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

Expiration Date: 19 Mar 2026

Certificate of Inspection

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

Vessel Name	Official Number	IMO Number	Call Sign	Service
HFL 413	1237482			Tank Barge

Hailing Port	Hull Material	Horsepower	Propulsion
BOWLING GREEN, KY UNITED STATES	Steel		

Place Built	Delivery Date	Keel Laid Date	Gross Tons	Net Tons	DWT	Length
ASHLAND CITY, TN UNITED STATES	27Mar2012	20Jan2012	R-1619 I-	R-1619 I-		R-297.5 I-

Owner
HINES FURLONG LINE INC
4015 Hillsboro Pike, Suite 202
Nashville, TN 37215
UNITED STATES

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

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

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

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

Route Permitted And Conditions Of Operation:

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

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

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

SEE NEXT PAGE FOR ADDITIONAL CERTIFICATE INFORMATION

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

Annual/Periodic/Re-Inspection

Date	Zone	A/P/R	Signature
14 JUN 22	SHG	A	CWO
23 MAY 2023	BATU	A	CWO
30 MAY 2024	PATMS	P	CG 12
13 MAR 2025	SEL HOU GAL	A	CWO

This Amended certificate issued by:

P. J. RANERI LCDR, USCG, by direction

Officer in Charge, Marine Inspection

New Orleans, LA

Inspection Zone

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

Certification Date:	19 Mar 2021
Expiration Date:	19 Mar 2026

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Date	Zone	A/P/R	Signature

This Amended certificate issued by:

P. J. RANERI LCDR USCG, by direction

Officer in Charge, Marine Inspection

New Orleans, LA

Inspection Zone

OMB No. 2115-0517

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

Certification Date:	19 Mar 2021
Expiration Date:	19 Mar 2026

Certificate of Inspection

Vessel Name: HFL 413

---Hull Exams---

Exam Type	Next Exam	Last Exam	Prior Exam
DryDock	28Feb2031	25Feb2021	24Mar2012
Internal Structure	28Feb2026	25Feb2021	10Mar2017

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

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

Total Capacity	Units	Highest Grade Type	Part151 Regulated	Part153 Regulated	Part154 Regulated
29400	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	830	13.60
2 P/S	843	13.60
3 P/S	757	13.60

Loading Constraints - Stability

Hull Type	Maximum Load (short tons)	Maximum Draft (ft/in)	Max Density (lbs/gal)	Route Description
III	4630	11ft 9in	13.60	R, LBS
II	3758	11ft 9in	13.60	R, LBS

Conditions Of Carriage

Conditions of Carriage

Only those specified hazardous cargoes named in the vessel's Cargo Authority Attachment (CAA), Serial C1-1104850, dated 21-DEC-2011, 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 197, Subpart C are applied.

Stability and Trim

Cargo tanks must be loaded uniformly whenever a 46 CFR Subchapter "O" cargo is carried; for trim purposes, the weight of cargo in each tank may exceed the uniformly loaded tank cargo weight by at most 5 percent.

The maximum density of cargo which may be filled to the tank top is 8.74 lbs/gal. Cargoes with higher densities, up to 13.60 lbs/gal, may be carried as slack loads, but shall not exceed the tank weight limits as listed above.

Vapor Control Authorization

In accordance with 46 CFR 39, excluding 46 CFR 39.4000, this vessel's vapor control system has been inspected to the plans approved by Marine Safety Center letter Serial C1-1104850, dated 21-Dec-11, and the list of authorized cargoes on the CAA, Serial C1-1104850, dated 21-Dec-11, and found acceptable for collection of bulk liquid cargo vapors annotated with "Yes" in the CAA's VCS column.

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 figures, tables and appendices of 46 CFR 150 in conjunction with the compatibility group numbers from the "COMPAT GRP" column listed in the vessel's CAA.

--- Inspection Status ---

Fuel Tanks

	Internal Examinations		
Tank ID	Previous	Last	Next
Machinery deck	-	27Mar2012	-
Aft slop tank	-	27Mar2012	-
Fwd slop tank	-	27Mar2012	-

Cargo Tanks

	Internal Exam			External Exam		
Tank Id	Previous	Last	Next	Previous	Last	Next
1 P/S	27Mar2012	25Feb2021	28Feb2031	-	-	-
2 P/S	27Mar2012	25Feb2021	28Feb2031	-	-	-
3 P/S	27Mar2012	25Feb2021	28Feb2031	-	-	-

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

---Conditional Portable Fire Extinguisher Requirements---

Required Only During Transfer of Cargo or Operation of Barge Machinery

--- Fire Fighting Equipment ---

Fire Extinguishers - Hand portable and semi-portable

Quantity	Class Type
2	40-B

---Certificate Amendments---

Amending Unit	Amendment Date	Amendment Remark
Marine Safety Unit Baton Rouge	17May2021	Changed vessel operator.
Marine Safety Unit Baton Rouge	17May2021	Changed Conditions of Carriage

END

Department of Homeland Security
United States Coast Guard

Serial #: C1-1104850
Dated: 21-Dec-11

Certificate of Inspection

Cargo Authority Attachment

Vessel Name: HFL 413
Official #: 1237482

Shipyard: Trinity Marine
Hull #: 4857

46 CFR 151 Tank Group Characteristics

Tank Group Information		Cargo Identification				Tanks				Cargo Transfer	Environmental Control		Fire Protection Provided	Special Requirements		Elec Haz	Temp Cont
Tnk Grp	Tanks in Group	Density	Press.	Temp.	Hull Typ	Cargo Seg Tank	Type	Vent	Gauge	Pipe Class	Cont	Tanks	Handling Space		General	Materials of Construction		
A	#1P/S, #2P/S, #3P/S, Slop P/S	13.6	Atmos.	Amb.	II	1ii 2ii	Integral Gravity	PV	Closed	II	G-1	NR	NA	Portable	.50-60, .50-70(a), .50-70(b), .50-73, .50-81(a), .50-81(b),	55-1(b), (c), (e), (f), (j), 56-1(a), (b), (c), (d), (e), (f), (g),	NR	No

Notes: 1. Under Environmental Control, Tanks, NR means that the tank group is suitable only for those cargoes which require no environmental control in the cargo tanks.

2. Under Environmental Control, Handling Space, NR means that the tank group is suitable only for those cargoes which require no environmental control in the cargo handling space. NA means that the vessel does not have a cargo control space, and this requirement is not applied.

3. Under Electrical Hazard Class, NA means that the tank group is suitable only for those cargoes which have no electrical hazard class requirement. NR means that the vessel has no electrical equipment located in a hazardous location.

List of Authorized Cargoes

Cargo Identification						Conditions of Carriage				
							Vapor Recovery			
Name	Chem Code	Compat Group No	Sub Chapter	Grade	Hull Type	Tank Group	App'd (Y or N)	VCS Category	Special Requirements in 46 CFR 151 General and Mat'ls of	Insp. Period
Authorized Subchapter O Cargoes										
Acetonitrile	ATN	37	O	C	III	A	Yes	3	No	G
Acrylonitrile	ACN	15 [2]	O	C	II	A	Yes	4	.50-70(a), .55-1(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
Aminoethylethanolamine	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	No	N/A	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
Chemical Oil (refined, containing phenolics)	COD	21	O	E	II	A	No	N/A	.50-73	G
Chlorobenzene	CRB	36	O	D	III	A	Yes	1	No	G
Chloroform	CRF	36	O	NA	III	A	Yes	3	No	G
Coal tar naphtha solvent	NCT	33	O	D	III	A	Yes	1	.50-73	G
Creosote	CCW	21 [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		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		O	C	III	A	No	N/A	No	G
Cyclohexanone	CCH	18	O	D	III	A	Yes	1	.56-1(a), (b)	G
Cyclohexanone, Cyclohexanol mixture	CYX	18 [2]	O	E	III	A	Yes	1	.56-1 (b)	G
Cyclohexylamine	CHA	7	O	D	III	A	Yes	1	.56-1(a), (b), (c), (g)	G

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Department of Homeland Security
United States Coast Guard

Serial #: C1-1104850
Dated: 21-Dec-11

Certificate of Inspection

Cargo Authority Attachment

Vessel Name: HFL 413
Official #: 1237482

Shipyard: Trinity Marine
Hull #: 4857

Cargo Identification						Conditions of Carriage				
							Vapor Recovery			
Name	Chem Code	Compat Group No	Sub Chapter	Grade	Hull Type	Tank Group	App'd (Y or N)	VCS Category	Special Requirements in 46 CFR 151 General and Matls of	Insp. Period
Cyclopentadiene, Styrene, Benzene mixture	CSB	30	O	D	III	A	Yes	1	.50-50, .56-1(b)	G
iso-Decyl acrylate	IAI	14	O	E	III	A	Yes	2	.50-70(a), .50-81(a), (b), .55-1(c)	G
Dichlorobenzene (all isomers)	DBX	36	O	E	III	A	Yes	3	.56-1(a), (b)	G
1,1-Dichloroethane	DCH	36	O	C	III	A	Yes	1	No	G
2,2'-Dichloroethyl ether	DEE	41	O	D	II	A	Yes	1	.55-1(f)	G
Dichloromethane	DCM	36	O	NA	III	A	Yes	5	No	G
2,4-Dichlorophenoxyacetic acid, diethanolamine salt solution	DDE	43	O	E	III	A	No	N/A	.56-1(a), (b), (c), (g)	G
2,4-Dichlorophenoxyacetic acid, dimethylamine salt solution	DAD	0 [1,2]	O	A	III	A	No	N/A	.56-1(a), (b), (c), (g)	G
2,4-Dichlorophenoxyacetic acid, triisopropanolamine salt solution	DTI	43 [2]	O	E	III	A	No	N/A	.56-1(a), (b), (c), (g)	G
1,1-Dichloropropane	DPB	36	O	C	III	A	Yes	3	No	G
1,2-Dichloropropane	DPP	36	O	C	III	A	Yes	3	No	G
1,3-Dichloropropane	DPC	36	O	C	III	A	Yes	3	No	G
1,3-Dichloropropene	DPU	15	O	D	II	A	Yes	4	No	G
Dichloropropene, Dichloropropane mixtures	DMX	15	O	C	II	A	Yes	1	No	G
Diethanolamine	DEA	8	O	E	III	A	Yes	1	.55-1(c)	G
Diethylamine	DEN	7	O	C	III	A	Yes	3	.55-1(c)	G
Diethylenetriamine	DET	7 [2]	O	E	III	A	Yes	1	.55-1(c)	G
Diisobutylamine	DBU	7	O	D	III	A	Yes	3	.55-1(c)	G
Diisopropanolamine	DIP	8	O	E	III	A	Yes	1	.55-1(c)	G
Diisopropylamine	DIA	7	O	C	II	A	Yes	3	.55-1(c)	G
N,N-Dimethylacetamide	DAC	10	O	E	III	A	Yes	3	.56-1(b)	G
Dimethylethanolamine	DMB	8	O	D	III	A	Yes	1	.56-1(b), (c)	G
Dimethylformamide	DMF	10	O	D	III	A	Yes	1	.55-1(e)	G
Di-n-propylamine	DNA	7	O	C	II	A	Yes	3	.55-1(c)	G
Dodecyldimethylamine, Tetradecyldimethylamine mixture	DOT	7	O	E	III	A	No	N/A	.56-1(b)	G
Dodecyl diphenyl ether disulfonate solution	DOS	43	O	#	II	A	No	N/A	No	G
EE Glycol Ether Mixture	EEG	40	O	D	III	A	No	N/A	No	G
Ethanolamine	MEA	8	O	E	III	A	Yes	1	.55-1(c)	G
Ethyl acrylate	EAC	14	O	C	III	A	Yes	2	.50-70(a), .50-81(a), (b)	G
Ethylamine solution (72% or less)	EAN	7	O	A	II	A	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(c)	G
Ethylene dichloride	EDC	36 [2]	O	C	III	A	Yes	1	No	G
Ethylene glycol hexyl ether	EGH	40	O	E	III	A	No	N/A	No	G
Ethylene glycol monoalkyl ethers	EGC	40	O	D/E	III	A	Yes	1	No	G
Ethylene glycol propyl ether	EGP	40	O	E	III	A	Yes	1	No	G
2-Ethylhexyl acrylate	EAI	14	O	E	III	A	Yes	2	.50-70(a), .50-81(a), (b)	G
Ethyl methacrylate	ETM	14	O	D/E	III	A	Yes	2	.50-70(a)	G
2-Ethyl-3-propylacrolein	EPA	19 [2]	O	E	III	A	Yes	1	No	G
Formaldehyde solution (37% to 50%)	FMS	19 [2]	O	D/E	III	A	Yes	1	.55-1(h)	G
Furfural	FFA	19	O	D	III	A	Yes	1	.55-1(h)	G
Glutaraldehyde solution (50% or less)	GTA	19	O	NA	III	A	No	N/A	No	G
Hexamethylenediamine solution	HMC	7	O	E	III	A	Yes	1	.55-1(c)	G
Hexamethyleneimine	HMI	7	O	C	II	A	Yes	1	.56-1(b), (c)	G
Hydrocarbon 5-9	HFN		O	C	III	A	Yes	1	.50-70(a), .50-81(a), (b)	G
Isoprene	IPR	30	O	A	III	A	Yes	7	.50-70(a), .50-81(a), (b)	G

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Department of Homeland Security
United States Coast Guard

Serial #: C1-1104850
Dated: 21-Dec-11

Certificate of Inspection

Cargo Authority Attachment

Vessel Name: HFL 413
Official #: 1237482

Shipyard: Trinity Marine
Hull #: 4857

Cargo Identification						Conditions of Carriage				
							Vapor Recovery			
Name	Chem Code	Compat Group No	Sub Chapter	Grade	Hull Type	Tank Group	App'd (Y or N)	VCS Category	Special Requirements in 46 CFR 151 General and Mat'ls of	Insp. Period
Isoprene, Pentadiene mixture	IPN		O	B	III	A	No	N/A	.50-70(a), .55-1(c)	G
Kraft pulping liquors (free alkali content 3% or more)(including: Black, Green, or White liquor)	KPL	5	O	NA	III	A	No	N/A	.50-73, .56-1(a), (c), (g)	G
Mesityl oxide	MSO	18 [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-ethylpyridine	MEP	9	O	E	III	A	Yes	1	.55-1(e)	G
Methyl methacrylate	MMM	14	O	C	III	A	Yes	2	.50-70(a), .50-81(a), (b)	G
2-Methylpyridine	MPR	9	O	D	III	A	Yes	3	.55-1(c)	G
alpha-Methylstyrene	MSR	30	O	D	III	A	Yes	2	.50-70(a), .50-81(a), (b)	G
Morpholine	MPL	7 [2]	O	D	III	A	Yes	1	.55-1(c)	G
Nitroethane	NTE	42	O	D	II	A	No	N/A	.50-81, .56-1(b)	G
1- or 2-Nitropropane	NPM	42	O	D	III	A	Yes	1	.50-81	G
1,3-Pentadiene	PDE	30	O	A	III	A	Yes	7	.50-70(a), .50-81	G
Perchloroethylene	PER	36	O	NA	III	A	No	N/A	No	G
Polyethylene polyamines	PEB	7 [2]	O	E	III	A	Yes	1	.55-1(e)	G
iso-Propanolamine	MPA	8	O	E	III	A	Yes	1	.55-1(c)	G
Propanolamine (iso-, n-)	PAX	8	O	E	III	A	Yes	1	.56-1(b), (c)	G
iso-Propylamine	IPP	7	O	A	II	A	Yes	5	.55-1(c)	G
Pyridine	PRD	9	O	C	III	A	Yes	1	.55-1(e)	G
Sodium acetate, Glycol, Water mixture (3% or more Sodium Hydroxide)	SAP		O		III	A	No	N/A	.50-73, .55-1(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 (crude)	STX		O	D	III	A	Yes	2	No	G
Styrene monomer	STY	30	O	D	III	A	Yes	2	.50-70(a), .50-81(a), (b)	G
1,1,2,2-Tetrachloroethane	TEC	36	O	NA	III	A	No	N/A	No	G
Tetraethylenepentamine	TTP	7	O	E	III	A	Yes	1	.55-1(c)	G
Tetrahydrofuran	THF	41	O	C	III	A	Yes	1	.50-70(b)	G
Toluenediamine	TDA	9	O	E	II	A	No	N/A	.50-73, .56-1(a), (b), (c), (g)	G
1,2,4-Trichlorobenzene	TCB	36	O	E	III	A	Yes	1	No	G
1,1,2-Trichloroethane	TCM	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	.66-1(a), (b), (c)	G
Trisodium phosphate solution	TSP	5	O	NA	III	A	No	N/A	.50-73, .56-1(a), (c)	G
Urea, Ammonium nitrate solution (containing more than 2% NH3)	UAS	6	O	NA	III	A	No	N/A	.56-1(b)	G
Vanillin black liquor (free alkali content, 3% or more)	VBL	5	O	NA	III	A	No	N/A	.50-73, .56-1(a), (c), (g)	G
Vinyl acetate	VAM	13	O	C	III	A	Yes	2	.50-70(a), .50-81(a), (b)	G
Vinyl neodecanate	VND	13	O	E	III	A	No	N/A	.50-70(a), .50-81(a), (b)	G

Department of Homeland Security
United States Coast Guard

Serial #: C1-1104850
Dated: 21-Dec-11

Certificate of Inspection

Cargo Authority Attachment

Vessel Name: HFL 413
Official #: 1237482

Shipyard: Trinity Marine
Hull #: 4857

Cargo Identification						Conditions of Carriage				
							Vapor Recovery			
Name	Chem Code	Compat Group No	Sub Chapter	Grade	Hull Type	Tank Group	App'd (Y or N)	VCS Category	Special Requirements in 46 CFR 151 General and Mat'ls of	Insp. Period
Vinyltoluene	VNT	13	O	D	III	A	Yes	2	.50-70(a), .50-81, .56-1(a), (b), (c), [	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(1-6)ethoxylates	APU	20	D	E		A	Yes	1		
Alcohol(C6-C17)(secondary) poly(7-12)ethoxylates	AEB	20	D	E		A	Yes	1		
Amyl acetate (all isomers)	AEC	34	D	D		A	Yes	1		
Amyl alcohol (iso-, n-, sec-, primary)	AAI	20	D	D		A	Yes	1		
Benzyl alcohol	BAL	21	D	E		A	Yes	1		
Brake fluid base mixtures (containing Poly(2-8)alkylene(C2-C3) glycols, Polyalkylene(C2-C10) glycol monoalkyl(C1-C4) ethers, and their borate esters)	BFX	20	D	E		A	Yes	1		
Butyl acetate (all isomers)	BAX	34	D	D		A	Yes	1		
Butyl alcohol (iso-)	IAL	20 [2]	D	D		A	Yes	1		
Butyl alcohol (n-)	BAN	20 [2]	D	D		A	Yes	1		
Butyl alcohol (sec-)	BAS	20 [2]	D	C		A	Yes	1		
Butyl alcohol (tert-)	BAT		D	C		A	Yes	1		
Butyl benzyl phthalate	BPH	34	D	E		A	Yes	1		
Butyl toluene	BUE	32	D	D		A	Yes	1		
Caprolactam solutions	CLS	22	D	E		A	Yes	1		
Cyclohexane	CHX	31	D	C		A	Yes	1		
Cyclohexanol	CHN	20	D	E		A	Yes	1		
1,3-Cyclopentadiene dimer (molten)	CPD	30	D	D/E		A	Yes	2		
p-Cymene	CMP	32	D	D		A	Yes	1		
iso-Decaldehyde	IDA	19	D	E		A	Yes	1		
n-Decaldehyde	DAL	19	D	E		A	Yes	1		
Decene	DCE	30	D	D		A	Yes	1		
Decyl alcohol (all isomers)	DAX	20 [2]	D	E		A	Yes	1		
n-Decylbenzene, see Alkyl(C9+)benzenes	DBZ	32	D	E		A	Yes	1		
Diacetone alcohol	DAA	20 [2]	D	D		A	Yes	1		
ortho-Dibutyl phthalate	DPA	34	D	E		A	Yes	1		
Diethylbenzene	DEB	32	D	D		A	Yes	1		
Diethylene glycol	DEG	40 [2]	D	E		A	Yes	1		
Diisobutylene	DBL	30	D	C		A	Yes	1		
Diisobutyl ketone	DIK	18	D	D		A	Yes	1		
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	DFF	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		

