	2	443.50	2	819.17	2	1,189.86	2	1,563.25	2	1,938.27	2	2,312.78	2	2,690.68	2	3,069.09	2	3,449.18
1/4	71.31	1/4	451.42	1/4	826.86	1/4	1,197.60	1/4	1,571.06	1/4	1,946.09	1/4	2,320.58	1/4	2,698.50	1/4	3,077.01	1/4	3,457.10
1/2	79.19	1/2	459.35	1/2	834.55	1/2	1,205.33	1/2	1,578.87	1/2	1,953.90	1/2	2,328.38	1/2	2,706.31	1/2	3,084.93	1/2	3,465.02
3/4	87.06	3/4	467.27	3/4	842.25	3/4	1,213.07	3/4	1,586.69	3/4	1,961.71	3/4	2,336.17	3/4	2,714.12	3/4	3,092.84	3/4	3,472.94
3	94.94	3	475.19	3	849.94	3	1,220.81	3	1,594.50	3	1,969.53	3	2,343.97	3	2,721.93	3	3,100.76	3	3,480.86
1/4	102.84	1/4	483.11	1/4	857.65	1/4	1,228.54	1/4	1,602.31	1/4	1,977.34	1/4	2,351.77	1/4	2,729.74	1/4	3,108.68	1/4	3,488.77
1/2	110.74	1/2	491.03	1/2	865.35	1/2	1,236.28	1/2	1,610.12	1/2	1,985.15	1/2	2,359.56	1/2	2,737.55	1/2	3,116.60	1/2	3,496.69
3/4	118.64	3/4	498.95	3/4	873.05	3/4	1,244.02	3/4	1,617.93	3/4	1,992.97	3/4	2,367.36	3/4	2,745.36	3/4	3,124.52	3/4	3,504.61
4	126.54	4	506.87	4	880.75	4	1,251.75	4	1,625.75	4	2,000.78	4	2,375.16	4	2,753.17	4	3,132.44	4	3,512.53
1/4	134.46	1/4	514.79	1/4	888.46	1/4	1,259.49	1/4	1,633.56	1/4	2,008.59	1/4	2,382.95	1/4	2,760.98	1/4	3,140.36	1/4	3,520.45
1/2	142.38	1/2	522.71	1/2	896.16	1/2	1,267.23	1/2	1,641.37	1/2	2,016.41	1/2	2,390.75	1/2	2,768.78	1/2	3,148.27	1/2	3,528.37
3/4	150.29	3/4	530.63	3/4	903.86	3/4	1,274.96	3/4	1,649.19	3/4	2,024.22	3/4	2,398.55	3/4	2,776.59	3/4	3,156.19	3/4	3,536.29
5	158.21	5	538.55	5	911.56	5	1,282.70	5	1,657.00	5	2,032.03	5	2,406.34	5	2,784.40	5	3,164.11	5	3,544.20
1/4	166.14	1/4	546.47	1/4	919.29	1/4	1,290.33	1/4	1,664.81	1/4	2,039.85	1/4	2,414.14	1/4	2,792.25	1/4	3,172.03	1/4	3,552.12
1/2	174.06	1/2	554.39	1/2	927.02	1/2	1,297.96	1/2	1,672.63	1/2	2,047.66	1/2	2,421.94	1/2	2,800.10	1/2	3,179.95	1/2	3,560.04
3/4	181.99	3/4	562.31	3/4	934.75	3/4	1,305.59	3/4	1,680.44	3/4	2,055.47	3/4	2,429.73	3/4	2,807.95	3/4	3,187.87	3/4	3,567.96
6	189.92	6	570.23	6	942.48	6	1,313.22	6	1,688.25	6	2,063.29	6	2,437.53	6	2,815.79	6	3,195.79	6	3,575.88
1/4	197.85	1/4	578.15	1/4	950.21	1/4	1,321.04	1/4	1,696.06	1/4	2,071.08	1/4	2,445.45	1/4	2,823.70	1/4	3,203.70	1/4	3,583.80
1/2	205.78	1/2	586.07	1/2	957.94	1/2	1,328.85	1/2	1,703.88	1/2	2,078.88	1/2	2,453.37	1/2	2,831.60	1/2	3,211.62	1/2	3,591.72
3/4	213.71	3/4	593.99	3/4	965.67	3/4	1,336.66	3/4	1,711.69	3/4	2,086.68	3/4	2,461.29	3/4	2,839.51	3/4	3,219.54	3/4	3,599.63
7	221.65	7	601.91	7	973.40	7	1,344.48	7	1,719.50	7	2,094.47	7	2,469.21	7	2,847.41	7	3,227.46	7	3,607.55
1/4	229.58	1/4	609.83	1/4	981.13	1/4	1,352.29	1/4	1,727.32	1/4	2,102.27	1/4	2,477.13	1/4	2,855.32	1/4	3,235.38	1/4	3,615.47
1/2	237.51	1/2	617.75	1/2	988.86	1/2	1,360.10	1/2	1,735.13	1/2	2,110.07	1/2	2,485.05	1/2	2,863.24	1/2	3,243.30	1/2	3,623.39
3/4	245.44	3/4	625.67	3/4	996.59	3/4	1,367.92	3/4	1,742.94	3/4	2,117.86	3/4	2,492.97	3/4	2,871.15	3/4	3,251.22	3/4	3,631.31
8	253.37	8	633.59	8	1,004.32	8	1,375.73	8	1,750.76	8	2,125.66	8	2,500.88	8	2,879.07	8	3,259.13	8	3,639.23
1/4	261.31	1/4	641.51	1/4	1,012.05	1/4	1,383.54	1/4	1,758.57	1/4	2,133.46	1/4	2,508.80	1/4	2,886.98	1/4	3,267.05	1/4	3,647.15
1/2	269.24	1/2	649.43	1/2	1,019.78	1/2	1,391.36	1/2	1,766.38	1/2	2,141.25	1/2	2,516.72	1/2	2,894.90	1/2	3,274.97	1/2	3,655.06
3/4	277.17	3/4	657.36	3/4	1,027.51	3/4	1,399.17	3/4	1,774.20	3/4	2,149.05	3/4	2,524.64	3/4	2,902.81	3/4	3,282.89	3/4	3,662.98
9	285.10	9	665.28	9	1,035.24	9	1,406.98	9	1,782.01	9	2,156.85	9	2,532.56	9	2,910.73	9	3,290.81	9	3,670.90
1/4	293.02	1/4	672.97	1/4	1,042.97	1/4	1,414.80	1/4	1,789.82	1/4	2,164.64	1/4	2,540.48	1/4	2,918.64	1/4	3,298.73	1/4	3,678.82
1/2	300.94	1/2	680.66	1/2	1,050.70	1/2	1,422.61	1/2	1,797.64	1/2	2,172.44	1/2	2,548.40	1/2	2,926.56	1/2	3,306.65	1/2	3,686.74
3/4	308.87	3/4	688.36	3/4	1,058.43	3/4	1,430.42	3/4	1,805.45	3/4	2,180.24	3/4	2,556.32	3/4	2,934.47	3/4	3,314.56	3/4	3,694.66
10	316.79	10	696.05	10	1,066.16	10	1,438.24	10	1,813.26	10	2,188.03	10	2,564.24	10	2,942.39	10	3,322.48	10	3,702.58
1/4	324.71	1/4	703.75	1/4	1,073.89	1/4	1,446.05	1/4	1,821.08	1/4	2,195.83	1/4	2,572.15	1/4	2,950.31	1/4	3,330.40	1/4	3,710.49
1/2	332.63	1/2	711.44	1/2	1,081.62	1/2	1,453.86	1/2	1,828.89	1/2	2,203.63	1/2	2,580.07	1/2	2,958.23	1/2	3,338.32	1/2	3,718.41
3/4	340.54	3/4	719.14	3/4	1,089.35	3/4	1,461.68	3/4	1,836.70	3/4	2,211.42	3/4	2,587.99	3/4	2,966.15	3/4	3,346.24	3/4	3,726.33
11	348.46	11	726.83	11	1,097.08	11	1,469.49	11	1,844.52	11	2,219.22	11	2,595.91	11	2,974.06	11	3,354.16	11	3,734.25
1/4	356.38	1/4	734.53	1/4	1,104.81	1/4	1,477.30	1/4	1,852.33	1/4	2,227.02	1/4	2,603.82	1/4	2,981.98	1/4	3,362.08	1/4	3,742.17
1/2	364.30	1/2	742.22	1/2	1,112.54	1/2	1,485.12	1/2	1,860.14	1/2	2,234.81	1/2	2,611.74	1/2	2,989.90	1/2	3,369.99	1/2	3,750.09
3/4	372.22	3/4	749.92	3/4	1,120.27	3/4	1,492.93	3/4	1,867.96	3/4	2,242.61	3/4	2,619.65	3/4	2,997.82	3/4	3,377.91	3/4	3,758.01

CERTIFIED CHART FOR THE ABOVE NAMED TANK ONLY.

BARGE STRAPPED AND COMPUTED IN ACCORDANCE WITH MPMS CHAPTER 2.7.
 CAPACITY TABLE ONLY APPLIES WHEN BARGE IS ON EVEN KEEL.
 CAPACITY TABLE EXTENDS TO EXTREME HEIGHT OF TANK.
 CAPACITY TABLE ONLY APPLIES TO INNAGE GAUGES TAKEN TO TOP OF 2" HERMETIC VALVE.
 GAUGE POINT: (HERMETIC) LOCATED 11'-06" OFF CENTERLINE AND 54'-09" FORWARD OF AFT BULKHEAD.

PRECISION MEASUREMENT
 & ANALYSIS, INC.
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 Pearland, Texas 77588
<http://www.pmacorp.net>



BARGE "CCL 417T"

3 STBD INNAGE TABLE

CAPACITIES GIVEN IN BARRELS OF 42 U.S. GALLONS

GAUGE HEIGHT 15'-01 1/4"

IN	10 FT.	IN	11 FT.	IN	12 FT.	IN	13 FT.	IN	14 FT.	IN	15 FT.	IN	16 FT.	IN	17 FT.	IN	18 FT.	IN	19 FT.
0	3,765.92	0	4,110.33	0	4,274.21	0	4,430.92	0	4,578.99	0		0		0		0		0	
1/4	3,773.84	1/4	4,113.76	1/4	4,277.56	1/4	4,434.08	1/4	4,581.97	1/4		1/4		1/4		1/4		1/4	
1/2	3,781.76	1/2	4,117.19	1/2	4,280.90	1/2	4,437.25	1/2	4,584.96	1/2		1/2		1/2		1/2		1/2	
3/4	3,789.68	3/4	4,120.62	3/4	4,284.25	3/4	4,440.42	3/4	4,587.95	3/4		3/4		3/4		3/4		3/4	
1	3,797.60	1	4,124.05	1	4,287.60	1	4,443.59	1	4,590.94	1		1		1		1		1	
1/4	3,805.52	1/4	4,127.48	1/4	4,290.93	1/4	4,446.74	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,813.44	1/2	4,130.91	1/2	4,294.26	1/2	4,449.89	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,821.36	3/4	4,134.34	3/4	4,297.59	3/4	4,453.04	3/4		3/4		3/4		3/4		3/4		3/4	
2	3,829.27	2	4,137.77	2	4,300.93	2	4,456.19	2		2		2		2		2		2	
1/4	3,837.19	1/4	4,141.20	1/4	4,304.24	1/4	4,459.33	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,845.11	1/2	4,144.63	1/2	4,307.56	1/2	4,462.47	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,853.03	3/4	4,148.06	3/4	4,310.88	3/4	4,465.61	3/4		3/4		3/4		3/4		3/4		3/4	
3	3,860.95	3	4,151.49	3	4,314.19	3	4,468.74	3		3		3		3		3		3	
1/4	3,868.87	1/4	4,154.92	1/4	4,317.50	1/4	4,471.87	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,876.79	1/2	4,158.35	1/2	4,320.80	1/2	4,474.99	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,884.70	3/4	4,161.78	3/4	4,324.10	3/4	4,478.11	3/4		3/4		3/4		3/4		3/4		3/4	
4	3,892.62	4	4,165.21	4	4,327.40	4	4,481.23	4		4		4		4		4		4	
1/4	3,900.54	1/4	4,168.64	1/4	4,330.69	1/4	4,484.34	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,908.46	1/2	4,172.07	1/2	4,333.98	1/2	4,487.45	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,916.38	3/4	4,175.49	3/4	4,337.27	3/4	4,490.55	3/4		3/4		3/4		3/4		3/4		3/4	
5	3,924.30	5	4,178.92	5	4,340.55	5	4,493.66	5		5		5		5		5		5	
1/4	3,932.22	1/4	4,182.35	1/4	4,343.83	1/4	4,496.75	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,940.13	1/2	4,185.78	1/2	4,347.10	1/2	4,499.85	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,948.05	3/4	4,189.21	3/4	4,350.37	3/4	4,502.94	3/4		3/4		3/4		3/4		3/4		3/4	
6	3,955.97	6	4,192.64	6	4,353.64	6	4,506.03	6		6		6		6		6		6	
1/4	3,963.90	1/4	4,196.07	1/4	4,356.90	1/4	4,509.11	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	3,971.84	1/2	4,199.50	1/2	4,360.16	1/2	4,512.19	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	3,979.77	3/4	4,202.93	3/4	4,363.41	3/4	4,515.26	3/4		3/4		3/4		3/4		3/4		3/4	
7	3,987.70	7	4,206.36	7	4,366.67	7	4,518.34	7		7		7		7		7		7	
1/4	3,995.63	1/4	4,209.78	1/4	4,369.91	1/4	4,521.40	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	4,003.57	1/2	4,213.21	1/2	4,373.16	1/2	4,524.47	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	4,011.50	3/4	4,216.63	3/4	4,376.40	3/4	4,527.53	3/4		3/4		3/4		3/4		3/4		3/4	
8	4,019.43	8	4,220.05	8	4,379.64	8	4,530.59	8		8		8		8		8		8	
1/4	4,027.36	1/4	4,223.46	1/4	4,382.87	1/4	4,533.64	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	4,035.30	1/2	4,226.87	1/2	4,386.09	1/2	4,536.68	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	4,043.23	3/4	4,230.27	3/4	4,389.32	3/4	4,539.73	3/4		3/4		3/4		3/4		3/4		3/4	
9	4,051.16	9	4,233.68	9	4,392.55	9	4,542.78	9		9		9		9		9		9	
1/4	4,059.10	1/4	4,237.07	1/4	4,395.76	1/4	4,545.81	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	4,067.03	1/2	4,240.47	1/2	4,398.97	1/2	4,548.84	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	4,074.96	3/4	4,243.86	3/4	4,402.19	3/4	4,551.88	3/4		3/4		3/4		3/4		3/4		3/4	
10	4,082.89	10	4,247.25	10	4,405.40	10	4,554.91	10		10		10		10		10		10	
1/4	4,086.32	1/4	4,250.63	1/4	4,408.60	1/4	4,557.93	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	4,089.75	1/2	4,254.00	1/2	4,411.79	1/2	4,560.94	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	4,093.18	3/4	4,257.38	3/4	4,414.99	3/4	4,563.96	3/4		3/4		3/4		3/4		3/4		3/4	
11	4,096.61	11	4,260.76	11	4,418.19	11	4,566.98	11		11		11		11		11		11	
1/4	4,100.04	1/4	4,264.12	1/4	4,421.37	1/4	4,569.98	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	4,103.47	1/2	4,267.48	1/2	4,424.55	1/2	4,572.98	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	4,106.90	3/4	4,270.85	3/4	4,427.73	3/4	4,575.98	3/4		3/4		3/4		3/4		3/4		3/4	

CERTIFIED CHART FOR THE ABOVE NAMED TANK ONLY.

STRAPPED: 10/13/2019 SW - JS
CALCULATED: 10/14/2019 CL
PRINTED: 10/16/2019 SW

CANCELS AND SUPERCEDES
ALL PRIOR TO 10/2019

PRECISION MEASUREMENT
& ANALYSIS, INC.
P.O. Box 2092
Pearland, Texas 77588
<http://www.pmacorp.net>



BARGE "CCL 417T"

ULLAGE TRIM TABLE

	1 FT.		2 FT.		3 FT.		4 FT.		5 FT.		6 FT.	
	<u>BOW</u>	<u>STERN</u>										
1 PORT	- 00-1/8	00-1/8	- 00-1/4	00-1/4	- 00-1/4	00-1/4	- 00-3/8	00-3/8	- 00-1/2	00-1/2	- 00-5/8	00-5/8
1 STBD	- 00-1/8	00-1/8	- 00-1/4	00-1/4	- 00-1/4	00-1/4	- 00-3/8	00-3/8	- 00-1/2	00-1/2	- 00-5/8	00-5/8
2 PORT	00-1/8	- 00-1/8	00-1/4	- 00-1/4	00-3/8	- 00-3/8	00-1/2	- 00-1/2	00-5/8	- 00-5/8	00-3/4	- 00-3/4
2 STBD	00-1/8	- 00-1/8	00-1/4	- 00-1/4	00-3/8	- 00-3/8	00-1/2	- 00-1/2	00-5/8	- 00-5/8	00-3/4	- 00-3/4
3 PORT	00-3/8	- 00-3/8	00-3/4	- 00-3/4	01-1/8	- 01-1/8	01-1/2	- 01-1/2	01-7/8	- 01-7/8	02-1/4	- 02-1/4
3 STBD	00-3/8	- 00-3/8	00-3/4	- 00-3/4	01-1/8	- 01-1/8	01-1/2	- 01-1/2	01-7/8	- 01-7/8	02-1/4	- 02-1/4

(ALL MEASUREMENTS ABOVE ARE IN INCHES)

EXAMPLE FOR ABOVE TRIM CORRECTIONS:

FWD. DRAFT = 2'-00"
 AFT DRAFT = 4'-00"
 DIFF. = 2'-00" (DOWN BY STERN)

THE CORRECTION FOR 2'-00" TRIM DOWN BY STERN FOR 1 PORT IS 00-1/4"
 FOR A MEASURED ULLAGE GAUGE OF 4'-00" ON 1 PORT, THE TRIM CORRECTED ULLAGE IS 4'-00 1/4"

October 13, 2019

PRECISION MEASUREMENT
 & ANALYSIS, INC.
 P.O. Box 2092
 Pearland, Texas 77588

<http://www.pmacorp.net>



BARGE "CCL 417T"

1 PORT ULLAGE TABLE

CAPACITIES GIVEN IN BARRELS OF 42 U.S. GALLONS

GAUGE HEIGHT 15'-01 1/4"

IN	0 FT.	IN	1 FT.	IN	2 FT.	IN	3 FT.	IN	4 FT.	IN	5 FT.	IN	6 FT.	IN	7 FT.	IN	8 FT.	IN	9 FT.
0		0		0	4,517.84	0	4,185.91	0	3,837.73	0	3,487.04	0	3,136.34	0	2,785.64	0	2,434.94	0	2,085.96
1/4		1/4	4,823.60	1/4	4,511.13	1/4	4,178.81	1/4	3,830.43	1/4	3,479.73	1/4	3,129.03	1/4	2,778.33	1/4	2,427.64	1/4	2,078.66
1/2		1/2	4,817.31	1/2	4,504.38	1/2	4,171.68	1/2	3,823.12	1/2	3,472.42	1/2	3,121.73	1/2	2,771.03	1/2	2,420.33	1/2	2,071.35
3/4		3/4	4,811.02	3/4	4,497.63	3/4	4,164.55	3/4	3,815.81	3/4	3,465.12	3/4	3,114.42	3/4	2,763.72	3/4	2,413.02	3/4	2,064.05
1		1	4,804.72	1	4,490.89	1	4,157.42	1	3,808.51	1	3,457.81	1	3,107.11	1	2,756.42	1	2,405.72	1	2,056.75
1/4		1/4	4,798.43	1/4	4,484.14	1/4	4,150.29	1/4	3,801.20	1/4	3,450.50	1/4	3,099.81	1/4	2,749.11	1/4	2,398.41	1/4	2,049.44
1/2		1/2	4,792.11	1/2	4,477.36	1/2	4,143.13	1/2	3,793.90	1/2	3,443.20	1/2	3,092.50	1/2	2,741.80	1/2	2,391.11	1/2	2,042.14
3/4		3/4	4,785.79	3/4	4,470.58	3/4	4,135.97	3/4	3,786.59	3/4	3,435.89	3/4	3,085.19	3/4	2,734.50	3/4	2,383.80	3/4	2,034.83
2		2	4,779.46	2	4,463.80	2	4,128.80	2	3,779.28	2	3,428.59	2	3,077.89	2	2,727.19	2	2,376.49	2	2,027.52
1/4		1/4	4,773.14	1/4	4,457.02	1/4	4,121.64	1/4	3,771.98	1/4	3,421.28	1/4	3,070.58	1/4	2,719.88	1/4	2,369.19	1/4	2,020.22
1/2		1/2	4,766.78	1/2	4,450.21	1/2	4,114.45	1/2	3,764.67	1/2	3,413.97	1/2	3,063.28	1/2	2,712.58	1/2	2,361.88	1/2	2,012.91
3/4		3/4	4,760.43	3/4	4,443.40	3/4	4,107.25	3/4	3,757.37	3/4	3,406.67	3/4	3,055.97	3/4	2,705.27	3/4	2,354.57	3/4	2,005.61
3		3	4,754.07	3	4,436.58	3	4,100.66	3	3,750.06	3	3,399.36	3	3,048.66	3	2,697.97	3	2,347.27	3	1,998.30
1/4		1/4	4,747.72	1/4	4,429.77	1/4	4,092.86	1/4	3,742.75	1/4	3,392.06	1/4	3,041.36	1/4	2,690.66	1/4	2,339.96	1/4	1,990.99
1/2		1/2	4,741.33	1/2	4,422.93	1/2	4,085.64	1/2	3,735.45	1/2	3,384.75	1/2	3,034.05	1/2	2,683.35	1/2	2,332.66	1/2	1,983.69
3/4		3/4	4,734.94	3/4	4,416.09	3/4	4,078.41	3/4	3,728.14	3/4	3,377.44	3/4	3,026.75	3/4	2,676.05	3/4	2,325.35	3/4	1,976.38
4		4	4,728.56	4	4,409.24	4	4,071.18	4	3,720.83	4	3,370.14	4	3,019.44	4	2,668.74	4	2,318.04	4	1,969.08
1/4		1/4	4,722.17	1/4	4,402.40	1/4	4,063.96	1/4	3,713.53	1/4	3,362.83	1/4	3,012.13	1/4	2,661.44	1/4	2,310.74	1/4	1,961.77
1/2		1/2	4,715.75	1/2	4,395.52	1/2	4,056.70	1/2	3,706.22	1/2	3,355.52	1/2	3,004.83	1/2	2,654.13	1/2	2,303.43	1/2	1,954.46
3/4		3/4	4,709.33	3/4	4,388.65	3/4	4,049.44	3/4	3,698.92	3/4	3,348.22	3/4	2,997.52	3/4	2,646.82	3/4	2,296.13	3/4	1,947.16
5		5	4,702.91	5	4,381.77	5	4,042.18	5	3,691.61	5	3,340.91	5	2,990.21	5	2,639.52	5	2,288.82	5	1,939.85
1/4		1/4	4,696.49	1/4	4,374.90	1/4	4,034.92	1/4	3,684.30	1/4	3,333.61	1/4	2,982.91	1/4	2,632.21	1/4	2,281.51	1/4	1,932.55
1/2		1/2	4,689.97	1/2	4,367.99	1/2	4,027.64	1/2	3,677.00	1/2	3,326.30	1/2	2,975.60	1/2	2,624.90	1/2	2,274.21	1/2	1,925.24
3/4		3/4	4,683.44	3/4	4,361.08	3/4	4,020.35	3/4	3,669.69	3/4	3,318.99	3/4	2,968.30	3/4	2,617.60	3/4	2,266.90	3/4	1,917.94
6		6	4,676.92	6	4,354.18	6	4,013.06	6	3,662.38	6	3,311.69	6	2,960.99	6	2,610.29	6	2,259.59	6	1,910.63
1/4		1/4	4,670.39	1/4	4,347.27	1/4	4,005.78	1/4	3,655.08	1/4	3,304.38	1/4	2,953.68	1/4	2,602.99	1/4	2,252.29	1/4	1,903.32
1/2		1/2	4,663.84	1/2	4,340.33	1/2	3,998.47	1/2	3,647.77	1/2	3,297.07	1/2	2,946.38	1/2	2,595.68	1/2	2,245.06	1/2	1,896.02
3/4		3/4	4,657.28	3/4	4,333.39	3/4	3,991.16	3/4	3,640.47	3/4	3,289.77	3/4	2,939.07	3/4	2,588.37	3/4	2,237.83	3/4	1,888.71
7		7	4,650.72	7	4,326.45	7	3,983.86	7	3,633.16	7	3,282.46	7	2,931.76	7	2,581.07	7	2,230.61	7	1,881.41
1/4		1/4	4,644.17	1/4	4,319.51	1/4	3,976.55	1/4	3,625.85	1/4	3,275.16	1/4	2,924.46	1/4	2,573.76	1/4	2,223.38	1/4	1,874.10
1/2		1/2	4,637.58	1/2	4,312.54	1/2	3,969.25	1/2	3,618.55	1/2	3,267.85	1/2	2,917.15	1/2	2,566.45	1/2	2,216.18	1/2	1,866.80
3/4		3/4	4,630.99	3/4	4,305.57	3/4	3,961.94	3/4	3,611.24	3/4	3,260.54	3/4	2,909.85	3/4	2,559.15	3/4	2,208.98	3/4	1,859.49
8		8	4,624.40	8	4,298.60	8	3,954.63	8	3,603.94	8	3,253.24	8	2,902.54	8	2,551.84	8	2,201.78	8	1,852.18
1/4		1/4	4,617.82	1/4	4,291.63	1/4	3,947.33	1/4	3,596.63	1/4	3,245.93	1/4	2,895.23	1/4	2,544.54	1/4	2,194.58	1/4	1,844.88
1/2		1/2	4,611.20	1/2	4,284.63	1/2	3,940.02	1/2	3,589.32	1/2	3,238.63	1/2	2,887.93	1/2	2,537.23	1/2	2,187.38	1/2	1,837.57
3/4		3/4	4,604.58	3/4	4,277.62	3/4	3,932.71	3/4	3,582.02	3/4	3,231.32	3/4	2,880.62	3/4	2,529.92	3/4	2,180.18	3/4	1,830.27
9		9	4,597.96	9	4,270.62	9	3,925.41	9	3,574.71	9	3,224.01	9	2,873.32	9	2,522.62	9	2,172.98	9	1,822.96
1/4		1/4	4,591.34	1/4	4,263.62	1/4	3,918.10	1/4	3,567.40	1/4	3,216.71	1/4	2,866.01	1/4	2,515.31	1/4	2,165.78	1/4	1,815.65
1/2		1/2	4,584.68	1/2	4,256.58	1/2	3,910.80	1/2	3,560.10	1/2	3,209.40	1/2	2,858.70	1/2	2,508.01	1/2	2,158.58	1/2	1,808.35
3/4		3/4	4,578.03	3/4	4,249.55	3/4	3,903.49	3/4	3,552.79	3/4	3,202.09	3/4	2,851.40	3/4	2,500.70	3/4	2,151.38	3/4	1,801.04
10		10	4,571.38	10	4,242.51	10	3,896.18	10	3,545.49	10	3,194.79	10	2,844.09	10	2,493.39	10	2,144.18	10	1,793.74
1/4		1/4	4,564.73	1/4	4,235.48	1/4	3,888.88	1/4	3,538.18	1/4	3,187.48	1/4	2,836.78	1/4	2,486.09	1/4	2,136.98	1/4	1,786.43
1/2		1/2	4,558.04	1/2	4,228.41	1/2	3,881.57	1/2	3,530.87	1/2	3,180.18	1/2	2,829.48	1/2	2,478.78	1/2	2,129.70	1/2	1,779.13
3/4		3/4	4,551.36	3/4	4,221.34	3/4	3,874.26	3/4	3,523.57	3/4	3,172.87	3/4	2,822.17	3/4	2,471.47	3/4	2,122.42	3/4	1,771.82
11		11	4,544.68	11	4,214.28	11	3,866.96	11	3,516.26	11	3,165.56	11	2,814.87	11	2,464.17	11	2,115.14	11	1,764.51
1/4		1/4	4,537.99	1/4	4,207.21	1/4	3,859.65	1/4	3,508.95	1/4	3,158.26	1/4	2,807.56	1/4	2,456.86	1/4	2,107.87	1/4	1,757.21
1/2		1/2	4,531.28	1/2	4,200.11	1/2	3,852.35	1/2	3,501.65	1/2	3,150.95	1/2	2,800.25	1/2	2,449.56	1/2	2,100.56	1/2	1,749.90
3/4		3/4	4,524.56	3/4	4,193.01	3/4	3,845.04	3/4	3,494.34	3/4	3,143.64	3/4	2,792.95	3/4	2,442.25	3/4	2,093.26	3/4	1,742.60

CERTIFIED CHART FOR THE ABOVE NAMED TANK ONLY.

BARGE STRAPPED AND COMPUTED IN ACCORDANCE WITH MPMS CHAPTER 2.7.
 CAPACITY TABLE ONLY APPLIES WHEN BARGE IS ON EVEN KEEL.
 CAPACITY TABLE EXTENDS TO EXTREME HEIGHT OF TANK.
 CAPACITY TABLE ONLY APPLIES TO ULLAGE GAUGES TAKEN TO TOP OF 2" HERMETIC VALVE.
 GAUGE POINT: (HERMETIC) LOCATED 11'-06" OFF CENTERLINE AND 41'-00" FORWARD OF AFT BULKHEAD.

PRECISION MEASUREMENT
 & ANALYSIS, INC.
 P.O. Box 2092
 Pearland, Texas 77588
<http://www.pmacorp.net>



BARGE "CCL 417T"

1 PORT ULLAGE TABLE

CAPACITIES GIVEN IN BARRELS OF 42 U.S. GALLONS

GAUGE HEIGHT 15'-01 1/4"

IN	10 FT.	IN	11 FT.	IN	12 FT.	IN	13 FT.	IN	14 FT.	IN	15 FT.	IN	16 FT.	IN	17 FT.	IN	18 FT.	IN	19 FT.
0	1,735.29	0	1,384.61	0	1,033.93	0	683.71	0	335.01	0	28.76	0		0		0		0	
1/4	1,727.98	1/4	1,377.31	1/4	1,026.63	1/4	676.44	1/4	327.95	1/4	23.08	1/4		1/4		1/4		1/4	
1/2	1,720.68	1/2	1,370.00	1/2	1,019.32	1/2	669.17	1/2	320.99	1/2	19.24	1/2		1/2		1/2		1/2	
3/4	1,713.37	3/4	1,362.69	3/4	1,012.02	3/4	661.90	3/4	314.03	3/4	15.40	3/4		3/4		3/4		3/4	
1	1,706.07	1	1,355.39	1	1,004.71	1	654.63	1	307.07	1	11.55	1		1		1		1	
1/4	1,698.76	1/4	1,348.08	1/4	997.40	1/4	647.36	1/4	300.12	1/4	7.71	1/4		1/4		1/4		1/4	
1/2	1,691.46	1/2	1,340.78	1/2	990.10	1/2	640.09	1/2	293.27	1/2		1/2		1/2		1/2		1/2	
3/4	1,684.15	3/4	1,333.47	3/4	982.79	3/4	632.82	3/4	286.42	3/4		3/4		3/4		3/4		3/4	
2	1,676.84	2	1,326.17	2	975.49	2	625.55	2	279.57	2		2		2		2		2	
1/4	1,669.54	1/4	1,318.86	1/4	968.18	1/4	618.28	1/4	272.72	1/4		1/4		1/4		1/4		1/4	
1/2	1,662.23	1/2	1,311.55	1/2	960.88	1/2	611.01	1/2	265.97	1/2		1/2		1/2		1/2		1/2	
3/4	1,654.93	3/4	1,304.25	3/4	953.57	3/4	603.74	3/4	259.23	3/4		3/4		3/4		3/4		3/4	
3	1,647.62	3	1,296.94	3	946.26	3	596.47	3	252.49	3		3		3		3		3	
1/4	1,640.32	1/4	1,289.64	1/4	938.96	1/4	589.20	1/4	245.74	1/4		1/4		1/4		1/4		1/4	
1/2	1,633.01	1/2	1,282.33	1/2	931.65	1/2	581.93	1/2	239.11	1/2		1/2		1/2		1/2		1/2	
3/4	1,625.70	3/4	1,275.03	3/4	924.35	3/4	574.66	3/4	232.47	3/4		3/4		3/4		3/4		3/4	
4	1,618.40	4	1,267.72	4	917.04	4	567.39	4	225.84	4		4		4		4		4	
1/4	1,611.09	1/4	1,260.41	1/4	909.74	1/4	560.11	1/4	219.20	1/4		1/4		1/4		1/4		1/4	
1/2	1,603.79	1/2	1,253.11	1/2	902.43	1/2	552.81	1/2	212.67	1/2		1/2		1/2		1/2		1/2	
3/4	1,596.48	3/4	1,245.80	3/4	895.12	3/4	545.50	3/4	206.14	3/4		3/4		3/4		3/4		3/4	
5	1,589.17	5	1,238.50	5	887.82	5	538.20	5	199.61	5		5		5		5		5	
1/4	1,581.87	1/4	1,231.19	1/4	880.51	1/4	530.89	1/4	193.09	1/4		1/4		1/4		1/4		1/4	
1/2	1,574.56	1/2	1,223.88	1/2	873.21	1/2	523.59	1/2	186.66	1/2		1/2		1/2		1/2		1/2	
3/4	1,567.26	3/4	1,216.58	3/4	865.90	3/4	516.28	3/4	180.24	3/4		3/4		3/4		3/4		3/4	
6	1,559.95	6	1,209.27	6	858.59	6	508.97	6	173.82	6		6		6		6		6	
1/4	1,552.65	1/4	1,201.97	1/4	851.29	1/4	501.67	1/4	167.40	1/4		1/4		1/4		1/4		1/4	
1/2	1,545.34	1/2	1,194.66	1/2	843.98	1/2	494.36	1/2	161.09	1/2		1/2		1/2		1/2		1/2	
3/4	1,538.03	3/4	1,187.36	3/4	836.67	3/4	487.06	3/4	154.77	3/4		3/4		3/4		3/4		3/4	
7	1,530.73	7	1,180.05	7	829.37	7	479.75	7	148.46	7		7		7		7		7	
1/4	1,523.42	1/4	1,172.74	1/4	822.06	1/4	472.44	1/4	142.14	1/4		1/4		1/4		1/4		1/4	
1/2	1,516.12	1/2	1,165.44	1/2	814.76	1/2	465.14	1/2	135.94	1/2		1/2		1/2		1/2		1/2	
3/4	1,508.81	3/4	1,158.13	3/4	807.45	3/4	457.83	3/4	129.74	3/4		3/4		3/4		3/4		3/4	
8	1,501.51	8	1,150.83	8	800.14	8	450.53	8	123.54	8		8		8		8		8	
1/4	1,494.20	1/4	1,143.52	1/4	792.84	1/4	443.22	1/4	117.33	1/4		1/4		1/4		1/4		1/4	
1/2	1,486.89	1/2	1,136.22	1/2	785.56	1/2	435.91	1/2	111.25	1/2		1/2		1/2		1/2		1/2	
3/4	1,479.59	3/4	1,128.91	3/4	778.28	3/4	428.61	3/4	105.16	3/4		3/4		3/4		3/4		3/4	
9	1,472.28	9	1,121.60	9	771.00	9	421.30	9	99.08	9		9		9		9		9	
1/4	1,464.98	1/4	1,114.30	1/4	763.72	1/4	414.00	1/4	92.99	1/4		1/4		1/4		1/4		1/4	
1/2	1,457.67	1/2	1,106.99	1/2	756.44	1/2	406.72	1/2	87.03	1/2		1/2		1/2		1/2		1/2	
3/4	1,450.36	3/4	1,099.69	3/4	749.16	3/4	399.45	3/4	81.06	3/4		3/4		3/4		3/4		3/4	
10	1,443.06	10	1,092.38	10	741.89	10	392.17	10	75.10	10		10		10		10		10	
1/4	1,435.75	1/4	1,085.07	1/4	734.61	1/4	384.89	1/4	69.14	1/4		1/4		1/4		1/4		1/4	
1/2	1,428.45	1/2	1,077.77	1/2	727.34	1/2	377.72	1/2	63.30	1/2		1/2		1/2		1/2		1/2	
3/4	1,421.14	3/4	1,070.46	3/4	720.07	3/4	370.55	3/4	57.47	3/4		3/4		3/4		3/4		3/4	
11	1,413.84	11	1,063.16	11	712.80	11	363.38	11	51.64	11		11		11		11		11	
1/4	1,406.53	1/4	1,055.85	1/4	705.52	1/4	356.21	1/4	45.81	1/4		1/4		1/4		1/4		1/4	
1/2	1,399.22	1/2	1,048.55	1/2	698.25	1/2	349.14	1/2	40.12	1/2		1/2		1/2		1/2		1/2	
3/4	1,391.92	3/4	1,041.24	3/4	690.98	3/4	342.08	3/4	34.44	3/4		3/4		3/4		3/4		3/4	

CERTIFIED CHART FOR THE ABOVE NAMED TANK ONLY.

STRAPPED: 10/13/2019 SW - JS
CALCULATED: 10/14/2019 CL
PRINTED: 10/16/2019 SW

CANCELS AND SUPERCEDES
ALL PRIOR TO 10/2019

PRECISION MEASUREMENT
& ANALYSIS, INC.
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BARGE "CCL 417T"

1 STBD ULLAGE TABLE

CAPACITIES GIVEN IN BARRELS OF 42 U.S. GALLONS

GAUGE HEIGHT 15'-01 1/2"

IN	0 FT.	IN	1 FT.	IN	2 FT.	IN	3 FT.	IN	4 FT.	IN	5 FT.	IN	6 FT.	IN	7 FT.	IN	8 FT.	IN	9 FT.
0		0		0	4,522.23	0	4,190.68	0	3,842.69	0	3,492.00	0	3,141.30	0	2,790.61	0	2,441.50	0	2,090.93
1/4		1/4		1/4	4,515.51	1/4	4,183.58	1/4	3,835.38	1/4	3,484.69	1/4	3,134.00	1/4	2,783.31	1/4	2,434.25	1/4	2,083.63
1/2		1/2	4,821.27	1/2	4,508.80	1/2	4,176.48	1/2	3,828.08	1/2	3,477.39	1/2	3,126.69	1/2	2,776.00	1/2	2,427.00	1/2	2,076.33
3/4		3/4	4,814.98	3/4	4,502.05	3/4	4,169.35	3/4	3,820.77	3/4	3,470.08	3/4	3,119.39	3/4	2,768.69	3/4	2,419.69	3/4	2,069.02
1		1	4,808.69	1	4,495.30	1	4,162.22	1	3,813.47	1	3,462.77	1	3,112.08	1	2,761.39	1	2,412.39	1	2,061.72
1/4		1/4	4,802.39	1/4	4,488.56	1/4	4,155.09	1/4	3,806.16	1/4	3,455.47	1/4	3,104.77	1/4	2,754.08	1/4	2,405.08	1/4	2,054.42
1/2		1/2	4,796.10	1/2	4,481.81	1/2	4,147.96	1/2	3,798.85	1/2	3,448.16	1/2	3,097.47	1/2	2,746.78	1/2	2,397.77	1/2	2,047.11
3/4		3/4	4,789.78	3/4	4,475.03	3/4	4,140.80	3/4	3,791.55	3/4	3,440.85	3/4	3,090.16	3/4	2,739.47	3/4	2,390.47	3/4	2,039.81
2		2	4,783.46	2	4,468.25	2	4,133.64	2	3,784.24	2	3,433.55	2	3,082.86	2	2,732.16	2	2,383.16	2	2,032.50
1/4		1/4	4,777.13	1/4	4,461.47	1/4	4,126.47	1/4	3,776.94	1/4	3,426.24	1/4	3,075.55	1/4	2,724.86	1/4	2,375.86	1/4	2,025.20
1/2		1/2	4,770.81	1/2	4,454.69	1/2	4,119.31	1/2	3,769.63	1/2	3,418.94	1/2	3,068.24	1/2	2,717.55	1/2	2,368.55	1/2	2,017.89
3/4		3/4	4,764.45	3/4	4,447.88	3/4	4,112.12	3/4	3,762.32	3/4	3,411.63	3/4	3,060.94	3/4	2,710.24	3/4	2,361.24	3/4	2,010.59
3		3	4,758.10	3	4,441.07	3	4,104.92	3	3,755.02	3	3,404.32	3	3,053.63	3	2,702.94	3	2,353.94	3	2,003.28
1/4		1/4	4,751.74	1/4	4,434.25	1/4	4,097.73	1/4	3,747.71	1/4	3,397.02	1/4	3,046.33	1/4	2,695.63	1/4	2,346.63	1/4	1,995.98
1/2		1/2	4,745.39	1/2	4,427.44	1/2	4,090.53	1/2	3,740.40	1/2	3,389.71	1/2	3,039.02	1/2	2,688.33	1/2	2,339.32	1/2	1,988.67
3/4		3/4	4,739.00	3/4	4,420.60	3/4	4,083.31	3/4	3,733.10	3/4	3,382.41	3/4	3,031.71	3/4	2,681.02	3/4	2,332.02	3/4	1,981.36
4		4	4,732.61	4	4,413.76	4	4,076.08	4	3,725.79	4	3,375.10	4	3,024.41	4	2,673.71	4	2,324.71	4	1,974.06
1/4		1/4	4,726.23	1/4	4,406.91	1/4	4,068.85	1/4	3,718.49	1/4	3,367.79	1/4	3,017.10	1/4	2,666.41	1/4	2,317.41	1/4	1,966.75
1/2		1/2	4,719.84	1/2	4,400.07	1/2	4,061.63	1/2	3,711.18	1/2	3,360.49	1/2	3,009.79	1/2	2,659.10	1/2	2,310.10	1/2	1,959.45
3/4		3/4	4,713.42	3/4	4,393.19	3/4	4,054.37	3/4	3,703.87	3/4	3,353.18	3/4	3,002.49	3/4	2,651.80	3/4	2,302.79	3/4	1,952.14
5		5	4,707.00	5	4,386.32	5	4,047.11	5	3,696.57	5	3,345.88	5	2,995.18	5	2,644.49	5	2,295.49	5	1,944.83
1/4		1/4	4,700.58	1/4	4,379.44	1/4	4,039.85	1/4	3,689.26	1/4	3,338.57	1/4	2,987.88	1/4	2,637.18	1/4	2,288.18	1/4	1,937.53
1/2		1/2	4,694.16	1/2	4,372.57	1/2	4,032.59	1/2	3,681.96	1/2	3,331.26	1/2	2,980.57	1/2	2,629.88	1/2	2,280.88	1/2	1,930.22
3/4		3/4	4,687.64	3/4	4,365.66	3/4	4,025.30	3/4	3,674.65	3/4	3,323.96	3/4	2,973.26	3/4	2,622.57	3/4	2,273.57	3/4	1,922.92
6		6	4,681.11	6	4,358.75	6	4,018.01	6	3,667.34	6	3,316.65	6	2,965.96	6	2,615.27	6	2,266.26	6	1,915.61
1/4		1/4	4,674.59	1/4	4,351.85	1/4	4,010.72	1/4	3,660.04	1/4	3,309.34	1/4	2,958.65	1/4	2,607.96	1/4	2,258.96	1/4	1,908.31
1/2		1/2	4,668.06	1/2	4,344.94	1/2	4,003.42	1/2	3,652.73	1/2	3,302.04	1/2	2,951.35	1/2	2,600.65	1/2	2,251.65	1/2	1,901.00
3/4		3/4	4,661.51	3/4	4,338.00	3/4	3,996.12	3/4	3,645.43	3/4	3,294.73	3/4	2,944.04	3/4	2,593.35	3/4	2,244.34	3/4	1,893.69
7		7	4,654.95	7	4,331.06	7	3,988.81	7	3,638.12	7	3,287.43	7	2,936.73	7	2,586.04	7	2,237.04	7	1,886.39
1/4		1/4	4,648.39	1/4	4,324.12	1/4	3,981.51	1/4	3,630.81	1/4	3,280.12	1/4	2,929.43	1/4	2,578.73	1/4	2,229.73	1/4	1,879.08
1/2		1/2	4,641.84	1/2	4,317.18	1/2	3,974.20	1/2	3,623.51	1/2	3,272.81	1/2	2,922.12	1/2	2,571.43	1/2	2,222.43	1/2	1,871.78
3/4		3/4	4,635.25	3/4	4,310.21	3/4	3,966.89	3/4	3,616.20	3/4	3,265.51	3/4	2,914.82	3/4	2,564.18	3/4	2,215.12	3/4	1,864.47
8		8	4,628.66	8	4,303.24	8	3,959.59	8	3,608.90	8	3,258.20	8	2,907.51	8	2,556.92	8	2,207.81	8	1,857.17
1/4		1/4	4,622.07	1/4	4,296.27	1/4	3,952.28	1/4	3,601.59	1/4	3,250.90	1/4	2,900.20	1/4	2,549.67	1/4	2,200.51	1/4	1,849.86
1/2		1/2	4,615.49	1/2	4,289.30	1/2	3,944.98	1/2	3,594.28	1/2	3,243.59	1/2	2,892.90	1/2	2,542.42	1/2	2,193.20	1/2	1,842.55
3/4		3/4	4,608.87	3/4	4,282.30	3/4	3,937.67	3/4	3,586.98	3/4	3,236.28	3/4	2,885.59	3/4	2,535.21	3/4	2,185.89	3/4	1,835.25
9		9	4,602.25	9	4,275.29	9	3,930.36	9	3,579.67	9	3,228.98	9	2,878.29	9	2,528.01	9	2,178.59	9	1,827.94
1/4		1/4	4,595.63	1/4	4,268.29	1/4	3,923.06	1/4	3,572.36	1/4	3,221.67	1/4	2,870.98	1/4	2,520.81	1/4	2,171.28	1/4	1,820.64
1/2		1/2	4,589.01	1/2	4,261.29	1/2	3,915.75	1/2	3,565.06	1/2	3,214.37	1/2	2,863.67	1/2	2,513.61	1/2	2,163.98	1/2	1,813.33
3/4		3/4	4,582.35	3/4	4,254.25	3/4	3,908.45	3/4	3,557.75	3/4	3,207.06	3/4	2,856.37	3/4	2,506.41	3/4	2,156.67	3/4	1,806.02
10		10	4,575.70	10	4,247.22	10	3,901.14	10	3,550.45	10	3,199.75	10	2,849.06	10	2,499.21	10	2,149.36	10	1,798.72
1/4		1/4	4,569.05	1/4	4,240.18	1/4	3,893.83	1/4	3,543.14	1/4	3,192.45	1/4	2,841.75	1/4	2,492.01	1/4	2,142.06	1/4	1,791.41
1/2		1/2	4,562.40	1/2	4,233.15	1/2	3,886.53	1/2	3,535.83	1/2	3,185.14	1/2	2,834.45	1/2	2,484.81	1/2	2,134.75	1/2	1,784.11
3/4		3/4	4,555.71	3/4	4,226.08	3/4	3,879.22	3/4	3,528.53	3/4	3,177.84	3/4	2,827.14	3/4	2,477.61	3/4	2,127.45	3/4	1,776.80
11		11	4,549.03	11	4,219.01	11	3,871.91	11	3,521.22	11	3,170.53	11	2,819.84	11	2,470.41	11	2,120.14	11	1,769.50
1/4		1/4	4,542.35	1/4	4,211.95	1/4	3,864.61	1/4	3,513.92	1/4	3,163.22	1/4	2,812.53	1/4	2,463.21	1/4	2,112.84	1/4	1,762.19
1/2		1/2	4,535.66	1/2	4,204.88	1/2	3,857.30	1/2	3,506.61	1/2	3,155.92	1/2	2,805.22	1/2	2,456.01	1/2	2,105.54	1/2	1,754.88
3/4		3/4	4,528.95	3/4	4,197.78	3/4	3,850.00	3/4	3,499.30	3/4	3,148.61	3/4	2,797.92	3/4	2,448.76	3/4	2,098.23	3/4	1,747.58

CERTIFIED CHART FOR THE ABOVE NAMED TANK ONLY.

BARGE STRAPPED AND COMPUTED IN ACCORDANCE WITH MPMS CHAPTER 2.7.
 CAPACITY TABLE ONLY APPLIES WHEN BARGE IS ON EVEN KEEL.
 CAPACITY TABLE EXTENDS TO EXTREME HEIGHT OF TANK.
 CAPACITY TABLE ONLY APPLIES TO ULLAGE GAUGES TAKEN TO TOP OF 2" HERMETIC VALVE.
 GAUGE POINT: (HERMETIC) LOCATED 11'-06" OFF CENTERLINE AND 41'-00" FORWARD OF AFT BULKHEAD.

PRECISION MEASUREMENT
& ANALYSIS, INC.
 P.O. Box 2092
 Pearland, Texas 77588
<http://www.pmacorp.net>



BARGE "CCL 417T"

1 STBD ULLAGE TABLE

CAPACITIES GIVEN IN BARRELS OF 42 U.S. GALLONS

GAUGE HEIGHT 15'-01 1/2"

IN	10 FT.	IN	11 FT.	IN	12 FT.	IN	13 FT.	IN	14 FT.	IN	15 FT.	IN	16 FT.	IN	17 FT.	IN	18 FT.	IN	19 FT.
0	1,740.27	0	1,390.47	0	1,041.24	0	690.98	0	342.08	0	34.44	0		0		0		0	
1/4	1,732.97	1/4	1,383.21	1/4	1,033.93	1/4	683.71	1/4	335.01	1/4	28.76	1/4		1/4		1/4		1/4	
1/2	1,725.66	1/2	1,375.95	1/2	1,026.63	1/2	676.44	1/2	327.95	1/2	23.08	1/2		1/2		1/2		1/2	
3/4	1,718.36	3/4	1,368.69	3/4	1,019.32	3/4	669.17	3/4	320.99	3/4	19.24	3/4		3/4		3/4		3/4	
1	1,711.05	1	1,361.44	1	1,012.02	1	661.90	1	314.03	1	15.39	1		1		1		1	
1/4	1,703.74	1/4	1,354.18	1/4	1,004.71	1/4	654.63	1/4	307.07	1/4	11.55	1/4		1/4		1/4		1/4	
1/2	1,696.44	1/2	1,346.92	1/2	997.40	1/2	647.36	1/2	300.12	1/2	7.71	1/2		1/2		1/2		1/2	
3/4	1,689.13	3/4	1,339.66	3/4	990.10	3/4	640.09	3/4	293.27	3/4		3/4		3/4		3/4		3/4	
2	1,681.83	2	1,332.41	2	982.79	2	632.82	2	286.42	2		2		2		2		2	
1/4	1,674.52	1/4	1,325.15	1/4	975.49	1/4	625.55	1/4	279.57	1/4		1/4		1/4		1/4		1/4	
1/2	1,667.21	1/2	1,317.89	1/2	968.18	1/2	618.28	1/2	272.72	1/2		1/2		1/2		1/2		1/2	
3/4	1,659.91	3/4	1,310.63	3/4	960.88	3/4	611.01	3/4	265.97	3/4		3/4		3/4		3/4		3/4	
3	1,652.60	3	1,303.38	3	953.57	3	603.74	3	259.23	3		3		3		3		3	
1/4	1,645.30	1/4	1,296.12	1/4	946.26	1/4	596.47	1/4	252.49	1/4		1/4		1/4		1/4		1/4	
1/2	1,637.99	1/2	1,288.86	1/2	938.96	1/2	589.20	1/2	245.74	1/2		1/2		1/2		1/2		1/2	
3/4	1,630.69	3/4	1,281.60	3/4	931.65	3/4	581.93	3/4	239.11	3/4		3/4		3/4		3/4		3/4	
4	1,623.38	4	1,274.35	4	924.35	4	574.66	4	232.47	4		4		4		4		4	
1/4	1,616.07	1/4	1,267.09	1/4	917.04	1/4	567.38	1/4	225.84	1/4		1/4		1/4		1/4		1/4	
1/2	1,608.77	1/2	1,259.83	1/2	909.73	1/2	560.11	1/2	219.20	1/2		1/2		1/2		1/2		1/2	
3/4	1,601.46	3/4	1,252.57	3/4	902.43	3/4	552.81	3/4	212.67	3/4		3/4		3/4		3/4		3/4	
5	1,594.16	5	1,245.32	5	895.12	5	545.50	5	206.14	5		5		5		5		5	
1/4	1,586.85	1/4	1,238.06	1/4	887.82	1/4	538.20	1/4	199.61	1/4		1/4		1/4		1/4		1/4	
1/2	1,579.54	1/2	1,230.80	1/2	880.51	1/2	530.89	1/2	193.08	1/2		1/2		1/2		1/2		1/2	
3/4	1,572.24	3/4	1,223.55	3/4	873.20	3/4	523.58	3/4	186.66	3/4		3/4		3/4		3/4		3/4	
6	1,564.93	6	1,216.29	6	865.90	6	516.28	6	180.24	6		6		6		6		6	
1/4	1,557.63	1/4	1,209.03	1/4	858.59	1/4	508.97	1/4	173.82	1/4		1/4		1/4		1/4		1/4	
1/2	1,550.32	1/2	1,201.77	1/2	851.29	1/2	501.67	1/2	167.40	1/2		1/2		1/2		1/2		1/2	
3/4	1,543.02	3/4	1,194.52	3/4	843.98	3/4	494.36	3/4	161.08	3/4		3/4		3/4		3/4		3/4	
7	1,535.71	7	1,187.26	7	836.67	7	487.06	7	154.77	7		7		7		7		7	
1/4	1,528.40	1/4	1,180.00	1/4	829.37	1/4	479.75	1/4	148.46	1/4		1/4		1/4		1/4		1/4	
1/2	1,521.10	1/2	1,172.74	1/2	822.06	1/2	472.44	1/2	142.14	1/2		1/2		1/2		1/2		1/2	
3/4	1,513.84	3/4	1,165.44	3/4	814.76	3/4	465.14	3/4	135.94	3/4		3/4		3/4		3/4		3/4	
8	1,506.58	8	1,158.13	8	807.45	8	457.83	8	129.74	8		8		8		8		8	
1/4	1,499.33	1/4	1,150.83	1/4	800.14	1/4	450.53	1/4	123.54	1/4		1/4		1/4		1/4		1/4	
1/2	1,492.07	1/2	1,143.52	1/2	792.84	1/2	443.22	1/2	117.33	1/2		1/2		1/2		1/2		1/2	
3/4	1,484.81	3/4	1,136.21	3/4	785.56	3/4	435.91	3/4	111.25	3/4		3/4		3/4		3/4		3/4	
9	1,477.55	9	1,128.91	9	778.28	9	428.61	9	105.16	9		9		9		9		9	
1/4	1,470.30	1/4	1,121.60	1/4	771.00	1/4	421.30	1/4	99.08	1/4		1/4		1/4		1/4		1/4	
1/2	1,463.04	1/2	1,114.30	1/2	763.72	1/2	414.00	1/2	92.99	1/2		1/2		1/2		1/2		1/2	
3/4	1,455.78	3/4	1,106.99	3/4	756.44	3/4	406.72	3/4	87.03	3/4		3/4		3/4		3/4		3/4	
10	1,448.52	10	1,099.69	10	749.16	10	399.44	10	81.06	10		10		10		10		10	
1/4	1,441.27	1/4	1,092.38	1/4	741.88	1/4	392.17	1/4	75.10	1/4		1/4		1/4		1/4		1/4	
1/2	1,434.01	1/2	1,085.07	1/2	734.61	1/2	384.89	1/2	69.14	1/2		1/2		1/2		1/2		1/2	
3/4	1,426.75	3/4	1,077.77	3/4	727.34	3/4	377.72	3/4	63.30	3/4		3/4		3/4		3/4		3/4	
11	1,419.49	11	1,070.46	11	720.07	11	370.55	11	57.47	11		11		11		11		11	
1/4	1,412.24	1/4	1,063.16	1/4	712.79	1/4	363.38	1/4	51.64	1/4		1/4		1/4		1/4		1/4	
1/2	1,404.98	1/2	1,055.85	1/2	705.52	1/2	356.21	1/2	45.81	1/2		1/2		1/2		1/2		1/2	
3/4	1,397.72	3/4	1,048.54	3/4	698.25	3/4	349.14	3/4	40.12	3/4		3/4		3/4		3/4		3/4	

CERTIFIED CHART FOR THE ABOVE NAMED TANK ONLY.