Department of Homeland Security
United States Coast Guard

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Certificate of Inspection

Cargo Authority Attachment

Vessel Name: HFL 413
Official #: 1237482

Shipyard: Trinity Marine
Hull #: 4857

Cargo Identification						Conditions of Carriage				
							Vapor Recovery			
Name	Chem Code	Compat Group No	Sub Chapter	Grade	Hull Type	Tank Group	App'd (Y or N)	VCS Category	Special Requirements In 46 CFR 151 General and Mat'ls of	Insp. Period
Ethoxy triglycol (crude)	ETG	40	D	E		A	Yes	1		
Ethyl acetate	ETA	34	D	C		A	Yes	1		
Ethyl acetoacetate	EAA	34	D	E		A	Yes	1		
Ethyl alcohol	EAL	20 [2]	D	C		A	Yes	1		
Ethylbenzene	ETB	32	D	C		A	Yes	1		
Ethyl butanol	EBT	20	D	D		A	Yes	1		
Ethyl tert-butyl ether	EBE	41	D	C		A	Yes	1		
Ethyl butyrate	EBR	34	D	D		A	Yes	1		
Ethyl cyclohexane	ECY	31	D	D		A	Yes	1		
Ethylene glycol	EGL	20 [2]	D	E		A	Yes	1		
Ethylene glycol butyl ether acetate	EMA	34	D	E		A	Yes	1		
Ethylene glycol diacetate	EGY	34	D	E		A	Yes	1		
Ethylene glycol phenyl ether	EPE	40	D	E		A	Yes	1		
Ethyl-3-ethoxypropionate	EEP	34	D	D		A	Yes	1		
2-Ethylhexanol	EHX	20	D	E		A	Yes	1		
Ethyl propionate	EPR	34	D	C		A	Yes	1		
Ethyl toluene	ETE	32	D	D		A	Yes	1		
Formamide	FAM	10	D	E		A	Yes	1		
Furfuryl alcohol	FAL	20 [2]	D	E		A	Yes	1		
Gasoline blending stocks: Alkylates	GAK	33	D	A/C		A	Yes	1		
Gasoline blending stocks: Reformates	GRF	33	D	A/C		A	Yes	1		
Gasolines: Automotive (containing not over 4.23 grams lead per gallon)	GAT	33	D	C		A	Yes	1		
Gasolines: Aviation (containing not over 4.86 grams of lead per gallon)	GAV	33	D	C		A	Yes	1		
Gasolines: Casinghead (natural)	GCS	33	D	A/C		A	Yes	1		
Gasolines: Polymer	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		
Heptanoic acid	HEP	4	D	E		A	Yes	1		
Heptanol (all isomers)	HTX	20	D	D/E		A	Yes	1		
Heptene (all isomers)	HPX	30	D	C		A	Yes	2		
Heptyl acetate	HPE	34	D	E		A	Yes	1		
Hexane (all isomers), see Alkanes (C6-C9)	HXS	31 [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		

Department of Homeland Security
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Certificate of Inspection

Cargo Authority Attachment

Vessel Name: HFL 413
Official #: 1237482

Shipyard: Trinity Marine
Hull #: 4857

Cargo Identification						Conditions of Carriage				
							Vapor Recovery			
Name	Chem Code	Compat Group No	Sub Chapter	Grade	Hull Type	Tank Group	App'd (Y or N)	VCS Category	Special Requirements in 46 CFR 151 General and Mat'ls of	Insp. Period
Methyl butyl ketone	MBK	18	D	C		A	Yes	1		
Methyl butyrate	MBU	34	D	C		A	Yes	1		
Methyl ethyl ketone	MEK	18 [2]	D	C		A	Yes	1		
Methyl heptyl ketone	MHK	18	D	D		A	Yes	1		
Methyl isobutyl ketone	MIK	18 [2]	D	C		A	Yes	1		
Methyl naphthalene (molten)	MNA	32	D	E		A	Yes	1		
Mineral spirits	MNS	33	D	D		A	Yes	1		
Myrcene	MRE	30	D	D		A	Yes	1		
Naphtha: Heavy	NAG	33	D	#		A	Yes	1		
Naphtha: Petroleum	PTN	33	D	#		A	Yes	1		
Naphtha: Solvent	NSV	33	D	D		A	Yes	1		
Naphtha: Stoddard solvent	NSS	33	D	D		A	Yes	1		
Naphtha: Varnish makers and painters (75%)	NVM	33	D	C		A	Yes	1		
Nonane (all isomers), see Alkanes (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		
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. 5	OFV	33	D	D/E		A	Yes	1		
Oil, fuel: No. 6	OSX	33	D	E		A	Yes	1		
Oil, misc: Crude	OIL	33	D	C/D		A	Yes	1		
Oil, misc: Diesel	ODS	33	D	D/E		A	Yes	1		
Oil, misc: Gas, high pour	OGP	33	D	E		A	Yes	1		
Oil, misc: Lubricating	OLB	33	D	E		A	Yes	1		
Oil, misc: Residual	ORL	33	D	E		A	Yes	1		
Oil, misc: Turbine	OTB	33	D	E		A	Yes	1		
Pentane (all isomers)	PTY	31	D	A		A	Yes	5		
Pentene (all isomers)	PTX	30	D	A		A	Yes	5		
n-Pentyl propionate	PPE	34	D	D		A	Yes	1		
alpha-Pinene	PIO	30	D	D		A	Yes	1		
beta-Pinene	PIP	30	D	D		A	Yes	1		
Poly(2-8)alkylene glycol monoalkyl(C1-C6) ether	PAG	40	D	E		A	Yes	1		
Poly(2-8)alkylene glycol monoalkyl(C1-C6) ether acetate	PAF	34	D	E		A	Yes	1		
Polybutene	PLB	30	D	E		A	Yes	1		
Polypropylene glycol	PGC	40	D	E		A	Yes	1		
Iso-Propyl acetate	IAC	34	D	C		A	Yes	1		
n-Propyl acetate	PAT	34	D	C		A	Yes	1		
Iso-Propyl alcohol	IPA	20 [2]	D	C		A	Yes	1		
n-Propyl alcohol	PAL	20 [2]	D	C		A	Yes	1		
Propylbenzene (all isomers)	PBY	32	D	D		A	Yes	1		
Iso-Propylcyclohexane	IPX	31	D	D		A	Yes	1		

Department of Homeland Security
United States Coast Guard

Serial #: C1-1104850
Dated: 21-Dec-11

Certificate of Inspection

Cargo Authority Attachment

Vessel Name: HFL 413
Official #: 1237482

Shipyard: Trinity Marine
Hull #: 4857

Cargo Identification						Conditions of Carriage				
							Vapor Recovery			
Name	Chem Code	Compat Group No	Sub Chapter	Grade	Hull Type	Tank Group	App'd (Y or N)	VCS Category	Special Requirements in 46 CFR 151 General and Mat'ls of	Insp. Period
Propylene glycol	PPG	20 [2]	D	E		A	Yes	1		
Propylene glycol methyl ether acetate	PGN	34	D	D		A	Yes	1		
Propylene tetramer	PTT	30	D	D		A	Yes	1		
Sulfolane	SFL	39	D	E		A	Yes	1		
Tetraethylene glycol	TTG	40	D	E		A	Yes	1		
Tetrahydronaphthalene	THN	32	D	E		A	Yes	1		
Toluene	TOL	32	D	C		A	Yes	1		
Tricresyl phosphate (less than 1% of the ortho isomer)	TCP	34	D	E		A	Yes	1		
Triethylbenzene	TEB	32	D	E		A	Yes	1		
Triethylene glycol	TEG	40	D	E		A	Yes	1		
Triethyl phosphate	TPS	34	D	E		A	Yes	1		
Trimethylbenzene (all isomers)	TRE	32	D	(D)		A	Yes	1		
Trixylenyl phosphate	TRP	34	D	E		A	Yes	1		
Undecene	UDC	30	D	D/E		A	Yes	1		
1-Undecyl alcohol	UND	20	D	E		A	Yes	1		
Xylenes (ortho-, meta-, para-)	XLX	32	D	D		A	Yes	1		

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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.
Compatability 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
Note 2	(202) 372-1425.
	See Appendix I to 46 CFR Part 150 - exceptions to the compatability 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 sufficeint hazard to require a moderate degree of control. See 46 CFR 151.10-1(b)(4).
NA	Not applicable to barges certificated under Subchapter D.

Conditions of Carriage

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

Conditions of Carriage

Tank Group	The vessel's tank group (as defined under the "46 CFR Tank Group Characteristics" listed on page 1) which is authorized for carriage of the named cargo.
Vapor Recovery Approved (Y or N)	Yes: The vessel's VCS has been reviewed and approved by the MSC to control vapors of the specified cargo. No: The vessel's VCS has been reviewed and is not approved by the MSC to control vapors of the specified cargo.
VCS Category:	The specified cargo's provisional classification for vapor control systems.
Category 1	(No additional VCS requirements above those for benzene, gasolines and crude oil) All requirements applying to the handling of oil and hazardous materials in Titles 33 and 46 Code of Federal Regulations (CFR) apply to these cargoes. Those specifically dealing with vapor control systems are in 33 CFR 155.750, 33 CFR 156.120, 33 CFR 156.170, 46 CFR 35.35 and 46 CFR 39. The cargo tank venting system calculations (46 CFR 39.20-11) and the pressure drop calculations (46 CFR 39.30-1(b)) must use appropriate friction factors, vapor densities and vapor growth rates.
Category 2	(Polymerizes) Polymerization and residue build-up of these cargoes can adversely affect the vessel by fouling safety components and restricting vapor flow which could lead to cargo tank overpressurization. The vessel's owner must develop a method of ensuring all VCS safety components are functional and polymer build-up is not causing an unsafe condition due to increased pressure in the vapor control piping and cargo tanks. The method shall be acceptable to the local Officer in Charge, Marine Inspection. This is in addition to the requirements of Category 1. Please note that a material not normally considered a monomer can be a problem in detonation 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 1cargoes. 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.

DHS, USCG, CG-1270 (REV. 01-23)

OMB APPROVED
1625-0027

UNITED STATES OF AMERICA

DEPARTMENT OF HOMELAND SECURITY
UNITED STATES COAST GUARD

NATIONAL VESSEL DOCUMENTATION CENTER

CERTIFICATE OF DOCUMENTATION

VESSEL NAME	OFFICIAL NUMBER	IMO OR OTHER NUMBER	YEAR COMPLETED
HFL 413	1237482	4857	2012

HAILING PORT	HULL MATERIAL	MECHANICAL PROPULSION
BOWLING GREEN KY	STEEL	NO

GROSS TONNAGE	NET TONNAGE	LENGTH	BREADTH	DEPTH
1619 GRT	1619 NRT	297.5	54.0	12.0

PLACE BUILT

ASHLAND CITY TN

OWNERS	OPERATIONAL ENDORSEMENTS
HINES FURLONG LINE INC	COASTWISE

MANAGING OWNER

HINES FURLONG LINE INC
4015 HILLSBORO PIKE STE 202
PO BOX 150809
NASHVILLE TN 37215

RESTRICTIONS
NONE

ENTITLEMENTS
NONE

REMARKS
NONE

ISSUE DATE
JANUARY 16, 2025

THIS CERTIFICATE EXPIRES

FEBRUARY 28, 2026

Christian H. Walden

DIRECTOR, NATIONAL VESSEL DOCUMENTATION CENTER

U.S. COAST GUARD

National Pollution Funds Center

Click on the Document Icon to the left of a record to display a COFR Confirmation in html. You may print the COFR Confirmation by right clicking your mouse and selecting "print" from the list.

VESSEL NAME	VESSEL TYPE	HULL TYPE	GROSS TONNAGE	COFR NUMBER	EFFECTIVE DATE	EXPIRATION DATE	COFR APPLICANT	VIN	INSURANCE CANCEL FLAG
HFL 413	TANKER	D	1619	841310 - 21	5/16/2024	5/16/2027	CHEM CARRIERS, L.L.C	D1237482	

< Prev Next >

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BARGE VAPOR TIGHTNESS LETTER

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

- Test date: 3-12-25
- Barge owner: CHEM CARRIERS
- Barge Name/Official Number: HFL 413
- Maximum load rate (BPH): 5,000 BPH

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

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

→ Start Time: 08:00 Beginning Pressure: 28''

→ End Time: 08:45 Ending Pressure: 27.9

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

Company of Tester:	Location:
KSOLV MARITIME	CHANELVIEW TX
Name of Tester (Print):	Signature of Tester:
VICTOR PRECIADO	VICTOR PRECIADO
Name of Witness (Print):	Signature of Witness:
JOSHUA MOJARRO	JOSHUA MOJARRO
Affiliation/Company of Witness (Print)	
FOREMAN KSOLV MARITIME	

1015 Lakeside Dr, Channelview, TX 77530
Phone: 281-452-4000 Fax: 281-452-5523
Revised 10/03/2019

Ksolv

BARGE PIPING LETTER

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

BARGE OWNER/BARGE NAME: CHEM CARRIERS HFL-413

Letter expiration date (one year from test date): 3-12-26

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

1. Cargo Piping and Valves (actual date of test): 3-12-25

   Test Pressure (188 psi): 188 PSI

2. Cargo Relief Valve (actual date of test): 3-12-25

   Test Pressure (125 psi): 125 PSI

3. Cargo Pressure Gauge (actual date of test): 3-12-25

   Percent of Accuracy (%): 99.1.

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

   Test Pressure (125 psi): N/A

Signature of Tester:	VICTOR PRECIADO
Printed Name of Tester:	VICTOR PRECIADO
Company/Location of Tester:	KSOLV MARITIME CHANELVIEW TX

1015 Lakeside Dr, Channelview, TX 77530
Phone: 281-452-4000 Fax: 281-452-5523
Revised 10/03/2019

U.S. Department of Homeland Security
United States Coast Guard

Commanding Officer
United States Coast Guard
Marine Safety Center

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

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

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

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

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

Dear Mr. Kumaria:

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

1. Multi-breasted tandem loading operations are limited to simultaneous collection of those cargoes listed in each vessel's CAA at the lower of the two maximum transfer rates noted in enclosure (1) for each barge pair.

2. Multi-breasted tandem loading approval is contingent on the vessels being owned or operated by the same entity, in accordance with 46 CFR 39.5001(a).

3. The facility pressure-vacuum valve must be set at the lower of the two settings noted in enclosure (1) for each barge pair.

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

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

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

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

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

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

Sincerely,

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

Encl: (1) List of Applicable Barges

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

List of Barges for C1-2103027								
Barge Name	**O.N.**	**Shipyard**	**Hull No.**	**MAWP (psi)**	**P/V Valve Press/Vac Setting**	**Loading/ Discharge Rates**	**Previous MSC Approval Letter**	**Approval Date**
CCL 403	1231311	Trinity Ashland City	4772	6.5	6/3	5000/5000	C1-1100183	January 21, 2011
CCL 404	1231312	Trinity Ashland City	4773	6.5	6/3	5000/5000	C1-1100183	January 21, 2011
CCL 405	1236867	Trinity Madisonville	2196-1	3.5	3/3	5000/5000	C1-1103805	November 14, 2011
CCL 406	1236866	Trinity Madisonville	2199-1	3.5	3/3	5000/5000	C1-1103914	November 22, 2011
CCL 407	1246320	Three Rivers B&B	121512	3.5	3/2	5000/5000	C1-1203487	July 30, 2012
CCL 408	1246097	Tres Palacios Marine	144	3.5	3/2	6000/6000	C1-1301141	April 12, 2013
CCL 409	1246098	Tres Palacios Marine	145	3.5	3/2	6000/6000	C1-1301141	April 12, 2013
CCL 410	1255906	Tres Palacios Marine	152	3.5	3/2	6000/6000	C1-1303733	February 7, 2014
CCL 411	1255907	Tres Palacios Marine	153	3.5	3/2	6000/6000	C1-1303733	February 7, 2014
CCL 415-T	1262942	Trinity Ashland City	5154	3.5	3/2	5000/5000	C1-1503553	August 17, 2015
CCL 414-L	1262941	Trinity Ashland City	5153	3.5	3/2	5000/5000	C1-1503484	August 10, 2015
CCL 416-T	1264691	Tres Palacios Marine	160	3.5	3/2	6000/6000	C1-1504017	September 17, 2015
CCL 417 T	1298307	West Gulf Marine	285	6.5	6/0.5	4000/4576	C1-1901188	April 23, 2019
HFL 413	1237482	Arcosa Ashland City	4857	3.5	3/0.5	5000/5000	C1-1104850	December 21, 2011
HFL 415	1237483	Arcosa Ashland City	4858	3.5	3/0.5	5000/5000	C1-1104850	December 21, 2011
HFL 435	1236563	Arcosa Ashland City	4859	3	1.5/0.5	6000/6000	C1-1103918	November 9, 2011
HFL 605	1237484	Arcosa Ashland City	4853	3.5	3/0.5	5000/5000	C1-1104533	December 9, 2011

HINES FURLONG LINE

TANK BARGE
CARGO TRANSFER PROCEDURES

HFL 413

As required by 33 CFR 155.750(a)

Operator:

Chem Carriers LLC

1237 Hwy 75
Sunshine LA 70780

REPORT ALL SPILLS TO:

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

Barge Name:	HFL 413
Official Number:	1237482
Home Port:	BOWLING GREEN, KY
Builder / Year:	TRINITY / 2012
Hull #:	4857
Gross Tons:	1619
Length (Molded):	297' 6"
Breadth (Molded):	54'-00"
Depth (Molded, Deck at Side):	12'-00"
Cargo Tank Capacity (100%):	29, 700 Barrels

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

A. The products that are authorized to be carried by each barge are listed on the Certificate of Inspection. The Certificate of Inspection is available on the barge and a copy of each Certificate is available from the Hines Furlong Line office.

B. For loading operations consult loading plans or other instructions issued by the shore facility operator to determine the names of the petroleum or chemicals to be loaded. Before beginning transfer operations, obtain information on safety, fire and personnel protection from cargo information cards and Material Safety Data Sheets (MSDS) received from shore facility personnel. The information must be in written form and on board the vessel. Only products authorized by the Certificate Of Inspection may be loaded.

C. For Unloading Operations consult the barge cargo manifest and / or shipping papers for the names of the petroleum or chemicals to be unloaded. For hazard and reactivity data see the Cargo Information Card and / or the MSDS.

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

A. The barge is a 297.5'X54'X12' double hull, Rake Bow, Box Stern, tank barge with 6 integral gravity cargo tanks arranged in pairs, 1 through 3 Port and Starboard. All transfer connection points are located near the Stern.

B. CARGO PIPING - Each cargo tank is fitted with below deck fixed piping connected to the cargo pump, consisting of a 12 in. main header with a 10 in. branch to each pair of cargo tanks and 8 in. drops to a sump in each tank. The piping system can be isolated from the pump by closing the pump block valve located on the suction side of the pump. An isolation valve is located in each cargo tank near the suction bell. 3 additional block valves are located on the cargo main piping to isolate each pair of tanks. The #3 P&S cargo tanks can be isolated by closing the block valve on the 10 in. branch. A cross header connecting to the below deck piping via a riser is located above deck near the stern. Each outboard end of the cross header is equipped with a Header Presentation valve. The pump can be isolated from the discharge cross header by closing the block valve located on the discharge side of the pump. The Discharge piping is equipped with a 2 in. pump bypass equipped with an isolation valve. The below deck piping can be isolated from the cross header by closing the loading drop valve. An 8 in. "dummy" header is located adjacent to the cross header to facilitate transfers to or from a barge moored outboard.

C. CARGO VENTING - A High Velocity Pressure Vacuum Relief valve (P/V valve) is mounted on the vapor collection header to provide the required venting when loading. This design considered the maximum loading and discharge rate of 3,500 gallons per minute (5,000 Barrels per hour) vs. the flow rates of the P/V valves. The P/V valves are constructed with integral, internal, stainless steel, 30X30 mesh flame screens. They are set to relieve at +3.0 PSI Pressure and -0.5 PSI Vacuum. The settings are verified by bench testing annually. This model valve is equipped with a check feature to allow manual verification of the operation of the valve.

D. CARGO PUMP - The vessel is equipped with a fixed, vertical lift, centrifugal turbine cargo pump located in the #3 Port Cargo Tank, driven by a diesel engine. The engine is located on deck, near the stern and connected to the pump via a right angle drive gear system.