STRAPPED: 10/13/2019 SW - JS
CALCULATED: 10/14/2019 CL
PRINTED: 10/16/2019 SW

CANCELS AND SUPERCEDES
ALL PRIOR TO 10/2019

PRECISION MEASUREMENT
& ANALYSIS, INC.
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BARGE "CCL 417T"

2 PORT ULLAGE TABLE

CAPACITIES GIVEN IN BARRELS OF 42 U.S. GALLONS

GAUGE HEIGHT 15'-00 3/4"

IN	0 FT.	IN	1 FT.	IN	2 FT.	IN	3 FT.	IN	4 FT.	IN	5 FT.	IN	6 FT.	IN	7 FT.	IN	8 FT.	IN	9 FT.
0		0	4,890.54	0	4,576.31	0	4,242.24	0	3,892.24	0	3,540.10	0	3,187.95	0	2,835.81	0	2,483.67	0	2,133.29
1/4		1/4	4,884.22	1/4	4,569.54	1/4	4,235.08	1/4	3,884.90	1/4	3,532.76	1/4	3,180.62	1/4	2,828.48	1/4	2,476.33	1/4	2,125.96
1/2		1/2	4,877.91	1/2	4,562.76	1/2	4,227.92	1/2	3,877.57	1/2	3,525.42	1/2	3,173.28	1/2	2,821.14	1/2	2,469.00	1/2	2,118.63
3/4		3/4	4,871.59	3/4	4,555.98	3/4	4,220.76	3/4	3,870.23	3/4	3,518.09	3/4	3,165.95	3/4	2,813.80	3/4	2,461.66	3/4	2,111.29
1		1	4,865.24	1	4,549.18	1	4,213.57	1	3,862.89	1	3,510.75	1	3,158.61	1	2,806.47	1	2,454.32	1	2,103.96
1/4		1/4	4,858.89	1/4	4,542.37	1/4	4,206.37	1/4	3,855.56	1/4	3,503.42	1/4	3,151.27	1/4	2,799.13	1/4	2,446.99	1/4	2,096.62
1/2		1/2	4,852.54	1/2	4,535.56	1/2	4,199.18	1/2	3,848.22	1/2	3,496.08	1/2	3,143.94	1/2	2,791.79	1/2	2,439.65	1/2	2,089.28
3/4		3/4	4,846.19	3/4	4,528.75	3/4	4,191.99	3/4	3,840.89	3/4	3,488.74	3/4	3,136.60	3/4	2,784.46	3/4	2,432.32	3/4	2,081.95
2		2	4,839.81	2	4,521.91	2	4,184.77	2	3,833.55	2	3,481.41	2	3,129.26	2	2,777.12	2	2,424.98	2	2,074.61
1/4		1/4	4,833.42	1/4	4,515.07	1/4	4,177.54	1/4	3,826.21	1/4	3,474.07	1/4	3,121.93	1/4	2,769.79	1/4	2,417.64	1/4	2,067.27
1/2		1/2	4,827.04	1/2	4,508.23	1/2	4,170.32	1/2	3,818.88	1/2	3,466.73	1/2	3,114.59	1/2	2,762.45	1/2	2,410.31	1/2	2,059.94
3/4		3/4	4,820.66	3/4	4,501.39	3/4	4,163.09	3/4	3,811.54	3/4	3,459.40	3/4	3,107.26	3/4	2,755.11	3/4	2,402.97	3/4	2,052.60
3		3	4,814.24	3	4,494.52	3	4,155.84	3	3,804.20	3	3,452.06	3	3,099.92	3	2,747.78	3	2,395.63	3	2,045.27
1/4		1/4	4,807.83	1/4	4,487.65	1/4	4,148.58	1/4	3,796.87	1/4	3,444.73	1/4	3,092.58	1/4	2,740.44	1/4	2,388.30	1/4	2,037.93
1/2		1/2	4,801.42	1/2	4,480.78	1/2	4,141.32	1/2	3,789.53	1/2	3,437.39	1/2	3,085.25	1/2	2,733.10	1/2	2,380.96	1/2	2,030.60
3/4		3/4	4,795.00	3/4	4,473.91	3/4	4,134.07	3/4	3,782.19	3/4	3,430.05	3/4	3,077.91	3/4	2,725.77	3/4	2,373.63	3/4	2,023.26
4		4	4,788.56	4	4,467.00	4	4,126.78	4	3,774.86	4	3,422.72	4	3,070.57	4	2,718.43	4	2,366.29	4	2,015.92
1/4		1/4	4,782.11	1/4	4,460.10	1/4	4,119.49	1/4	3,767.52	1/4	3,415.38	1/4	3,063.24	1/4	2,711.10	1/4	2,358.95	1/4	2,008.59
1/2		1/2	4,775.66	1/2	4,453.20	1/2	4,112.20	1/2	3,760.19	1/2	3,408.04	1/2	3,055.90	1/2	2,703.76	1/2	2,351.62	1/2	2,001.25
3/4		3/4	4,769.22	3/4	4,446.29	3/4	4,104.92	3/4	3,752.85	3/4	3,400.71	3/4	3,048.56	3/4	2,696.42	3/4	2,344.28	3/4	1,993.92
5		5	4,762.67	5	4,439.36	5	4,097.60	5	3,745.51	5	3,393.37	5	3,041.23	5	2,689.09	5	2,336.94	5	1,986.58
1/4		1/4	4,756.11	1/4	4,432.42	1/4	4,090.28	1/4	3,738.18	1/4	3,386.03	1/4	3,033.89	1/4	2,681.75	1/4	2,329.61	1/4	1,979.24
1/2		1/2	4,749.56	1/2	4,425.48	1/2	4,082.96	1/2	3,730.84	1/2	3,378.70	1/2	3,026.56	1/2	2,674.41	1/2	2,322.27	1/2	1,971.91
3/4		3/4	4,743.01	3/4	4,418.55	3/4	4,075.65	3/4	3,723.50	3/4	3,371.36	3/4	3,019.22	3/4	2,667.08	3/4	2,314.93	3/4	1,964.57
6		6	4,736.43	6	4,411.58	6	4,068.31	6	3,716.17	6	3,364.03	6	3,011.88	6	2,659.74	6	2,307.68	6	1,957.24
1/4		1/4	4,729.84	1/4	4,404.61	1/4	4,060.97	1/4	3,708.83	1/4	3,356.69	1/4	3,004.55	1/4	2,652.40	1/4	2,300.43	1/4	1,949.90
1/2		1/2	4,723.26	1/2	4,397.65	1/2	4,053.64	1/2	3,701.50	1/2	3,349.35	1/2	2,997.21	1/2	2,645.07	1/2	2,293.17	1/2	1,942.56
3/4		3/4	4,716.68	3/4	4,390.68	3/4	4,046.30	3/4	3,694.16	3/4	3,342.02	3/4	2,989.87	3/4	2,637.73	3/4	2,285.92	3/4	1,935.23
7		7	4,710.06	7	4,383.68	7	4,038.97	7	3,686.82	7	3,334.68	7	2,982.54	7	2,630.40	7	2,278.69	7	1,927.89
1/4		1/4	4,703.45	1/4	4,376.68	1/4	4,031.63	1/4	3,679.49	1/4	3,327.34	1/4	2,975.20	1/4	2,623.06	1/4	2,271.46	1/4	1,920.56
1/2		1/2	4,696.83	1/2	4,369.68	1/2	4,024.29	1/2	3,672.15	1/2	3,320.01	1/2	2,967.87	1/2	2,615.72	1/2	2,264.23	1/2	1,913.22
3/4		3/4	4,690.22	3/4	4,362.68	3/4	4,016.96	3/4	3,664.81	3/4	3,312.67	3/4	2,960.53	3/4	2,608.39	3/4	2,257.00	3/4	1,905.88
8		8	4,683.57	8	4,355.65	8	4,009.62	8	3,657.48	8	3,305.34	8	2,953.19	8	2,601.05	8	2,249.78	8	1,898.55
1/4		1/4	4,676.92	1/4	4,348.61	1/4	4,002.28	1/4	3,650.14	1/4	3,298.00	1/4	2,945.86	1/4	2,593.71	1/4	2,242.55	1/4	1,891.21
1/2		1/2	4,670.27	1/2	4,341.58	1/2	3,994.95	1/2	3,642.81	1/2	3,290.66	1/2	2,938.52	1/2	2,586.38	1/2	2,235.32	1/2	1,883.88
3/4		3/4	4,663.63	3/4	4,334.55	3/4	3,987.61	3/4	3,635.47	3/4	3,283.33	3/4	2,931.18	3/4	2,579.04	3/4	2,228.09	3/4	1,876.54
9		9	4,656.95	9	4,327.49	9	3,980.27	9	3,628.13	9	3,275.99	9	2,923.85	9	2,571.71	9	2,220.87	9	1,869.21
1/4		1/4	4,650.27	1/4	4,320.42	1/4	3,972.94	1/4	3,620.80	1/4	3,268.65	1/4	2,916.51	1/4	2,564.37	1/4	2,213.64	1/4	1,861.87
1/2		1/2	4,643.59	1/2	4,313.36	1/2	3,965.60	1/2	3,613.46	1/2	3,261.32	1/2	2,909.18	1/2	2,557.03	1/2	2,206.41	1/2	1,854.53
3/4		3/4	4,636.91	3/4	4,306.29	3/4	3,958.27	3/4	3,606.12	3/4	3,253.98	3/4	2,901.84	3/4	2,549.70	3/4	2,199.18	3/4	1,847.20
10		10	4,630.20	10	4,299.20	10	3,950.93	10	3,598.79	10	3,246.64	10	2,894.50	10	2,542.36	10	2,191.88	10	1,839.86
1/4		1/4	4,623.48	1/4	4,292.10	1/4	3,943.59	1/4	3,591.45	1/4	3,239.31	1/4	2,887.17	1/4	2,535.02	1/4	2,184.57	1/4	1,832.53
1/2		1/2	4,616.77	1/2	4,285.01	1/2	3,936.26	1/2	3,584.11	1/2	3,231.97	1/2	2,879.83	1/2	2,527.69	1/2	2,177.26	1/2	1,825.19
3/4		3/4	4,610.06	3/4	4,277.91	3/4	3,928.92	3/4	3,576.78	3/4	3,224.64	3/4	2,872.49	3/4	2,520.35	3/4	2,169.96	3/4	1,817.85
11		11	4,603.32	11	4,270.78	11	3,921.58	11	3,569.44	11	3,217.30	11	2,865.16	11	2,513.01	11	2,162.63	11	1,810.52
1/4		1/4	4,596.57	1/4	4,263.65	1/4	3,914.25	1/4	3,562.11	1/4	3,209.96	1/4	2,857.82	1/4	2,505.68	1/4	2,155.29	1/4	1,803.18
1/2		1/2	4,589.83	1/2	4,256.53	1/2	3,906.91	1/2	3,554.77	1/2	3,202.63	1/2	2,850.48	1/2	2,498.34	1/2	2,147.96	1/2	1,795.85
3/4"		3/4	4,583.09	3/4	4,249.40	3/4	3,899.58	3/4	3,547.43	3/4	3,195.29	3/4	2,843.15	3/4	2,491.01	3/4	2,140.63	3/4	1,788.51

CERTIFIED CHART FOR THE ABOVE NAMED TANK ONLY.

BARGE STRAPPED AND COMPUTED IN ACCORDANCE WITH MPMS CHAPTER 2.7.
 CAPACITY TABLE ONLY APPLIES WHEN BARGE IS ON EVEN KEEL.
 CAPACITY TABLE EXTENDS TO EXTREME HEIGHT OF TANK.
 CAPACITY TABLE ONLY APPLIES TO ULLAGE GAUGES TAKEN TO TOP OF 2" HERMETIC VALVE.
 GAUGE POINT: (HERMETIC) LOCATED 11'-06" OFF CENTERLINE AND 46'-00" FORWARD OF AFT BULKHEAD.

PRECISION MEASUREMENT
 & ANALYSIS, INC.
 P.O. Box 2092
 Pearland, Texas 77588
<http://www.pmacorp.net>



BARGE "CCL 417T"

2 PORT ULLAGE TABLE

CAPACITIES GIVEN IN BARRELS OF 42 U.S. GALLONS

GAUGE HEIGHT 15'-00 3/4"

IN	10 FT.	IN	11 FT.	IN	12 FT.	IN	13 FT.	IN	14 FT.	IN	15 FT.	IN	16 FT.	IN	17 FT.	IN	18 FT.	IN	19 FT.
0	1,781.17	0	1,429.05	0	1,076.93	0	725.33	0	373.74	0	24.24	0		0		0		0	
1/4	1,773.84	1/4	1,421.72	1/4	1,069.59	1/4	718.03	1/4	366.40	1/4	18.74	1/4		1/4		1/4		1/4	
1/2	1,766.50	1/2	1,414.38	1/2	1,062.26	1/2	710.73	1/2	359.06	1/2	13.24	1/2		1/2		1/2		1/2	
3/4	1,759.17	3/4	1,407.04	3/4	1,054.92	3/4	703.43	3/4	351.73	3/4	7.74	3/4		3/4		3/4		3/4	
1	1,751.83	1	1,399.71	1	1,047.58	1	696.13	1	344.39	1		1		1		1		1	
1/4	1,744.50	1/4	1,392.37	1/4	1,040.25	1/4	688.83	1/4	337.06	1/4		1/4		1/4		1/4		1/4	
1/2	1,737.16	1/2	1,385.04	1/2	1,032.91	1/2	681.53	1/2	329.72	1/2		1/2		1/2		1/2		1/2	
3/4	1,729.82	3/4	1,377.70	3/4	1,025.58	3/4	674.23	3/4	322.38	3/4		3/4		3/4		3/4		3/4	
2	1,722.49	2	1,370.36	2	1,018.24	2	666.93	2	315.05	2		2		2		2		2	
1/4	1,715.15	1/4	1,363.03	1/4	1,010.91	1/4	659.63	1/4	307.71	1/4		1/4		1/4		1/4		1/4	
1/2	1,707.82	1/2	1,355.69	1/2	1,003.57	1/2	652.33	1/2	300.38	1/2		1/2		1/2		1/2		1/2	
3/4	1,700.48	3/4	1,348.36	3/4	996.23	3/4	645.03	3/4	293.04	3/4		3/4		3/4		3/4		3/4	
3	1,693.14	3	1,341.02	3	988.90	3	637.73	3	285.70	3		3		3		3		3	
1/4	1,685.81	1/4	1,333.68	1/4	981.56	1/4	630.43	1/4	278.37	1/4		1/4		1/4		1/4		1/4	
1/2	1,678.47	1/2	1,326.35	1/2	974.23	1/2	623.12	1/2	271.03	1/2		1/2		1/2		1/2		1/2	
3/4	1,671.14	3/4	1,319.01	3/4	966.89	3/4	615.82	3/4	263.70	3/4		3/4		3/4		3/4		3/4	
4	1,663.80	4	1,311.68	4	959.55	4	608.49	4	256.36	4		4		4		4		4	
1/4	1,656.46	1/4	1,304.34	1/4	952.22	1/4	601.15	1/4	249.02	1/4		1/4		1/4		1/4		1/4	
1/2	1,649.13	1/2	1,297.01	1/2	944.88	1/2	593.82	1/2	241.69	1/2		1/2		1/2		1/2		1/2	
3/4	1,641.79	3/4	1,289.67	3/4	937.55	3/4	586.48	3/4	234.35	3/4		3/4		3/4		3/4		3/4	
5	1,634.46	5	1,282.33	5	930.21	5	579.14	5	227.02	5		5		5		5		5	
1/4	1,627.12	1/4	1,275.00	1/4	922.87	1/4	571.81	1/4	219.68	1/4		1/4		1/4		1/4		1/4	
1/2	1,619.78	1/2	1,267.66	1/2	915.54	1/2	564.47	1/2	212.34	1/2		1/2		1/2		1/2		1/2	
3/4	1,612.45	3/4	1,260.33	3/4	908.20	3/4	557.14	3/4	205.01	3/4		3/4		3/4		3/4		3/4	
6	1,605.11	6	1,252.99	6	900.86	6	549.80	6	197.67	6		6		6		6		6	
1/4	1,597.78	1/4	1,245.65	1/4	893.53	1/4	542.46	1/4	190.34	1/4		1/4		1/4		1/4		1/4	
1/2	1,590.44	1/2	1,238.32	1/2	886.19	1/2	535.13	1/2	183.00	1/2		1/2		1/2		1/2		1/2	
3/4	1,583.11	3/4	1,230.98	3/4	878.86	3/4	527.79	3/4	175.66	3/4		3/4		3/4		3/4		3/4	
7	1,575.77	7	1,223.65	7	871.52	7	520.46	7	168.33	7		7		7		7		7	
1/4	1,568.43	1/4	1,216.31	1/4	864.18	1/4	513.12	1/4	161.00	1/4		1/4		1/4		1/4		1/4	
1/2	1,561.10	1/2	1,208.97	1/2	856.85	1/2	505.78	1/2	153.67	1/2		1/2		1/2		1/2		1/2	
3/4	1,553.76	3/4	1,201.64	3/4	849.51	3/4	498.45	3/4	146.34	3/4		3/4		3/4		3/4		3/4	
8	1,546.43	8	1,194.30	8	842.20	8	491.11	8	139.02	8		8		8		8		8	
1/4	1,539.09	1/4	1,186.97	1/4	834.89	1/4	483.78	1/4	131.70	1/4		1/4		1/4		1/4		1/4	
1/2	1,531.75	1/2	1,179.63	1/2	827.58	1/2	476.44	1/2	124.37	1/2		1/2		1/2		1/2		1/2	
3/4	1,524.42	3/4	1,172.29	3/4	820.28	3/4	469.10	3/4	117.05	3/4		3/4		3/4		3/4		3/4	
9	1,517.08	9	1,164.96	9	812.97	9	461.77	9	109.74	9		9		9		9		9	
1/4	1,509.75	1/4	1,157.62	1/4	805.66	1/4	454.43	1/4	102.44	1/4		1/4		1/4		1/4		1/4	
1/2	1,502.41	1/2	1,150.29	1/2	798.35	1/2	447.10	1/2	95.13	1/2		1/2		1/2		1/2		1/2	
3/4	1,495.07	3/4	1,142.95	3/4	791.04	3/4	439.76	3/4	87.82	3/4		3/4		3/4		3/4		3/4	
10	1,487.74	10	1,135.62	10	783.74	10	432.42	10	80.54	10		10		10		10		10	
1/4	1,480.40	1/4	1,128.28	1/4	776.44	1/4	425.09	1/4	73.26	1/4		1/4		1/4		1/4		1/4	
1/2	1,473.07	1/2	1,120.94	1/2	769.14	1/2	417.75	1/2	65.98	1/2		1/2		1/2		1/2		1/2	
3/4	1,465.73	3/4	1,113.61	3/4	761.84	3/4	410.42	3/4	58.69	3/4		3/4		3/4		3/4		3/4	
11	1,458.39	11	1,106.27	11	754.54	11	403.08	11	51.45	11		11		11		11		11	
1/4	1,451.06	1/4	1,098.94	1/4	747.24	1/4	395.74	1/4	44.21	1/4		1/4		1/4		1/4		1/4	
1/2	1,443.72	1/2	1,091.60	1/2	739.94	1/2	388.41	1/2	36.97	1/2		1/2		1/2		1/2		1/2	
3/4	1,436.39	3/4	1,084.26	3/4	732.63	3/4	381.07	3/4	29.73	3/4		3/4		3/4		3/4		3/4	

CERTIFIED CHART FOR THE ABOVE NAMED TANK ONLY.

STRAPPED: 10/13/2019 SW - JS
CALCULATED: 10/14/2019 CL
PRINTED: 10/16/2019 SW

CANCELS AND SUPERCEDES
ALL PRIOR TO 10/2019

PRECISION MEASUREMENT
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BARGE "CCL 417T"

2 STBD ULLAGE TABLE

CAPACITIES GIVEN IN BARRELS OF 42 U.S. GALLONS

GAUGE HEIGHT 15'-01 3/4"

IN	0 FT.	IN	1 FT.	IN	2 FT.	IN	3 FT.	IN	4 FT.	IN	5 FT.	IN	6 FT.	IN	7 FT.	IN	8 FT.	IN	9 FT.
0		0		0	4,586.01	0	4,253.64	0	3,904.60	0	3,552.63	0	3,200.66	0	2,848.70	0	2,498.30	0	2,146.51
1/4	1/4		1/4		4,579.27	1/4	4,246.52	1/4	3,897.27	1/4	3,545.30	1/4	3,193.33	1/4	2,841.36	1/4	2,491.02	1/4	2,139.18
1/2	1/2		1/2		4,572.53	1/2	4,239.39	1/2	3,889.94	1/2	3,537.97	1/2	3,186.00	1/2	2,834.03	1/2	2,483.74	1/2	2,131.85
3/4	3/4	4,879.39	3/4	4,565.79	3/4	4,232.27	3/4	3,882.61	3/4	3,530.64	3/4	3,178.67	3/4	2,826.70	3/4	2,476.47	3/4	2,124.52	
1	1	4,873.08	1	4,559.01	1	4,225.11	1	3,875.27	1	3,523.30	1	3,171.33	1	2,819.36	1	2,469.13	1	2,117.19	
1/4	1/4		1/4		4,866.76	1/4	4,552.24	1/4	4,217.96	1/4	3,867.94	1/4	3,515.97	1/4	3,164.00	1/4	2,812.03	1/4	2,109.86
1/2	1/2		1/2		4,860.45	1/2	4,545.47	1/2	4,210.80	1/2	3,860.61	1/2	3,508.64	1/2	3,156.67	1/2	2,804.70	1/2	2,102.53
3/4	3/4		3/4		4,854.13	3/4	4,538.70	3/4	4,203.64	3/4	3,853.28	3/4	3,501.31	3/4	3,149.34	3/4	2,797.37	3/4	2,095.20
2	2	4,847.79	2	4,531.89	2	4,196.45	2	3,845.94	2	3,493.97	2	3,142.00	2	2,790.03	2	2,439.80	2	2,087.87	
1/4	1/4		1/4		4,841.44	1/4	4,525.09	1/4	4,189.27	1/4	3,838.61	1/4	3,486.64	1/4	3,134.67	1/4	2,782.70	1/4	2,080.54
1/2	1/2		1/2		4,835.09	1/2	4,518.29	1/2	4,182.08	1/2	3,831.28	1/2	3,479.31	1/2	3,127.34	1/2	2,775.37	1/2	2,073.21
3/4	3/4		3/4		4,828.75	3/4	4,511.48	3/4	4,174.89	3/4	3,823.94	3/4	3,471.97	3/4	3,120.01	3/4	2,768.04	3/4	2,065.88
3	3	4,822.37	3	4,504.65	3	4,167.67	3	3,816.61	3	3,464.64	3	3,112.67	3	2,760.70	3	2,410.47	3	2,058.54	
1/4	1/4		1/4		4,815.99	1/4	4,497.81	1/4	4,160.45	1/4	3,809.28	1/4	3,457.31	1/4	3,105.34	1/4	2,753.37	1/4	2,051.21
1/2	1/2		1/2		4,809.61	1/2	4,490.97	1/2	4,153.23	1/2	3,801.95	1/2	3,449.98	1/2	3,098.01	1/2	2,746.04	1/2	2,043.88
3/4	3/4		3/4		4,803.23	3/4	4,484.14	3/4	4,146.01	3/4	3,794.61	3/4	3,442.64	3/4	3,090.67	3/4	2,738.70	3/4	2,036.55
4	4	4,796.82	4	4,477.27	4	4,138.75	4	3,787.28	4	3,435.31	4	3,083.34	4	2,731.37	4	2,381.14	4	2,029.21	
1/4	1/4		1/4		4,790.41	1/4	4,470.40	1/4	4,131.50	1/4	3,779.95	1/4	3,427.98	1/4	3,076.01	1/4	2,724.04	1/4	2,021.88
1/2	1/2		1/2		4,784.00	1/2	4,463.53	1/2	4,124.25	1/2	3,772.62	1/2	3,420.65	1/2	3,068.68	1/2	2,716.71	1/2	2,014.55
3/4	3/4		3/4		4,777.59	3/4	4,456.66	3/4	4,117.00	3/4	3,765.28	3/4	3,413.31	3/4	3,061.34	3/4	2,709.37	3/4	2,007.22
5	5	4,771.15	5	4,449.76	5	4,109.71	5	3,757.95	5	3,405.98	5	3,054.01	5	2,702.04	5	2,351.81	5	1,999.88	
1/4	1/4		1/4		4,764.70	1/4	4,442.86	1/4	4,102.43	1/4	3,750.62	1/4	3,398.65	1/4	3,046.68	1/4	2,694.71	1/4	1,992.55
1/2	1/2		1/2		4,758.26	1/2	4,435.96	1/2	4,095.14	1/2	3,743.28	1/2	3,391.32	1/2	3,039.35	1/2	2,687.38	1/2	1,985.22
3/4	3/4		3/4		4,751.82	3/4	4,429.06	3/4	4,087.86	3/4	3,735.95	3/4	3,383.98	3/4	3,032.01	3/4	2,680.04	3/4	1,977.89
6	6	4,745.27	6	4,422.13	6	4,080.54	6	3,728.62	6	3,376.65	6	3,024.68	6	2,672.71	6	2,322.48	6	1,970.55	
1/4	1/4		1/4		4,738.72	1/4	4,415.20	1/4	4,073.22	1/4	3,721.29	1/4	3,369.32	1/4	3,017.35	1/4	2,665.38	1/4	1,963.22
1/2	1/2		1/2		4,732.17	1/2	4,408.27	1/2	4,065.91	1/2	3,713.95	1/2	3,361.98	1/2	3,010.01	1/2	2,658.05	1/2	1,955.89
3/4	3/4		3/4		4,725.63	3/4	4,401.33	3/4	4,058.59	3/4	3,706.62	3/4	3,354.65	3/4	3,002.68	3/4	2,650.71	3/4	1,948.56
7	7	4,719.05	7	4,394.37	7	4,051.26	7	3,699.29	7	3,347.32	7	2,995.35	7	2,643.38	7	2,293.15	7	1,941.22	
1/4	1/4		1/4		4,712.47	1/4	4,387.41	1/4	4,043.93	1/4	3,691.96	1/4	3,339.99	1/4	2,988.02	1/4	2,636.05	1/4	1,933.89
1/2	1/2		1/2		4,705.89	1/2	4,380.44	1/2	4,036.59	1/2	3,684.62	1/2	3,332.65	1/2	2,980.68	1/2	2,628.71	1/2	1,926.56
3/4	3/4		3/4		4,699.31	3/4	4,373.48	3/4	4,029.26	3/4	3,677.29	3/4	3,325.32	3/4	2,973.35	3/4	2,621.38	3/4	1,919.23
8	8	4,692.69	8	4,366.48	8	4,021.93	8	3,669.96	8	3,317.99	8	2,966.02	8	2,614.10	8	2,263.82	8	1,911.90	
1/4	1/4		1/4		4,686.08	1/4	4,359.48	1/4	4,014.59	1/4	3,662.63	1/4	3,310.66	1/4	2,958.69	1/4	2,606.82	1/4	1,904.56
1/2	1/2		1/2		4,679.47	1/2	4,352.49	1/2	4,007.26	1/2	3,655.29	1/2	3,303.32	1/2	2,951.35	1/2	2,599.55	1/2	1,897.23
3/4	3/4		3/4		4,672.86	3/4	4,345.49	3/4	3,999.93	3/4	3,647.96	3/4	3,295.99	3/4	2,944.02	3/4	2,592.27	3/4	1,889.90
9	9	4,666.22	9	4,338.46	9	3,992.60	9	3,640.63	9	3,288.66	9	2,936.69	9	2,585.04	9	2,234.49	9	1,882.57	
1/4	1/4		1/4		4,659.57	1/4	4,331.44	1/4	3,985.26	1/4	3,633.29	1/4	3,281.32	1/4	2,929.36	1/4	2,577.82	1/4	1,875.23
1/2	1/2		1/2		4,652.93	1/2	4,324.41	1/2	3,977.93	1/2	3,625.96	1/2	3,273.99	1/2	2,922.02	1/2	2,570.60	1/2	1,867.90
3/4	3/4		3/4		4,646.28	3/4	4,317.38	3/4	3,970.60	3/4	3,618.63	3/4	3,266.66	3/4	2,914.69	3/4	2,563.37	3/4	1,860.57
10	10	4,639.61	10	4,310.32	10	3,963.27	10	3,611.30	10	3,259.33	10	2,907.36	10	2,556.15	10	2,205.16	10	1,853.24	
1/4	1/4		1/4		4,632.93	1/4	4,303.26	1/4	3,955.93	1/4	3,603.96	1/4	3,251.99	1/4	2,900.02	1/4	2,548.92	1/4	1,845.90
1/2	1/2		1/2		4,626.26	1/2	4,296.20	1/2	3,948.60	1/2	3,596.63	1/2	3,244.66	1/2	2,892.69	1/2	2,541.70	1/2	1,838.57
3/4	3/4		3/4		4,619.58	3/4	4,289.14	3/4	3,941.27	3/4	3,589.30	3/4	3,237.33	3/4	2,885.36	3/4	2,534.48	3/4	1,831.24
11	11	4,612.87	11	4,282.04	11	3,933.93	11	3,581.97	11	3,230.00	11	2,878.03	11	2,527.25	11	2,175.83	11	1,823.91	
1/4	1/4		1/4		4,606.16	1/4	4,274.95	1/4	3,926.60	1/4	3,574.63	1/4	3,222.66	1/4	2,870.69	1/4	2,520.03	1/4	1,816.57
1/2	1/2		1/2		4,599.46	1/2	4,267.86	1/2	3,919.27	1/2	3,567.30	1/2	3,215.33	1/2	2,863.36	1/2	2,512.80	1/2	1,809.24
3/4	3/4		3/4		4,592.75	3/4	4,260.77	3/4	3,911.94	3/4	3,559.97	3/4	3,208.00	3/4	2,856.03	3/4	2,505.58	3/4	1,801.91

CERTIFIED CHART FOR THE ABOVE NAMED TANK ONLY.

BARGE STRAPPED AND COMPUTED IN ACCORDANCE WITH MPMS CHAPTER 2.7.
 CAPACITY TABLE ONLY APPLIES WHEN BARGE IS ON EVEN KEEL.
 CAPACITY TABLE EXTENDS TO EXTREME HEIGHT OF TANK.
 CAPACITY TABLE ONLY APPLIES TO ULLAGE GAUGES TAKEN TO TOP OF 2" HERMETIC VALVE.
 GAUGE POINT: (HERMETIC) LOCATED 11'-06" OFF CENTERLINE AND 46'-00" FORWARD OF AFT BULKHEAD.

PRECISION MEASUREMENT
 & ANALYSIS, INC.
 P.O. Box 2092
 Pearland, Texas 77588
<http://www.pmacorp.net>



BARGE "CCL 417T"

2 STBD ULLAGE TABLE

CAPACITIES GIVEN IN BARRELS OF 42 U.S. GALLONS

GAUGE HEIGHT 15'-01 3/4"

IN	10 FT.	IN	11 FT.	IN	12 FT.	IN	13 FT.	IN	14 FT.	IN	15 FT.	IN	16 FT.	IN	17 FT.	IN	18 FT.	IN	19 FT.
0	1,794.58	0	1,442.62	0	1,093.72	0	750.76	0	402.89	0	51.43	0		0		0		0	
1/4	1,787.24	1/4	1,435.29	1/4	1,086.56	1/4	743.64	1/4	395.55	1/4	44.19	1/4		1/4		1/4		1/4	
1/2	1,779.91	1/2	1,427.96	1/2	1,079.41	1/2	736.53	1/2	388.22	1/2	36.95	1/2		1/2		1/2		1/2	
3/4	1,772.58	3/4	1,420.62	3/4	1,072.26	3/4	729.41	3/4	380.89	3/4	29.72	3/4		3/4		3/4		3/4	
1	1,765.25	1	1,413.29	1	1,065.10	1	722.29	1	373.56	1	24.22	1		1		1		1	
1/4	1,757.91	1/4	1,405.96	1/4	1,057.95	1/4	715.17	1/4	366.22	1/4	18.73	1/4		1/4		1/4		1/4	
1/2	1,750.58	1/2	1,398.63	1/2	1,050.80	1/2	708.06	1/2	358.89	1/2	13.23	1/2		1/2		1/2		1/2	
3/4	1,743.25	3/4	1,391.29	3/4	1,043.65	3/4	700.94	3/4	351.56	3/4	7.74	3/4		3/4		3/4		3/4	
2	1,735.92	2	1,383.96	2	1,036.49	2	693.82	2	344.23	2		2		2		2		2	
1/4	1,728.59	1/4	1,376.63	1/4	1,029.34	1/4	686.70	1/4	336.89	1/4		1/4		1/4		1/4		1/4	
1/2	1,721.25	1/2	1,369.30	1/2	1,022.19	1/2	679.59	1/2	329.56	1/2		1/2		1/2		1/2		1/2	
3/4	1,713.92	3/4	1,361.97	3/4	1,015.03	3/4	672.47	3/4	322.23	3/4		3/4		3/4		3/4		3/4	
3	1,706.59	3	1,354.63	3	1,007.88	3	665.35	3	314.90	3		3		3		3		3	
1/4	1,699.26	1/4	1,347.30	1/4	1,000.73	1/4	658.23	1/4	307.56	1/4		1/4		1/4		1/4		1/4	
1/2	1,691.92	1/2	1,339.97	1/2	993.57	1/2	651.12	1/2	300.23	1/2		1/2		1/2		1/2		1/2	
3/4	1,684.59	3/4	1,332.64	3/4	986.42	3/4	644.00	3/4	292.90	3/4		3/4		3/4		3/4		3/4	
4	1,677.26	4	1,325.30	4	979.27	4	636.88	4	285.57	4		4		4		4		4	
1/4	1,669.93	1/4	1,317.97	1/4	972.12	1/4	629.76	1/4	278.23	1/4		1/4		1/4		1/4		1/4	
1/2	1,662.59	1/2	1,310.64	1/2	964.96	1/2	622.65	1/2	270.90	1/2		1/2		1/2		1/2		1/2	
3/4	1,655.26	3/4	1,303.31	3/4	957.81	3/4	615.53	3/4	263.57	3/4		3/4		3/4		3/4		3/4	
5	1,647.93	5	1,295.97	5	950.66	5	608.20	5	256.24	5		5		5		5		5	
1/4	1,640.60	1/4	1,288.64	1/4	943.50	1/4	600.86	1/4	248.90	1/4		1/4		1/4		1/4		1/4	
1/2	1,633.26	1/2	1,281.31	1/2	936.35	1/2	593.53	1/2	241.57	1/2		1/2		1/2		1/2		1/2	
3/4	1,625.93	3/4	1,273.98	3/4	929.20	3/4	586.20	3/4	234.24	3/4		3/4		3/4		3/4		3/4	
6	1,618.60	6	1,266.64	6	922.04	6	578.87	6	226.91	6		6		6		6		6	
1/4	1,611.27	1/4	1,259.31	1/4	914.89	1/4	571.53	1/4	219.57	1/4		1/4		1/4		1/4		1/4	
1/2	1,603.93	1/2	1,251.98	1/2	907.74	1/2	564.20	1/2	212.24	1/2		1/2		1/2		1/2		1/2	
3/4	1,596.60	3/4	1,244.65	3/4	900.58	3/4	556.87	3/4	204.91	3/4		3/4		3/4		3/4		3/4	
7	1,589.27	7	1,237.31	7	893.43	7	549.54	7	197.58	7		7		7		7		7	
1/4	1,581.94	1/4	1,229.98	1/4	886.28	1/4	542.20	1/4	190.24	1/4		1/4		1/4		1/4		1/4	
1/2	1,574.60	1/2	1,222.65	1/2	879.12	1/2	534.87	1/2	182.91	1/2		1/2		1/2		1/2		1/2	
3/4	1,567.27	3/4	1,215.32	3/4	871.97	3/4	527.54	3/4	175.58	3/4		3/4		3/4		3/4		3/4	
8	1,559.94	8	1,208.16	8	864.82	8	520.21	8	168.25	8		8		8		8		8	
1/4	1,552.61	1/4	1,201.01	1/4	857.66	1/4	512.87	1/4	160.92	1/4		1/4		1/4		1/4		1/4	
1/2	1,545.28	1/2	1,193.86	1/2	850.51	1/2	505.54	1/2	153.60	1/2		1/2		1/2		1/2		1/2	
3/4	1,537.94	3/4	1,186.71	3/4	843.36	3/4	498.21	3/4	146.27	3/4		3/4		3/4		3/4		3/4	
9	1,530.61	9	1,179.55	9	836.23	9	490.88	9	138.95	9		9		9		9		9	
1/4	1,523.28	1/4	1,172.40	1/4	829.11	1/4	483.54	1/4	131.63	1/4		1/4		1/4		1/4		1/4	
1/2	1,515.95	1/2	1,165.25	1/2	821.98	1/2	476.21	1/2	124.31	1/2		1/2		1/2		1/2		1/2	
3/4	1,508.61	3/4	1,158.09	3/4	814.85	3/4	468.88	3/4	116.99	3/4		3/4		3/4		3/4		3/4	
10	1,501.28	10	1,150.94	10	807.73	10	461.55	10	109.69	10		10		10		10		10	
1/4	1,493.95	1/4	1,143.79	1/4	800.60	1/4	454.21	1/4	102.39	1/4		1/4		1/4		1/4		1/4	
1/2	1,486.62	1/2	1,136.63	1/2	793.48	1/2	446.88	1/2	95.08	1/2		1/2		1/2		1/2		1/2	
3/4	1,479.28	3/4	1,129.48	3/4	786.35	3/4	439.55	3/4	87.78	3/4		3/4		3/4		3/4		3/4	
11	1,471.95	11	1,122.33	11	779.23	11	432.22	11	80.50	11		11		11		11		11	
1/4	1,464.62	1/4	1,115.18	1/4	772.11	1/4	424.88	1/4	73.22	1/4		1/4		1/4		1/4		1/4	
1/2	1,457.29	1/2	1,108.02	1/2	765.00	1/2	417.55	1/2	65.94	1/2		1/2		1/2		1/2		1/2	
3/4	1,449.95	3/4	1,100.87	3/4	757.88	3/4	410.22	3/4	58.66	3/4		3/4		3/4		3/4		3/4	

CERTIFIED CHART FOR THE ABOVE NAMED TANK ONLY.

STRAPPED: 10/13/2019 SW - JS
CALCULATED: 10/14/2019 CL
PRINTED: 10/16/2019 SW

CANCELS AND SUPERCEDES
ALL PRIOR TO 10/2019

PRECISION MEASUREMENT
& ANALYSIS, INC.
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BARGE "CCL 417T"

3 PORT ULLAGE TABLE

CAPACITIES GIVEN IN BARRELS OF 42 U.S. GALLONS

GAUGE HEIGHT 15'-00 3/4"

IN	0 FT.	IN	1 FT.	IN	2 FT.	IN	3 FT.	IN	4 FT.	IN	5 FT.	IN	6 FT.	IN	7 FT.	IN	8 FT.	IN	9 FT.
0		0	4,623.88	0	4,477.32	0	4,321.03	0	4,157.28	0	3,826.94	0	3,447.20	0	3,066.89	0	2,686.13	0	2,307.05
1/4		1/4	4,620.89	1/4	4,474.15	1/4	4,317.68	1/4	4,153.85	1/4	3,819.06	1/4	3,439.28	1/4	3,058.96	1/4	2,678.20	1/4	2,299.12
1/2		1/2	4,617.90	1/2	4,470.98	1/2	4,314.33	1/2	4,150.42	1/2	3,811.18	1/2	3,431.35	1/2	3,051.03	1/2	2,670.26	1/2	2,291.19
3/4		3/4	4,614.91	3/4	4,467.81	3/4	4,310.98	3/4	4,146.98	3/4	3,803.30	3/4	3,423.43	3/4	3,043.10	3/4	2,662.33	3/4	2,283.26
1		1	4,611.94	1	4,464.63	1	4,307.62	1	4,143.55	1	3,795.42	1	3,415.51	1	3,035.17	1	2,654.40	1	2,275.33
1/4		1/4	4,608.97	1/4	4,461.44	1/4	4,304.25	1/4	4,140.12	1/4	3,787.54	1/4	3,407.59	1/4	3,027.24	1/4	2,646.47	1/4	2,267.40
1/2		1/2	4,606.00	1/2	4,458.26	1/2	4,300.89	1/2	4,136.69	1/2	3,779.66	1/2	3,399.67	1/2	3,019.31	1/2	2,638.53	1/2	2,259.46
3/4		3/4	4,603.02	3/4	4,455.07	3/4	4,297.52	3/4	4,133.26	3/4	3,771.78	3/4	3,391.75	3/4	3,011.38	3/4	2,630.60	3/4	2,251.53
2		2	4,600.04	2	4,451.88	2	4,294.14	2	4,129.82	2	3,763.90	2	3,383.83	2	3,003.45	2	2,622.67	2	2,243.60
1/4		1/4	4,597.05	1/4	4,448.68	1/4	4,290.76	1/4	4,126.39	1/4	3,756.02	1/4	3,375.91	1/4	2,995.52	1/4	2,614.73	1/4	2,235.67
1/2		1/2	4,594.07	1/2	4,445.48	1/2	4,287.38	1/2	4,122.96	1/2	3,748.15	1/2	3,367.99	1/2	2,987.59	1/2	2,606.80	1/2	2,227.73
3/4		3/4	4,591.08	3/4	4,442.28	3/4	4,284.00	3/4	4,119.53	3/4	3,740.27	3/4	3,360.07	3/4	2,979.66	3/4	2,598.87	3/4	2,219.80
3		3	4,588.08	3	4,439.06	3	4,280.61	3	4,111.59	3	3,732.34	3	3,352.15	3	2,971.72	3	2,590.93	3	2,211.87
1/4		1/4	4,585.08	1/4	4,435.85	1/4	4,277.22	1/4	4,103.66	1/4	3,724.42	1/4	3,344.23	1/4	2,963.79	1/4	2,583.00	1/4	2,203.93
1/2		1/2	4,582.08	1/2	4,432.63	1/2	4,273.82	1/2	4,095.72	1/2	3,716.50	1/2	3,336.30	1/2	2,955.86	1/2	2,575.07	1/2	2,196.00
3/4		3/4	4,579.08	3/4	4,429.42	3/4	4,270.43	3/4	4,087.79	3/4	3,708.58	3/4	3,328.38	3/4	2,947.92	3/4	2,567.13	3/4	2,188.07
4		4	4,576.07	4	4,426.19	4	4,267.02	4	4,079.85	4	3,700.66	4	3,320.46	4	2,939.99	4	2,559.20	4	2,180.13
1/4		1/4	4,573.05	1/4	4,422.96	1/4	4,263.61	1/4	4,071.92	1/4	3,692.74	1/4	3,312.54	1/4	2,932.06	1/4	2,551.27	1/4	2,172.20
1/2		1/2	4,570.03	1/2	4,419.73	1/2	4,260.20	1/2	4,063.98	1/2	3,684.82	1/2	3,304.62	1/2	2,924.12	1/2	2,543.34	1/2	2,164.27
3/4		3/4	4,567.02	3/4	4,416.50	3/4	4,256.79	3/4	4,056.05	3/4	3,676.90	3/4	3,296.70	3/4	2,916.19	3/4	2,535.40	3/4	2,156.33
5		5	4,563.99	5	4,413.25	5	4,253.36	5	4,048.11	5	3,668.98	5	3,288.78	5	2,908.26	5	2,527.47	5	2,148.40
1/4		1/4	4,560.96	1/4	4,410.01	1/4	4,249.94	1/4	4,040.18	1/4	3,661.06	1/4	3,280.86	1/4	2,900.32	1/4	2,519.54	1/4	2,140.47
1/2		1/2	4,557.93	1/2	4,406.76	1/2	4,246.51	1/2	4,032.24	1/2	3,653.14	1/2	3,272.94	1/2	2,892.39	1/2	2,511.60	1/2	2,132.53
3/4		3/4	4,554.90	3/4	4,403.52	3/4	4,243.09	3/4	4,024.31	3/4	3,645.22	3/4	3,265.02	3/4	2,884.46	3/4	2,503.67	3/4	2,124.60
6		6	4,551.85	6	4,400.26	6	4,239.66	6	4,016.37	6	3,637.30	6	3,257.10	6	2,876.53	6	2,495.82	6	2,116.67
1/4		1/4	4,548.81	1/4	4,397.00	1/4	4,236.22	1/4	4,008.44	1/4	3,629.37	1/4	3,249.18	1/4	2,868.59	1/4	2,487.96	1/4	2,108.73
1/2		1/2	4,545.76	1/2	4,393.74	1/2	4,232.79	1/2	4,000.50	1/2	3,621.45	1/2	3,241.26	1/2	2,860.66	1/2	2,480.11	1/2	2,100.80
3/4		3/4	4,542.72	3/4	4,390.48	3/4	4,229.36	3/4	3,992.57	3/4	3,613.53	3/4	3,233.33	3/4	2,852.73	3/4	2,472.25	3/4	2,092.87
7		7	4,539.65	7	4,387.20	7	4,225.93	7	3,984.67	7	3,605.61	7	3,225.41	7	2,844.79	7	2,464.43	7	2,084.93
1/4		1/4	4,536.59	1/4	4,383.93	1/4	4,222.50	1/4	3,976.78	1/4	3,597.69	1/4	3,217.49	1/4	2,836.86	1/4	2,456.60	1/4	2,077.00
1/2		1/2	4,533.53	1/2	4,380.65	1/2	4,219.06	1/2	3,968.89	1/2	3,589.72	1/2	3,209.57	1/2	2,828.93	1/2	2,448.77	1/2	2,069.07
3/4		3/4	4,530.47	3/4	4,377.38	3/4	4,215.63	3/4	3,961.00	3/4	3,581.85	3/4	3,201.65	3/4	2,820.99	3/4	2,440.94	3/4	2,061.13
8		8	4,527.40	8	4,374.09	8	4,212.20	8	3,953.10	8	3,573.93	8	3,193.73	8	2,813.06	8	2,433.11	8	2,053.20
1/4		1/4	4,524.32	1/4	4,370.80	1/4	4,208.77	1/4	3,945.21	1/4	3,566.01	1/4	3,185.81	1/4	2,805.13	1/4	2,425.29	1/4	2,045.27
1/2		1/2	4,521.25	1/2	4,367.51	1/2	4,205.33	1/2	3,937.32	1/2	3,558.09	1/2	3,177.89	1/2	2,797.19	1/2	2,417.46	1/2	2,037.33
3/4		3/4	4,518.17	3/4	4,364.22	3/4	4,201.90	3/4	3,929.43	3/4	3,550.17	3/4	3,169.97	3/4	2,789.26	3/4	2,409.63	3/4	2,029.40
9		9	4,515.05	9	4,360.92	9	4,198.47	9	3,921.54	9	3,542.25	9	3,162.05	9	2,781.33	9	2,401.80	9	2,021.47
1/4		1/4	4,511.92	1/4	4,357.61	1/4	4,195.04	1/4	3,913.64	1/4	3,534.32	1/4	3,154.13	1/4	2,773.40	1/4	2,393.97	1/4	2,013.53
1/2		1/2	4,508.80	1/2	4,354.31	1/2	4,191.60	1/2	3,905.75	1/2	3,526.40	1/2	3,146.21	1/2	2,765.46	1/2	2,386.15	1/2	2,005.60
3/4		3/4	4,505.67	3/4	4,351.00	3/4	4,188.17	3/4	3,897.86	3/4	3,518.48	3/4	3,138.28	3/4	2,757.53	3/4	2,378.32	3/4	1,997.67
10		10	4,502.53	10	4,347.68	10	4,184.74	10	3,889.98	10	3,510.56	10	3,130.35	10	2,749.60	10	2,370.41	10	1,989.73
1/4		1/4	4,499.39	1/4	4,344.36	1/4	4,181.31	1/4	3,882.10	1/4	3,502.64	1/4	3,122.42	1/4	2,741.66	1/4	2,362.51	1/4	1,981.80
1/2		1/2	4,496.25	1/2	4,341.04	1/2	4,177.88	1/2	3,874.22	1/2	3,494.72	1/2	3,114.49	1/2	2,733.73	1/2	2,354.60	1/2	1,973.87
3/4		3/4	4,493.11	3/4	4,337.72	3/4	4,174.44	3/4	3,866.34	3/4	3,486.80	3/4	3,106.55	3/4	2,725.80	3/4	2,346.70	3/4	1,965.93
11		11	4,489.96	11	4,334.39	11	4,171.01	11	3,858.46	11	3,478.88	11	3,098.62	11	2,717.86	11	2,338.77	11	1,958.00
1/4		1/4	4,486.80	1/4	4,331.05	1/4	4,167.58	1/4	3,850.58	1/4	3,470.96	1/4	3,090.69	1/4	2,709.93	1/4	2,330.84	1/4	1,950.07
1/2		1/2	4,483.65	1/2	4,327.72	1/2	4,164.15	1/2	3,842.70	1/2	3,463.04	1/2	3,082.75	1/2	2,702.00	1/2	2,322.91	1/2	1,942.13
3/4		3/4	4,480.49	3/4	4,324.38	3/4	4,160.71	3/4	3,834.82	3/4	3,455.12	3/4	3,074.82	3/4	2,694.06	3/4	2,314.98	3/4	1,934.20

CERTIFIED CHART FOR THE ABOVE NAMED TANK ONLY.

BARGE STRAPPED AND COMPUTED IN ACCORDANCE WITH MPMS CHAPTER 2.7.
 CAPACITY TABLE ONLY APPLIES WHEN BARGE IS ON EVEN KEEL.
 CAPACITY TABLE EXTENDS TO EXTREME HEIGHT OF TANK.
 CAPACITY TABLE ONLY APPLIES TO ULLAGE GAUGES TAKEN TO TOP OF 2" HERMETIC VALVE.
 GAUGE POINT: (HERMETIC) LOCATED 11'-06" OFF CENTERLINE AND 54'-09" FORWARD OF AFT BULKHEAD.