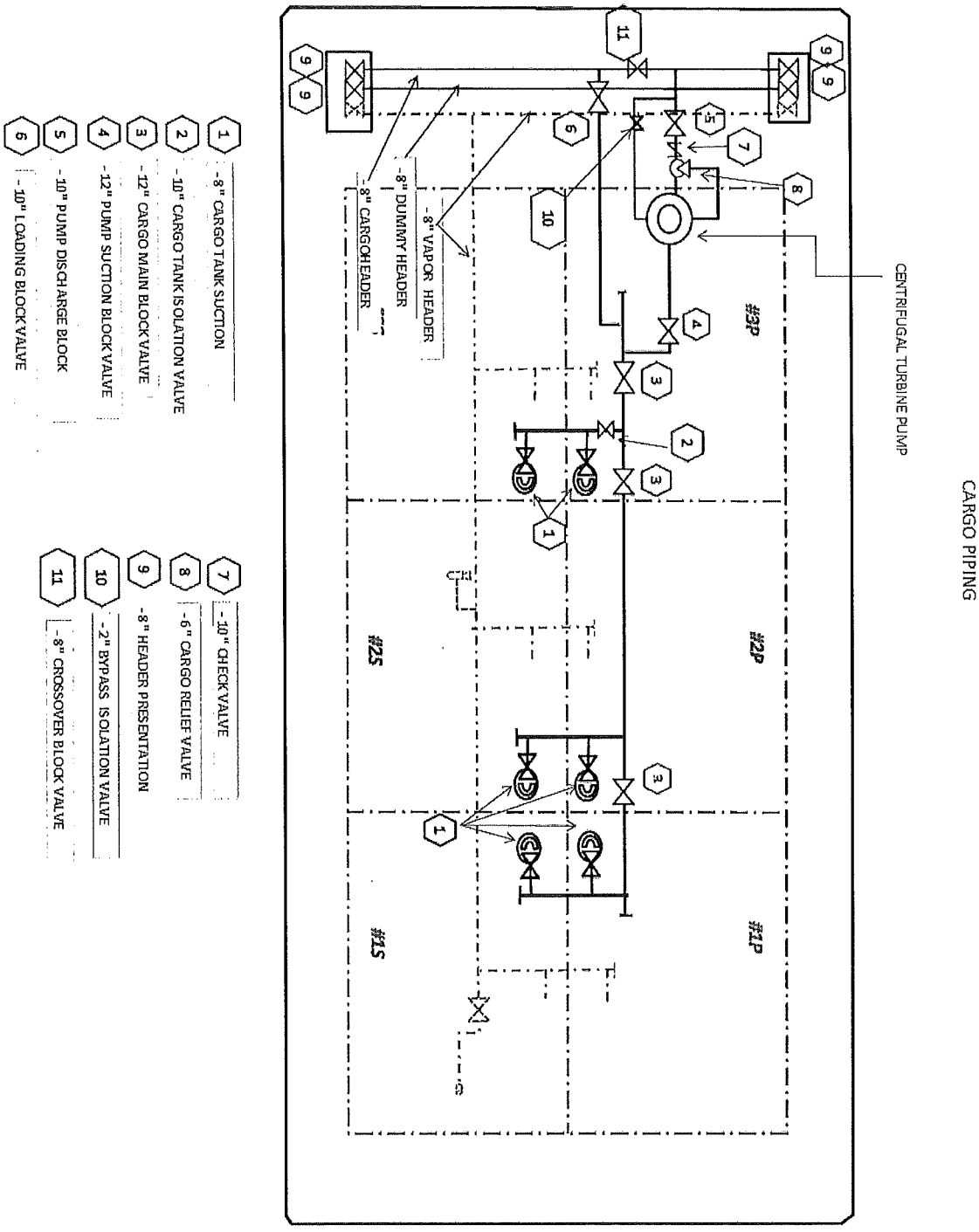
E. The discharge containment consists of two large open top tanks; one located at each end of the header lines. Each tank has a capacity of 7 barrels and is equipped with a drain line for the removal of liquid collected in them. Prior to any transfer operation, check to ensure that containment areas are properly drained and the plugs or caps are installed. Never drain the containment on deck. The containment should be empty at the start of the transfer and before the barge leaves. All liquid must be stripped or drained off before the barge leaves the dock.

F. CARGO GAUGING - Each cargo tank is equipped with an MMC "B" valve to facilitate a closed gauging device. Each cargo expansion dome is fitted with an 8 in. Ullage hatch for cargoes that open gauging is permitted

G. For details of this piping system, consult the attached piping diagram.

H. The Port and Starboard Tanks Must Be transferred(Loaded or Unloaded) simultaneously to maintain an Even Keel

CARGO PIPING DIAGRAM



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

I. STRIPPING SYSTEM

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

Description

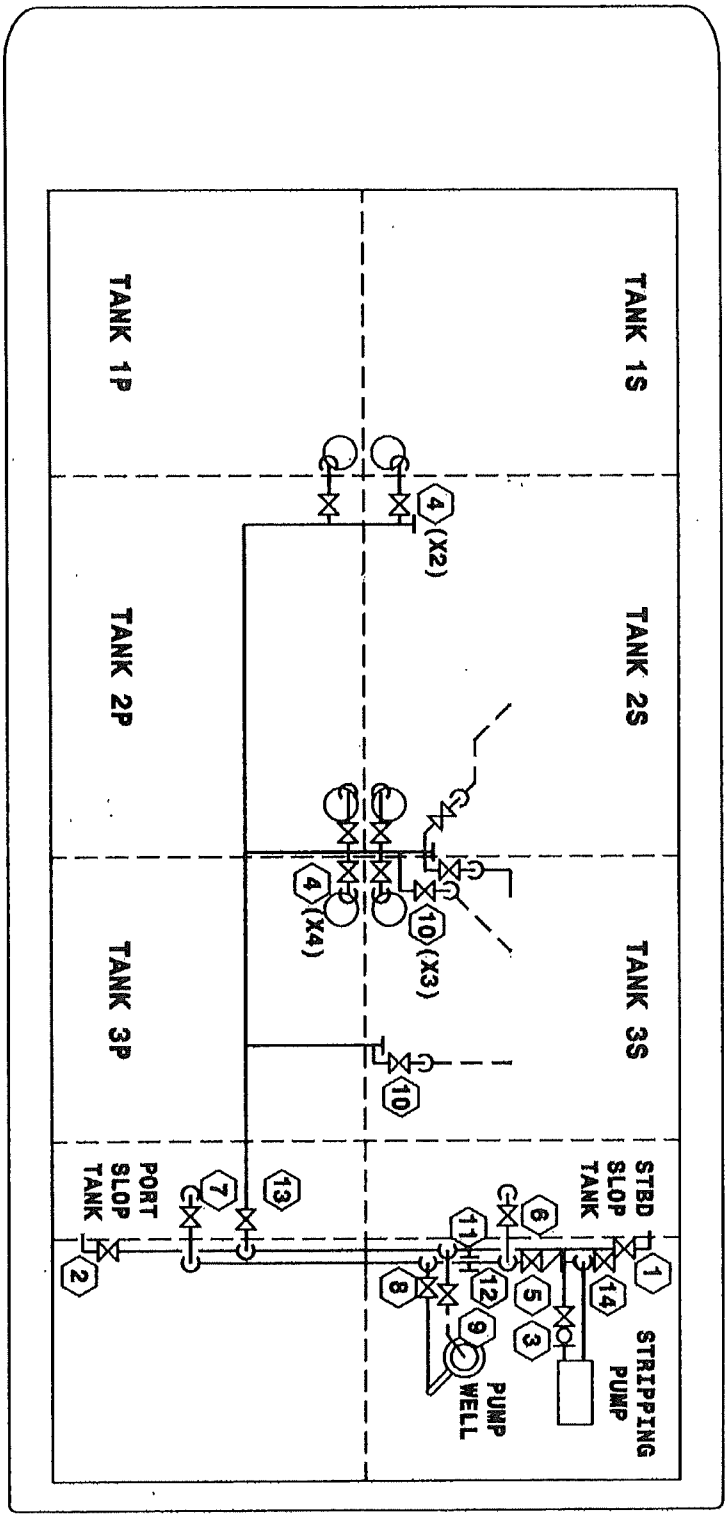
The system consists of a longitudinal pipe above deck with drops into each cargo tank at the sumps and at the aft end of the #1 P&S, #2 P&S, #3 P&S and the forward end of the #3 P&S cargo tanks. The pump well and slop tank are also connected to the system, which can be used to either strip them or fill them. A pipe drop is also connected to the below deck cargo main in the #2S and #3S cargo tanks. All pipe drops can be isolated by closing the above deck valves. The system is equipped with a hydraulically operated pump driven from the barge pump engine. See the attached schematic drawing for details of the system.

Operation:

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

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

STRIPPING PIPING DIAGRAM



STRIPPING PIPING

1. 1 1/2" STBD SLOP TANK SUCTION
2. 1 1/2" PORT SLOP TANK SUCTION
3. 2" STRIPPING SUCTION BLOCK
4. 1 1/2" SUMP SUCTION
5. 2" STRIPPING PUMP DISCHARGE
6. 2" STBD SLOP TANK FILL
7. 2" PORT SLOP TANK FILL
8. 2" STRIPPING DISCHARGE TO PUMPWELL
9. 1 1/2" PUMPWELL SUCTION
10. 1 1/2" CARGO HEADER STRIPPING
11. 2" SUCTION HOSE CONNECTION
12. 2" DISCHARGE HOSE CONNECTION
13. 2" STRIPPING HEADER BLOCK

155.750(a) (3) PERSONS REQUIRED:

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

When the terminal at which the barge is being loaded has received specific approval from the U.S. Coast Guard to do so, two barges may be loaded/unloaded simultaneously with one person in charge for both barges.

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

155.730 (4) DUTIES OF THE PERSON IN CHARGE:

A. Prior To Transfer:

1) Check all barge moorings to ensure that they are properly secured and in satisfactory condition. Reference section 155.750(a)(5) as to number and size.

2) Examine deck and hull. Open and look into all void spaces (DO NOT ENTER) to ascertain that there are no abnormal conditions that could affect the safe transfer of the cargo. All man way hatches are to be secured upon completion of this examination.

3) Check U.S. Coast Guard Certificate of Inspection to insure it is on board, valid and endorsed for the product being transferred.

4) Examine the Cargo Information Card or MSDS to obtain information concerning cargo hazards, reactivity and safety and whether or not this cargo requires vapor control.

5) Confirm with the customer/tankerman to determine whether or not this cargo requires a nitrogen blanket and/or pad. Identify which hoses or lines must be blown down with nitrogen.

6) Confirm with the facility Person in Charge on whether or not a sample is to be drawn. If needed, the sample will be drawn at the ship or barge tanks prior to cargo entering a tank. If the sample is approved by the customer's surveyor the cargo transfer can commence, if not then the cargo is to be slopped until a good sample is received and approved.

7) Review static electricity precautions and the initial transfer rate found at the end of these procedures.

8) Visually inspect cargo and vapor piping and containment systems for cleanliness, remaining cargo and abnormal conditions. PIC must not break seals or vapor tightness without approval of the facility/shipper and must wear appropriate PPE.

9) Place on board two, approved type, B-II portable fire extinguishers.

10) Connect cargo hoses or loading arms from dock to appropriate header on the stern of the barge. Use a full set of flange bolts and the proper size gasket for each connection. Both liquid and vapor lines must be securely bolted with a bolt in every hole.

11) Check the valve on the opposite (unused) side of the headers to ensure that they are closed and that a blind is secured on the flange using a full set of bolts.

DUTIES OF THE PERSON IN CHARGE: (continued)

12) Check the operation of the P/V valve.

a) Operate the handle on the side of the valve to check that mechanism is free and operating properly. Check the operation of both the pressure and vacuum side. Push down the handle to check the vacuum relief and lift the handle to check the pressure relief.

b) If the mechanism is not operating properly, the valve will require dismantling for cleaning or repair.

13) Check the grounding cable (if used) to ensure that it is properly connected or that an isolating flange has been properly installed

14) Establish a means for continuous communications with the Person in Charge at the facility. The method selected must be effective during all phases of the transfer. If portable radio devices are used, they must be intrinsically safe and meet the requirements of 46 CFR § 110.15-100(l) Class I, Division I, Group D as defined in 46 CFR § 111.80

15) Consult with facility Person in Charge concerning details of the transfer and ensure that each person in charge understands the following details of the transfer operation:

a) The identity of the product to be transferred and approximate amount to be transferred

b) The sequence of transfer operations;

c) The transfer rate;

d) The name or title and location of each person participating in the transfer operation;

e) Details of the transferring and receiving systems;

f) Critical stages of the transfer operation;

g) Federal, state, and local rules that apply to the transfer of oil or hazardous material;

h) Emergency procedures;

i) Discharge containment procedures;

j) Discharge reporting procedures;

k) Watch or shift arrangement;

l) Transfer shutdown procedures;

16) Complete and sign the "Declaration of Inspection".

17) Open the cargo control valves at the cargo tanks.

18) Ensure a proper flame screen is in place on all tank openings.

19) Uncap the stick gauges and engage the stick gauge magnet with the float magnet.

20) Inform the facility Person in Charge that the barge is ready for transfer.

21) When the facility Person in Charge informs you that the facility is ready for transfer, open the cargo control valves on the headers.

22) Confirm cargo is transferring to the proper cargo tanks.

DUTIES OF THE PERSON IN CHARGE: (continued)

B. During Transfer:

1) Check mooring lines frequently, at intervals of not more than 30 minutes and adjust as necessary. In conditions where the barge is surging due to passing vessels or high winds, additional mooring lines will be used to ensure a secure mooring.

2) Monitor cargo levels in the tank by observing the ladder rungs and stick gauges at the gauging tubes. Make sure to inspect wing voids for any water accumulation during the loading process.

3) The Port and Starboard Tanks Must Be transferred (Loaded or Unloaded) simultaneously to maintain an Even Keel.

4) No cargo transfer operations will be conducted when electrical or thunderstorms are in the vicinity.

5) Constantly monitor cargo transfer operation to guard against an accidental discharge of oil. Minimize the number of tank openings to prevent contamination of cargo containment spaces.

C.SPLIT LOADING PROCEDURE:

PHASE 1 – AFT TANKS:

1. Check to be certain that the opposite (unused) header presentation valve is tightly closed.
2. Close all of the below deck block valves to tanks.
3. Close the pump suction block valve.
4. Close the pump discharge block valve.
5. Connect cargo hose or loading arm from dock to the header (second header forward of the stern). Use a full set of flange bolts and the proper size gasket for each connection.
6. Open the loading drop valve on the riser to the cross header.
7. Open the aft block valve in the #3P below deck cargo main
8. Open the block valves on the branch to the cargo tanks to be loaded.
9. Open the cargo control valves in the cargo tanks to be loaded.
10. Inform the Facility Person in Charge that the barge is ready for transfer.
11. When the Facility Person in Charge informs you that the facility is ready for transfer, open the header presentation valve on the loading header.
12. After the designated tanks have been topped off, close cargo tank valves; close the block valves to each branch valve and header presentation valve.

DUTIES OF THE PERSON IN CHARGE: (continued)

C.SPLIT LOADING PROCEDURE:

PHASE 2- LOAD FORWARD TANKS:

1. Check to be certain that all cargo tank valves and block valves to the tanks that are not to be loaded are tightly closed.
2. Check to be certain that the opposite (unused) header presentation valve is tightly closed.
3. Check to be certain that the pump suction block valves and pump discharge valves are closed.
4. Connect cargo hose or loading arm from dock to the Cross Header. Use a full set of flange bolts and the proper size gasket for each connection.
5. Check to insure that the block valve to the #3 P&S tanks branch line is securely closed.
6. Check to insure that the cargo tank suction valves in #3 P&S tanks branch lines are securely closed.
7. Open the loading drop valve on the riser to the Cross Header.
8. Open the block valves in the below deck cargo main.
9. Open the block valves on the branch to the cargo tanks to be loaded.
10. Open the cargo control valves in the cargo tanks to be loaded.
11. Inform the Facility Person in Charge that the barge is ready for transfer.
12. When the Facility Person in Charge informs you that the facility is ready for transfer, open the header presentation valve on the loading header.
13. After the designated tanks have been topped off, close cargo tank valves; close the block valves to each branch valve and header presentation valve.

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

1) Person in Charge (PIC) of the loading will determine cargo compartment(s) and sequences to be used during the topping off procedures. The PIC must consider such factors as cargo compartment size, outage space, cargo amount to be topped off, vessel trim, vessel draft, cargo compartment openings before selecting the cargo compartment to be topped off. The topping off procedure must be done without spillage of any cargo outside the cargo compartment while maintaining proper vessel trim/draft.

2) Definite agreement with the shore personnel concerning the rate of flow for topping off and final shut down must be reached prior to the topping off operation.

3) When cargo tanks are nearing the desired loading, regulate the cargo rate using the cargo control valves at each tank. Advise the Facility Person In Charge (F-PIC) approximately 1 hour, 30 minutes, 15 minutes, and 5 minutes prior to competing top off

4) Do not load the tanks so as to exceed the loading restrictions on the Certificate Of Inspection. Adequate room to permit expansion of the product should remain in each tank. In no case should a tank be loaded above 6 in. from the deck (ullage) at the gauge point.

5) As each tank is topped off, the compartment and associated block valves should be closed.

6) When topping off is complete, close the header valves.

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

1) Close and dog down all cargo hatch covers, ullage opening covers and gauge tube plugs.

2) Check all cargo control valves to ensure they are tightly closed.

3) Disconnect cargo hoses or loading arms from the headers and secure the ends with a suitable blind flange, gasket and full set of bolts.

155.750(a) (5) TENDING OF MOORING LINES

Upon boarding the barge, whether at anchorage or at a terminal, it shall be the responsibility of the Person-in-Charge to check the mooring lines to see that they are in good condition, adequate in number and properly secured. Present and expected conditions of wind, weather tide and draft changes due to cargo loading shall be taken into account when checking mooring lines.

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

155.750(a) (6) EMERGENCY SHUTDOWN AND COMMUNICATIONS

Emergency Shut Down:

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

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

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

Communications:

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

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

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

In the event of any irregularities, perceived unsafe conditions or emergencies on board this barge prior to, during or after cargo transfer operations, immediate notice must be given to Hines Furlong Line , Inc. 996 Wilkinson Trace, Suite C-1, Bowling Green, KY 42103. (502) 282-0063

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

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

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

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

155.750(a) (11) TRANSFER HOSES

If an oil or hazardous material transfer hose is used it must be marked with the test date and name of the product which it can be used for. If it is not specifically marked, then before it is hooked up the tankerman must verify the test date and compatible products which can be transferred through the hose. This is done by comparing the hose identification with a list of compatible products provided by the supplier of the hose. These documents may be found in the mailbox on the barge or the Pilot House of the attending boat. Hoses are to be tested annually in accordance with 33 CFR 156.170.

STATIC ELECTRICITY PRECAUTIONS

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

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

155.480 (b) (2) OVERFILL DEVICES

Stick Gauge Overfill Devices:

A. 1 Meter stick gauges are located forward of each Sampling / Closed Gauging station, near the center of each tank. They provide a visual indication of high level and overfill in the cargo tank. Follow these checks before a transfer:

1. Uncap the stick gauges

2. Grasp the gauge firmly and pull it up carefully to the fully raised position.

3. Lower the stick until it engages the float magnet. This will be near at the bottom of the stick's travel. The stick must engage the magnet in each tank in order to begin the transfer.

4. When the cargo in each tank reaches approximately 1-meter ullage, the float and gauge stick will begin to rise. It is important to make sure that the stick continues to rise as the tank fills. This will help provide the best indication of the internal cargo level.

5. The gauge sticks are marked with a green band which extends to the 6 in. before overfill level, followed by a 6 in. yellow band extending to the overfill level. The remainder of the stick is colored red. When loading cargo, the green color on the stick indicates the normal loading of the tank, the yellow indicates near over fill (high level) and the red means a dangerous over fill condition and the compartment cargo valve should be closed immediately.

Sight Glasses and Gauge trees:

A. A sight glass is located on the expansion dome of each tank. Viewing through the glass will provide a visual indication of the level of the cargo in the cargo tank.