PRECISION MEASUREMENT
 & ANALYSIS, INC.
 P.O. Box 2092
 Pearland, Texas 77588
<http://www.pmacorp.net>



BARGE "CCL 417T"

3 PORT ULLAGE TABLE

CAPACITIES GIVEN IN BARRELS OF 42 U.S. GALLONS

GAUGE HEIGHT 15'-00 3/4"

IN	10 FT.	IN	11 FT.	IN	12 FT.	IN	13 FT.	IN	14 FT.	IN	15 FT.	IN	16 FT.	IN	17 FT.	IN	18 FT.	IN	19 FT.
0	1,926.27	0	1,545.47	0	1,164.67	0	784.40	0	404.13	0	26.18	0		0		0		0	
1/4	1,918.33	1/4	1,537.54	1/4	1,156.74	1/4	776.50	1/4	396.20	1/4	20.23	1/4		1/4		1/4		1/4	
1/2	1,910.40	1/2	1,529.60	1/2	1,148.80	1/2	768.61	1/2	388.27	1/2	14.28	1/2		1/2		1/2		1/2	
3/4	1,902.47	3/4	1,521.67	3/4	1,140.87	3/4	760.71	3/4	380.33	3/4	8.34	3/4		3/4		3/4		3/4	
1	1,894.53	1	1,513.74	1	1,132.94	1	752.81	1	372.40	1		1		1		1		1	
1/4	1,886.60	1/4	1,505.80	1/4	1,125.00	1/4	744.91	1/4	364.47	1/4		1/4		1/4		1/4		1/4	
1/2	1,878.67	1/2	1,497.87	1/2	1,117.07	1/2	737.01	1/2	356.53	1/2		1/2		1/2		1/2		1/2	
3/4	1,870.73	3/4	1,489.94	3/4	1,109.14	3/4	729.12	3/4	348.60	3/4		3/4		3/4		3/4		3/4	
2	1,862.80	2	1,482.00	2	1,101.20	2	721.22	2	340.67	2		2		2		2		2	
1/4	1,854.87	1/4	1,474.07	1/4	1,093.27	1/4	713.32	1/4	332.73	1/4		1/4		1/4		1/4		1/4	
1/2	1,846.93	1/2	1,466.14	1/2	1,085.34	1/2	705.42	1/2	324.80	1/2		1/2		1/2		1/2		1/2	
3/4	1,839.00	3/4	1,458.20	3/4	1,077.40	3/4	697.52	3/4	316.87	3/4		3/4		3/4		3/4		3/4	
3	1,831.07	3	1,450.27	3	1,069.47	3	689.63	3	308.93	3		3		3		3		3	
1/4	1,823.13	1/4	1,442.34	1/4	1,061.54	1/4	681.73	1/4	301.00	1/4		1/4		1/4		1/4		1/4	
1/2	1,815.20	1/2	1,434.40	1/2	1,053.60	1/2	673.83	1/2	293.07	1/2		1/2		1/2		1/2		1/2	
3/4	1,807.27	3/4	1,426.47	3/4	1,045.67	3/4	665.93	3/4	285.13	3/4		3/4		3/4		3/4		3/4	
4	1,799.33	4	1,418.54	4	1,037.74	4	658.00	4	277.20	4		4		4		4		4	
1/4	1,791.40	1/4	1,410.60	1/4	1,029.80	1/4	650.07	1/4	269.27	1/4		1/4		1/4		1/4		1/4	
1/2	1,783.47	1/2	1,402.67	1/2	1,021.87	1/2	642.13	1/2	261.33	1/2		1/2		1/2		1/2		1/2	
3/4	1,775.53	3/4	1,394.74	3/4	1,013.94	3/4	634.20	3/4	253.40	3/4		3/4		3/4		3/4		3/4	
5	1,767.60	5	1,386.80	5	1,006.00	5	626.27	5	245.47	5		5		5		5		5	
1/4	1,759.67	1/4	1,378.87	1/4	998.07	1/4	618.33	1/4	237.53	1/4		1/4		1/4		1/4		1/4	
1/2	1,751.73	1/2	1,370.94	1/2	990.14	1/2	610.40	1/2	229.60	1/2		1/2		1/2		1/2		1/2	
3/4	1,743.80	3/4	1,363.00	3/4	982.20	3/4	602.47	3/4	221.67	3/4		3/4		3/4		3/4		3/4	
6	1,735.87	6	1,355.07	6	974.27	6	594.53	6	213.73	6		6		6		6		6	
1/4	1,727.93	1/4	1,347.14	1/4	966.34	1/4	586.60	1/4	205.80	1/4		1/4		1/4		1/4		1/4	
1/2	1,720.00	1/2	1,339.20	1/2	958.40	1/2	578.67	1/2	197.87	1/2		1/2		1/2		1/2		1/2	
3/4	1,712.07	3/4	1,331.27	3/4	950.47	3/4	570.73	3/4	189.94	3/4		3/4		3/4		3/4		3/4	
7	1,704.13	7	1,323.34	7	942.54	7	562.80	7	182.01	7		7		7		7		7	
1/4	1,696.20	1/4	1,315.40	1/4	934.60	1/4	554.87	1/4	174.08	1/4		1/4		1/4		1/4		1/4	
1/2	1,688.27	1/2	1,307.47	1/2	926.67	1/2	546.93	1/2	166.15	1/2		1/2		1/2		1/2		1/2	
3/4	1,680.33	3/4	1,299.54	3/4	918.73	3/4	539.00	3/4	158.22	3/4		3/4		3/4		3/4		3/4	
8	1,672.40	8	1,291.60	8	910.83	8	531.07	8	150.30	8		8		8		8		8	
1/4	1,664.47	1/4	1,283.67	1/4	902.92	1/4	523.13	1/4	142.39	1/4		1/4		1/4		1/4		1/4	
1/2	1,656.53	1/2	1,275.74	1/2	895.02	1/2	515.20	1/2	134.47	1/2		1/2		1/2		1/2		1/2	
3/4	1,648.60	3/4	1,267.80	3/4	887.11	3/4	507.27	3/4	126.55	3/4		3/4		3/4		3/4		3/4	
9	1,640.67	9	1,259.87	9	879.20	9	499.33	9	118.65	9		9		9		9		9	
1/4	1,632.73	1/4	1,251.94	1/4	871.30	1/4	491.40	1/4	110.75	1/4		1/4		1/4		1/4		1/4	
1/2	1,624.80	1/2	1,244.00	1/2	863.39	1/2	483.47	1/2	102.84	1/2		1/2		1/2		1/2		1/2	
3/4	1,616.87	3/4	1,236.07	3/4	855.48	3/4	475.53	3/4	94.94	3/4		3/4		3/4		3/4		3/4	
10	1,608.94	10	1,228.14	10	847.59	10	467.60	10	87.07	10		10		10		10		10	
1/4	1,601.00	1/4	1,220.20	1/4	839.69	1/4	459.67	1/4	79.19	1/4		1/4		1/4		1/4		1/4	
1/2	1,593.07	1/2	1,212.27	1/2	831.79	1/2	451.73	1/2	71.31	1/2		1/2		1/2		1/2		1/2	
3/4	1,585.14	3/4	1,204.34	3/4	823.89	3/4	443.80	3/4	63.44	3/4		3/4		3/4		3/4		3/4	
11	1,577.20	11	1,196.40	11	815.99	11	435.87	11	55.61	11		11		11		11		11	
1/4	1,569.27	1/4	1,188.47	1/4	808.10	1/4	427.93	1/4	47.78	1/4		1/4		1/4		1/4		1/4	
1/2	1,561.34	1/2	1,180.54	1/2	800.20	1/2	420.00	1/2	39.95	1/2		1/2		1/2		1/2		1/2	
3/4	1,553.40	3/4	1,172.60	3/4	792.30	3/4	412.07	3/4	32.12	3/4		3/4		3/4		3/4		3/4	

CERTIFIED CHART FOR THE ABOVE NAMED TANK ONLY.

STRAPPED: 10/13/2019 SW - JS
CALCULATED: 10/14/2019 CL
PRINTED: 10/16/2019 SW

CANCELS AND SUPERCEDES
ALL PRIOR TO 10/2019

PRECISION MEASUREMENT
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BARGE "CCL 417T"

3 STBD ULLAGE TABLE

CAPACITIES GIVEN IN BARRELS OF 42 U.S. GALLONS

GAUGE HEIGHT 15'-01 1/4"

IN	0 FT.	IN	1 FT.	IN	2 FT.	IN	3 FT.	IN	4 FT.	IN	5 FT.	IN	6 FT.	IN	7 FT.	IN	8 FT.	IN	9 FT.
0		0		0	4,446.74	0	4,290.93	0	4,127.48	0	3,805.52	0	3,425.43	0	3,045.34	0	2,667.10	0	2,289.40
1/4		1/4	4,590.94	1/4	4,443.59	1/4	4,287.60	1/4	4,124.05	1/4	3,797.60	1/4	3,417.51	1/4	3,037.42	1/4	2,659.24	1/4	2,281.60
1/2		1/2	4,587.95	1/2	4,440.42	1/2	4,284.25	1/2	4,120.62	1/2	3,789.69	1/2	3,409.59	1/2	3,029.50	1/2	2,651.32	1/2	2,273.80
3/4		3/4	4,584.97	3/4	4,437.26	3/4	4,280.91	3/4	4,117.19	3/4	3,781.77	3/4	3,401.67	3/4	3,021.58	3/4	2,643.40	3/4	2,266.01
1		1	4,581.98	1	4,434.09	1	4,277.56	1	4,113.76	1	3,773.85	1	3,393.76	1	3,013.66	1	2,635.49	1	2,258.21
1/4		1/4	4,578.99	1/4	4,430.92	1/4	4,274.21	1/4	4,110.33	1/4	3,765.93	1/4	3,385.84	1/4	3,005.74	1/4	2,627.57	1/4	2,250.41
1/2		1/2	4,575.99	1/2	4,427.74	1/2	4,270.85	1/2	4,106.91	1/2	3,758.01	1/2	3,377.92	1/2	2,997.83	1/2	2,619.66	1/2	2,242.62
3/4		3/4	4,572.99	3/4	4,424.56	3/4	4,267.49	3/4	4,103.48	3/4	3,750.09	3/4	3,370.00	3/4	2,989.91	3/4	2,611.74	3/4	2,234.82
2		2	4,569.98	2	4,421.37	2	4,264.13	2	4,100.05	2	3,742.17	2	3,362.08	2	2,981.99	2	2,603.83	2	2,227.02
1/4		1/4	4,566.98	1/4	4,418.19	1/4	4,260.76	1/4	4,096.62	1/4	3,734.25	1/4	3,354.16	1/4	2,974.07	1/4	2,595.91	1/4	2,219.23
1/2		1/2	4,563.96	1/2	4,414.99	1/2	4,257.39	1/2	4,093.19	1/2	3,726.34	1/2	3,346.24	1/2	2,966.15	1/2	2,587.99	1/2	2,211.43
3/4		3/4	4,560.95	3/4	4,411.80	3/4	4,254.01	3/4	4,089.76	3/4	3,718.42	3/4	3,338.32	3/4	2,958.23	3/4	2,580.08	3/4	2,203.63
3		3	4,557.93	3	4,408.60	3	4,250.63	3	4,086.33	3	3,710.50	3	3,330.41	3	2,950.31	3	2,572.16	3	2,195.84
1/4		1/4	4,554.91	1/4	4,405.40	1/4	4,247.25	1/4	4,082.90	1/4	3,702.58	1/4	3,322.49	1/4	2,942.39	1/4	2,564.24	1/4	2,188.04
1/2		1/2	4,551.88	1/2	4,402.19	1/2	4,243.86	1/2	4,074.96	1/2	3,694.66	1/2	3,314.57	1/2	2,934.48	1/2	2,556.32	1/2	2,180.24
3/4		3/4	4,548.85	3/4	4,398.98	3/4	4,240.47	3/4	4,067.03	3/4	3,686.74	3/4	3,306.65	3/4	2,926.56	3/4	2,548.40	3/4	2,172.44
4		4	4,545.82	4	4,395.77	4	4,237.08	4	4,059.10	4	3,678.82	4	3,298.73	4	2,918.65	4	2,540.48	4	2,164.65
1/4		1/4	4,542.78	1/4	4,392.55	1/4	4,233.69	1/4	4,051.17	1/4	3,670.91	1/4	3,290.81	1/4	2,910.73	1/4	2,532.57	1/4	2,156.85
1/2		1/2	4,539.74	1/2	4,389.33	1/2	4,230.28	1/2	4,043.23	1/2	3,662.99	1/2	3,282.89	1/2	2,902.82	1/2	2,524.65	1/2	2,149.05
3/4		3/4	4,536.69	3/4	4,386.10	3/4	4,226.87	3/4	4,035.30	3/4	3,655.07	3/4	3,274.98	3/4	2,894.90	3/4	2,516.73	3/4	2,141.26
5		5	4,533.64	5	4,382.87	5	4,223.46	5	4,027.37	5	3,647.15	5	3,267.06	5	2,886.99	5	2,508.81	5	2,133.46
1/4		1/4	4,530.59	1/4	4,379.64	1/4	4,220.06	1/4	4,019.44	1/4	3,639.23	1/4	3,259.14	1/4	2,879.07	1/4	2,500.89	1/4	2,125.66
1/2		1/2	4,527.53	1/2	4,376.40	1/2	4,216.63	1/2	4,011.50	1/2	3,631.31	1/2	3,251.22	1/2	2,871.16	1/2	2,492.97	1/2	2,117.87
3/4		3/4	4,524.47	3/4	4,373.16	3/4	4,213.21	3/4	4,003.57	3/4	3,623.39	3/4	3,243.30	3/4	2,863.24	3/4	2,485.05	3/4	2,110.07
6		6	4,521.41	6	4,369.92	6	4,209.79	6	3,995.64	6	3,615.48	6	3,235.38	6	2,855.33	6	2,477.13	6	2,102.27
1/4		1/4	4,518.34	1/4	4,366.68	1/4	4,206.37	1/4	3,987.71	1/4	3,607.56	1/4	3,227.46	1/4	2,847.41	1/4	2,469.21	1/4	2,094.48
1/2		1/2	4,515.27	1/2	4,363.42	1/2	4,202.94	1/2	3,979.77	1/2	3,599.64	1/2	3,219.55	1/2	2,839.51	1/2	2,461.29	1/2	2,086.68
3/4		3/4	4,512.19	3/4	4,360.16	3/4	4,199.51	3/4	3,971.84	3/4	3,591.72	3/4	3,211.63	3/4	2,831.61	3/4	2,453.37	3/4	2,078.88
7		7	4,509.11	7	4,356.90	7	4,196.08	7	3,963.91	7	3,583.80	7	3,203.71	7	2,823.70	7	2,445.46	7	2,071.09
1/4		1/4	4,506.04	1/4	4,353.65	1/4	4,192.65	1/4	3,955.98	1/4	3,575.88	1/4	3,195.79	1/4	2,815.80	1/4	2,437.54	1/4	2,063.29
1/2		1/2	4,502.94	1/2	4,350.37	1/2	4,189.22	1/2	3,948.06	1/2	3,567.96	1/2	3,187.87	1/2	2,807.95	1/2	2,429.74	1/2	2,055.48
3/4		3/4	4,499.85	3/4	4,347.10	3/4	4,185.79	3/4	3,940.14	3/4	3,560.05	3/4	3,179.95	3/4	2,800.10	3/4	2,421.94	3/4	2,047.66
8		8	4,496.76	8	4,343.83	8	4,182.36	8	3,932.22	8	3,552.13	8	3,172.03	8	2,792.25	8	2,414.15	8	2,039.85
1/4		1/4	4,493.67	1/4	4,340.56	1/4	4,178.93	1/4	3,924.30	1/4	3,544.21	1/4	3,164.12	1/4	2,784.40	1/4	2,406.35	1/4	2,032.04
1/2		1/2	4,490.56	1/2	4,337.27	1/2	4,175.50	1/2	3,916.38	1/2	3,536.29	1/2	3,156.20	1/2	2,776.59	1/2	2,398.55	1/2	2,024.22
3/4		3/4	4,487.45	3/4	4,333.98	3/4	4,172.07	3/4	3,908.46	3/4	3,528.37	3/4	3,148.28	3/4	2,768.79	3/4	2,390.76	3/4	2,016.41
9		9	4,484.34	9	4,330.70	9	4,168.64	9	3,900.55	9	3,520.45	9	3,140.36	9	2,760.98	9	2,382.96	9	2,008.60
1/4		1/4	4,481.24	1/4	4,327.41	1/4	4,165.21	1/4	3,892.63	1/4	3,512.53	1/4	3,132.44	1/4	2,753.17	1/4	2,375.16	1/4	2,000.78
1/2		1/2	4,478.11	1/2	4,324.11	1/2	4,161.78	1/2	3,884.71	1/2	3,504.62	1/2	3,124.52	1/2	2,745.36	1/2	2,367.36	1/2	1,992.97
3/4		3/4	4,474.99	3/4	4,320.80	3/4	4,158.35	3/4	3,876.79	3/4	3,496.70	3/4	3,116.60	3/4	2,737.55	3/4	2,359.57	3/4	1,985.16
10		10	4,471.87	10	4,317.50	10	4,154.92	10	3,868.87	10	3,488.78	10	3,108.69	10	2,729.74	10	2,351.77	10	1,977.34
1/4		1/4	4,468.75	1/4	4,314.20	1/4	4,151.49	1/4	3,860.95	1/4	3,480.86	1/4	3,100.77	1/4	2,721.93	1/4	2,343.97	1/4	1,969.53
1/2		1/2	4,465.61	1/2	4,310.88	1/2	4,148.06	1/2	3,853.03	1/2	3,472.94	1/2	3,092.85	1/2	2,714.12	1/2	2,336.18	1/2	1,961.72
3/4		3/4	4,462.47	3/4	4,307.56	3/4	4,144.63	3/4	3,845.12	3/4	3,465.02	3/4	3,084.93	3/4	2,706.31	3/4	2,328.38	3/4	1,953.90
11		11	4,459.34	11	4,304.25	11	4,141.20	11	3,837.20	11	3,457.10	11	3,077.01	11	2,698.50	11	2,320.58	11	1,946.09
1/4		1/4	4,456.20	1/4	4,300.93	1/4	4,137.77	1/4	3,829.28	1/4	3,449.19	1/4	3,069.09	1/4	2,690.69	1/4	2,312.79	1/4	1,938.28
1/2		1/2	4,453.05	1/2	4,297.60	1/2	4,134.34	1/2	3,821.36	1/2	3,441.27	1/2	3,061.17	1/2	2,682.83	1/2	2,304.99	1/2	1,930.47
3/4		3/4	4,449.89	3/4	4,294.27	3/4	4,130.91	3/4	3,813.44	3/4	3,433.35	3/4	3,053.26	3/4	2,674.96	3/4	2,297.19	3/4	1,922.65

CERTIFIED CHART FOR THE ABOVE NAMED TANK ONLY.

BARGE STRAPPED AND COMPUTED IN ACCORDANCE WITH MPMS CHAPTER 2.7.
 CAPACITY TABLE ONLY APPLIES WHEN BARGE IS ON EVEN KEEL.
 CAPACITY TABLE EXTENDS TO EXTREME HEIGHT OF TANK.
 CAPACITY TABLE ONLY APPLIES TO ULLAGE GAUGES TAKEN TO TOP OF 2" HERMETIC VALVE.
 GAUGE POINT: (HERMETIC) LOCATED 11'-06" OFF CENTERLINE AND 54'-09" FORWARD OF AFT BULKHEAD.

PRECISION MEASUREMENT
 & ANALYSIS, INC.
 P.O. Box 2092
 Pearland, Texas 77588
<http://www.pmacorp.net>



BARGE "CCL 417T"

3 STBD ULLAGE TABLE

CAPACITIES GIVEN IN BARRELS OF 42 U.S. GALLONS

GAUGE HEIGHT 15'-01 1/4"

IN	10 FT.	IN	11 FT.	IN	12 FT.	IN	13 FT.	IN	14 FT.	IN	15 FT.	IN	16 FT.	IN	17 FT.	IN	18 FT.	IN	19 FT.
0	1,914.84	0	1,539.82	0	1,166.66	0	796.09	0	419.75	0	39.96	0		0		0		0	
1/4	1,907.03	1/4	1,532.00	1/4	1,158.92	1/4	788.39	1/4	411.83	1/4	32.13	1/4		1/4		1/4		1/4	
1/2	1,899.21	1/2	1,524.19	1/2	1,151.19	1/2	780.70	1/2	403.91	1/2	26.19	1/2		1/2		1/2		1/2	
3/4	1,891.40	3/4	1,516.37	3/4	1,143.46	3/4	773.00	3/4	395.99	3/4	20.24	3/4		3/4		3/4		3/4	
1	1,883.59	1	1,508.56	1	1,135.73	1	765.31	1	388.07	1	14.29	1		1		1		1	
1/4	1,875.77	1/4	1,500.75	1/4	1,128.00	1/4	757.61	1/4	380.15	1/4	8.34	1/4		1/4		1/4		1/4	
1/2	1,867.96	1/2	1,492.93	1/2	1,120.27	1/2	749.92	1/2	372.23	1/2		1/2		1/2		1/2		1/2	
3/4	1,860.15	3/4	1,485.12	3/4	1,112.54	3/4	742.23	3/4	364.31	3/4		3/4		3/4		3/4		3/4	
2	1,852.33	2	1,477.31	2	1,104.81	2	734.53	2	356.39	2		2		2		2		2	
1/4	1,844.52	1/4	1,469.49	1/4	1,097.08	1/4	726.84	1/4	348.47	1/4		1/4		1/4		1/4		1/4	
1/2	1,836.71	1/2	1,461.68	1/2	1,089.35	1/2	719.14	1/2	340.55	1/2		1/2		1/2		1/2		1/2	
3/4	1,828.89	3/4	1,453.87	3/4	1,081.62	3/4	711.45	3/4	332.63	3/4		3/4		3/4		3/4		3/4	
3	1,821.08	3	1,446.05	3	1,073.89	3	703.75	3	324.71	3		3		3		3		3	
1/4	1,813.27	1/4	1,438.24	1/4	1,066.16	1/4	696.06	1/4	316.79	1/4		1/4		1/4		1/4		1/4	
1/2	1,805.45	1/2	1,430.43	1/2	1,058.43	1/2	688.36	1/2	308.87	1/2		1/2		1/2		1/2		1/2	
3/4	1,797.64	3/4	1,422.61	3/4	1,050.70	3/4	680.67	3/4	300.95	3/4		3/4		3/4		3/4		3/4	
4	1,789.83	4	1,414.80	4	1,042.97	4	672.97	4	293.03	4		4		4		4		4	
1/4	1,782.01	1/4	1,406.99	1/4	1,035.25	1/4	665.28	1/4	285.11	1/4		1/4		1/4		1/4		1/4	
1/2	1,774.20	1/2	1,399.17	1/2	1,027.52	1/2	657.36	1/2	277.18	1/2		1/2		1/2		1/2		1/2	
3/4	1,766.39	3/4	1,391.36	3/4	1,019.79	3/4	649.44	3/4	269.24	3/4		3/4		3/4		3/4		3/4	
5	1,758.57	5	1,383.55	5	1,012.06	5	641.52	5	261.31	5		5		5		5		5	
1/4	1,750.76	1/4	1,375.73	1/4	1,004.33	1/4	633.60	1/4	253.38	1/4		1/4		1/4		1/4		1/4	
1/2	1,742.95	1/2	1,367.92	1/2	996.60	1/2	625.68	1/2	245.45	1/2		1/2		1/2		1/2		1/2	
3/4	1,735.14	3/4	1,360.11	3/4	988.87	3/4	617.76	3/4	237.51	3/4		3/4		3/4		3/4		3/4	
6	1,727.32	6	1,352.29	6	981.14	6	609.84	6	229.58	6		6		6		6		6	
1/4	1,719.51	1/4	1,344.48	1/4	973.41	1/4	601.92	1/4	221.65	1/4		1/4		1/4		1/4		1/4	
1/2	1,711.70	1/2	1,336.67	1/2	965.68	1/2	594.00	1/2	213.72	1/2		1/2		1/2		1/2		1/2	
3/4	1,703.88	3/4	1,328.85	3/4	957.95	3/4	586.08	3/4	205.79	3/4		3/4		3/4		3/4		3/4	
7	1,696.07	7	1,321.04	7	950.22	7	578.16	7	197.85	7		7		7		7		7	
1/4	1,688.26	1/4	1,313.23	1/4	942.49	1/4	570.24	1/4	189.92	1/4		1/4		1/4		1/4		1/4	
1/2	1,680.44	1/2	1,305.60	1/2	934.76	1/2	562.31	1/2	182.00	1/2		1/2		1/2		1/2		1/2	
3/4	1,672.63	3/4	1,297.97	3/4	927.03	3/4	554.39	3/4	174.07	3/4		3/4		3/4		3/4		3/4	
8	1,664.82	8	1,290.33	8	919.30	8	546.47	8	166.14	8		8		8		8		8	
1/4	1,657.00	1/4	1,282.70	1/4	911.57	1/4	538.55	1/4	158.21	1/4		1/4		1/4		1/4		1/4	
1/2	1,649.19	1/2	1,274.97	1/2	903.87	1/2	530.63	1/2	150.30	1/2		1/2		1/2		1/2		1/2	
3/4	1,641.38	3/4	1,267.23	3/4	896.16	3/4	522.71	3/4	142.38	3/4		3/4		3/4		3/4		3/4	
9	1,633.56	9	1,259.49	9	888.46	9	514.79	9	134.46	9		9		9		9		9	
1/4	1,625.75	1/4	1,251.76	1/4	880.76	1/4	506.87	1/4	126.55	1/4		1/4		1/4		1/4		1/4	
1/2	1,617.94	1/2	1,244.02	1/2	873.06	1/2	498.95	1/2	118.65	1/2		1/2		1/2		1/2		1/2	
3/4	1,610.13	3/4	1,236.28	3/4	865.35	3/4	491.03	3/4	110.74	3/4		3/4		3/4		3/4		3/4	
10	1,602.31	10	1,228.55	10	857.65	10	483.11	10	102.84	10		10		10		10		10	
1/4	1,594.50	1/4	1,220.81	1/4	849.95	1/4	475.19	1/4	94.94	1/4		1/4		1/4		1/4		1/4	
1/2	1,586.69	1/2	1,213.08	1/2	842.25	1/2	467.27	1/2	87.07	1/2		1/2		1/2		1/2		1/2	
3/4	1,578.88	3/4	1,205.34	3/4	834.56	3/4	459.35	3/4	79.19	3/4		3/4		3/4		3/4		3/4	
11	1,571.07	11	1,197.60	11	826.86	11	451.43	11	71.32	11		11		11		11		11	
1/4	1,563.26	1/4	1,189.87	1/4	819.17	1/4	443.51	1/4	63.44	1/4		1/4		1/4		1/4		1/4	
1/2	1,555.44	1/2	1,182.13	1/2	811.48	1/2	435.59	1/2	55.62	1/2		1/2		1/2		1/2		1/2	
3/4	1,547.63	3/4	1,174.39	3/4	803.78	3/4	427.67	3/4	47.79	3/4		3/4		3/4		3/4		3/4	

CERTIFIED CHART FOR THE ABOVE NAMED TANK ONLY.

STRAPPED: 10/13/2019 SW - JS
CALCULATED: 10/14/2019 CL
PRINTED: 10/16/2019 SW

CANCELS AND SUPERCEDES
ALL PRIOR TO 10/2019

PRECISION MEASUREMENT
& ANALYSIS, INC.
P.O. Box 2092
Pearland, Texas 77588
<http://www.pmacorp.net>

Pump Performance Datasheet

Customer :	Quote number :
Customer reference :	Size : 12LS/H
Item number : Default	Stages : 3 (2 / 1x)
Service :	Based on curve number : 16G-H-4
Quantity : 1	Date last saved : 21/02/2019 2:10 PM

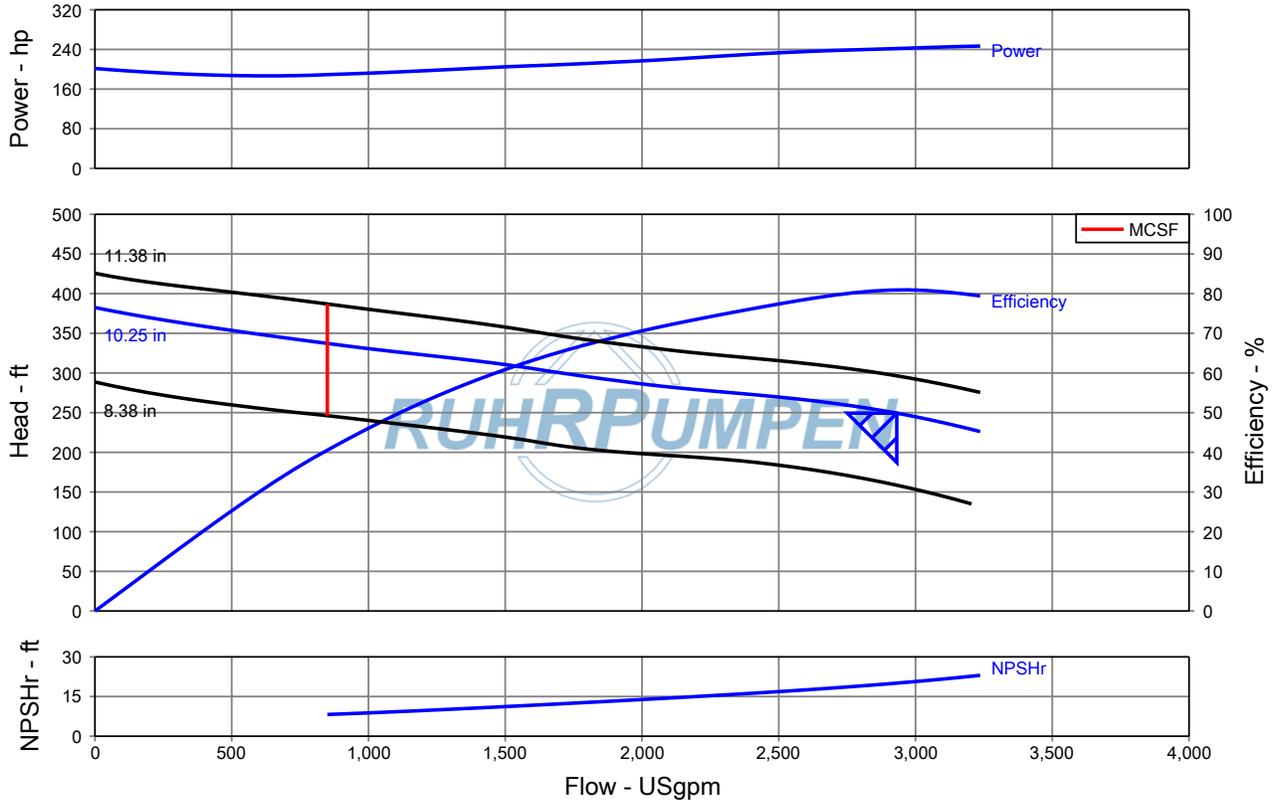
Operating Conditions	Liquid
Flow, rated : 2,931.5 USgpm	Liquid type : Water
Differential head / pressure, rated (requested) : 249.4 ft	Additional liquid description :
Differential head / pressure, rated (actual) : 249.4 ft	Solids diameter, max : 0.00 in
Suction pressure, rated / max : 0.00 / 0.00 psi.g	Solids concentration, by volume : 0.00 %
NPSH available, rated : Ample	Temperature, max : 68.00 deg F
Frequency : 60 Hz	Fluid density, rated / max : 1.060 / 1.060 SG
	Viscosity, rated : 1.00 cP
	Vapor pressure, rated : 0.34 psi.a

Performance	Material
Speed, rated : 1770 rpm	Material selected : CIBF
Impeller diameter, rated : 10.25 in	
Impeller diameter, maximum : 11.38 in	
Impeller diameter, minimum : 8.38 in	
Efficiency : 80.94 %	
NPSH required / margin required : 20.07 / 0.00 ft	
nq (imp. eye flow) / S (imp. eye flow) : 109 / 196 Metric units	
MCSF : 849.6 USgpm	
Head, maximum, rated diameter : 382.4 ft	
Head rise to shutoff (bowl / pump) : 53.36 / - %	
Flow, best eff. point (bowl / pump) : 2,961.9 / - USgpm	
Flow ratio, rated / BEP (bowl / pump) : 98.98 / - %	
Diameter ratio (rated / max) : 90.11 %	
Head ratio (rated dia / max dia) : 84.13 %	
Cq/Ch/Ce/Cn [ANSI/HI 9.6.7-2010] : 1.00 / 1.00 / 1.00 / 1.00	
Selection status : Acceptable	

Pressure Data	
Maximum discharge pressure	: See the Additional Data page
Maximum allowable working pressure	: See the Additional Data page
Maximum allowable suction pressure	: N/A
Hydrostatic test pressure	: See the Additional Data page

Driver & Power Data (@Max density)	
Driver sizing specification	: Rated power
Margin over specification	: 0.00 %
Service factor	: 1.00
Power, hydraulic	: 196 hp
Power (bowl / pump)	: 242 / - hp
Power, maximum, rated diameter	: 247 hp
Minimum recommended motor rating	: 250 hp / 186 kW

Bowl performance. Adjusted for construction and viscosity.
The duty point represents the head at the bowl.





Marine Safety Center Vapor Control System (VCS) Plan Review Information Sheet (PRIS)



Vessel Name	CCL 417T	Shipyard	West Gulf Marine
Official Number	1298307	Hull Number	285

1. This sheet consolidates critical VCS parameters for MSC Staff Engineers and CG Field Inspectors dealing with Vapor Control Systems. CG Inspectors should verify the vessel's VCS design is consistent with the information listed in boxes 2, 6, 7 & 8 prior to updating the vapor control endorsement on the vessel's Certificate of Inspection. For cases where the information in the VCS PRIS does not reflect the vessel's design the CG Inspector should contact the MSC's Cargo Authority branch.

2. Tank Maximum Design Working Pressure	6.50	psig	Raised Trunk <input checked="" type="checkbox"/>
			Flush Deck <input type="checkbox"/>
3. Authorized Maximum Cargo Transfer Rate(s)	4,000	bbl/hr loading (max 2 tanks simultaneously)	
	4,576	bbl/hr discharging	
4. Authorized Maximum Vapor-Air Mixture Density	0.442	lbm/ft ³	
5. Authorized VCS Categories	1 Through 7		

6. Cargoes with the highest vapor density and/or pressure drop:

a. Cargo Name Pentane (all isomers) [PTY]

b. Cargo Name Pentane (all isomers) [PTY]

7. Pressure Vacuum Valve:		8. VCS Pipe Sizes:	
Manufacturer	ERL SUPERAC	Settings in psig:	Approx. Inside Diameter
Size	MODEL II PV-6	Pressure-side	Longitudinal Header (inches)
CG Approval	162.017/167/4	Vacuum-side	Transverse Header (Inches)
		6	8 & 10
		3	8
Required Venting Capacity of Pressure-Side of P/V valve		10671	bbl/hr (air)
Required Venting Capacity of Vacuum-Side of P/V valve		4576	bbl/hr (air)

9. Tank Overfill Protection System (check appropriate box or boxes)

a. High Level/Tank Overfill Alarm	<input checked="" type="checkbox"/>	Type	ERL	
b. Overfill Control Shutdown	<input checked="" type="checkbox"/>	Type	ERL	
c. Spill Valve	<input type="checkbox"/>	Type	N/A	Meets ASTM F1271 Setting in psig N/A
d. Rupture Disk	<input type="checkbox"/>	Type	N/A	

10. Closed Gauging Verify the vessel has closed gauging that satisfies 46 CFR 39.2003 and 151.15-10(c).

11. Instructions/Guidelines for the OCMI:

11a. The following is the Marine Safety Center's recommended COI endorsement:

In accordance with 46 CFR Part 39, excluding part 39.4000, this vessel's vapor collection system has been inspected to the plans approved by MSC Letter C1-1901188 dated April 23, 2019 MSC Letter C1-2000074 dated January 7, 2020 and has been found acceptable for the collection of bulk liquid cargo vapors annotated with "Yes" in the CAA's VCS column of the vessel's Cargo Authority Attachment. The VCS system has been approved with a pressure side 6 psig P/V valve with Coast Guard Approval 162.017/167/4. The cargo tank top is suitable for a maximum allowable working pressure (MAWP) of 6.5 psi. When the vessel is carrying cargoes containing greater than 0.5% benzene, the person in charge is responsible for ensuring the provisions of 46 US Code of Federal Regulations Part 197, Subpart C are applied.

11b. The MSC approval letter/s must be available at the OCMI's request.

11c. Verify isolation valve at the vapor connection flange is manually operable and designed in a way it is "clearly" open or closed.

11d. Previous applicable approval letters: MSC Letter C1-1901188 dated April 23, 2019

VCS Approval Letter	MSC Letter C1-2000074 dated January 7, 2020	MSC Plan Reviewer	LT Joel MacArthur
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Marine Safety Center Vapor Control System (VCS) Plan Review Information Sheet (PRIS)



Vessel Name	CCL 417T	Shipyard	West Gulf Marine
Official Number	1298307	Hull Number	285

1. This sheet consolidates critical VCS parameters for MSC Staff Engineers and CG Field Inspectors dealing with Vapor Control Systems. CG Inspectors should verify the vessel's VCS design is consistent with the information listed in boxes 2, 6, 7 & 8 prior to updating the vapor control endorsement on the vessel's Certificate of Inspection. For cases where the information in the VCS PRIS does not reflect the vessel's design the CG Inspector should contact the MSC's Cargo Authority branch.

2. Tank Maximum Design Working Pressure	<input style="width: 80%;" type="text" value="6.50"/>	psig	Raised Trunk <input checked="" type="checkbox"/>
			Flush Deck <input type="checkbox"/>
3. Authorized Maximum Cargo Transfer Rate(s)	<input style="width: 80%;" type="text" value="4,000"/>	bbl/hr loading (max 2 tanks simultaneously)	
	<input style="width: 80%;" type="text" value="4,576"/>	bbl/hr discharging	
4. Authorized Maximum Vapor-Air Mixture Density	<input style="width: 80%;" type="text" value="0.442"/>	lbm/ft ³	
5. Authorized VCS Categories	<input style="width: 80%;" type="text" value="1 Through 7"/>		

6. Cargoes with the highest vapor density and/or pressure drop:

a. Cargo Name Pentane (all isomers) [PTY]

b. Cargo Name Pentane (all isomers) [PTY]

7. Pressure Vacuum Valve:		8. VCS Pipe Sizes:	
Manufacturer	<input style="width: 90%;" type="text" value="ERL SUPERAC"/>	Settings in psig:	Approx. Inside Diameter
Size	<input style="width: 90%;" type="text" value="MODEL II PV-6"/>	Pressure-side	Longitudinal Header (inches)
CG Approval	<input style="width: 90%;" type="text" value="162.017/167/4"/>	Vacuum-side	Transverse Header (Inches)
		<input style="width: 80%;" type="text" value="6"/>	<input style="width: 80%;" type="text" value="8 & 10"/>
		<input style="width: 80%;" type="text" value="3"/>	<input style="width: 80%;" type="text" value="8"/>
Required Venting Capacity of Pressure-Side of P/V valve		<input style="width: 80%;" type="text" value="10671"/>	<input style="width: 80%;" type="text" value="bbl/hr (air)"/>
Required Venting Capacity of Vacuum-Side of P/V valve		<input style="width: 80%;" type="text" value="4576"/>	<input style="width: 80%;" type="text" value="bbl/hr (air)"/>

9. Tank Overfill Protection System (check appropriate box or boxes)

a. High Level/Tank Overfill Alarm	<input checked="" type="checkbox"/>	Type	<input style="width: 90%;" type="text" value="ERL"/>		
b. Overfill Control Shutdown	<input checked="" type="checkbox"/>	Type	<input style="width: 90%;" type="text" value="ERL"/>		
c. Spill Valve	<input type="checkbox"/>	Type	<input style="width: 90%;" type="text" value="N/A"/>		
d. Rupture Disk	<input type="checkbox"/>	Type	<input style="width: 90%;" type="text" value="N/A"/>		

Meets ASTM F1271

10. Closed Gauging Verify the vessel has closed gauging that satisfies 46 CFR 39.2003 and 151.15-10(c).

11. Instructions/Guidelines for the OCMI:

11a. The following is the Marine Safety Center's recommended COI endorsement:

In accordance with 46 CFR Part 39, excluding part 39.4000, this vessel's vapor collection system has been inspected to the plans approved by MSC Letter C1-1901188 dated April 23, 2019 MSC Letter C1-2000074 dated January 7, 2020 and has been found acceptable for the collection of bulk liquid cargo vapors annotated with "Yes" in the CAA's VCS column of the vessel's Cargo Authority Attachment. The VCS system has been approved with a pressure side 6 psig P/V valve with Coast Guard Approval 162.017/167/4. The cargo tank top is suitable for a maximum allowable working pressure (MAWP) of 6.5 psi. When the vessel is carrying cargoes containing greater than 0.5% benzene, the person in charge is responsible for ensuring the provisions of 46 US Code of Federal Regulations Part 197, Subpart C are applied.

11b. The MSC approval letter/s must be available at the OCMI's request.

11c. Verify isolation valve at the vapor connection flange is manually operable and designed in a way it is "clearly" open or closed.

11d. Previous applicable approval letters:

U.S. Department of
Homeland Security

United States
Coast Guard



Commanding Officer
United States Coast Guard
Marine Safety Center

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

16710/P022172/jdm1
Serial: C1-2000074
January 7, 2020

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

Subj: CCL 417T, O.N. 1298307
West Gulf Marine Hull No. 285
300' x 54' x 13' Unmanned Double Hull Inland Tank Barge Hull Type I (D/O)
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
Maximum Cargo Density: 14.07 lbs/gal
Rivers; Lakes, Bays, and Sounds
Modification: Vapor Collection System

Ref: (a) Doc. No. -, "Vapor Recovery System Calculations," 14 Pages, dated March 26, 2019
(b) Dwg. No. VP1-285, Rev. 1, "Vapor Piping and Arrangement," Sheets 1 of 3, dated
December 30, 2019
(c) Our letter Serial No. C1-1901188, dated April 23, 2019

Dear Mr. Kumaria:

We reviewed references (a) and (b), submitted by your emails dated March 27, 2019 (MSC Document Nos. 1911714) and January 2, 2020 (MSC Document No. 2010050), for compliance with 46 CFR Part 39, excluding Subpart 39.4000. Reference (a) is **Approved**. The installation, workmanship and testing shall be accomplished to the satisfaction of the cognizant Officer in Charge, Marine Inspection (OCMI). Reference (b) is **Examined**. Calculations such as these are not normally approved; but are examined to verify compliance with appropriate regulations. The following comment applies:

1. The modification of the vacuum-side setting on the Pressure-Vacuum valve to 3.0 psi is approved. The comments provided in reference (c) remain valid.

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

Our Project Number for this vessel is P022172. Please ensure that all future correspondence includes the Project Number and the Official number that appears in the subject line.

Subj: CCL 417T, O.N. 1298307, West Gulf Marine Hull No. 285 16710/P022172/jdm1
Modification: Vapor Collection System Serial: C1-2000074
January 7, 2020

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

Sincerely,



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

Encl: (1) VCS PRIS; West Gulf Marine Hull No. 285, dated January 7, 2020

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



MARINE SOLUTIONS, INC.

www.marinesolutionsinc.net

E-mail
MSI/CCL417T/S09

January 2, 2020

Commanding Officer (MSC)
Attn: Chief-Tank Vessel and Cargo Branch
United States Coast Guard, STOP 7430
2703 Martin Luther King Jr Ave., SE
Washington, DC 20593-7430

Sub: 300'-0" x 54' x 13'-0" Double Skin Tank Barges (O/D)(Type II Hull)
Barge Name: CCL 417T, O.N. 1298307
West Gulf Marine Hull (s): WGM 285
Plan Submittal

Encl.: 1. DWG No. VP-285-SH 1 OF 3, REV 1 "Vapor Piping Arrangement"
2. Vapor Recovery Calculations
3. VCS Form

Ref.: 1. USCG Project P022172
2. MSC letter C1-1901188 dated April 23, 2019

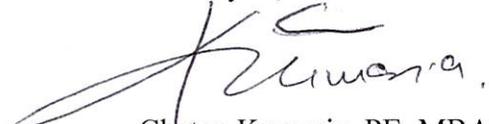
Dear Commanding Officer:

The subject enclosures were previously approved by your office with reference 2,

The OWNER decided to install a PV valve with vacuum side setting to 3.0 psig instead of 0.5 psig. We have corrected that information in these enclosures.

Please do not hesitate to call at 615-364-9598 if you have question.

Thank you,



Chetan Kumaria, PE, MBA

VAPOR RECOVERY SYSTEM CALCULATIONS

FOR

**BARGE NAME(S): CCL 417T
WEST GULF MARINE HULL: WGM 285**

**300'-0" X 54'-0" X 13'-0" DOUBLE SKIN TANK BARGE (O/D)
USCG PROJECT: P022172**

CHEM CARRIERS

**March 26, 2019
Revised January 2, 2020**

Prepared by:

A handwritten signature in black ink, appearing to read "K. Sumner", is written over the printed name of the preparer.

**MARINE SOLUTIONS, INC.
P.O. BOX 218197
NASHVILLE, TN. 37221-8197
615-364-9598**

MARINE SOLUTIONS, INC.

Rev. 1, 01-02-2020

VCS SYSTEM INFORMATION:

1. GENERAL DESCRIPTION OF VESSEL:

A. NAME (S): CCL 417T
 B. USCG Project No.: P022172
 C. DIMENSIONS: 300'-0" X 54'-0" X 13'-0"
 D. SERVICE: TANK BARGE (O/D)
 E. MAX. DESIGN WORKING PRESSURE: 6.5 PSIG
 F. PV VALVE PRESSURE SETTING: 6 PSIG
 G. PV VALVE VACUUM SETTING: 3 PSIG
 H. MAX. DISCHARGE RATE: 4576 BBLS/HR

2. VAPOR CONTROL SYSTEM

A. PIPE DIAMETER: 10.42 INCHES IPS
 B. PIPE LENGTHS: A- 2'-1 1/2" B-10'-1 5/8" C-79'-10" D-5'-0 13/16", E-81'-5"
 F- 6'-5 3/8" G-42'-5 13/16" H-16'-9 1/4"
 8.329 INCHES IPS
 F- 6'-9 3/8" G-42'-5 13/16" H-0-6" I-26'-2"

C. P/V VALVE VENTING CAPACITY:
 (1) ERL SUPERAC PV VALVE PV-6
 (2) 17987 SCFH OF AIR
 (3) 3.0 PSIG VAC.

D. SPILL VALVE RELIEVING CAPACITY: NON INSTALLED

E. MAX. VAPOR-AIR MIXTURE DENSITY: 0.442 LBM/FT³ FOR SUB D
 0.234 LBM/FT³ FOR SUB O

F. MAX. LIQUID LOADING RATE: 4000 BBLS/HR

G. DARCY FRICTION FACTOR: 0.014

H. VCS CARGOES: SEE TABLE 1 & TABLE 4

I. ADDITIONAL MIS. INFORMATION:
 SYSTEM IS DESIGNED TO ACCOMMODATE INTERNAL VISUAL INSPECTION.

VCS CALCULATIONS

1. CARGO AUTHORITY::

The vapor collection system installed on this barge is designed to carry the cargoes listed in Table 1, Table 4 and Crude Oil and Gasoline Blends. These Cargoes are to be listed on the barge's Certificate of Inspection.

2. DETERMINING VAPOR_AIR MIXTURE DENSITY AND VAPOR GROWTH RATE:

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

3. THE MAXIMUM LIQUID TRANSFER RATE AS IMPOSED BY THE CAPACITY OF THE CARGO VENTING SYSTEM:

Tank 1P 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	UNIT EQ. LENGHT (FT)	TOTAL EQ. LENGTH (FT)
10" Straight Pipe	1	97.229	97.229
10" Entrance	1	48.3785	48.3785
10" T Branch	4	52.1	208.4
10"X6"RED	1	85.744	85.744
6" ELL	1	31.785	31.785
10" T Run Thru	5	26.05	130.25
	Total		601.7865

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 #1P cargo tank and the P/V valve for each cargo is shown in Table 1 & Table 4.

Using a 4000 bbl/h liquid transfer rate, the vapor-air mixture and air-equivalent volumetric flow rate for each cargo are given in Table 1 & Table 4. At a setting of 6.0 psig, the ERL SUPERAC PV Valve PV-6 has an adequate pressure relieving capacity of air for each cargo listed in Table 1 & Table 4. The greatest pressure drop in the venting system (6.122 psig) does not exceed the cargo tank maximum design working pressure of 6.5 psi.

The maximum vacuum that can exist in a tank is 3.255 psig. The barges are constructed as per ABS rules and regulations for a pressure of 6.5 psig and are tested for a pressure of 6.5 psig. Therefore the maximum vacuum of 3.255 psig is within the design capacity of these barges and an unloading rate of 4576 bbl/h is acceptable.

4. THE MAXIMUM LIQUID TRANSFER RATE AS IMPOSED BY THE RELIEVING CAPACITY OF THE CARGO TANK SPILL VALVE. Non-installed

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

See attached calculations

6. THE MAXIMUM LIQUID TRANSFER RATE AS IMPOSED BY 46 CFR 39.30-1(d)(3).

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

TABLE 3

PIPE/FITTINGS	QUANTITY	UNIT EQ. LENGTH (FT)	TOTAL EQ. LENGTH (FT)
10" Straight Pipe	1	179.437	179.437
10" Entrance	1	48.3785	48.3785
10" T Branch	2	52.1	104.2
10" T Run	6	26.05	156.3
10"X8"RED	1	21.9272	21.9272
		Total 10"	510.2427
8" Straight Pipe	1	75.5052	75.5052
8" T Branch	1	39.91	39.91
8" T Run	2	13.33	26.66
8" Gate Valve	1	5.32	5.32
		Total 8"	147.3952

Pressure drop at the maximum liquid transfer rate of 4000 bbl/h along this path for each cargo is given in Tables 1 & 4. The largest pressure drop does not exceed 80 percent of the P/V valve pressure setting (4.80 psig).

TABLE 1 (SUB CHAPTER "D" CARGOES)