1. A 6 ft. Stainless Steel Gauge Tree, marked in 6 in. increments is located in each tank, below the sight glass.

2. A "Top Off Paddle" is located next to the Gauge Tree to show the maximum loading level.

High Level & Overfill Alarms:

A. Each cargo tank is equipped with a high level and overfill alarm sensor.

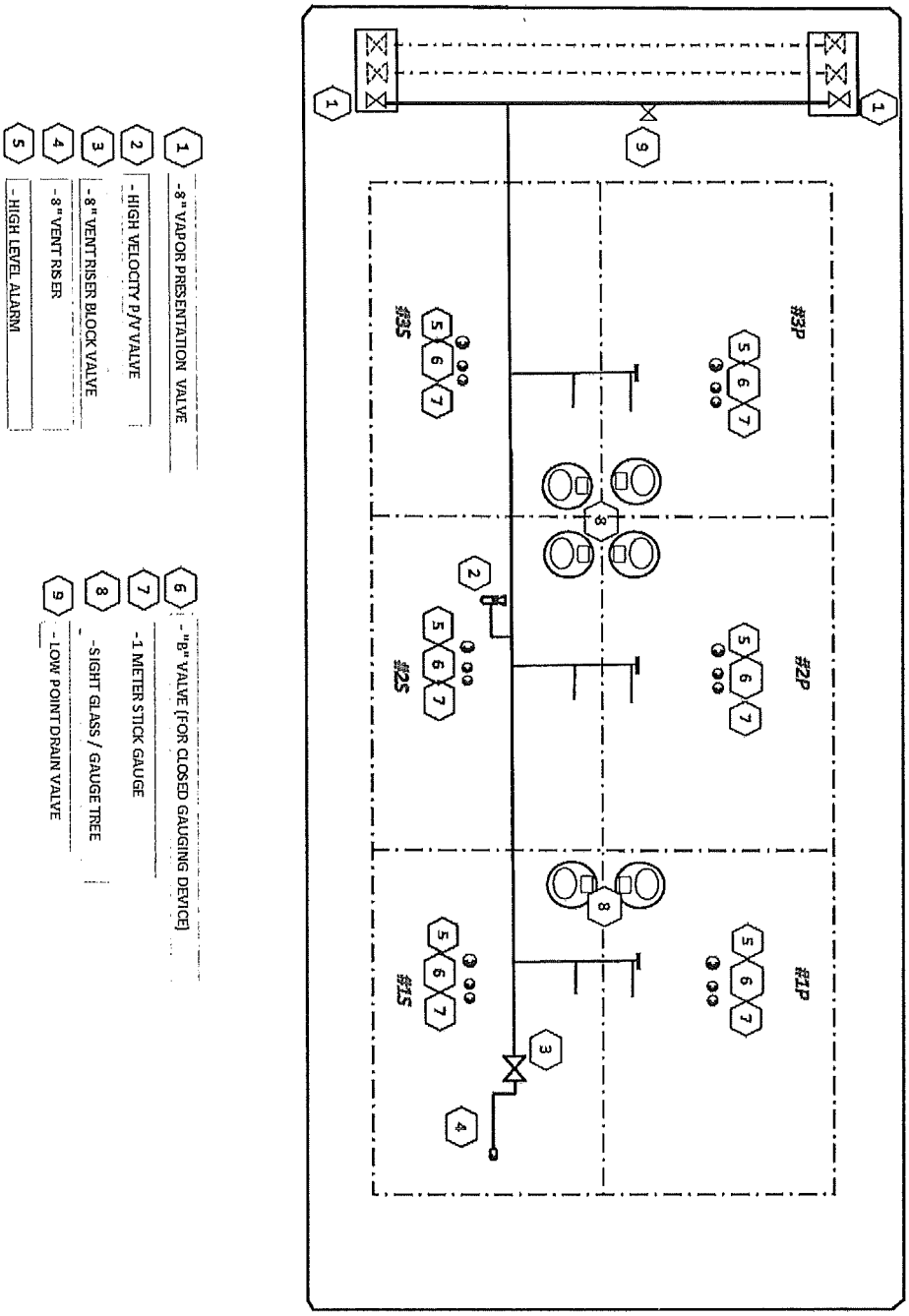
1. The Overfill alarm set point is at least 60 seconds before the tank is liquid full when loading at the maximum rate.

2. The High Level alarm set point is at least 120 seconds before the tank is liquid full when loading at the maximum rate.

B. The sensors connect to the facilities alarm system by a Hubbell connector located near the stern.

VAPOR CONTROL SYSTEM

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



VAPOR SYSTEM PIPING

VAPOR CONTROL SYSTEM

DESCRIPTION:

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

1. An eight inch longitudinal header with a drop into each cargo tank which joins a transverse header positioned above the cargo headers at the stern.

    a. The outboard end of each side of the transverse header is equipped with a Butterfly Vapor Shut Off Valve.

    b. The last 3.3 feet of vapor piping before the vessel vapor connection is painted red/ yellow/ red bands and labeled "VAPOR" for ease of identification in the manner required by federal regulations.

    c. Each vapor connection flange is equipped with a 0.5 inch diameter, 1 inch long stud to prevent connecting a cargo hose or loading arm to the vapor system.

2. One Six inch ERL Superac II, High Velocity P/V valve is mounted at about the mid-point of the longitudinal header. The valve is are set at +3 PSI pressure, - 8 oz. vacuum.

3. Each cargo tank is equipped with a high level and overfill alarm sensor. The Overfill alarm set point is at least 60 seconds before the tank is liquid full when loading at the maximum rate. The High Level alarm set point is at least 120 seconds before the tank is liquid full when loading at the maximum rate. The sensors connect to the facilities alarm system by a Hubbell connector located near the stern.

4. Each cargo tank is equipped with a 1 meter magnetic coupled stick gauge. This device measures the top 1Meter of the tank.

5. An ERL, model SGM -1, sight glass is located on each cargo dome in such a position so as to permit viewing both the Gauge Tree and the sump at the end of the cargo piping.

155.750 (c)(2) LOCATION OF SPILL VALVES

This vessel is not presently equipped with Spill Valves

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

One Six inch ERL Superac II, High Velocity P/V valve is mounted at about the mid-point of the longitudinal header. The valve is are set at +3 PSI pressure, - 8 oz. vacuum..

155.750 (c)(3) MAXIMUM ALLOWABLE TRANSFER RATE

The vapor collection system installed on Hines Furlong Line's vessels is recommended for a maximum loading and discharge rate of 3,500 gallons per minute (5,000 Barrels per hour).

155.750 (c)(4) INITIAL TRANSFER RATES

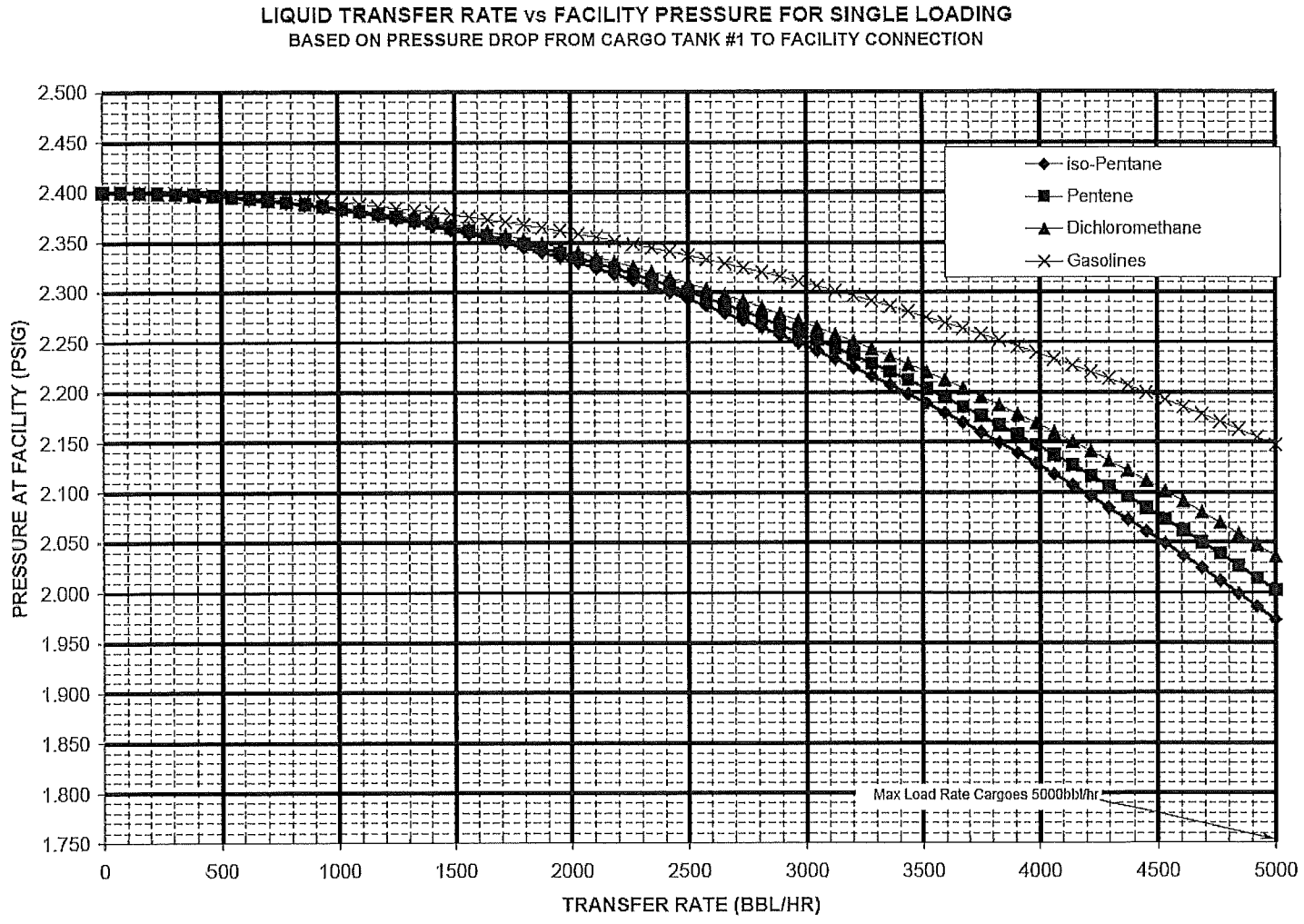
1. At the beginning of cargo flow into EACH cargo tank the flow rate should not exceed 730 BBL / hr.:
2. After you determine that there is no more splashing and surface turbulence in a cargo tank the flow rate can be increased to the maximum allowable transfer rate.
3. During - and for 30 minutes after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

If the cargo tank atmosphere is maintained inert no anti-static precautions are necessary.

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

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

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



155.750(c) (7) VAPOR COLLECTION SYSTEM PROCEDURES

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

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

1. Connect the alarm system to the facility's system and test each sensor to insure proper operation.

2. All pressure/vacuum valves shall be checked for free operation. The P/V valves should be checked for free operation in the pressure and vacuum settings.

3. All valves on cargo and vapor line shall be tested for free operation. Any stiff operating valves shall be inspected for damage, failure, or polymerization and repaired prior to transferring vapors.

4. Vapor and cargo manifold shall be inspected for polymerization by removing blind flanges and examining the manifold with explosion proof lighting before making cargo and vapor hose connections. Ullages and domes shall be inspected for product polymerization prior to vapor collection. This should be done when personnel exposure is below STEL for the specific cargo to be transferred.

5. Vapor and cargo piping will be visually inspected quarterly. This should be done when personnel exposure is below STEL for the specific cargo to be transferred. If the level is not below the STEL then the inspection will be deferred until the next gas free. If a non gas free inspection must be made before the next gas free because of suspected polymerization, appropriate steps will be taken to reduce personnel exposure below STEL limits. These steps may include vapor vacuuming, respiratory devices, transparent barriers or other sufficient means.

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

   • During this inspection, all blinds are to be removed and piping shall be visually inspected for obstructions. This vessel has 4 in. inspection ports located in the vapor piping to facilitate and provide for a complete inspection of the vapor collection system.

6. This vessel's Vapor collection system is outfitted with a 1 Meter stick closed gauging device. All sticks on vessels shall be manually raised and checked for free operation. The sticks should be watched during loading to ensure that they rise as the cargo level in the cargo tank rises.

7. All sight glasses into cargo tanks shall be inspected to ensure glass is clear and unobstructed with cargo polymerization. This inspection includes the checking of wipers.

8. The initial loading rate shall be slowed while the Person-in-Charge and shore facility personnel ensure the return of vapors back to the shore facility.

9. Throughout cargo and vapor transfer and especially at the initial loading, vessel tankerman must monitor pressure/vacuum gauges at the vapor connection to ensure pressure and/or vacuum are below the maximum design of the vessel.

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

11. After discharging cargo and before disconnection of shore line, the vapor header shall be purged of vapors. Manually depress the farthest vapor header pressure relief valve for approximately 1.5 minutes to clear header of all vapors. To equalize atmospheric pressure inside the cargo tanks, depress pressure relief valve

155.750(e) OVERFILL PROTECTIONS SYSTEM

155.750(e)(1) ALARM SYSTEM

This vessel is equipped with cargo tank High Level/Overfill Shutdown sensors. The High Level sensors will activate when the product level reaches 96.5 percent of its capacity (at least 120 seconds before the tank is liquid full when loading at the maximum rate). The Overflow Shutdown System will activate at 98 percent capacity (at least 60 seconds before the tank is liquid full when loading at the maximum rate). These sensors must be connected to the appropriate system before a visual or audio alarm will activate.

The alarms total system inductance = 0.0288 Milihenrys
The alarms total system capacitance = 0.0096 Microfarads

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

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

A. 1 Meter stick gauges are located forward of each Sampling / Closed Gauging station, near the center of each tank. They provide a visual indication of high level and overfill in the cargo tank.

Gauge Checks - Loading

1. Uncap the stick gauges
2. Grasp the gauge firmly and pull it up carefully to the fully raised position.
3. Lower the stick until it engages the float magnet. This will be near at the bottom of the stick's travel. The stick must engage the magnet in each tank in order to begin the transfer.
4. When it is agreed between the barge tankerman and the Person-in-Charge of the transfer for the facility that the transfer can be conducted safely and properly all cargo systems can be connected in accordance with the other portions of these procedures.

B. Conduct the tests and inspections identified on page 17 (155.750(c) (7))

U.S. Department of Homeland Security

United States Coast Guard

Commandant
United States Coast Guard

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

16460
March 12, 2025

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

Dear Sir or Madam:

Your Shipboard Oil Pollution Emergency Plan (SOPEP), Control Number 56041, for HFL 413 (1237482), has been reviewed and found to be in compliance with the requirements of Regulation 37 of Annex I of the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78).

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

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

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

Sincerely,

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

The action has been thoroughly reviewed by the USCG, and determined to be categorically excluded under current USCG CE(s) # 31 from further environmental documentation, in accordance with Section 2.B.2. and Figure 2-1 of the National Environmental Policy Act Implementing Procedures and Policy for Considering Environmental Impacts, COMDTINST M16475.1D, as authorized by DHS MD 5100.1.

U.S. Department of Homeland Security

United States Coast Guard

Commandant
United States Coast Guard

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

16460
March 12, 2025

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

Dear Sir or Madam:

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

The HFL 413 (1237482) 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	LOWER MISSISSIPPI RIVER (MEMPHIS)	OHIO VALLEY	UPPER MISSISSIPPI RIVER (ST. LOUIS)
HOUMA	MOBILE	PORT ARTHUR AND LAKE CHARLES	
HOUSTON-GALVESTON	NEW ORLEANS		

Sincerely,

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

The action has been thoroughly reviewed by the USCG, and determined to be categorically excluded under current USCG CE(s) # 31 from further environmental documentation, in accordance with Section 2.B.2. and Figure 2-1 of the National Environmental Policy Act Implementing Procedures and Policy for Considering Environmental Impacts, COMDTINST M16475.1D, as authorized by DHS MD 5100.1.

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

Vessel Name	Official Number (O.N.)
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

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

BARGE "HFL 413"

INNAGE TRIM TABLE

	1 FT.		2 FT.		3 FT.		4 FT.		5 FT.		6 FT.	
	BOW	STERN	BOW	STERN	BOW	STERN	BOW	STERN	BOW	STERN	BOW	STERN
1 PORT	- 00-0/8	00-0/8	- 00-1/8	00-1/8	- 00-1/8	00-1/8	- 00-1/8	00-1/8	- 00-1/8	00-1/8	- 00-1/4	00-1/4
1 STBD	- 00-0/8	00-0/8	- 00-1/8	00-1/8	- 00-1/8	00-1/8	- 00-1/8	00-1/8	- 00-1/8	00-1/8	- 00-1/4	00-1/4
2 PORT	- 00-0/8	00-0/8	- 00-0/8	00-0/8	- 00-1/8	00-1/8	- 00-1/8	00-1/8	- 00-1/8	00-1/8	- 00-1/8	00-1/8
2 STBD	- 00-0/8	00-0/8	- 00-0/8	00-0/8	- 00-1/8	00-1/8	- 00-1/8	00-1/8	- 00-1/8	00-1/8	- 00-1/8	00-1/8
3 PORT	- 00-0/8	00-0/8	- 00-0/8	00-0/8	- 00-0/8	00-0/8	- 00-0/8	00-0/8	- 00-0/8	00-0/8	- 00-0/8	00-0/8
3 STBD	- 00-0/8	00-0/8	- 00-0/8	00-0/8	- 00-0/8	00-0/8	- 00-0/8	00-0/8	- 00-0/8	00-0/8	- 00-0/8	00-0/8

(ALL MEASUREMENTS ABOVE ARE IN INCHES)

EXAMPLE FOR ABOVE TRIM CORRECTIONS:

FWD. DRAFT	=	1'-00"	
AFT DRAFT	=	4'-00"	
DIFF.	=	3'-00"	(DOWN BY STERN)

THE CORRECTION FOR 3'-00" TRIM DOWN BY STERN FOR 1 PORT IS 00-1/8"
FOR A MEASURED INNAGE GAUGE OF 4'-00" ON 1 PORT, THE TRIM CORRECTED INNAGE IS 4'-00 1/8'

LENGTH BETWEEN DRAFT MARKS: 238'-06"

February 16, 2012

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

http://www.pmacorp.net

BARGE "HFL 413"

1 PORT
INNAGE TABLE

CAPACITIES GIVEN IN WHOLE GALLONS

GAUGE HEIGHT 15'-10 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	385	0	13,246	0	28,166	0	43,182	0	58,137	0	73,111	0	88,128	0	103,145	0	118,157	0	133,168
1/4	562	1/4	13,547	1/4	28,479	1/4	43,495	1/4	58,448	1/4	73,424	1/4	88,441	1/4	103,458	1/4	118,470	1/4	133,480
1/2	739	1/2	13,849	1/2	28,792	1/2	43,808	1/2	58,758	1/2	73,737	1/2	88,754	1/2	103,771	1/2	118,783	1/2	133,793
3/4	916	3/4	14,150	3/4	29,105	3/4	44,121	3/4	59,069	3/4	74,050	3/4	89,067	3/4	104,084	3/4	119,095	3/4	134,106
1	1,092	1	14,451	1	29,417	1	44,434	1	59,379	1	74,363	1	89,380	1	104,396	1	119,408	1	134,418
1/4	1,331	1/4	14,756	1/4	29,730	1/4	44,747	1/4	59,690	1/4	74,676	1/4	89,692	1/4	104,709	1/4	119,721	1/4	134,731
1/2	1,570	1/2	15,061	1/2	30,043	1/2	45,059	1/2	60,000	1/2	74,988	1/2	90,005	1/2	105,022	1/2	120,033	1/2	135,044
3/4	1,808	3/4	15,367	3/4	30,356	3/4	45,372	3/4	60,311	3/4	75,301	3/4	90,318	3/4	105,335	3/4	120,346	3/4	135,357
2	2,047	2	15,672	2	30,669	2	45,685	2	60,621	2	75,614	2	90,631	2	105,648	2	120,659	2	135,669
1/4	2,309	1/4	15,981	1/4	30,982	1/4	45,998	1/4	60,932	1/4	75,927	1/4	90,944	1/4	105,961	1/4	120,972	1/4	135,982
1/2	2,570	1/2	16,290	1/2	31,294	1/2	46,311	1/2	61,242	1/2	76,240	1/2	91,257	1/2	106,273	1/2	121,284	1/2	136,295
3/4	2,832	3/4	16,599	3/4	31,607	3/4	46,624	3/4	61,553	3/4	76,553	3/4	91,570	3/4	106,586	3/4	121,597	3/4	136,607
3	3,094	3	16,908	3	31,920	3	46,937	3	61,863	3	76,866	3	91,882	3	106,899	3	121,910	3	136,920
1/4	3,360	1/4	17,220	1/4	32,233	1/4	47,249	1/4	62,174	1/4	77,178	1/4	92,195	1/4	107,212	1/4	122,222	1/4	137,233
1/2	3,627	1/2	17,531	1/2	32,546	1/2	47,562	1/2	62,485	1/2	77,491	1/2	92,508	1/2	107,525	1/2	122,535	1/2	137,546
3/4	3,893	3/4	17,843	3/4	32,859	3/4	47,875	3/4	62,795	3/4	77,804	3/4	92,821	3/4	107,838	3/4	122,848	3/4	137,858
4	4,159	4	18,155	4	33,172	4	48,188	4	63,106	4	78,117	4	93,134	4	108,150	4	123,161	4	138,171
1/4	4,430	1/4	18,468	1/4	33,484	1/4	48,500	1/4	63,417	1/4	78,430	1/4	93,447	1/4	108,463	1/4	123,473	1/4	138,484
1/2	4,700	1/2	18,781	1/2	33,797	1/2	48,812	1/2	63,729	1/2	78,743	1/2	93,759	1/2	108,776	1/2	123,786	1/2	138,796
3/4	4,971	3/4	19,094	3/4	34,110	3/4	49,124	3/4	64,041	3/4	79,055	3/4	94,072	3/4	109,088	3/4	124,099	3/4	139,109
5	5,241	5	19,407	5	34,423	5	49,436	5	64,352	5	79,368	5	94,385	5	109,401	5	124,411	5	139,422
1/4	5,516	1/4	19,719	1/4	34,736	1/4	49,748	1/4	64,665	1/4	79,681	1/4	94,698	1/4	109,714	1/4	124,724	1/4	139,735
1/2	5,790	1/2	20,032	1/2	35,049	1/2	50,059	1/2	64,978	1/2	79,994	1/2	95,011	1/2	110,027	1/2	125,037	1/2	140,047
3/4	6,064	3/4	20,345	3/4	35,361	3/4	50,371	3/4	65,290	3/4	80,307	3/4	95,324	3/4	110,339	3/4	125,350	3/4	140,360
6	6,339	6	20,658	6	35,674	6	50,682	6	65,603	6	80,620	6	95,637	6	110,652	6	125,662	6	140,673
1/4	6,617	1/4	20,971	1/4	35,987	1/4	50,993	1/4	65,916	1/4	80,933	1/4	95,949	1/4	110,965	1/4	125,975	1/4	140,985
1/2	6,895	1/2	21,284	1/2	36,300	1/2	51,304	1/2	66,229	1/2	81,245	1/2	96,262	1/2	111,277	1/2	126,288	1/2	141,298
3/4	7,173	3/4	21,596	3/4	36,613	3/4	51,616	3/4	66,541	3/4	81,558	3/4	96,575	3/4	111,590	3/4	126,601	3/4	141,611
7	7,451	7	21,909	7	36,926	7	51,927	7	66,854	7	81,871	7	96,888	7	111,903	7	126,913	7	141,924
1/4	7,733	1/4	22,222	1/4	37,238	1/4	52,237	1/4	67,167	1/4	82,184	1/4	97,201	1/4	112,216	1/4	127,226	1/4	142,236
1/2	8,015	1/2	22,535	1/2	37,551	1/2	52,548	1/2	67,480	1/2	82,497	1/2	97,514	1/2	112,528	1/2	127,539	1/2	142,549
3/4	8,297	3/4	22,848	3/4	37,864	3/4	52,859	3/4	67,793	3/4	82,810	3/4	97,827	3/4	112,841	3/4	127,851	3/4	142,862
8	8,579	8	23,161	8	38,177	8	53,170	8	68,106	8	83,123	8	98,139	8	113,154	8	128,164	8	143,174
1/4	8,865	1/4	23,473	1/4	38,490	1/4	53,480	1/4	68,419	1/4	83,435	1/4	98,452	1/4	113,466	1/4	128,477	1/4	143,487
1/2	9,151	1/2	23,786	1/2	38,803	1/2	53,790	1/2	68,731	1/2	83,748	1/2	98,765	1/2	113,779	1/2	128,790	1/2	143,800
3/4	9,437	3/4	24,099	3/4	39,116	3/4	54,101	3/4	69,044	3/4	84,061	3/4	99,078	3/4	114,092	3/4	129,102	3/4	144,113
9	9,723	9	24,412	9	39,428	9	54,411	9	69,357	9	84,374	9	99,391	9	114,405	9	129,415	9	144,425
1/4	10,013	1/4	24,725	1/4	39,741	1/4	54,722	1/4	69,670	1/4	84,687	1/4	99,704	1/4	114,717	1/4	129,728	1/4	144,738
1/2	10,302	1/2	25,038	1/2	40,054	1/2	55,032	1/2	69,983	1/2	85,000	1/2	100,016	1/2	115,030	1/2	130,040	1/2	145,051
3/4	10,592	3/4	25,351	3/4	40,367	3/4	55,343	3/4	70,296	3/4	85,312	3/4	100,329	3/4	115,343	3/4	130,353	3/4	145,363
10	10,882	10	25,663	10	40,680	10	55,653	10	70,609	10	85,625	10	100,642	10	115,655	10	130,666	10	145,676
1/4	11,175	1/4	25,976	1/4	40,993	1/4	55,964	1/4	70,921	1/4	85,938	1/4	100,955	1/4	115,968	1/4	130,979	1/4	145,989
1/2	11,469	1/2	26,289	1/2	41,305	1/2	56,274	1/2	71,234	1/2	86,251	1/2	101,268	1/2	116,281	1/2	131,291	1/2	146,302
3/4	11,763	3/4	26,602	3/4	41,618	3/4	56,585	3/4	71,547	3/4	86,564	3/4	101,581	3/4	116,594	3/4	131,604	3/4	146,614
11	12,056	11	26,915	11	41,931	11	56,895	11	71,860	11	86,877	11	101,894	11	116,906	11	131,917	11	146,927
1/4	12,354	1/4	27,228	1/4	42,244	1/4	57,206	1/4	72,173	1/4	87,190	1/4	102,206	1/4	117,219	1/4	132,229	1/4	147,240
1/2	12,651	1/2	27,540	1/2	42,557	1/2	57,516	1/2	72,486	1/2	87,502	1/2	102,519	1/2	117,532	1/2	132,542	1/2	147,552
3/4	12,949	3/4	27,853	3/4	42,870	3/4	57,827	3/4	72,798	3/4	87,815	3/4	102,832	3/4	117,844	3/4	132,855	3/4	147,865

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 THREADS ON "MMC" VALVE.
GAUGE POINT: (MMC) LOCATED 12'-09" OFF CENTERLINE AND 43'-06" FORWARD OF AFT BULKHEAD.

PRECISION MEASUREMENT
& ANALYSIS, INC.
P.O. Box 2092
Pearland, Texas 77588
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BARGE "HFL 413"

1 PORT
INNAGE TABLE

CAPACITIES GIVEN IN WHOLE GALLONS

GAUGE HEIGHT 15'-10 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	148,178	0	163,188	0	178,189	0	193,156	0	208,050	0		0		0		0		0	
1/4	148,491	1/4	163,501	1/4	178,501	1/4	193,468	1/4	208,330	1/4		1/4		1/4		1/4		1/4	
1/2	148,803	1/2	163,814	1/2	178,813	1/2	193,780	1/2	208,610	1/2		1/2		1/2		1/2		1/2	
3/4	149,116	3/4	164,126	3/4	179,125	3/4	194,091	3/4	208,890	3/4		3/4		3/4		3/4		3/4	
1	149,429	1	164,439	1	179,437	1	194,403	1	209,170	1		1		1		1		1	
1/4	149,741	1/4	164,752	1/4	179,748	1/4	194,715	1/4	209,402	1/4		1/4		1/4		1/4		1/4	
1/2	150,054	1/2	165,064	1/2	180,060	1/2	195,027	1/2	209,633	1/2		1/2		1/2		1/2		1/2	
3/4	150,367	3/4	165,377	3/4	180,372	3/4	195,339	3/4	209,865	3/4		3/4		3/4		3/4		3/4	
2	150,680	2	165,690	2	180,684	2	195,650	2	210,096	2		2		2		2		2	
1/4	150,992	1/4	166,003	1/4	180,996	1/4	195,962	1/4	210,276	1/4		1/4		1/4		1/4		1/4	
1/2	151,305	1/2	166,315	1/2	181,307	1/2	196,274	1/2	210,455	1/2		1/2		1/2		1/2		1/2	
3/4	151,618	3/4	166,628	3/4	181,619	3/4	196,586	3/4	210,635	3/4		3/4		3/4		3/4		3/4	
3	151,930	3	166,941	3	181,931	3	196,898	3	210,814	3		3		3		3		3	
1/4	152,243	1/4	167,253	1/4	182,243	1/4	197,209	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	152,556	1/2	167,566	1/2	182,555	1/2	197,521	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	152,869	3/4	167,879	3/4	182,866	3/4	197,833	3/4		3/4		3/4		3/4		3/4		3/4	
4	153,181	4	168,192	4	183,178	4	198,145	4		4		4		4		4		4	
1/4	153,494	1/4	168,504	1/4	183,490	1/4	198,457	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	153,807	1/2	168,817	1/2	183,802	1/2	198,768	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	154,119	3/4	169,130	3/4	184,114	3/4	199,080	3/4		3/4		3/4		3/4		3/4		3/4	
5	154,432	5	169,442	5	184,425	5	199,392	5		5		5		5		5		5	
1/4	154,745	1/4	169,755	1/4	184,737	1/4	199,703	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	155,058	1/2	170,068	1/2	185,049	1/2	200,013	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	155,370	3/4	170,381	3/4	185,361	3/4	200,324	3/4		3/4		3/4		3/4		3/4		3/4	
6	155,683	6	170,693	6	185,673	6	200,635	6		6		6		6		6		6	
1/4	155,996	1/4	171,006	1/4	185,984	1/4	200,945	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	156,308	1/2	171,319	1/2	186,296	1/2	201,254	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	156,621	3/4	171,631	3/4	186,608	3/4	201,564	3/4		3/4		3/4		3/4		3/4		3/4	
7	156,934	7	171,944	7	186,920	7	201,874	7		7		7		7		7		7	
1/4	157,247	1/4	172,257	1/4	187,232	1/4	202,183	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	157,559	1/2	172,570	1/2	187,543	1/2	202,493	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	157,872	3/4	172,882	3/4	187,855	3/4	202,803	3/4		3/4		3/4		3/4		3/4		3/4	
8	158,185	8	173,195	8	188,167	8	203,112	8		8		8		8		8		8	
1/4	158,497	1/4	173,508	1/4	188,479	1/4	203,422	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	158,810	1/2	173,820	1/2	188,791	1/2	203,732	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	159,123	3/4	174,133	3/4	189,102	3/4	204,042	3/4		3/4		3/4		3/4		3/4		3/4	
9	159,436	9	174,446	9	189,414	9	204,352	9		9		9		9		9		9	
1/4	159,748	1/4	174,758	1/4	189,726	1/4	204,661	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	160,061	1/2	175,070	1/2	190,038	1/2	204,971	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	160,374	3/4	175,383	3/4	190,350	3/4	205,281	3/4		3/4		3/4		3/4		3/4		3/4	
10	160,686	10	175,695	10	190,661	10	205,590	10		10		10		10		10		10	
1/4	160,999	1/4	176,007	1/4	190,973	1/4	205,900	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	161,312	1/2	176,319	1/2	191,285	1/2	206,209	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	161,625	3/4	176,630	3/4	191,597	3/4	206,518	3/4		3/4		3/4		3/4		3/4		3/4	
11	161,937	11	176,942	11	191,909	11	206,828	11		11		11		11		11		11	
1/4	162,250	1/4	177,254	1/4	192,220	1/4	207,133	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	162,563	1/2	177,566	1/2	192,532	1/2	207,439	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	162,875	3/4	177,878	3/4	192,844	3/4	207,745	3/4		3/4		3/4		3/4		3/4		3/4	

CERTIFIED CHART FOR THE ABOVE NAMED TANK ONLY.

STRAPPED: 02/15/2012 CL - SW
CALCULATED: 02/16/2012 CL
PRINTED: 02/16/2012 CL

CANCELS AND SUPERCEDES
ALL PRIOR TO 02/2012

PRECISION MEASUREMENT
& ANALYSIS, INC.
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BARGE "HFL 413"

1 STBD

INNAGE TABLE

CAPACITIES GIVEN IN WHOLE GALLONS

GAUGE HEIGHT 15'-10 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	385	0	13,239	0	28,152	0	43,161	0	58,165	0	73,172	0	88,181	0	103,190	0	118,195	0	133,197
1/4	562	1/4	13,541	1/4	28,465	1/4	43,473	1/4	58,478	1/4	73,484	1/4	88,493	1/4	103,503	1/4	118,507	1/4	133,510
1/2	738	1/2	13,842	1/2	28,777	1/2	43,786	1/2	58,790	1/2	73,797	1/2	88,806	1/2	103,815	1/2	118,820	1/2	133,822
3/4	915	3/4	14,143	3/4	29,090	3/4	44,099	3/4	59,102	3/4	74,110	3/4	89,119	3/4	104,128	3/4	119,132	3/4	134,135
1	1,092	1	14,444	1	29,403	1	44,411	1	59,415	1	74,422	1	89,432	1	104,441	1	119,445	1	134,448
1/4	1,330	1/4	14,749	1/4	29,715	1/4	44,724	1/4	59,727	1/4	74,735	1/4	89,744	1/4	104,753	1/4	119,757	1/4	134,760
1/2	1,569	1/2	15,054	1/2	30,028	1/2	45,037	1/2	60,040	1/2	75,048	1/2	90,057	1/2	105,066	1/2	120,070	1/2	135,073
3/4	1,807	3/4	15,359	3/4	30,341	3/4	45,349	3/4	60,352	3/4	75,360	3/4	90,370	3/4	105,379	3/4	120,383	3/4	135,385
2	2,046	2	15,664	2	30,653	2	45,662	2	60,665	2	75,673	2	90,682	2	105,692	2	120,695	2	135,698
1/4	2,308	1/4	15,973	1/4	30,966	1/4	45,975	1/4	60,977	1/4	75,986	1/4	90,995	1/4	106,004	1/4	121,008	1/4	136,010
1/2	2,569	1/2	16,282	1/2	31,279	1/2	46,288	1/2	61,290	1/2	76,298	1/2	91,308	1/2	106,317	1/2	121,320	1/2	136,323
3/4	2,831	3/4	16,590	3/4	31,591	3/4	46,600	3/4	61,602	3/4	76,611	3/4	91,620	3/4	106,630	3/4	121,633	3/4	136,635
3	3,093	3	16,899	3	31,904	3	46,913	3	61,915	3	76,924	3	91,933	3	106,942	3	121,945	3	136,948
1/4	3,359	1/4	17,211	1/4	32,217	1/4	47,226	1/4	62,227	1/4	77,237	1/4	92,246	1/4	107,255	1/4	122,258	1/4	137,261
1/2	3,625	1/2	17,523	1/2	32,529	1/2	47,538	1/2	62,540	1/2	77,549	1/2	92,558	1/2	107,568	1/2	122,570	1/2	137,573
3/4	3,891	3/4	17,834	3/4	32,842	3/4	47,851	3/4	62,853	3/4	77,862	3/4	92,871	3/4	107,880	3/4	122,883	3/4	137,886
4	4,157	4	18,146	4	33,155	4	48,164	4	63,165	4	78,175	4	93,184	4	108,193	4	123,196	4	138,198
1/4	4,428	1/4	18,459	1/4	33,468	1/4	48,476	1/4	63,478	1/4	78,487	1/4	93,497	1/4	108,505	1/4	123,508	1/4	138,511
1/2	4,698	1/2	18,771	1/2	33,780	1/2	48,789	1/2	63,791	1/2	78,800	1/2	93,809	1/2	108,818	1/2	123,821	1/2	138,823
3/4	4,968	3/4	19,084	3/4	34,093	3/4	49,102	3/4	64,103	3/4	79,113	3/4	94,122	3/4	109,130	3/4	124,133	3/4	139,136
5	5,239	5	19,397	5	34,406	5	49,414	5	64,416	5	79,425	5	94,435	5	109,443	5	124,446	5	139,449
1/4	5,513	1/4	19,710	1/4	34,718	1/4	49,727	1/4	64,729	1/4	79,738	1/4	94,747	1/4	109,756	1/4	124,758	1/4	139,761
1/2	5,787	1/2	20,022	1/2	35,031	1/2	50,040	1/2	65,042	1/2	80,051	1/2	95,060	1/2	110,068	1/2	125,071	1/2	140,074
3/4	6,061	3/4	20,335	3/4	35,344	3/4	50,352	3/4	65,354	3/4	80,363	3/4	95,373	3/4	110,381	3/4	125,383	3/4	140,386
6	6,336	6	20,648	6	35,656	6	50,665	6	65,667	6	80,676	6	95,685	6	110,693	6	125,696	6	140,699
1/4	6,614	1/4	20,960	1/4	35,969	1/4	50,978	1/4	65,980	1/4	80,989	1/4	95,998	1/4	111,006	1/4	126,009	1/4	141,011
1/2	6,892	1/2	21,273	1/2	36,282	1/2	51,290	1/2	66,292	1/2	81,302	1/2	96,311	1/2	111,318	1/2	126,321	1/2	141,324
3/4	7,170	3/4	21,586	3/4	36,594	3/4	51,603	3/4	66,605	3/4	81,614	3/4	96,623	3/4	111,631	3/4	126,634	3/4	141,636
7	7,448	7	21,898	7	36,907	7	51,916	7	66,918	7	81,927	7	96,936	7	111,943	7	126,946	7	141,949
1/4	7,730	1/4	22,211	1/4	37,220	1/4	52,228	1/4	67,230	1/4	82,240	1/4	97,249	1/4	112,256	1/4	127,259	1/4	142,262
1/2	8,011	1/2	22,524	1/2	37,532	1/2	52,541	1/2	67,543	1/2	82,552	1/2	97,562	1/2	112,569	1/2	127,571	1/2	142,574
3/4	8,293	3/4	22,836	3/4	37,845	3/4	52,853	3/4	67,856	3/4	82,865	3/4	97,874	3/4	112,881	3/4	127,884	3/4	142,887
8	8,575	8	23,149	8	38,158	8	53,166	8	68,168	8	83,178	8	98,187	8	113,194	8	128,196	8	143,199
1/4	8,861	1/4	23,462	1/4	38,470	1/4	53,478	1/4	68,481	1/4	83,490	1/4	98,500	1/4	113,506	1/4	128,509	1/4	143,512
1/2	9,147	1/2	23,774	1/2	38,783	1/2	53,791	1/2	68,794	1/2	83,803	1/2	98,812	1/2	113,819	1/2	128,822	1/2	143,824
3/4	9,432	3/4	24,087	3/4	39,096	3/4	54,103	3/4	69,107	3/4	84,116	3/4	99,125	3/4	114,131	3/4	129,134	3/4	144,137
9	9,718	9	24,400	9	39,409	9	54,416	9	69,419	9	84,428	9	99,438	9	114,444	9	129,447	9	144,450
1/4	10,008	1/4	24,712	1/4	39,721	1/4	54,728	1/4	69,732	1/4	84,741	1/4	99,750	1/4	114,756	1/4	129,759	1/4	144,762
1/2	10,297	1/2	25,025	1/2	40,034	1/2	55,040	1/2	70,045	1/2	85,054	1/2	100,063	1/2	115,069	1/2	130,072	1/2	145,075
3/4	10,587	3/4	25,338	3/4	40,347	3/4	55,353	3/4	70,357	3/4	85,367	3/4	100,376	3/4	115,382	3/4	130,384	3/4	145,387
10	10,877	10	25,650	10	40,659	10	55,665	10	70,670	10	85,679	10	100,688	10	115,694	10	130,697	10	145,700
1/4	11,170	1/4	25,963	1/4	40,972	1/4	55,978	1/4	70,983	1/4	85,992	1/4	101,001	1/4	116,007	1/4	131,009	1/4	146,012
1/2	11,463	1/2	26,276	1/2	41,285	1/2	56,290	1/2	71,295	1/2	86,305	1/2	101,314	1/2	116,319	1/2	131,322	1/2	146,325
3/4	11,757	3/4	26,589	3/4	41,597	3/4	56,603	3/4	71,608	3/4	86,617	3/4	101,627	3/4	116,632	3/4	131,635	3/4	146,637
11	12,050	11	26,901	11	41,910	11	56,915	11	71,921	11	86,930	11	101,939	11	116,944	11	131,947	11	146,950
1/4	12,348	1/4	27,214	1/4	42,223	1/4	57,228	1/4	72,233	1/4	87,243	1/4	102,252	1/4	117,257	1/4	132,260	1/4	147,263
1/2	12,645	1/2	27,527	1/2	42,535	1/2	57,540	1/2	72,546	1/2	87,555	1/2	102,565	1/2	117,569	1/2	132,572	1/2	147,575
3/4	12,942	3/4	27,839	3/4	42,848	3/4	57,853	3/4	72,859	3/4	87,868	3/4	102,877	3/4	117,882	3/4	132,885	3/4	147,888

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 THREADS ON "MMC" VALVE.
GAUGE POINT: (MMC) LOCATED 12'-09" OFF CENTERLINE AND 43'-06" FORWARD OF AFT BULKHEAD.