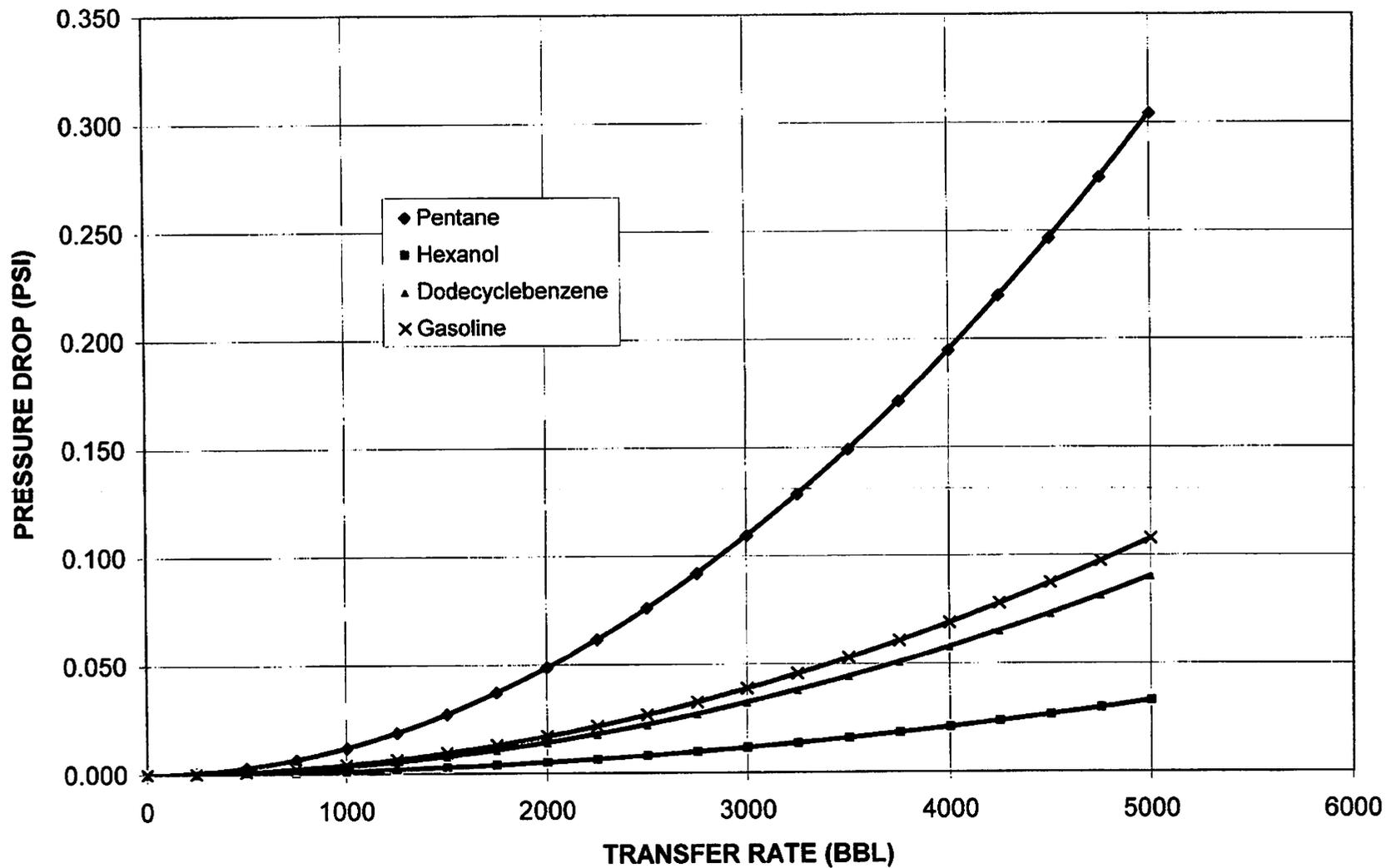
CHRIS CODE	NAME	VCS CAT	LIQ SG	VAPOR PRESS	VAPOR SG	VAPOR WEIGHT DENSITY	VAPOR GROWTH RATE	PRESSURE DROP TO PV VALVE IN VCS(psig) (LOADING)	VAPOR VOLUMETRIC FLOW RATE (bb/ft)	AIR EQUIVALENT VOLUMETRIC FLOW RATE	PRESSURE DROP TO SHORE CONNECTION IN VCS (psig) (LOADING)*	PRESSURE DROP TO PV VALVE IN VCS(psig) (UNLOADING)	PRESSURE DROP TO SHORE CONNECTION IN VCS (psig) (UNLOADING)*
1 ACT	Acetone	1	0.79	10	2	0.144	1.2000	0.024	4600	5844	0.038	0.032	0.050
2 ACP	Acetophenone	1	1.03	0.6	4.14	0.108	1.0120	0.013	4048	4227	0.020	0.016	0.026
19 AAT	Amyl Acetate (iso-)	1	0.88	0.33	4.48	0.102	1.0066	0.012	4028	4135	0.019	0.016	0.025
20 AAI	Amyl Alcohol (iso-, n-, sec-, primary) (See also IAA	1	0.82	0.3	3.04	0.100	1.0080	0.012	4024	4082	0.019	0.015	0.025
21 AAN	Amyl Alcohol (n-)	1	0.82	0.3	3.04	0.100	1.0080	0.012	4024	4082	0.019	0.015	0.025
23 APM	Amyl Alcohol, Primary	1	0.82	0.3	3.04	0.100	1.0060	0.012	4024	4082	0.019	0.015	0.025
24 ASE	Amyl Alcohol, (sec-)	1	0.82	0.3	3.04	0.100	1.0060	0.012	4024	4082	0.019	0.015	0.025
26 IAA	Amyl Alcohol, (iso-)	1	0.82	0.3	3.04	0.100	1.0060	0.012	4024	4082	0.019	0.015	0.025
34 BAL	Benzyl Alcohol	1	1.05	0.1	3.73	0.098	1.0020	0.011	4008	4033	0.018	0.015	0.024
40 BAX	Butyl Acetate (iso-, n-)	1	0.87	0.6	4	0.106	1.0120	0.013	4048	4219	0.020	0.016	0.026
42 BTA	Butyl Acetate (sec-)	1	0.89	1.5	4	0.118	1.0300	0.015	4120	4545	0.023	0.019	0.030
44 IAL	Butyl Alcohol (iso-)	1	0.81	0.9	2.6	0.104	1.0180	0.012	4072	4210	0.020	0.016	0.026
46 BAS	Butyl Alcohol (sec-)	1	0.81	1.3	2.6	0.107	1.0280	0.013	4104	4304	0.021	0.017	0.027
47 BAT	Butyl Alcohol (tert-)	1	0.78	2.8	2.6	0.118	1.0580	0.015	4224	4657	0.024	0.020	0.032
48 BPH	Butyl Benzyl Phthalate	1	1.12	0.01	10.8	0.098	1.0002	0.011	4001	4009	0.018	0.015	0.024
64 CLS	Caprolactam Solutions	1	1.02	0.05	3.9	0.098	1.0010	0.011	4004	4017	0.018	0.015	0.024
70 CUM	Cumene	1	0.86	0.60	4.20	0.106	1.0120	0.013	4048	4230	0.020	0.017	0.026
72 CHX	Cyclohexane	1	0.78	4.5	2.9	0.137	1.0900	0.019	4360	5181	0.030	0.025	0.040
73 CHN	Cyclohexanol	1	0.95	0.15	3.45	0.099	1.0030	0.012	4012	4046	0.018	0.015	0.024
74 CPD	1,3-Cyclopentadiene dimer (molten)	1	0.69	0.25	4.55	0.101	1.0050	0.012	4020	4104	0.019	0.016	0.025
76 CMP	Cymene (para-)	1	0.86	0.11	4.62	0.099	1.0022	0.012	4009	4046	0.018	0.015	0.024
77 DHN	Decahydronaphthalene	1	0.89	0.1	4.76	0.099	1.0020	0.012	4008	4043	0.018	0.015	0.024
78 IDA	Decaldehyde (iso-)	1	0.83	0.01	5	0.097	1.0002	0.011	4001	4004	0.018	0.015	0.024
79 DAL	Decaldehyde (n-)	1	0.83	0	5.01	0.097	1.0000	0.011	4000	3999	0.018	0.015	0.024
81 DCE	Decane	1	0.74	0.12	4.8	0.099	1.0024	0.012	4010	4052	0.019	0.015	0.024
82 DAX	Decyl Alcohol (all isomers) (Decanol)	1	0.83	0.01	5.3	0.097	1.0002	0.011	4001	4004	0.018	0.015	0.024
83 ISA	Decyl Alcohol (iso-)	1	0.83	0.01	5.3	0.097	1.0002	0.011	4001	4004	0.018	0.015	0.024
84 DAN	Decyl Alcohol (n-)	1	0.83	0.01	5.3	0.097	1.0002	0.011	4001	4004	0.018	0.015	0.024
85 DBZ	Decylbenzene (n-)	1	0.86	0.01	7.52	0.097	1.0002	0.011	4001	4006	0.018	0.015	0.024
87 DAA	Diacetone Alcohol	1	0.97	0.1	4	0.098	1.0020	0.011	4008	4036	0.018	0.015	0.024
91 DPA	Dibutyl Phthalate (ortho-)	1	1.05	0	9.59	0.097	1.0000	0.011	4000	3999	0.018	0.015	0.024
92 DPT	Dicyclopentadiene, See 1,3-Cyclopentadiene Dimer 2	2	0.98	0.25	4.55	0.101	1.0050	0.012	4020	4104	0.019	0.016	0.025
93 DEB	Diethylbenzene	1	0.87	0.08	4.62	0.098	1.0016	0.011	4006	4033	0.018	0.015	0.024
94 DEG	Diethylene Glycol	1	1.12	0.01	3.66	0.097	1.0002	0.011	4001	4002	0.018	0.015	0.024
95 DME	Diethylene Glycol Butyl Ether	1	0.95	0.01	5.5	0.097	1.0002	0.011	4001	4004	0.018	0.015	0.024
100 DGA	Diethylene Glycol Ethyl Ether Acetate	1	0.99	0.02	4.62	0.097	1.0004	0.011	4002	4007	0.018	0.015	0.024
101 DGM	Diethylene Glycol Methyl Ether	1	1.03	0.03	4.14	0.098	1.0006	0.011	4002	4010	0.018	0.015	0.024
111 DBC	Diisobutylcarbinol	1	0.81	0.09	4.97	0.099	1.0018	0.012	4007	4041	0.018	0.015	0.024
112 DBL	Diisobutylene	1	0.72	2	3.86	0.124	1.0400	0.016	4180	4688	0.025	0.020	0.033
113 DIX	Diisobutyl Ketone	1	0.81	0.16	4.9	0.100	1.0032	0.012	4013	4072	0.019	0.015	0.024
119 DIX	Diisopropylbenzene (all isomer)	1	0.86	0.03	5.6	0.098	1.0006	0.011	4002	4015	0.018	0.015	0.024
124 DTL	Dimethyl Phthalate	1	1.19	0	6.69	0.097	1.0000	0.011	4000	3999	0.018	0.015	0.024
130 DOP	Diethyl Phthalate	1	0.98	0	13.47	0.097	1.0000	0.011	4000	3999	0.018	0.015	0.024
131 DPN	Dipentene	1	0.84	0.1	4.9	0.099	1.0020	0.012	4008	4044	0.018	0.015	0.024
132 DIL	Diphenyl	1	0.99	0.01	5.31	0.097	1.0002	0.011	4001	4004	0.018	0.015	0.024
133 DDO	Diphenyl, Diphenyl Ether Mixture	1	1.07	0.01	5.86	0.097	1.0002	0.011	4001	4004	0.018	0.015	0.024
134 DPE	Diphenyl Ether	1	1.07	0.01	5.87	0.097	1.0002	0.011	4001	4004	0.018	0.015	0.024
136 DPG	Dipropylene Glycol	1	1.03	0.07	4.83	0.098	1.0014	0.011	4006	4029	0.018	0.015	0.024
139 DFF	Distillates: Flashed Feed Stocks	1	0.75	2.3	3.4	0.123	1.0480	0.016	4184	4708	0.025	0.020	0.033
140 DSR	Distillates: Straight Run	1	0.73	2.3	3.4	0.123	1.0480	0.016	4184	4708	0.025	0.020	0.033
145 DOZ	Dodecene (all isomers)	1	0.76	0.02	5.81	0.098	1.0004	0.011	4002	4010	0.018	0.015	0.024
146 DOD	Dodecane	1	0.76	0.02	5.81	0.098	1.0004	0.011	4002	4010	0.018	0.015	0.024
147 DDB	Dodecylbenzene	1	0.86	4.7	8.4	0.260	1.0940	0.036	4376	7162	0.058	0.047	0.076
155 ETG	Ethoxy Triglycol (crude)	1	1.02	0	6.14	0.097	1.0000	0.011	4000	3999	0.018	0.015	0.024
156 ETA	Ethyl Acetate	1	0.9	4.5	3.04	0.140	1.0900	0.019	4360	5237	0.031	0.025	0.040
157 EAA	Ethyl Acetoacetate	1	1.03	0.2	4.48	0.100	1.0040	0.012	4016	4082	0.019	0.015	0.025
158 EAL	Ethyl Alcohol (Ethanol)	1	0.79	0.5	1.6	0.107	1.0700	0.014	4280	4491	0.023	0.019	0.030
160 ETB	Ethyl Benzene	1	0.87	0.6	3.56	0.104	1.0120	0.012	4048	4194	0.020	0.016	0.026
161 EBT	Ethyl Butanol	1	0.83	0.12	3.52	0.099	1.0024	0.011	4010	4038	0.018	0.015	0.024
162 EBR	Ethyl Butyrate	1	0.88	1	4	0.111	1.0200	0.013	4080	4364	0.021	0.018	0.028
163 ECV	Ethyl Cyclohexane	1	0.79	0.5	3.87	0.104	1.0100	0.012	4040	4177	0.020	0.016	0.026
166 EGL	Ethylene Glycol	1	1.19	0.01	2.21	0.097	1.0002	0.011	4001	4001	0.018	0.015	0.024

169	EMA	Ethylene Glycol Butyl Ether Acetate	1	0.94	0.05	5.52	0.098	1.0010	0.011	4004	4025	0.018	0.015	0.024
172	EGY	Ethylene Glycol Diacetate	1	1.1	0.01	5.03	0.097	1.0002	0.011	4001	4004	0.018	0.015	0.024
178	EME	Ethylene Glycol Methyl Ether	1	1.1	0.01	4.8	0.097	1.0002	0.011	4001	4003	0.018	0.015	0.024
180	EPE	Ethylene Glycol Phenyl Ether	1	1.1	0.01	4.8	0.097	1.0002	0.011	4001	4003	0.018	0.015	0.024
184	EHA	2-Ethylhexaldehyde, See Octyl Aldehydes	1	0.82	0.17	4.41	0.100	1.0034	0.012	4014	4088	0.019	0.015	0.024
186	EHX	2-Ethylhexanol, see Octanol (all isomers)	1	0.84	0.02	4.5	0.097	1.0004	0.011	4002	4007	0.018	0.015	0.024
190	EPR	Ethyl Propionate	1	0.89	3.5	1.6	0.107	1.0700	0.014	4280	4491	0.023	0.019	0.030
191	ETE	Ethyl Toulene	1	0.88	0.28	4.15	0.101	1.0056	0.012	4022	4106	0.019	0.016	0.025
194	FAM	Formamide	1	1.13	0.1	1.55	0.097	1.0020	0.011	4008	4012	0.018	0.015	0.024
195	FAL	Furfuryl Alcohol	1	1.13	0.05	3.4	0.098	1.0010	0.011	4004	4014	0.018	0.015	0.024
197	GAK	Gasoline Blended Stocks: Alkylates	1	0.75	12.5	3.4	0.238	1.2500	0.043	5000	7823	0.069	0.056	0.090
198	GRF	Gasoline Blended Stocks: Reformate	1	0.8	12.5	3.4	0.238	1.2500	0.043	5000	7823	0.069	0.056	0.090
199	GAT	Gasolines: Automotive (containing not over 4.23 grs 1	1	0.74	12.5	3.4	0.238	1.2500	0.043	5000	7823	0.069	0.056	0.090
200	GAV	Gasolines: Aviation (containing not over 4.88 gram 1	1	0.71	12.5	3.4	0.238	1.2500	0.043	5000	7823	0.069	0.056	0.090
201	GCS	Gasolines: Casinghead	1	0.67	12.5	3.4	0.238	1.2500	0.043	5000	7823	0.069	0.056	0.090
202	GPL	Gasolines: Polymer	1	0.75	12.5	3.4	0.238	1.2500	0.043	5000	7823	0.069	0.056	0.090
203	GSR	Gasolines: Straight Run	1	0.75	12.5	3.4	0.238	1.2500	0.043	5000	7823	0.069	0.056	0.090
204	GCR	Glycerine	1	1.26	0	3.17	0.097	1.0000	0.011	4000	3999	0.018	0.015	0.024
217	HMX	Heptane (all isomers) (Methylhexane)	1	0.68	2.5	3.45	0.128	1.0500	0.016	4200	4780	0.026	0.021	0.034
218	HPT	Heptane (n-)	1	0.68	2.5	3.45	0.128	1.0500	0.016	4200	4780	0.026	0.021	0.034
220	HTX	Heptanol (all isomers)	1	0.82	0.04	4	0.098	1.0008	0.011	4003	4014	0.018	0.015	0.024
221	HTN	Heptanol (all isomers)	1	0.82	0.04	4	0.098	1.0008	0.011	4003	4014	0.018	0.015	0.024
222	HPX	Heptene (all isomers)	2	0.7	2.9	3.4	0.130	1.0580	0.017	4232	4891	0.027	0.022	0.035
223	THE	Heptene (1-)	1	0.7	2.8	3.4	0.129	1.0560	0.017	4224	4860	0.027	0.022	0.035
229	HXS	Hexane (all isomers)	1	0.66	7	3	0.163	1.1400	0.025	4560	5902	0.039	0.032	0.051
230	HXA	Hexane	1	0.66	7	3	0.163	1.1400	0.025	4560	5902	0.039	0.032	0.051
231	HXO	Hexanoic Acid	1	0.93	0.01	4	0.097	1.0002	0.011	4001	4003	0.018	0.015	0.024
232	HXN	Hexanol	1	0.82	1	3.52	0.109	1.0200	0.013	4080	4320	0.021	0.017	0.028
234	HEX	Hexene (all isomers)	2	0.67	8	2.9	0.168	1.1600	0.026	4640	6109	0.042	0.034	0.055
235	HXE	Hexene (1-)	1	0.67	8.2	2.9	0.170	1.1640	0.027	4656	6162	0.043	0.035	0.056
236	HXT	Hexene (2-)	1	0.67	8.2	2.9	0.170	1.1640	0.027	4656	6162	0.043	0.035	0.056
238	HXG	Hexylene Glycol	4	0.92	0.01	1.1	0.097	1.0002	0.011	4001	4000	0.018	0.015	0.024
243	IPH	Isophorone	1	0.93	0.01	4.75	0.097	1.0002	0.011	4001	4003	0.018	0.015	0.024
244	JPO	Jet Fuels: JP-1 (Kerosene)	1	0.8	0.14	4.5	0.099	1.0028	0.012	4011	4057	0.019	0.015	0.024
245	JPT	Jet Fuels: JP-3	1	0.8	8.51	4.5	0.237	1.1702	0.038	4681	7308	0.060	0.049	0.079
246	JPF	Jet Fuels: JP-4	1	0.81	3.4	4	0.145	1.0680	0.019	4272	5218	0.031	0.025	0.040
247	JPV	Jet Fuels: JP-5 (Kerosene, heavy)	1	0.82	0.1	4	0.098	1.0020	0.011	4008	4036	0.018	0.015	0.024
249	KRS	Kerosene	1	0.81	0.15	4.5	0.100	1.0030	0.012	4012	4061	0.019	0.015	0.024
263	MTT	Methyl Acetate	1	0.92	6.1	2.6	0.143	1.1220	0.021	4488	5443	0.033	0.027	0.044
265	MAL	Methyl Alcohol (See Methanol)	1	0.79	6.63	1.1	0.100	1.1326	0.015	4530	4601	0.024	0.020	0.031
266	MAC	Methyl Amyl Acetate	1	0.86	0.33	4.97	0.103	1.0066	0.012	4028	4151	0.019	0.016	0.025
267	MAA	Methyl Amyl Alcohol	1	0.81	0.43	3.52	0.102	1.0086	0.012	4034	4137	0.019	0.016	0.025
271	MBK	Methyl n-Butyl Ketone	1	0.81	0.97	3.5	0.108	1.0194	0.013	4078	4309	0.021	0.017	0.027
273	MBU	Methyl Butyrate	1	0.9	1.26	3.53	0.112	1.0252	0.014	4101	4404	0.022	0.018	0.029
274	MEK	Methyl Ethyl Ketone	1	0.8	4.5	2.5	0.129	1.0900	0.018	4360	5019	0.028	0.023	0.037
275	MTF	Methyl Formal (Dimethyl Formal)	1	0.86	15.42	2.6	0.265	1.3084	0.053	5234	8641	0.084	0.069	0.110
276	MHK	Methyl Heptyl Ketone	1	0.83	0.06	4.9	0.098	1.0012	0.011	4005	4026	0.018	0.015	0.024
278	MIK	Methyl Isobutyl Ketone	1	0.8	1.15	3.45	0.110	1.0230	0.013	4092	4360	0.021	0.018	0.028
281	MNA	1-Methyl Naphthalene	1	1.02	0.01	4.91	0.097	1.0002	0.011	4001	4003	0.018	0.015	0.024
283	MPN	2-Methyl-1-Pentene	1	0.69	6.3	2.9	0.153	1.1260	0.023	4504	5657	0.036	0.030	0.047
284	MTN	5-Methyl-1-Pentene	1	0.67	8.49	2.9	0.173	1.1698	0.027	4679	6240	0.044	0.036	0.057
286	MBE	Methyl Tert-Butyl Ether (MTBE)	1	0.74	0.04	3.1	0.097	1.0008	0.011	4003	4010	0.018	0.015	0.024
288	MNS	Mineral Spirits	1	0.75	0.2	4.3	0.100	1.0040	0.012	4016	4078	0.019	0.015	0.025
289	MRE	Myrcene	1	0.8	0.17	4.7	0.100	1.0034	0.012	4014	4073	0.019	0.015	0.024
295	NSV	Naphtha: Solvent	1	0.87	0.2	3.5	0.099	1.0040	0.012	4016	4063	0.019	0.015	0.024
296	NSS	Naphtha: Stoddard Solvent	1	0.78	0.2	4.3	0.100	1.0040	0.012	4016	4078	0.019	0.015	0.025
297	NVM	Naphtha: Varnish Maker's and Painters (75%)	1	0.77	0.19	4.3	0.100	1.0038	0.012	4015	4074	0.019	0.015	0.024
300	NAX	Nonane (all isomers)	1	0.72	0.27	4.4	0.101	1.0054	0.012	4022	4109	0.019	0.016	0.025
301	NAN	Nonane	1	0.72	0.27	4.4	0.101	1.0054	0.012	4022	4109	0.019	0.016	0.025
304	NON	Nonene	1	0.73	0.35	4.3	0.102	1.0070	0.012	4028	4138	0.019	0.016	0.025
305	NNS	Nonyl Alcohol (all isomers)	1	0.94	0.1	5	0.099	1.0020	0.012	4008	4045	0.018	0.015	0.024
306	NNN	Nonyl Alcohol	1	0.94	0.1	5	0.099	1.0020	0.012	4008	4045	0.018	0.015	0.024
307	NNI	Nonyl Alcohol (iso-)	1	0.94	0.1	5	0.099	1.0020	0.012	4008	4045	0.018	0.015	0.024
309	NNP	Nonyl Phenol	1	0.95	0.01	7.6	0.097	1.0002	0.011	4001	4006	0.018	0.015	0.024
316	OAX	Octane (all isomers)	1	0.7	0.79	3.9	0.108	1.0158	0.013	4063	4281	0.021	0.017	0.027
317	OAN	Octane	1	0.7	0.79	3.9	0.108	1.0158	0.013	4063	4281	0.021	0.017	0.027
320	OTA	Octanol	1	0.83	0.01	4.48	0.097	1.0002	0.011	4001	4003	0.018	0.015	0.024
322	OTE	Octene (1-)	1	0.72	1	3.86	0.110	1.0200	0.013	4080	4352	0.021	0.017	0.028
324	OCX	Octyl Alcohol (iso-, n-) (all isomers), See Octanol (1	1	0.83	0.01	4.48	0.097	1.0002	0.011	4001	4003	0.018	0.015	0.024

325 IOA	Octyl Alcohol	1	0.83	0.01	4.48	0.097	1.0002	0.011	4001	4003	0.018	0.015	0.024
364 OTW	Fuel: No. 2	1	0.88	0.56	8	0.115	1.0112	0.014	4045	4410	0.022	0.018	0.029
366 OFR	Fuel: No. 4	1	0.9	0.15	3.4	0.099	1.0030	0.012	4012	4046	0.018	0.015	0.024
367 OFV	Fuel: No. 5	1	0.94	0.15	3.4	0.099	1.0030	0.012	4012	4046	0.018	0.015	0.024
368 OSX	Fuel: No. 6	1	0.95	0.15	3.4	0.099	1.0030	0.012	4012	4046	0.018	0.015	0.024
382 OIL	OIL, Misc: Crude	1	0.95	0.15	3.4	0.099	1.0030	0.012	4012	4046	0.018	0.015	0.024
383 ODS	OIL, Misc: Diesel	1	0.9	0.69	3.4	0.105	1.0138	0.013	4055	4213	0.020	0.016	0.026
389 OLB	OIL, Misc: Lubricating	1	0.9	0.15	1	0.097	1.0030	0.011	4012	4011	0.018	0.015	0.024
403 ORS	OIL, Misc: Resin	1	1.02	0.15	1	0.097	1.0030	0.011	4012	4011	0.018	0.015	0.024
418 OTB	OIL, Misc: Turbine	1	0.87	0.3	5.4	0.103	1.0060	0.012	4024	4149	0.019	0.016	0.025
429 PDC	Pentadecanol, See Alcohols (C13 and above)	1	0.83	0.01	7.88	0.097	1.0002	0.011	4001	4008	0.018	0.015	0.024
433 IPT	Pentane (iso-)	5	0.62	27	2.48	0.442	1.5400	0.122	6160	13143	0.195	0.159	0.255
434 PTA	Pentane (n-)	5	0.63	20.44	2.5	0.337	1.4088	0.078	5635	10504	0.124	0.102	0.163
437 PTE	Pentene (1-)	5	0.64	24.9	2.4	0.395	1.4880	0.103	5992	12078	0.164	0.135	0.215
442 PIN	Pinene	1	0.86	0.35	4.7	0.103	1.0070	0.012	4028	4151	0.019	0.016	0.025
448 PLB	Polybutene	1	0.91	0.01	79.3	0.101	1.0002	0.012	4001	4075	0.019	0.015	0.024
457 PGC	Polypropylene Glycol	1	1.01	0.1	1	0.097	1.0020	0.011	4008	4007	0.018	0.015	0.024
464 IAC	Propyl Acetate (iso-)	1	0.89	1.8	3.52	0.118	1.0360	0.015	4144	4574	0.024	0.019	0.031
485 PAT	Propyl Acetate (n-)	1	0	1.85	3.52	0.119	1.0370	0.015	4148	4580	0.024	0.019	0.031
466 IPA	Propyl Alcohol (iso-)	1	0.79	3	2.07	0.112	1.0600	0.015	4240	4556	0.023	0.019	0.031
467 PAL	Propyl Alcohol (n-)	1	0.8	1.2	2.07	0.103	1.0240	0.013	4096	4220	0.020	0.016	0.026
468 PBZ	Propylbenzene (n-)	1	0.86	0.2	4.14	0.100	1.0040	0.012	4016	4075	0.019	0.015	0.024
469 IPX	Iso-Propylcyclohexane	1	0.8	0.01	4.35	0.097	1.0002	0.011	4001	4003	0.018	0.015	0.024
473 PPG	Propylene Glycol (1,2-Propanediol)	1	1.04	0.01	2.62	0.097	1.0002	0.011	4001	4001	0.018	0.015	0.024
476 PME	Propylene Glycol Methyl Ether	1	0.92	0.7	3.11	0.104	1.0140	0.012	4056	4197	0.020	0.016	0.026
488 SFL	Sulfolane	1	1.26	0.01	4.14	0.097	1.0002	0.011	4001	4003	0.018	0.015	0.024
493 TTN	Tetradecanol	1	0.82	0	7.39	0.097	1.0000	0.011	4000	3999	0.018	0.015	0.024
494 TTD	1-Tetradecene, See the olefin or Alpha-Olefin Entric	1	0.77	0.01	6.77	0.097	1.0002	0.011	4001	4005	0.018	0.015	0.024
496 TTG	Tetraethylene Glycol	1	1.12	0.01	6.7	0.097	1.0002	0.011	4001	4005	0.018	0.015	0.024
497 THN	Tetrahydronaphthalene	1	0.97	0.04	4.56	0.098	1.0008	0.011	4003	4016	0.018	0.015	0.024
499 TOL	Toluene	1	0.87	1.5	3.14	0.112	1.0300	0.014	4120	4427	0.022	0.018	0.029
502 TCP	Tricresyl Phosphate (less than 1% of the ortho isom	1	1.16	0.01	12.69	0.098	1.0002	0.011	4001	4011	0.018	0.015	0.024
503 TRD	Tridecane	1	0.76	0.02	6.4	0.098	1.0004	0.011	4002	4011	0.018	0.015	0.024
505 TDN	Tridecanol, See Alcohols (C13 and above)	1	0.85	0.01	6.91	0.097	1.0002	0.011	4001	4005	0.018	0.015	0.024
506 TDC	1-Tridecene	1	0.77	0.01	6.29	0.097	1.0002	0.011	4001	4005	0.018	0.015	0.024
508 TEB	Triethylbenzene	1	0.86	0.02	5.6	0.098	1.0004	0.011	4002	4009	0.018	0.015	0.024
509 TEG	Triethylene Glycol	1	1.12	0.01	5.17	0.097	1.0002	0.011	4001	4004	0.018	0.015	0.024
519 TRE	Trimethylbenzenes (all isomers)	1	0.89	0.14	4.2	0.099	1.0028	0.012	4011	4053	0.019	0.015	0.024
520 TMB	Trimethyl Benzene (1,2,5-)	1	0.89	0.14	4.14	0.099	1.0028	0.012	4011	4052	0.019	0.015	0.024
521 TMD	Trimethyl Benzene (1,2,3-)	1	0.89	0.14	4.14	0.099	1.0028	0.012	4011	4052	0.019	0.015	0.024
522 TME	Trimethyl Benzene (1,2,4-) (Pseudocumone)	1	0.89	0.14	4.14	0.099	1.0028	0.012	4011	4052	0.019	0.015	0.024
529 TRP	Trixylenyl Phosphate	1	1.16	0	14.2	0.097	1.0000	0.011	4000	3999	0.018	0.015	0.024
546 XLX	Xylenes (Ortho-, meta-, para-)	1	0.89	0.51	3.66	0.103	1.0102	0.012	4041	4170	0.020	0.016	0.026
547 XLM	Xylene (M-)	1	0.87	0.51	3.66	0.103	1.0102	0.012	4041	4170	0.020	0.016	0.026
548 XLO	Xylene (O-)	1	0.89	0.4	3.66	0.102	1.0080	0.012	4032	4133	0.019	0.016	0.025
549 XLP	Xylene (P-)	1	0.86	0.51	3.66	0.103	1.0102	0.012	4041	4170	0.020	0.016	0.026
550 XYL	Xylenol	1	1.01	0.1	3.66	0.098	1.0020	0.011	4008	4033	0.018	0.015	0.024
551	Zinc Dialkyldithiophosphate												
	Max.		1.260	27.000	79.300	0.442	1.540	0.122	6160	13143	0.195	0.159	0.255
	Min.		0.000	0.000	1.000	0.000	1.000	0.011	4000	3999	0.000	0.000	0.000

*When barge vapor piping is connected to facility vapor recovery system.