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

BARGE "HFL 413"

1 STBD

INNAGE TABLE

GAUGE HEIGHT 15'-10 3/4"

CAPACITIES GIVEN IN WHOLE GALLONS

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	148,200	0	163,203	0	178,197	0	193,156	0	208,043	0		0		0		0		0	
1/4	148,513	1/4	163,516	1/4	178,509	1/4	193,468	1/4	208,323	1/4		1/4		1/4		1/4		1/4	
1/2	148,825	1/2	163,828	1/2	178,820	1/2	193,780	1/2	208,603	1/2		1/2		1/2		1/2		1/2	
3/4	149,138	3/4	164,141	3/4	179,132	3/4	194,091	3/4	208,883	3/4		3/4		3/4		3/4		3/4	
1	149,451	1	164,453	1	179,444	1	194,403	1	209,163	1		1		1		1		1	
1/4	149,763	1/4	164,766	1/4	179,755	1/4	194,715	1/4	209,394	1/4		1/4		1/4		1/4		1/4	
1/2	150,076	1/2	165,079	1/2	180,067	1/2	195,026	1/2	209,625	1/2		1/2		1/2		1/2		1/2	
3/4	150,388	3/4	165,391	3/4	180,379	3/4	195,338	3/4	209,857	3/4		3/4		3/4		3/4		3/4	
2	150,701	2	165,704	2	180,690	2	195,650	2	210,088	2		2		2		2		2	
1/4	151,013	1/4	166,016	1/4	181,002	1/4	195,961	1/4	210,268	1/4		1/4		1/4		1/4		1/4	
1/2	151,326	1/2	166,329	1/2	181,314	1/2	196,273	1/2	210,447	1/2		1/2		1/2		1/2		1/2	
3/4	151,638	3/4	166,641	3/4	181,625	3/4	196,584	3/4	210,626	3/4		3/4		3/4		3/4		3/4	
3	151,951	3	166,954	3	181,937	3	196,896	3	210,806	3		3		3		3		3	
1/4	152,264	1/4	167,267	1/4	182,249	1/4	197,208	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	152,576	1/2	167,579	1/2	182,560	1/2	197,519	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	152,889	3/4	167,892	3/4	182,872	3/4	197,831	3/4		3/4		3/4		3/4		3/4		3/4	
4	153,201	4	168,204	4	183,184	4	198,143	4		4		4		4		4		4	
1/4	153,514	1/4	168,517	1/4	183,495	1/4	198,454	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	153,826	1/2	168,829	1/2	183,807	1/2	198,766	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	154,139	3/4	169,142	3/4	184,118	3/4	199,078	3/4		3/4		3/4		3/4		3/4		3/4	
5	154,452	5	169,454	5	184,430	5	199,389	5		5		5		5		5		5	
1/4	154,764	1/4	169,767	1/4	184,742	1/4	199,700	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	155,077	1/2	170,080	1/2	185,053	1/2	200,010	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	155,389	3/4	170,392	3/4	185,365	3/4	200,321	3/4		3/4		3/4		3/4		3/4		3/4	
6	155,702	6	170,705	6	185,677	6	200,632	6		6		6		6		6		6	
1/4	156,014	1/4	171,017	1/4	185,988	1/4	200,941	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	156,327	1/2	171,330	1/2	186,300	1/2	201,251	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	156,639	3/4	171,642	3/4	186,612	3/4	201,560	3/4		3/4		3/4		3/4		3/4		3/4	
7	156,952	7	171,955	7	186,923	7	201,870	7		7		7		7		7		7	
1/4	157,265	1/4	172,268	1/4	187,235	1/4	202,179	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	157,577	1/2	172,580	1/2	187,547	1/2	202,489	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	157,890	3/4	172,893	3/4	187,858	3/4	202,798	3/4		3/4		3/4		3/4		3/4		3/4	
8	158,202	8	173,205	8	188,170	8	203,108	8		8		8		8		8		8	
1/4	158,515	1/4	173,518	1/4	188,482	1/4	203,418	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	158,827	1/2	173,830	1/2	188,793	1/2	203,727	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	159,140	3/4	174,143	3/4	189,105	3/4	204,037	3/4		3/4		3/4		3/4		3/4		3/4	
9	159,452	9	174,455	9	189,417	9	204,347	9		9		9		9		9		9	
1/4	159,765	1/4	174,768	1/4	189,728	1/4	204,656	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	160,078	1/2	175,080	1/2	190,040	1/2	204,966	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	160,390	3/4	175,392	3/4	190,351	3/4	205,275	3/4		3/4		3/4		3/4		3/4		3/4	
10	160,703	10	175,704	10	190,663	10	205,585	10		10		10		10		10		10	
1/4	161,015	1/4	176,016	1/4	190,975	1/4	205,894	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	161,328	1/2	176,327	1/2	191,286	1/2	206,203	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	161,640	3/4	176,639	3/4	191,598	3/4	206,512	3/4		3/4		3/4		3/4		3/4		3/4	
11	161,953	11	176,950	11	191,910	11	206,821	11		11		11		11		11		11	
1/4	162,266	1/4	177,262	1/4	192,221	1/4	207,127	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	162,578	1/2	177,574	1/2	192,533	1/2	207,432	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	162,891	3/4	177,885	3/4	192,845	3/4	207,738	3/4		3/4		3/4		3/4		3/4		3/4	

CERTIFIED CHART FOR THE ABOVE NAMED TANK ONLY.

STRAPPED: 02/15/2012 CL - SW
CALCULATED: 02/16/2012 CL
PRINTED: 02/16/2012 CL

CANCELS AND SUPERCEDES
ALL PRIOR TO 02/2012

PRECISION MEASUREMENT
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BARGE "HFL 413"

2 PORT
INNAGE TABLE

CAPACITIES GIVEN IN WHOLE GALLONS

GAUGE HEIGHT 15'-11"

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	1,031	0	15,695	0	30,756	0	45,446	0	59,931	0	74,783	0	89,848	0	104,912	0	119,971	0	135,027
1/4	1,267	1/4	16,008	1/4	31,070	1/4	45,748	1/4	60,233	1/4	75,097	1/4	90,161	1/4	105,226	1/4	120,284	1/4	135,341
1/2	1,502	1/2	16,322	1/2	31,384	1/2	46,049	1/2	60,535	1/2	75,411	1/2	90,475	1/2	105,539	1/2	120,598	1/2	135,655
3/4	1,737	3/4	16,636	3/4	31,698	3/4	46,350	3/4	60,837	3/4	75,725	3/4	90,789	3/4	105,853	3/4	120,912	3/4	135,968
1	1,973	1	16,950	1	32,011	1	46,651	1	61,139	1	76,039	1	91,103	1	106,167	1	121,225	1	136,282
1/4	2,266	1/4	17,264	1/4	32,325	1/4	46,952	1/4	61,441	1/4	76,353	1/4	91,417	1/4	106,481	1/4	121,539	1/4	136,596
1/2	2,560	1/2	17,578	1/2	32,639	1/2	47,253	1/2	61,743	1/2	76,666	1/2	91,731	1/2	106,795	1/2	121,853	1/2	136,909
3/4	2,853	3/4	17,891	3/4	32,953	3/4	47,554	3/4	62,045	3/4	76,980	3/4	92,044	3/4	107,109	3/4	122,166	3/4	137,223
2	3,147	2	18,205	2	33,267	2	47,856	2	62,347	2	77,294	2	92,358	2	107,422	2	122,480	2	137,537
1/4	3,459	1/4	18,519	1/4	33,581	1/4	48,157	1/4	62,650	1/4	77,608	1/4	92,672	1/4	107,736	1/4	122,794	1/4	137,850
1/2	3,772	1/2	18,833	1/2	33,894	1/2	48,458	1/2	62,952	1/2	77,922	1/2	92,986	1/2	108,050	1/2	123,107	1/2	138,164
3/4	4,085	3/4	19,147	3/4	34,208	3/4	48,759	3/4	63,254	3/4	78,236	3/4	93,300	3/4	108,364	3/4	123,421	3/4	138,478
3	4,398	3	19,461	3	34,522	3	49,061	3	63,556	3	78,549	3	93,614	3	108,678	3	123,735	3	138,791
1/4	4,711	1/4	19,774	1/4	34,836	1/4	49,362	1/4	63,858	1/4	78,863	1/4	93,927	1/4	108,992	1/4	124,048	1/4	139,105
1/2	5,025	1/2	20,088	1/2	35,150	1/2	49,663	1/2	64,160	1/2	79,177	1/2	94,241	1/2	109,305	1/2	124,362	1/2	139,419
3/4	5,339	3/4	20,402	3/4	35,463	3/4	49,965	3/4	64,462	3/4	79,491	3/4	94,555	3/4	109,619	3/4	124,676	3/4	139,732
4	5,652	4	20,716	4	35,777	4	50,266	4	64,764	4	79,805	4	94,869	4	109,933	4	124,989	4	140,046
1/4	5,966	1/4	21,030	1/4	36,085	1/4	50,568	1/4	65,072	1/4	80,119	1/4	95,183	1/4	110,247	1/4	125,303	1/4	140,360
1/2	6,280	1/2	21,344	1/2	36,393	1/2	50,869	1/2	65,380	1/2	80,432	1/2	95,497	1/2	110,560	1/2	125,617	1/2	140,674
3/4	6,594	3/4	21,657	3/4	36,701	3/4	51,171	3/4	65,688	3/4	80,746	3/4	95,810	3/4	110,874	3/4	125,931	3/4	140,987
5	6,907	5	21,971	5	37,009	5	51,473	5	65,996	5	81,060	5	96,124	5	111,188	5	126,244	5	141,301
1/4	7,221	1/4	22,285	1/4	37,311	1/4	51,775	1/4	66,310	1/4	81,374	1/4	96,438	1/4	111,501	1/4	126,558	1/4	141,615
1/2	7,535	1/2	22,599	1/2	37,613	1/2	52,077	1/2	66,624	1/2	81,688	1/2	96,752	1/2	111,815	1/2	126,872	1/2	141,928
3/4	7,849	3/4	22,913	3/4	37,915	3/4	52,379	3/4	66,937	3/4	82,002	3/4	97,066	3/4	112,129	3/4	127,185	3/4	142,242
6	8,163	6	23,226	6	38,217	6	52,681	6	67,251	6	82,315	6	97,380	6	112,442	6	127,499	6	142,556
1/4	8,477	1/4	23,540	1/4	38,519	1/4	52,983	1/4	67,565	1/4	82,629	1/4	97,693	1/4	112,756	1/4	127,813	1/4	142,869
1/2	8,790	1/2	23,854	1/2	38,821	1/2	53,285	1/2	67,879	1/2	82,943	1/2	98,007	1/2	113,070	1/2	128,126	1/2	143,183
3/4	9,104	3/4	24,168	3/4	39,122	3/4	53,587	3/4	68,193	3/4	83,257	3/4	98,321	3/4	113,383	3/4	128,440	3/4	143,497
7	9,418	7	24,482	7	39,424	7	53,889	7	68,507	7	83,571	7	98,635	7	113,697	7	128,754	7	143,810
1/4	9,732	1/4	24,796	1/4	39,725	1/4	54,192	1/4	68,820	1/4	83,885	1/4	98,949	1/4	114,011	1/4	129,067	1/4	144,124
1/2	10,046	1/2	25,109	1/2	40,026	1/2	54,494	1/2	69,134	1/2	84,198	1/2	99,263	1/2	114,324	1/2	129,381	1/2	144,438
3/4	10,360	3/4	25,423	3/4	40,327	3/4	54,796	3/4	69,448	3/4	84,512	3/4	99,577	3/4	114,638	3/4	129,695	3/4	144,751
8	10,673	8	25,737	8	40,628	8	55,098	8	69,762	8	84,826	8	99,890	8	114,952	8	130,008	8	145,065
1/4	10,987	1/4	26,051	1/4	40,929	1/4	55,400	1/4	70,076	1/4	85,140	1/4	100,204	1/4	115,265	1/4	130,322	1/4	145,379
1/2	11,301	1/2	26,365	1/2	41,231	1/2	55,702	1/2	70,390	1/2	85,454	1/2	100,518	1/2	115,579	1/2	130,636	1/2	145,692
3/4	11,615	3/4	26,678	3/4	41,532	3/4	56,004	3/4	70,703	3/4	85,768	3/4	100,832	3/4	115,893	3/4	130,949	3/4	146,006
9	11,929	9	26,992	9	41,833	9	56,306	9	71,017	9	86,081	9	101,146	9	116,206	9	131,263	9	146,320
1/4	12,242	1/4	27,306	1/4	42,134	1/4	56,608	1/4	71,331	1/4	86,395	1/4	101,460	1/4	116,520	1/4	131,577	1/4	146,633
1/2	12,556	1/2	27,619	1/2	42,435	1/2	56,910	1/2	71,645	1/2	86,709	1/2	101,773	1/2	116,834	1/2	131,890	1/2	146,947
3/4	12,870	3/4	27,933	3/4	42,736	3/4	57,212	3/4	71,959	3/4	87,023	3/4	102,087	3/4	117,147	3/4	132,204	3/4	147,261
10	13,184	10	28,247	10	43,037	10	57,514	10	72,273	10	87,337	10	102,401	10	117,461	10	132,518	10	147,574
1/4	13,498	1/4	28,560	1/4	43,338	1/4	57,816	1/4	72,586	1/4	87,651	1/4	102,715	1/4	117,775	1/4	132,832	1/4	147,888
1/2	13,812	1/2	28,874	1/2	43,640	1/2	58,118	1/2	72,900	1/2	87,965	1/2	103,029	1/2	118,089	1/2	133,145	1/2	148,202
3/4	14,125	3/4	29,187	3/4	43,941	3/4	58,421	3/4	73,214	3/4	88,278	3/4	103,343	3/4	118,402	3/4	133,459	3/4	148,516
11	14,439	11	29,501	11	44,242	11	58,723	11	73,528	11	88,592	11	103,656	11	118,716	11	133,773	11	148,829
1/4	14,753	1/4	29,815	1/4	44,543	1/4	59,025	1/4	73,842	1/4	88,906	1/4	103,970	1/4	119,030	1/4	134,086	1/4	149,143
1/2	15,067	1/2	30,129	1/2	44,844	1/2	59,327	1/2	74,156	1/2	89,220	1/2	104,284	1/2	119,343	1/2	134,400	1/2	149,457
3/4	15,381	3/4	30,442	3/4	45,145	3/4	59,629	3/4	74,469	3/4	89,534	3/4	104,598	3/4	119,657	3/4	134,714	3/4	149,770

CERTIFIED CHART FOR THE ABOVE NAMED TANK ONLY.

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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 THREADS ON "MMC" VALVE.
GAUGE POINT: (MMC) LOCATED 12'-09" OFF CENTERLINE AND 43'-06" FORWARD OF AFT BULKHEAD.

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

BARGE "HFL 413"

2 PORT
INNAGE TABLE

GAUGE HEIGHT 15'-11"

CAPACITIES GIVEN IN WHOLE GALLONS

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	150,084	0	165,141	0	180,187	0	195,192	0	210,101	0		0		0		0		0	
1/4	150,398	1/4	165,454	1/4	180,499	1/4	195,505	1/4	210,381	1/4		1/4		1/4		1/4		1/4	
1/2	150,711	1/2	165,768	1/2	180,812	1/2	195,817	1/2	210,660	1/2		1/2		1/2		1/2		1/2	
3/4	151,025	3/4	166,082	3/4	181,124	3/4	196,130	3/4	210,940	3/4		3/4		3/4		3/4		3/4	
1	151,339	1	166,395	1	181,437	1	196,443	1	211,220	1		1		1		1		1	
1/4	151,652	1/4	166,709	1/4	181,750	1/4	196,755	1/4	211,451	1/4		1/4		1/4		1/4		1/4	
1/2	151,966	1/2	167,023	1/2	182,062	1/2	197,068	1/2	211,682	1/2		1/2		1/2		1/2		1/2	
3/4	152,280	3/4	167,336	3/4	182,375	3/4	197,380	3/4	211,913	3/4		3/4		3/4		3/4		3/4	
2	152,593	2	167,650	2	182,688	2	197,693	2	212,145	2		2		2		2		2	
1/4	152,907	1/4	167,964	1/4	183,000	1/4	198,006	1/4	212,324	1/4		1/4		1/4		1/4		1/4	
1/2	153,221	1/2	168,277	1/2	183,313	1/2	198,318	1/2	212,502	1/2		1/2		1/2		1/2		1/2	
3/4	153,534	3/4	168,591	3/4	183,625	3/4	198,631	3/4	212,681	3/4		3/4		3/4		3/4		3/4	
3	153,848	3	168,905	3	183,938	3	198,944	3	212,860	3		3		3		3		3	
1/4	154,162	1/4	169,218	1/4	184,251	1/4	199,256	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	154,475	1/2	169,532	1/2	184,563	1/2	199,569	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	154,789	3/4	169,846	3/4	184,876	3/4	199,881	3/4		3/4		3/4		3/4		3/4		3/4	
4	155,103	4	170,159	4	185,188	4	200,194	4		4		4		4		4		4	
1/4	155,416	1/4	170,473	1/4	185,501	1/4	200,507	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	155,730	1/2	170,787	1/2	185,814	1/2	200,819	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	156,044	3/4	171,101	3/4	186,126	3/4	201,132	3/4		3/4		3/4		3/4		3/4		3/4	
5	156,358	5	171,414	5	186,439	5	201,444	5		5		5		5		5		5	
1/4	156,671	1/4	171,728	1/4	186,752	1/4	201,756	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	156,985	1/2	172,042	1/2	187,064	1/2	202,067	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	157,299	3/4	172,355	3/4	187,377	3/4	202,378	3/4		3/4		3/4		3/4		3/4		3/4	
6	157,612	6	172,669	6	187,689	6	202,689	6		6		6		6		6		6	
1/4	157,926	1/4	172,983	1/4	188,002	1/4	202,998	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	158,240	1/2	173,296	1/2	188,315	1/2	203,308	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	158,553	3/4	173,610	3/4	188,627	3/4	203,617	3/4		3/4		3/4		3/4		3/4		3/4	
7	158,867	7	173,924	7	188,940	7	203,927	7		7		7		7		7		7	
1/4	159,181	1/4	174,237	1/4	189,252	1/4	204,236	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	159,494	1/2	174,551	1/2	189,565	1/2	204,546	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	159,808	3/4	174,865	3/4	189,878	3/4	204,856	3/4		3/4		3/4		3/4		3/4		3/4	
8	160,122	8	175,178	8	190,190	8	205,165	8		8		8		8		8		8	
1/4	160,435	1/4	175,492	1/4	190,503	1/4	205,475	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	160,749	1/2	175,806	1/2	190,816	1/2	205,785	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	161,063	3/4	176,119	3/4	191,128	3/4	206,094	3/4		3/4		3/4		3/4		3/4		3/4	
9	161,376	9	176,433	9	191,441	9	206,404	9		9		9		9		9		9	
1/4	161,690	1/4	176,746	1/4	191,753	1/4	206,713	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	162,004	1/2	177,059	1/2	192,066	1/2	207,023	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	162,317	3/4	177,373	3/4	192,379	3/4	207,333	3/4		3/4		3/4		3/4		3/4		3/4	
10	162,631	10	177,686	10	192,691	10	207,642	10		10		10		10		10		10	
1/4	162,945	1/4	177,998	1/4	193,004	1/4	207,951	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	163,258	1/2	178,311	1/2	193,316	1/2	208,261	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	163,572	3/4	178,624	3/4	193,629	3/4	208,570	3/4		3/4		3/4		3/4		3/4		3/4	
11	163,886	11	178,936	11	193,942	11	208,879	11		11		11		11		11		11	
1/4	164,200	1/4	179,249	1/4	194,254	1/4	209,184	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	164,513	1/2	179,561	1/2	194,567	1/2	209,490	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	164,827	3/4	179,874	3/4	194,880	3/4	209,795	3/4		3/4		3/4		3/4		3/4		3/4	

CERTIFIED CHART FOR THE ABOVE NAMED TANK ONLY.

STRAPPED: 02/15/2012 CL - SW
CALCULATED: 02/16/2012 CL
PRINTED: 02/16/2012 CL

CANCELS AND SUPERCEDES
ALL PRIOR TO 02/2012

PRECISION MEASUREMENT
& ANALYSIS, INC.
P.O. Box 2092
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BARGE "HFL 413"

2 STBD

INNAGE TABLE

CAPACITIES GIVEN IN WHOLE GALLONS

GAUGE HEIGHT 15'-10 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	1,032	0	15,707	0	30,779	0	45,834	0	60,894	0	75,969	0	91,045	0	106,120	0	121,190	0	136,257
1/4	1,268	1/4	16,021	1/4	31,093	1/4	46,147	1/4	61,208	1/4	76,284	1/4	91,359	1/4	106,434	1/4	121,504	1/4	136,571
1/2	1,503	1/2	16,335	1/2	31,408	1/2	46,460	1/2	61,522	1/2	76,598	1/2	91,673	1/2	106,748	1/2	121,817	1/2	136,885
3/4	1,739	3/4	16,649	3/4	31,722	3/4	46,774	3/4	61,837	3/4	76,912	3/4	91,987	3/4	107,062	3/4	122,131	3/4	137,199
1	1,974	1	16,963	1	32,036	1	47,087	1	62,151	1	77,226	1	92,301	1	107,376	1	122,445	1	137,513
1/4	2,268	1/4	17,277	1/4	32,350	1/4	47,400	1/4	62,465	1/4	77,540	1/4	92,615	1/4	107,690	1/4	122,759	1/4	137,827
1/2	2,562	1/2	17,591	1/2	32,664	1/2	47,713	1/2	62,779	1/2	77,854	1/2	92,929	1/2	108,004	1/2	123,073	1/2	138,141
3/4	2,855	3/4	17,905	3/4	32,978	3/4	48,026	3/4	63,093	3/4	78,168	3/4	93,243	3/4	108,318	3/4	123,387	3/4	138,455
2	3,149	2	18,219	2	33,292	2	48,339	2	63,407	2	78,482	2	93,557	2	108,632	2	123,701	2	138,768
1/4	3,462	1/4	18,533	1/4	33,606	1/4	48,652	1/4	63,721	1/4	78,796	1/4	93,871	1/4	108,946	1/4	124,015	1/4	139,082
1/2	3,775	1/2	18,847	1/2	33,920	1/2	48,966	1/2	64,035	1/2	79,110	1/2	94,185	1/2	109,260	1/2	124,329	1/2	139,396
3/4	4,088	3/4	19,161	3/4	34,234	3/4	49,279	3/4	64,349	3/4	79,424	3/4	94,499	3/4	109,575	3/4	124,643	3/4	139,710
3	4,401	3	19,475	3	34,548	3	49,592	3	64,663	3	79,738	3	94,813	3	109,889	3	124,957	3	140,024
1/4	4,715	1/4	19,789	1/4	34,862	1/4	49,906	1/4	64,977	1/4	80,052	1/4	95,127	1/4	110,203	1/4	125,270	1/4	140,338
1/2	5,029	1/2	20,103	1/2	35,176	1/2	50,219	1/2	65,291	1/2	80,366	1/2	95,442	1/2	110,517	1/2	125,584	1/2	140,652
3/4	5,343	3/4	20,418	3/4	35,490	3/4	50,532	3/4	65,605	3/4	80,680	3/4	95,756	3/4	110,831	3/4	125,898	3/4	140,966
4	5,657	4	20,732	4	35,804	4	50,846	4	65,919	4	80,995	4	96,070	4	111,145	4	126,212	4	141,280
1/4	5,971	1/4	21,046	1/4	36,119	1/4	51,159	1/4	66,233	1/4	81,309	1/4	96,384	1/4	111,458	1/4	126,526	1/4	141,594
1/2	6,285	1/2	21,360	1/2	36,433	1/2	51,473	1/2	66,547	1/2	81,623	1/2	96,698	1/2	111,772	1/2	126,840	1/2	141,908
3/4	6,599	3/4	21,674	3/4	36,747	3/4	51,787	3/4	66,862	3/4	81,937	3/4	97,012	3/4	112,086	3/4	127,154	3/4	142,221
5	6,913	5	21,988	5	37,061	5	52,100	5	67,176	5	82,251	5	97,326	5	112,400	5	127,468	5	142,535
1/4	7,227	1/4	22,302	1/4	37,375	1/4	52,415	1/4	67,490	1/4	82,565	1/4	97,640	1/4	112,714	1/4	127,782	1/4	142,849
1/2	7,541	1/2	22,616	1/2	37,689	1/2	52,729	1/2	67,804	1/2	82,879	1/2	97,954	1/2	113,028	1/2	128,096	1/2	143,163
3/4	7,855	3/4	22,930	3/4	38,003	3/4	53,043	3/4	68,118	3/4	83,193	3/4	98,268	3/4	113,342	3/4	128,409	3/4	143,477
6	8,169	6	23,244	6	38,317	6	53,357	6	68,432	6	83,507	6	98,582	6	113,656	6	128,723	6	143,791
1/4	8,483	1/4	23,558	1/4	38,631	1/4	53,671	1/4	68,746	1/4	83,821	1/4	98,896	1/4	113,970	1/4	129,037	1/4	144,105
1/2	8,797	1/2	23,872	1/2	38,944	1/2	53,985	1/2	69,060	1/2	84,135	1/2	99,210	1/2	114,284	1/2	129,351	1/2	144,419
3/4	9,111	3/4	24,186	3/4	39,258	3/4	54,299	3/4	69,374	3/4	84,449	3/4	99,524	3/4	114,598	3/4	129,665	3/4	144,733
7	9,425	7	24,500	7	39,571	7	54,613	7	69,688	7	84,763	7	99,838	7	114,911	7	129,979	7	145,047
1/4	9,739	1/4	24,814	1/4	39,885	1/4	54,927	1/4	70,002	1/4	85,077	1/4	100,153	1/4	115,225	1/4	130,293	1/4	145,361
1/2	10,053	1/2	25,129	1/2	40,198	1/2	55,241	1/2	70,316	1/2	85,391	1/2	100,467	1/2	115,539	1/2	130,607	1/2	145,674
3/4	10,367	3/4	25,443	3/4	40,511	3/4	55,555	3/4	70,630	3/4	85,706	3/4	100,781	3/4	115,853	3/4	130,921	3/4	145,988
8	10,682	8	25,757	8	40,824	8	55,869	8	70,944	8	86,020	8	101,095	8	116,167	8	131,235	8	146,302
1/4	10,996	1/4	26,071	1/4	41,137	1/4	56,183	1/4	71,258	1/4	86,334	1/4	101,409	1/4	116,481	1/4	131,549	1/4	146,616
1/2	11,310	1/2	26,385	1/2	41,450	1/2	56,497	1/2	71,573	1/2	86,648	1/2	101,723	1/2	116,795	1/2	131,862	1/2	146,930
3/4	11,624	3/4	26,699	3/4	41,763	3/4	56,811	3/4	71,887	3/4	86,962	3/4	102,037	3/4	117,109	3/4	132,176	3/4	147,244
9	11,938	9	27,013	9	42,076	9	57,126	9	72,201	9	87,276	9	102,351	9	117,423	9	132,490	9	147,558
1/4	12,252	1/4	27,326	1/4	42,390	1/4	57,440	1/4	72,515	1/4	87,590	1/4	102,665	1/4	117,737	1/4	132,804	1/4	147,872
1/2	12,566	1/2	27,640	1/2	42,703	1/2	57,754	1/2	72,829	1/2	87,904	1/2	102,979	1/2	118,051	1/2	133,118	1/2	148,186
3/4	12,880	3/4	27,954	3/4	43,016	3/4	58,068	3/4	73,143	3/4	88,218	3/4	103,293	3/4	118,364	3/4	133,432	3/4	148,500
10	13,194	10	28,268	10	43,329	10	58,382	10	73,457	10	88,532	10	103,607	10	118,678	10	133,746	10	148,814
1/4	13,508	1/4	28,582	1/4	43,642	1/4	58,696	1/4	73,771	1/4	88,846	1/4	103,921	1/4	118,992	1/4	134,060	1/4	149,127
1/2	13,822	1/2	28,896	1/2	43,955	1/2	59,010	1/2	74,085	1/2	89,160	1/2	104,235	1/2	119,306	1/2	134,374	1/2	149,441
3/4	14,136	3/4	29,210	3/4	44,268	3/4	59,324	3/4	74,399	3/4	89,474	3/4	104,549	3/4	119,620	3/4	134,688	3/4	149,755
11	14,450	11	29,523	11	44,582	11	59,638	11	74,713	11	89,788	11	104,864	11	119,934	11	135,002	11	150,069
1/4	14,764	1/4	29,837	1/4	44,895	1/4	59,952	1/4	75,027	1/4	90,102	1/4	105,178	1/4	120,248	1/4	135,315	1/4	150,383
1/2	15,078	1/2	30,151	1/2	45,208	1/2	60,266	1/2	75,341	1/2	90,416	1/2	105,492	1/2	120,562	1/2	135,629	1/2	150,697
3/4	15,393	3/4	30,465	3/4	45,521	3/4	60,580	3/4	75,655	3/4	90,731	3/4	105,806	3/4	120,876	3/4	135,943	3/4	151,011

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 THREADS ON "MMC" VALVE.
GAUGE POINT: (MMC) LOCATED 12'-09" OFF CENTERLINE AND 43'-06" FORWARD OF AFT BULKHEAD.

PRECISION MEASUREMENT
& ANALYSIS, INC.
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BARGE "HFL 413"

2 STBD

INNAGE TABLE

GAUGE HEIGHT 15'-10 3/4"

CAPACITIES GIVEN IN WHOLE GALLONS

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	151,325	0	166,392	0	181,449	0	196,466	0	211,385	0		0		0		0		0	
1/4	151,639	1/4	166,706	1/4	181,762	1/4	196,779	1/4	211,665	1/4		1/4		1/4		1/4		1/4	
1/2	151,953	1/2	167,020	1/2	182,075	1/2	197,092	1/2	211,945	1/2		1/2		1/2		1/2		1/2	
3/4	152,267	3/4	167,334	3/4	182,388	3/4	197,404	3/4	212,225	3/4		3/4		3/4		3/4		3/4	
1	152,580	1	167,648	1	182,701	1	197,717	1	212,505	1		1		1		1		1	
1/4	152,894	1/4	167,962	1/4	183,014	1/4	198,030	1/4	212,737	1/4		1/4		1/4		1/4		1/4	
1/2	153,208	1/2	168,276	1/2	183,326	1/2	198,343	1/2	212,968	1/2		1/2		1/2		1/2		1/2	
3/4	153,522	3/4	168,590	3/4	183,639	3/4	198,656	3/4	213,199	3/4		3/4		3/4		3/4		3/4	
2	153,836	2	168,904	2	183,952	2	198,969	2	213,431	2		2		2		2		2	
1/4	154,150	1/4	169,218	1/4	184,265	1/4	199,281	1/4	213,610	1/4		1/4		1/4		1/4		1/4	
1/2	154,464	1/2	169,531	1/2	184,578	1/2	199,594	1/2	213,789	1/2		1/2		1/2		1/2		1/2	
3/4	154,778	3/4	169,845	3/4	184,891	3/4	199,907	3/4	213,968	3/4		3/4		3/4		3/4		3/4	
3	155,092	3	170,159	3	185,203	3	200,220	3	214,147	3		3		3		3		3	
1/4	155,406	1/4	170,473	1/4	185,516	1/4	200,533	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	155,720	1/2	170,787	1/2	185,829	1/2	200,846	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	156,033	3/4	171,101	3/4	186,142	3/4	201,158	3/4		3/4		3/4		3/4		3/4		3/4	
4	156,347	4	171,415	4	186,455	4	201,471	4		4		4		4		4		4	
1/4	156,661	1/4	171,729	1/4	186,768	1/4	201,784	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	156,975	1/2	172,043	1/2	187,081	1/2	202,097	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	157,289	3/4	172,357	3/4	187,393	3/4	202,410	3/4		3/4		3/4		3/4		3/4		3/4	
5	157,603	5	172,671	5	187,706	5	202,723	5		5		5		5		5		5	
1/4	157,917	1/4	172,984	1/4	188,019	1/4	203,034	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	158,231	1/2	173,298	1/2	188,332	1/2	203,345	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	158,545	3/4	173,612	3/4	188,645	3/4	203,657	3/4		3/4		3/4		3/4		3/4		3/4	
6	158,859	6	173,926	6	188,958	6	203,968	6		6		6		6		6		6	
1/4	159,173	1/4	174,240	1/4	189,270	1/4	204,278	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	159,486	1/2	174,554	1/2	189,583	1/2	204,587	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	159,800	3/4	174,868	3/4	189,896	3/4	204,897	3/4		3/4		3/4		3/4		3/4		3/4	
7	160,114	7	175,182	7	190,209	7	205,207	7		7		7		7		7		7	
1/4	160,428	1/4	175,496	1/4	190,522	1/4	205,517	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	160,742	1/2	175,810	1/2	190,835	1/2	205,827	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	161,056	3/4	176,124	3/4	191,148	3/4	206,136	3/4		3/4		3/4		3/4		3/4		3/4	
8	161,370	8	176,437	8	191,460	8	206,446	8		8		8		8		8		8	
1/4	161,684	1/4	176,751	1/4	191,773	1/4	206,756	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	161,998	1/2	177,065	1/2	192,086	1/2	207,066	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	162,312	3/4	177,379	3/4	192,399	3/4	207,376	3/4		3/4		3/4		3/4		3/4		3/4	
9	162,626	9	177,693	9	192,712	9	207,686	9		9		9		9		9		9	
1/4	162,939	1/4	178,006	1/4	193,025	1/4	207,996	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	163,253	1/2	178,320	1/2	193,337	1/2	208,305	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	163,567	3/4	178,633	3/4	193,650	3/4	208,615	3/4		3/4		3/4		3/4		3/4		3/4	
10	163,881	10	178,947	10	193,963	10	208,925	10		10		10		10		10		10	
1/4	164,195	1/4	179,259	1/4	194,276	1/4	209,234	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	164,509	1/2	179,572	1/2	194,589	1/2	209,544	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	164,823	3/4	179,885	3/4	194,902	3/4	209,853	3/4		3/4		3/4		3/4		3/4		3/4	
11	165,137	11	180,198	11	195,214	11	210,163	11		11		11		11		11		11	
1/4	165,451	1/4	180,511	1/4	195,527	1/4	210,468	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	165,765	1/2	180,824	1/2	195,840	1/2	210,774	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	166,079	3/4	181,137	3/4	196,153	3/4	211,080	3/4		3/4		3/4		3/4		3/4		3/4	

CERTIFIED CHART FOR THE ABOVE NAMED TANK ONLY.

STRAPPED: 02/15/2012 CL - SW
CALCULATED: 02/16/2012 CL
PRINTED: 02/16/2012 CL

CANCELS AND SUPERCEDES
ALL PRIOR TO 02/2012

PRECISION MEASUREMENT
& ANALYSIS, INC.
P.O. Box 2092
Pearland, Texas 77588
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BARGE "HFL 413"

3 PORT
INNAGE TABLE

CAPACITIES GIVEN IN WHOLE GALLONS

GAUGE HEIGHT 15'-11"

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	1,029	0	15,640	0	30,636	0	45,403	0	59,967	0	74,883	0	89,856	0	104,841	0	119,816	0	134,788
1/4	1,263	1/4	15,953	1/4	30,948	1/4	45,705	1/4	60,279	1/4	75,194	1/4	90,168	1/4	105,154	1/4	120,128	1/4	135,100
1/2	1,498	1/2	16,265	1/2	31,261	1/2	46,006	1/2	60,591	1/2	75,504	1/2	90,481	1/2	105,466	1/2	120,440	1/2	135,412
3/4	1,733	3/4	16,578	3/4	31,573	3/4	46,308	3/4	60,903	3/4	75,815	3/4	90,793	3/4	105,778	3/4	120,752	3/4	135,724
1	1,967	1	16,890	1	31,886	1	46,610	1	61,215	1	76,125	1	91,105	1	106,091	1	121,064	1	136,036
1/4	2,260	1/4	17,203	1/4	32,198	1/4	46,912	1/4	61,527	1/4	76,436	1/4	91,417	1/4	106,403	1/4	121,376	1/4	136,347
1/2	2,552	1/2	17,515	1/2	32,511	1/2	47,214	1/2	61,839	1/2	76,746	1/2	91,729	1/2	106,715	1/2	121,688	1/2	136,659
3/4	2,845	3/4	17,828	3/4	32,823	3/4	47,517	3/4	62,151	3/4	77,056	3/4	92,041	3/4	107,027	3/4	122,000	3/4	136,971
2	3,138	2	18,140	2	33,136	2	47,819	2	62,463	2	77,367	2	92,353	2	107,339	2	122,312	2	137,283
1/4	3,450	1/4	18,452	1/4	33,448	1/4	48,121	1/4	62,774	1/4	77,678	1/4	92,665	1/4	107,651	1/4	122,624	1/4	137,595
1/2	3,762	1/2	18,765	1/2	33,760	1/2	48,424	1/2	63,086	1/2	77,990	1/2	92,977	1/2	107,963	1/2	122,935	1/2	137,907
3/4	4,074	3/4	19,077	3/4	34,073	3/4	48,727	3/4	63,397	3/4	78,301	3/4	93,289	3/4	108,275	3/4	123,247	3/4	138,219
3	4,385	3	19,390	3	34,385	3	49,029	3	63,708	3	78,612	3	93,601	3	108,587	3	123,559	3	138,531
1/4	4,698	1/4	19,702	1/4	34,697	1/4	49,332	1/4	64,019	1/4	78,925	1/4	93,913	1/4	108,899	1/4	123,871	1/4	138,843
1/2	5,011	1/2	20,015	1/2	35,009	1/2	49,634	1/2	64,329	1/2	79,237	1/2	94,225	1/2	109,211	1/2	124,183	1/2	139,155
3/4	5,323	3/4	20,327	3/4	35,321	3/4	49,937	3/4	64,639	3/4	79,550	3/4	94,537	3/4	109,523	3/4	124,495	3/4	139,466
4	5,636	4	20,640	4	35,633	4	50,239	4	64,950	4	79,862	4	94,850	4	109,835	4	124,807	4	139,778
1/4	5,949	1/4	20,952	1/4	35,941	1/4	50,542	1/4	65,260	1/4	80,174	1/4	95,162	1/4	110,147	1/4	125,119	1/4	140,090
1/2	6,261	1/2	21,264	1/2	36,250	1/2	50,845	1/2	65,571	1/2	80,487	1/2	95,474	1/2	110,459	1/2	125,431	1/2	140,402
3/4	6,574	3/4	21,577	3/4	36,558	3/4	51,147	3/4	65,881	3/4	80,799	3/4	95,786	3/4	110,771	3/4	125,743	3/4	140,714
5	6,886	5	21,889	5	36,866	5	51,450	5	66,192	5	81,111	5	96,098	5	111,083	5	126,054	5	141,026
1/4	7,199	1/4	22,202	1/4	37,171	1/4	51,752	1/4	66,502	1/4	81,424	1/4	96,410	1/4	111,395	1/4	126,366	1/4	141,337
1/2	7,512	1/2	22,514	1/2	37,476	1/2	52,055	1/2	66,812	1/2	81,736	1/2	96,722	1/2	111,707	1/2	126,678	1/2	141,649
3/4	7,824	3/4	22,827	3/4	37,782	3/4	52,358	3/4	67,123	3/4	82,049	3/4	97,034	3/4	112,019	3/4	126,990	3/4	141,961
6	8,137	6	23,139	6	38,087	6	52,660	6	67,433	6	82,361	6	97,346	6	112,331	6	127,302	6	142,272
1/4	8,450	1/4	23,452	1/4	38,392	1/4	52,963	1/4	67,744	1/4	82,673	1/4	97,658	1/4	112,642	1/4	127,614	1/4	142,579
1/2	8,763	1/2	23,764	1/2	38,697	1/2	53,265	1/2	68,054	1/2	82,986	1/2	97,971	1/2	112,954	1/2	127,926	1/2	142,887
3/4	9,076	3/4	24,077	3/4	39,002	3/4	53,568	3/4	68,365	3/4	83,298	3/4	98,283	3/4	113,266	3/4	128,238	3/4	143,194
7	9,388	7	24,389	7	39,307	7	53,870	7	68,675	7	83,611	7	98,595	7	113,578	7	128,550	7	143,501
1/4	9,701	1/4	24,701	1/4	39,612	1/4	54,173	1/4	68,985	1/4	83,923	1/4	98,907	1/4	113,890	1/4	128,862	1/4	143,796
1/2	10,014	1/2	25,014	1/2	39,917	1/2	54,476	1/2	69,296	1/2	84,235	1/2	99,220	1/2	114,202	1/2	129,174	1/2	144,090
3/4	10,327	3/4	25,326	3/4	40,222	3/4	54,778	3/4	69,606	3/4	84,548	3/4	99,532	3/4	114,514	3/4	129,485	3/4	144,385
8	10,640	8	25,639	8	40,528	8	55,081	8	69,917	8	84,860	8	99,844	8	114,826	8	129,797	8	144,680
1/4	10,953	1/4	25,951	1/4	40,833	1/4	55,383	1/4	70,227	1/4	85,173	1/4	100,157	1/4	115,138	1/4	130,109	1/4	144,959
1/2	11,266	1/2	26,264	1/2	41,138	1/2	55,686	1/2	70,537	1/2	85,485	1/2	100,469	1/2	115,450	1/2	130,421	1/2	145,238
3/4	11,578	3/4	26,576	3/4	41,443	3/4	55,989	3/4	70,848	3/4	85,797	3/4	100,781	3/4	115,762	3/4	130,733	3/4	145,516
9	11,891	9	26,888	9	41,748	9	56,291	9	71,158	9	86,110	9	101,094	9	116,073	9	131,045	9	145,795
1/4	12,203	1/4	27,201	1/4	42,053	1/4	56,595	1/4	71,469	1/4	86,422	1/4	101,406	1/4	116,385	1/4	131,357	1/4	146,058
1/2	12,516	1/2	27,513	1/2	42,358	1/2	56,899	1/2	71,779	1/2	86,734	1/2	101,718	1/2	116,697	1/2	131,669	1/2	146,321
3/4	12,828	3/4	27,825	3/4	42,663	3/4	57,204	3/4	72,090	3/4	87,047	3/4	102,030	3/4	117,009	3/4	131,981	3/4	146,584
10	13,141	10	28,137	10	42,969	10	57,508	10	72,400	10	87,359	10	102,343	10	117,321	10	132,293	10	146,847
1/4	13,453	1/4	28,450	1/4	43,274	1/4	57,814	1/4	72,710	1/4	87,671	1/4	102,655	1/4	117,633	1/4	132,605	1/4	147,094
1/2	13,766	1/2	28,762	1/2	43,579	1/2	58,119	1/2	73,021	1/2	87,984	1/2	102,967	1/2	117,945	1/2	132,916	1/2	147,342
3/4	14,078	3/4	29,074	3/4	43,884	3/4	58,425	3/4	73,331	3/4	88,296	3/4	103,280	3/4	118,257	3/4	133,228	3/4	147,589
11	14,391	11	29,387	11	44,189	11	58,731	11	73,642	11	88,608	11	103,592	11	118,569	11	133,540	11	147,836
1/4	14,703	1/4	29,699	1/4	44,493	1/4	59,040	1/4	73,952	1/4	88,920	1/4	103,904	1/4	118,881	1/4	133,852	1/4	148,067
1/2	15,015	1/2	30,011	1/2	44,796	1/2	59,349	1/2	74,263	1/2	89,232	1/2	104,217	1/2	119,193	1/2	134,164	1/2	148,299
3/4	15,328	3/4	30,324	3/4	45,099	3/4	59,658	3/4	74,573	3/4	89,544	3/4	104,529	3/4	119,504	3/4	134,476	3/4	148,530

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 THREADS ON "MMC" VALVE.
GAUGE POINT: (MMC) LOCATED 12'-09" OFF CENTERLINE AND 43'-00" FORWARD OF AFT BULKHEAD.