LIQUID TRANSFER RATE vs PRESSURE DROP



PRESSURE vs MAXIMUM TRANSFER RATE (FOR SUB-CHAPTER "D" CARGOES)

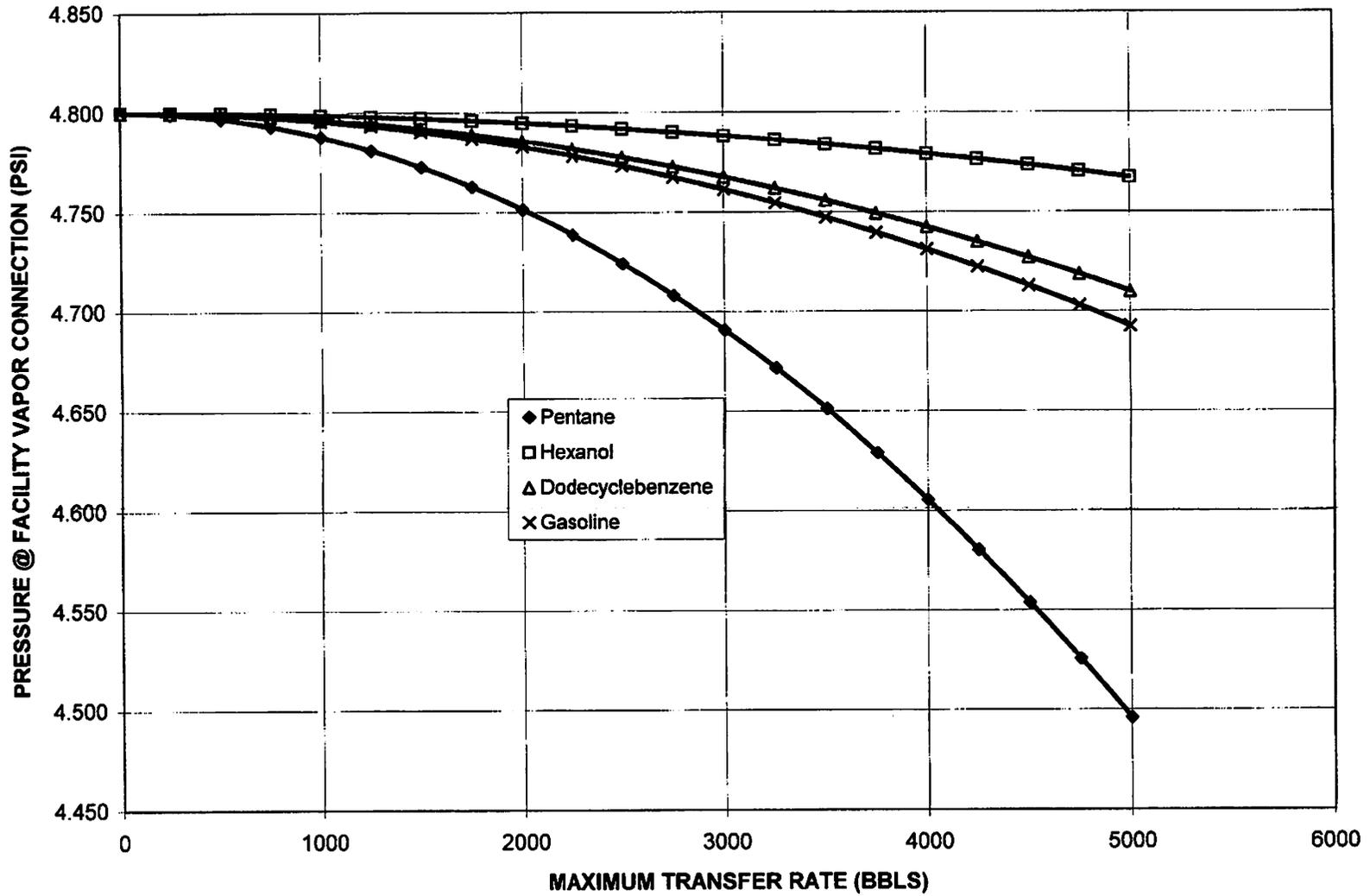
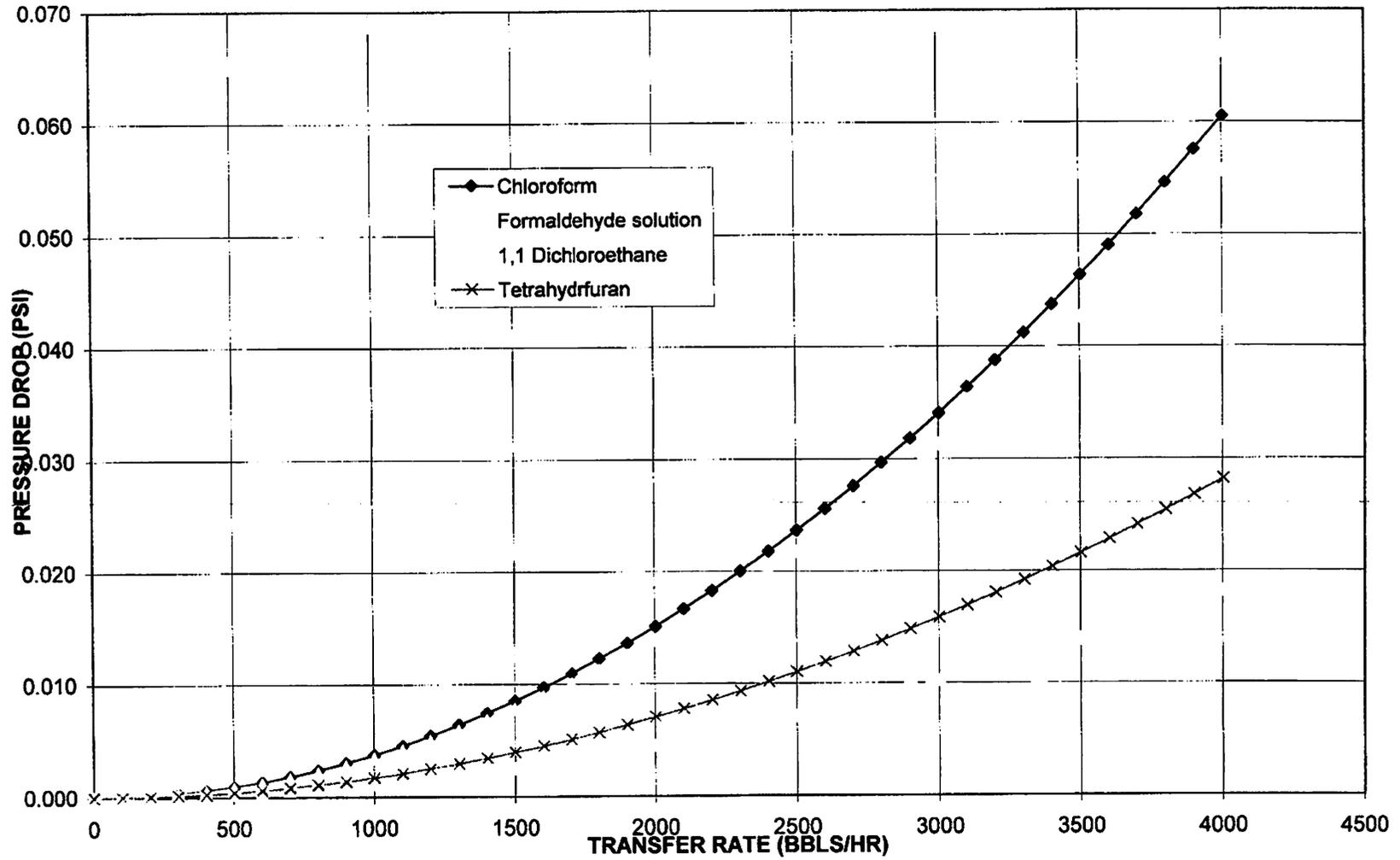


TABLE 4 (SUBCHAPTER "O" CARGOES)

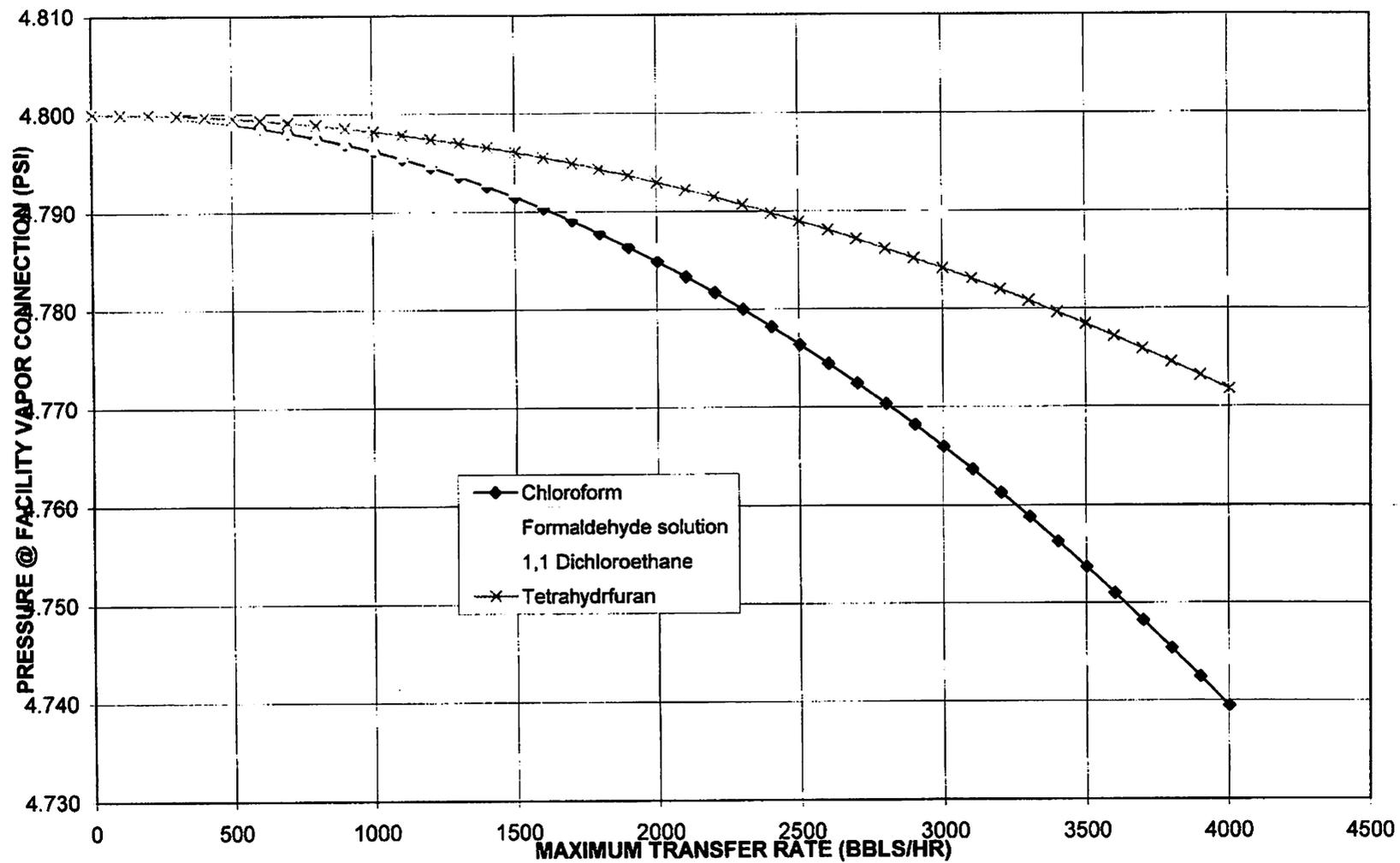
CHRIS CODE	NAME	VCS CAT	LIQ SG	VAPOR PRESS	VAPOR SG	VAPOR AIR WEIGHT DENSITY	VAPOR GROWTH RATE	PRESSURE DROP TO PV VALVE IN VCS(psig) (LOADING)	VAPOR VOLUMETRIC FLOW RATE (bbt/h)	AIR EQUIVALENT VOLUMETRIC FLOW RATE	PRESSURE	PRESSURE	PRESSURE
											DROP TO SHORE CONNECTION IN VCS (psig) (LOADING)*	DROP TO PV VALVE IN VCS(psig) (UNLOADING)	DROP TO SHORE CONNECTION IN VCS (psig) (UNLOADING)*
1 ACN	Acrylonitrile	4	0.81	5.00	1.80	0.116	1.1000	0.016	4400	4805	0.026	0.021	0.034
2 ADN	Adiponitrile	1	0.95	0.01	3.73	0.097	1.0002	0.011	4001	4002	0.018	0.015	0.024
3 ATN	Acetonitrile	3	0.78	0.03	1.41	0.097	1.0006	0.011	4002	4002	0.018	0.015	0.024
4 BAD	Iso-Butyraldehyde	1	0.80	7.80	2.50	0.152	1.1560	0.024	4624	5783	0.038	0.031	0.049
5 BAR	Butyl acrylate (iso-, n-)	2	0.90	0.60	4.42	0.107	1.0120	0.013	4048	4243	0.020	0.017	0.027
6 BMH	Butyl Methacrylate	2	0.88	0.29	4.9	0.102	1.0058	0.012	4023	4130	0.019	0.016	0.025
7 BNZ	Benzene	1	0.88	4.50	2.80	0.135	1.0900	0.019	4360	5141	0.030	0.024	0.039
8 BTR	n-Butyraldehyde	1	0.80	7.80	2.50	0.152	1.1560	0.024	4624	5783	0.038	0.031	0.049
9 BTX	Benzene, Toluene, Xylene mixtures (10% Benzene or more)	1	0.84	7.30	2.80	0.159	1.1460	0.024	4584	5859	0.039	0.032	0.051
10 CCH	Cyclohexanone	1	0.95	0.20	3.40	0.099	1.0040	0.012	4016	4061	0.019	0.015	0.024
11 CHA	Cyclohexylamine	1	0.87	0.62	3.42	0.104	1.0124	0.012	4050	4193	0.020	0.016	0.026
12 CRB	Chlorobenzene	1	1.11	0.80	3.88	0.108	1.0160	0.013	4064	4283	0.021	0.017	0.027
13 CRF	Chloroform	3	1.48	9	4.25	0.234	1.1800	0.038	4720	7330	0.061	0.050	0.079
14 NCT	Coal Tar Naphtha Solvent	1	0.86	0.2	4	0.100	1.0040	0.012	4016	4073	0.019	0.015	0.024
15 CRS	Cresols	1	1.05	0.06	3.72	0.098	1.0012	0.011	4005	4019	0.018	0.015	0.024
16 CTA	Crotonaldehyde	4	0.85	2	2.41	0.110	1.0400	0.014	4160	4433	0.022	0.018	0.029
17 DCH	1,1-Dichloroethane	1	1.18	9.90	3.41	0.209	1.1980	0.035	4792	7029	0.056	0.048	0.073
18 DPP	1,2-Dichloropropane	3	1.16	2.5	3.89	0.131	1.0500	0.017	4200	4877	0.027	0.022	0.035
19 DPU	1,3-Dichloropropane	4	1.23	5.5	3.84	0.170	1.1100	0.024	4440	5880	0.039	0.032	0.051
20 DEN	Diethylamine	3	0.71	1.00	2.50	0.104	1.0200	0.013	4080	4224	0.020	0.016	0.026
21 DIP	Diisopropanolamine	1	0.98	0.01	4.59	0.097	1.0002	0.011	4001	4003	0.018	0.015	0.024
22 DMF	Dimethylformamide	1	0.95	0.30	2.51	0.099	1.0060	0.012	4024	4067	0.019	0.015	0.024
23 DPX	1,1-, 1,2-, or 1,3-Dichloropropane	3	1.16	6.30	3.90	0.183	1.1260	0.027	4504	6178	0.043	0.035	0.056
24 EAC	Ethyl acrylate	2	0.93	2.00	3.50	0.121	1.0400	0.015	4160	4634	0.024	0.020	0.032
25 EAI	2-Ethylhexyl acrylate	2	0.89	0.02	6.35	0.098	1.0004	0.011	4002	4011	0.018	0.015	0.024
26 EDC	Ethylene dichloride	1	1.26	4.00	3.42	0.142	1.0800	0.019	4320	5232	0.031	0.025	0.040
27 ETM	Ethyl Methacrylate	2	0.92	1	3.94	0.111	1.0200	0.013	4080	4359	0.021	0.018	0.028
28 EPA	2-Ethyl-3-propylacrolein	1	0.85	0.12	4.5	0.099	1.0024	0.012	4010	4049	0.018	0.015	0.024
29 FFA	Furfural	1	1.20	0.15	3.31	0.099	1.0030	0.012	4012	4044	0.018	0.015	0.024
30 FMS	Formaldehyde solution (37% to 50%)	1	1.13	0.15	1.03	0.097	1.0030	0.011	4012	4011	0.018	0.015	0.024
31 MSO	Mesityl Oxide	1	0.86	0.67	3.5	0.105	1.0134	0.013	4054	4213	0.020	0.016	0.026
32 MAM	Methyl acrylate	2	0.95	4.10	3.00	0.136	1.0820	0.018	4328	5112	0.029	0.024	0.039
33 MBE	Methylcyclopentadiene dimer	1	0.74	0.04	3.10	0.097	1.0008	0.011	4003	4010	0.018	0.015	0.024
34 MMM	Methyl methacrylate	2	0.94	2.02	3.45	0.120	1.0404	0.015	4162	4631	0.024	0.020	0.032
35 MPL	Morpholine	1	1.00	0.80	3.00	0.105	1.0180	0.013	4064	4217	0.020	0.016	0.026
36 NPM	1- or 2-Nitropropane	1	0.99	1.05	3.06	0.107	1.0210	0.013	4084	4291	0.021	0.017	0.027
37 PRD	Pyridine	1	0.98	1.30	2.72	0.108	1.0280	0.013	4104	4319	0.021	0.017	0.028
38 STY	Styrene	2	0.92	0.40	3.60	0.102	1.0080	0.012	4032	4131	0.019	0.016	0.025
39 TCN	1,2,3-Trichloropropane	3	1.39	0.15	5.60	0.100	1.0030	0.012	4012	4077	0.019	0.015	0.025
40 TEN	Triethylamine	3	0.73	2.50	3.49	0.126	1.0500	0.016	4200	4789	0.026	0.021	0.034
41 THF	Tetrahydrofuran	1	0.89	8.50	1.35	0.111	1.1700	0.018	4680	5004	0.028	0.023	0.037
42 VAM	Vinyl acetate	2	0.94	5.80	2.97	0.151	1.1160	0.022	4464	5560	0.035	0.029	0.046
		Max.	1.39	12.5	8.40	0.234	1.198	0.038	4792	7330	0.061	0.050	0.079
		Min.	0.63	0.01	1.03	0.097	1.000	0.011	4001	4002	0.018	0.015	0.024

*when barge vapor piping is connected to facility vapor recovery system.

LIQUID TRANSFER RATE vs PRESSURE DROP



PRESSURE vs MAXIMUM TRANSFER RATE (FOR SUB-CHAPTER "O" CARGOES)



THE MAXIMUM LIQUID TRANSFER RATE AS IMPOSED BY SET POINT OF THE OVERFLOW ALARM (46 CFR 39.21-9)

PARAG : CLL 417 T

A. CARGO TANK #1 P/S

$$\text{LENGTH OF TRUNK} = 86' - 5 \frac{7}{16}''$$

$$\text{WIDTH OF TRUNK} = 23' - 6''$$

$$\text{SET POINT} = 3.5'' \text{ BELOW THE TRUNK DECK.}$$

$$\text{VAPOR SPACE VOLUME} = \frac{86.453 \times 23.5 \times \frac{3.5}{12} \times 7.4805}{12}$$

$$= 105.539 \text{ BBLs}$$

$$\text{LOADING RATE} = 4000 \text{ BBL/hr}$$

∴ TIME TO STOP THE PUMP BEFORE TANK

$$\text{OVER FLOWS} = \frac{105.539}{4000} \times 60 = 1.583 \text{ MIN.}$$

B. CARGO TANK # 2 P/S

$$\text{LENGTH OF TRUNK} = 86' - 5 \frac{13}{16}''$$

$$\text{WIDTH OF TRUNK} = 23' - 6''$$

$$\text{SET POINT} = 3.5'' \text{ BELOW THE TRUNK DECK}$$

$$\text{VAPOR SPACE VOLUME} = \frac{86.4844 \times 23.5 \times 3.5 \times 7.4805}{12 \times 42}$$

$$= 105.578 \text{ BBLs}$$

$$\text{LOADING RATE} = 4000 \text{ BBL/hr}$$

∴ TIME TO STOP THE PUMP BEFORE TANK

$$\text{OVER FLOWS} = \frac{105.578}{4000} \times 60 = 1.5836 \text{ MIN.}$$

C. CARGO TANK # 3 P/S

$$\text{LENGTH OF TRUNK} = 39' - 11''$$

$$\text{WIDTH OF TRUNK} = 23' - 6''$$

$$\text{SET POINT} = 7'' \text{ BELOW THE TRUNK DECK}$$

$$\text{VAPOR SPACE VOLUME} = \frac{39.916 \times 23.5 \times 7 \times 7.4805}{12 \times 42}$$

$$= 97.458 \text{ BBLs}$$

$$\text{LOADING RATE} = 4000 \text{ BBL/hr}$$

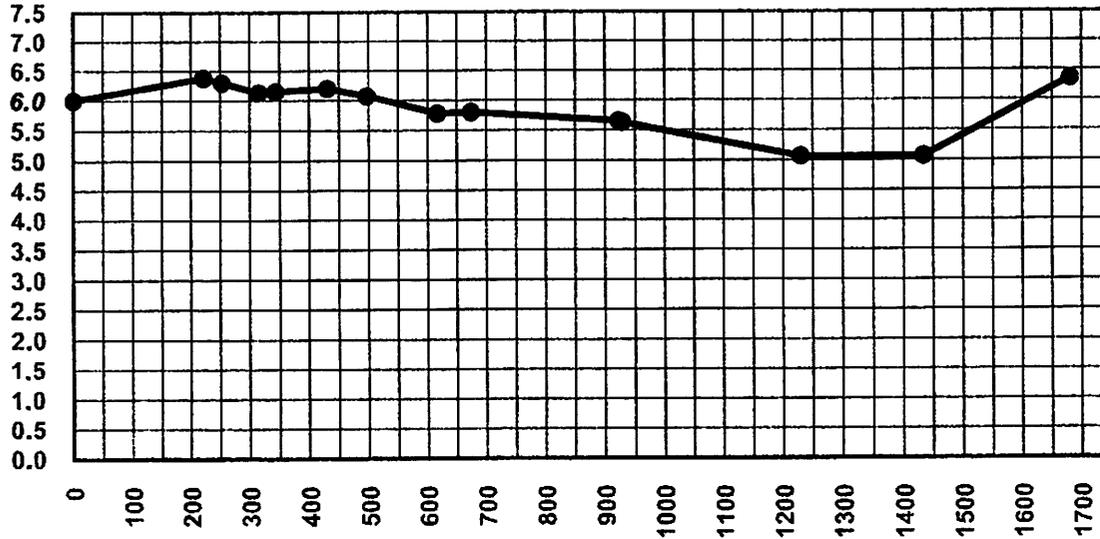
∴ TIME TO STOP THE PUMP BEFORE

$$\text{TANK OVER FLOWS} = \frac{97.458}{4000} \times 60 = 1.46 \text{ MIN.}$$

(11)

12

P.S.I.



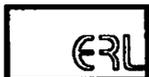
BARRELS PER HOUR	FLOW FT.³ per MIN.	P.S.I.
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2365	221	6.38
2375	222	6.38
2707	253	6.30
3371	315	6.13
3670	343	6.15
4601	430	6.20
5318	497	6.07
6602	617	5.78
7212	674	5.80
9876	923	5.65
9930	928	5.63
13161	1230	5.06
15344	1434	5.06
17987	1681	6.35

FLOW IN FT.³ /MIN.

Curve for *PRESSURE* side of 6" PV Valve - 6.0 PSI

CEESI - Colorado Engineering
data based on air flow



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

DATE 12/13/05

TOLERANCES
.0= +/- .030
.00= +/- .015
.000= +/- .005

DRAWN D. URBAN

APPROVED

SCALE JOB NO.

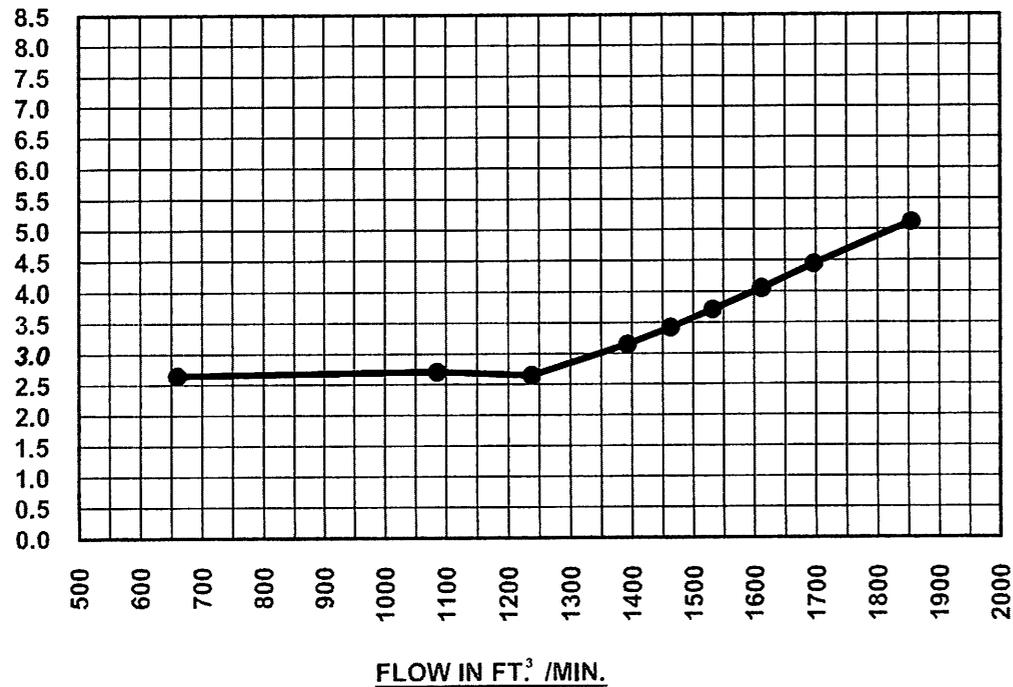
PART NAME
Flow Curve 6.0 PSI Pressure

UNIT NAME
6" PV Valve MDII

DRAWING NO.
347Q120B

ITEM NO.

P.S.I.



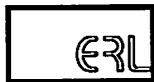
BARRELS PER HOUR	FLOW FT.³ per MIN.	P.S.I.
------------------	--------------------	--------

7062	660	2.65
11609	1085	2.71
13246	1238	2.65
14905	1393	3.15
15654	1463	3.42
16392	1532	3.71
17248	1612	4.05
18158	1697	4.42
19848	1855	5.12

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

CEESI - Colorado Engineering

data based on air flow



ELECTROMECHANICAL
RESEARCH LABORATORIES, INC.

P.O. 1026 NEW ALBANY, IN 47150

DATE
2/1/06

TOLERANCES
.0= +/- .030
.00= +/- .015
.000= +/- .005

DRAWN
D. URBAN

APPROVED

SCALE JOB NO.

PART NAME
Flow Curve 3.0 PSI Vacuum

UNIT NAME
6" PV Valve

DRAWING NO. ITEM NO.
032R076B



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



1. Vessel Name	CCL 417 T
Official Number	129 8307

Shipyard	WEST GULF MARINE
Hull #	WGM 285

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: 6.5 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**

	<u>4000</u>	bbl/hr loading
	<u>4576</u>	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	<u>PENTANE</u>	<u>0.442</u>	lbm/ft3
b. Cargo Name	<u>PENTANE</u>	<u>0.442</u>	lbm/ft3

6. **VCS Categories Requested (list):** 1 THRU 5

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

	Cargo A psi	Cargo B psi
a. Most Remote Cargo Tank to P/V valve	<u>0.122</u>	<u>0.122</u>
b. Most Remote Cargo Tank to VCS Facility Connection	<u>0.195</u>	<u>0.195</u>
c. ΔP across P/V valve @ cargoes' Maximum Transfer Rate	<u>6.0</u>	<u>6.0</u>
d. ΔP across Vacuum P/V @ MTR or Max. Discharge Rate	<u>3.0</u>	
e. ΔP across Spill Valve for Max. Density Cargo at MTR	<u>—</u>	

8. **Pressure Vacuum Valve:**

Manufacturer	<u>ERL MODEL SUPPLRA</u>	Settings in psig:
Model/Size	<u>MODEL II PV-6</u>	Pressure-side
CG Approval Number	<u>162.017/107/2</u>	Vacuum-side
		<u>6.0</u>
		<u>3.0</u>

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

9. **VCS Pipe Sizes:**

Longitudinal Header 10" & 8" SCH 10 Inches Transverse Headers 8" SCH 10 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	<input checked="" type="checkbox"/>	<u>ERL LEVEL ALERT</u>	Setting in psig _____
b. Overfill Control Shutdown	<input checked="" type="checkbox"/>	<u>ERL LEVEL ALERT</u>	
c. Spill Valve	<input type="checkbox"/>		Meets ASTM F1271 <input type="checkbox"/>
d. Rupture Disk	<input type="checkbox"/>		

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 for an example.

14. Previous VCS approval letters: CL-1901188