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

BARGE "HFL 413"

3 PORT
INNAGE TABLE

GAUGE HEIGHT 15'-11"

CAPACITIES GIVEN IN WHOLE GALLONS

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	148,761	0	159,148	0	169,513	0	179,849	0	190,170	0		0		0		0		0	
1/4	148,981	1/4	159,364	1/4	169,728	1/4	180,064	1/4	190,364	1/4		1/4		1/4		1/4		1/4	
1/2	149,200	1/2	159,580	1/2	169,943	1/2	180,280	1/2	190,557	1/2		1/2		1/2		1/2		1/2	
3/4	149,420	3/4	159,796	3/4	170,159	3/4	180,495	3/4	190,750	3/4		3/4		3/4		3/4		3/4	
1	149,640	1	160,012	1	170,374	1	180,710	1	190,943	1		1		1		1		1	
1/4	149,856	1/4	160,228	1/4	170,589	1/4	180,926	1/4	191,103	1/4		1/4		1/4		1/4		1/4	
1/2	150,072	1/2	160,444	1/2	170,805	1/2	181,141	1/2	191,262	1/2		1/2		1/2		1/2		1/2	
3/4	150,288	3/4	160,660	3/4	171,020	3/4	181,356	3/4	191,422	3/4		3/4		3/4		3/4		3/4	
2	150,504	2	160,877	2	171,235	2	181,572	2	191,582	2		2		2		2		2	
1/4	150,720	1/4	161,093	1/4	171,451	1/4	181,787	1/4	191,706	1/4		1/4		1/4		1/4		1/4	
1/2	150,936	1/2	161,309	1/2	171,666	1/2	182,002	1/2	191,829	1/2		1/2		1/2		1/2		1/2	
3/4	151,152	3/4	161,525	3/4	171,881	3/4	182,218	3/4	191,953	3/4		3/4		3/4		3/4		3/4	
3	151,368	3	161,741	3	172,097	3	182,433	3	192,077	3		3		3		3		3	
1/4	151,584	1/4	161,957	1/4	172,312	1/4	182,648	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	151,801	1/2	162,173	1/2	172,527	1/2	182,864	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	152,017	3/4	162,389	3/4	172,743	3/4	183,079	3/4		3/4		3/4		3/4		3/4		3/4	
4	152,233	4	162,605	4	172,958	4	183,294	4		4		4		4		4		4	
1/4	152,449	1/4	162,821	1/4	173,173	1/4	183,510	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	152,665	1/2	163,037	1/2	173,389	1/2	183,725	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	152,881	3/4	163,254	3/4	173,604	3/4	183,940	3/4		3/4		3/4		3/4		3/4		3/4	
5	153,097	5	163,470	5	173,819	5	184,156	5		5		5		5		5		5	
1/4	153,313	1/4	163,686	1/4	174,035	1/4	184,371	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	153,529	1/2	163,902	1/2	174,250	1/2	184,586	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	153,745	3/4	164,118	3/4	174,465	3/4	184,802	3/4		3/4		3/4		3/4		3/4		3/4	
6	153,961	6	164,334	6	174,681	6	185,017	6		6		6		6		6		6	
1/4	154,178	1/4	164,550	1/4	174,896	1/4	185,232	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	154,394	1/2	164,766	1/2	175,111	1/2	185,448	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	154,610	3/4	164,982	3/4	175,327	3/4	185,663	3/4		3/4		3/4		3/4		3/4		3/4	
7	154,826	7	165,198	7	175,542	7	185,878	7		7		7		7		7		7	
1/4	155,042	1/4	165,415	1/4	175,757	1/4	186,094	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	155,258	1/2	165,631	1/2	175,973	1/2	186,309	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	155,474	3/4	165,847	3/4	176,188	3/4	186,524	3/4		3/4		3/4		3/4		3/4		3/4	
8	155,690	8	166,063	8	176,403	8	186,740	8		8		8		8		8		8	
1/4	155,906	1/4	166,279	1/4	176,619	1/4	186,955	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	156,122	1/2	166,495	1/2	176,834	1/2	187,171	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	156,339	3/4	166,711	3/4	177,049	3/4	187,386	3/4		3/4		3/4		3/4		3/4		3/4	
9	156,555	9	166,927	9	177,265	9	187,602	9		9		9		9		9		9	
1/4	156,771	1/4	167,143	1/4	177,480	1/4	187,817	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	156,987	1/2	167,359	1/2	177,696	1/2	188,032	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	157,203	3/4	167,574	3/4	177,911	3/4	188,248	3/4		3/4		3/4		3/4		3/4		3/4	
10	157,419	10	167,790	10	178,126	10	188,463	10		10		10		10		10		10	
1/4	157,635	1/4	168,005	1/4	178,342	1/4	188,678	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	157,851	1/2	168,221	1/2	178,557	1/2	188,893	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	158,067	3/4	168,436	3/4	178,772	3/4	189,108	3/4		3/4		3/4		3/4		3/4		3/4	
11	158,283	11	168,651	11	178,988	11	189,324	11		11		11		11		11		11	
1/4	158,499	1/4	168,867	1/4	179,203	1/4	189,535	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	158,716	1/2	169,082	1/2	179,418	1/2	189,747	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	158,932	3/4	169,297	3/4	179,634	3/4	189,959	3/4		3/4		3/4		3/4		3/4		3/4	

CERTIFIED CHART FOR THE ABOVE NAMED TANK ONLY.

STRAPPED: 02/15/2012 CL - SW
CALCULATED: 02/16/2012 CL
PRINTED: 02/16/2012 CL

CANCELS AND SUPERCEDES
ALL PRIOR TO 02/2012

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

BARGE "HFL 413"

3 STBD

INNAGE TABLE

CAPACITIES GIVEN IN WHOLE GALLONS

GAUGE HEIGHT 15'-10 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	1,028	0	15,648	0	30,668	0	45,671	0	60,689	0	75,709	0	90,729	0	105,749	0	120,752	0	135,752
1/4	1,263	1/4	15,961	1/4	30,981	1/4	45,984	1/4	61,002	1/4	76,022	1/4	91,042	1/4	106,062	1/4	121,064	1/4	136,064
1/2	1,498	1/2	16,274	1/2	31,294	1/2	46,296	1/2	61,315	1/2	76,335	1/2	91,355	1/2	106,374	1/2	121,377	1/2	136,377
3/4	1,732	3/4	16,587	3/4	31,606	3/4	46,609	3/4	61,628	3/4	76,648	3/4	91,668	3/4	106,687	3/4	121,689	3/4	136,689
1	1,967	1	16,900	1	31,919	1	46,922	1	61,941	1	76,961	1	91,980	1	107,000	1	122,002	1	137,002
1/4	2,260	1/4	17,213	1/4	32,232	1/4	47,234	1/4	62,254	1/4	77,274	1/4	92,293	1/4	107,313	1/4	122,314	1/4	137,314
1/2	2,552	1/2	17,526	1/2	32,545	1/2	47,547	1/2	62,567	1/2	77,586	1/2	92,606	1/2	107,626	1/2	122,627	1/2	137,627
3/4	2,845	3/4	17,839	3/4	32,858	3/4	47,860	3/4	62,880	3/4	77,899	3/4	92,919	3/4	107,939	3/4	122,939	3/4	137,939
2	3,137	2	18,152	2	33,171	2	48,173	2	63,193	2	78,212	2	93,232	2	108,251	2	123,252	2	138,251
1/4	3,449	1/4	18,465	1/4	33,484	1/4	48,486	1/4	63,505	1/4	78,525	1/4	93,545	1/4	108,564	1/4	123,564	1/4	138,564
1/2	3,761	1/2	18,777	1/2	33,797	1/2	48,799	1/2	63,818	1/2	78,838	1/2	93,858	1/2	108,877	1/2	123,877	1/2	138,876
3/4	4,073	3/4	19,090	3/4	34,110	3/4	49,111	3/4	64,131	3/4	79,151	3/4	94,171	3/4	109,189	3/4	124,189	3/4	139,189
3	4,385	3	19,403	3	34,423	3	49,424	3	64,444	3	79,464	3	94,484	3	109,502	3	124,502	3	139,501
1/4	4,698	1/4	19,716	1/4	34,735	1/4	49,737	1/4	64,757	1/4	79,777	1/4	94,797	1/4	109,814	1/4	124,814	1/4	139,814
1/2	5,010	1/2	20,029	1/2	35,048	1/2	50,050	1/2	65,070	1/2	80,090	1/2	95,110	1/2	110,127	1/2	125,127	1/2	140,126
3/4	5,323	3/4	20,342	3/4	35,361	3/4	50,363	3/4	65,383	3/4	80,403	3/4	95,422	3/4	110,439	3/4	125,439	3/4	140,439
4	5,636	4	20,655	4	35,673	4	50,676	4	65,696	4	80,716	4	95,735	4	110,752	4	125,752	4	140,751
1/4	5,949	1/4	20,968	1/4	35,986	1/4	50,989	1/4	66,009	1/4	81,029	1/4	96,048	1/4	111,064	1/4	126,064	1/4	141,064
1/2	6,261	1/2	21,281	1/2	36,298	1/2	51,302	1/2	66,322	1/2	81,341	1/2	96,361	1/2	111,377	1/2	126,377	1/2	141,376
3/4	6,574	3/4	21,594	3/4	36,611	3/4	51,615	3/4	66,635	3/4	81,654	3/4	96,674	3/4	111,689	3/4	126,689	3/4	141,689
5	6,887	5	21,906	5	36,923	5	51,928	5	66,947	5	81,967	5	96,987	5	112,002	5	127,002	5	142,001
1/4	7,200	1/4	22,219	1/4	37,235	1/4	52,241	1/4	67,260	1/4	82,280	1/4	97,300	1/4	112,314	1/4	127,314	1/4	142,313
1/2	7,513	1/2	22,532	1/2	37,548	1/2	52,554	1/2	67,573	1/2	82,593	1/2	97,613	1/2	112,627	1/2	127,627	1/2	142,626
3/4	7,826	3/4	22,845	3/4	37,860	3/4	52,866	3/4	67,886	3/4	82,906	3/4	97,926	3/4	112,939	3/4	127,939	3/4	142,938
6	8,139	6	23,158	6	38,173	6	53,179	6	68,199	6	83,219	6	98,239	6	113,252	6	128,252	6	143,250
1/4	8,452	1/4	23,471	1/4	38,485	1/4	53,492	1/4	68,512	1/4	83,532	1/4	98,552	1/4	113,564	1/4	128,564	1/4	143,558
1/2	8,765	1/2	23,784	1/2	38,797	1/2	53,805	1/2	68,825	1/2	83,845	1/2	98,865	1/2	113,877	1/2	128,877	1/2	143,865
3/4	9,077	3/4	24,097	3/4	39,110	3/4	54,118	3/4	69,138	3/4	84,158	3/4	99,177	3/4	114,189	3/4	129,189	3/4	144,173
7	9,390	7	24,410	7	39,422	7	54,431	7	69,451	7	84,471	7	99,490	7	114,502	7	129,502	7	144,481
1/4	9,703	1/4	24,723	1/4	39,735	1/4	54,744	1/4	69,764	1/4	84,783	1/4	99,803	1/4	114,814	1/4	129,814	1/4	144,776
1/2	10,016	1/2	25,036	1/2	40,047	1/2	55,057	1/2	70,077	1/2	85,096	1/2	100,116	1/2	115,127	1/2	130,127	1/2	145,072
3/4	10,329	3/4	25,348	3/4	40,359	3/4	55,370	3/4	70,390	3/4	85,409	3/4	100,429	3/4	115,439	3/4	130,439	3/4	145,367
8	10,642	8	25,661	8	40,672	8	55,683	8	70,702	8	85,722	8	100,742	8	115,752	8	130,752	8	145,663
1/4	10,955	1/4	25,974	1/4	40,984	1/4	55,996	1/4	71,015	1/4	86,035	1/4	101,055	1/4	116,064	1/4	131,064	1/4	145,942
1/2	11,268	1/2	26,287	1/2	41,297	1/2	56,308	1/2	71,328	1/2	86,348	1/2	101,368	1/2	116,377	1/2	131,377	1/2	146,221
3/4	11,581	3/4	26,600	3/4	41,609	3/4	56,621	3/4	71,641	3/4	86,661	3/4	101,681	3/4	116,689	3/4	131,689	3/4	146,500
9	11,894	9	26,913	9	41,922	9	56,934	9	71,954	9	86,974	9	101,994	9	117,002	9	132,002	9	146,780
1/4	12,207	1/4	27,226	1/4	42,234	1/4	57,247	1/4	72,267	1/4	87,287	1/4	102,307	1/4	117,314	1/4	132,314	1/4	147,043
1/2	12,519	1/2	27,539	1/2	42,546	1/2	57,560	1/2	72,580	1/2	87,600	1/2	102,619	1/2	117,627	1/2	132,627	1/2	147,306
3/4	12,832	3/4	27,852	3/4	42,859	3/4	57,873	3/4	72,893	3/4	87,913	3/4	102,932	3/4	117,939	3/4	132,939	3/4	147,570
10	13,145	10	28,165	10	43,171	10	58,186	10	73,206	10	88,226	10	103,245	10	118,252	10	133,252	10	147,833
1/4	13,458	1/4	28,477	1/4	43,484	1/4	58,499	1/4	73,519	1/4	88,538	1/4	103,558	1/4	118,564	1/4	133,564	1/4	148,080
1/2	13,771	1/2	28,790	1/2	43,796	1/2	58,812	1/2	73,832	1/2	88,851	1/2	103,871	1/2	118,877	1/2	133,877	1/2	148,328
3/4	14,084	3/4	29,103	3/4	44,108	3/4	59,125	3/4	74,144	3/4	89,164	3/4	104,184	3/4	119,189	3/4	134,189	3/4	148,575
11	14,397	11	29,416	11	44,421	11	59,438	11	74,457	11	89,477	11	104,497	11	119,502	11	134,502	11	148,822
1/4	14,710	1/4	29,729	1/4	44,733	1/4	59,750	1/4	74,770	1/4	89,790	1/4	104,810	1/4	119,814	1/4	134,814	1/4	149,053
1/2	15,023	1/2	30,042	1/2	45,046	1/2	60,063	1/2	75,083	1/2	90,103	1/2	105,123	1/2	120,127	1/2	135,127	1/2	149,285
3/4	15,336	3/4	30,355	3/4	45,359	3/4	60,376	3/4	75,396	3/4	90,416	3/4	105,436	3/4	120,439	3/4	135,439	3/4	149,516

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 THREADS ON "MMC" VALVE.
GAUGE POINT: (MMC) LOCATED 12'-09" OFF CENTERLINE AND 43'-00" FORWARD OF AFT BULKHEAD.

PRECISION MEASUREMENT
& ANALYSIS, INC.
P.O. Box 2092
Pearland, Texas 77588
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BARGE "HFL 413"

3 STBD

INNAGE TABLE

CAPACITIES GIVEN IN WHOLE GALLONS

GAUGE HEIGHT 15'-10 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	149,747	0	160,131	0	170,493	0	180,825	0	191,144	0		0		0		0		0	
1/4	149,967	1/4	160,347	1/4	170,708	1/4	181,041	1/4	191,337	1/4		1/4		1/4		1/4		1/4	
1/2	150,186	1/2	160,563	1/2	170,923	1/2	181,256	1/2	191,530	1/2		1/2		1/2		1/2		1/2	
3/4	150,406	3/4	160,779	3/4	171,138	3/4	181,471	3/4	191,723	3/4		3/4		3/4		3/4		3/4	
1	150,625	1	160,995	1	171,354	1	181,686	1	191,916	1		1		1		1		1	
1/4	150,841	1/4	161,211	1/4	171,569	1/4	181,902	1/4	192,076	1/4		1/4		1/4		1/4		1/4	
1/2	151,057	1/2	161,427	1/2	171,784	1/2	182,117	1/2	192,235	1/2		1/2		1/2		1/2		1/2	
3/4	151,274	3/4	161,643	3/4	171,999	3/4	182,332	3/4	192,395	3/4		3/4		3/4		3/4		3/4	
2	151,490	2	161,859	2	172,215	2	182,548	2	192,555	2		2		2		2		2	
1/4	151,706	1/4	162,075	1/4	172,430	1/4	182,763	1/4	192,679	1/4		1/4		1/4		1/4		1/4	
1/2	151,922	1/2	162,291	1/2	172,645	1/2	182,978	1/2	192,802	1/2		1/2		1/2		1/2		1/2	
3/4	152,138	3/4	162,507	3/4	172,860	3/4	183,193	3/4	192,926	3/4		3/4		3/4		3/4		3/4	
3	152,354	3	162,723	3	173,076	3	183,409	3	193,049	3		3		3		3		3	
1/4	152,570	1/4	162,939	1/4	173,291	1/4	183,624	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	152,786	1/2	163,155	1/2	173,506	1/2	183,839	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	153,002	3/4	163,371	3/4	173,722	3/4	184,054	3/4		3/4		3/4		3/4		3/4		3/4	
4	153,218	4	163,587	4	173,937	4	184,270	4		4		4		4		4		4	
1/4	153,434	1/4	163,803	1/4	174,152	1/4	184,485	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	153,650	1/2	164,019	1/2	174,367	1/2	184,700	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	153,866	3/4	164,235	3/4	174,583	3/4	184,916	3/4		3/4		3/4		3/4		3/4		3/4	
5	154,082	5	164,451	5	174,798	5	185,131	5		5		5		5		5		5	
1/4	154,298	1/4	164,667	1/4	175,013	1/4	185,346	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	154,514	1/2	164,883	1/2	175,228	1/2	185,561	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	154,730	3/4	165,099	3/4	175,444	3/4	185,777	3/4		3/4		3/4		3/4		3/4		3/4	
6	154,946	6	165,315	6	175,659	6	185,992	6		6		6		6		6		6	
1/4	155,162	1/4	165,531	1/4	175,874	1/4	186,207	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	155,378	1/2	165,747	1/2	176,089	1/2	186,422	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	155,594	3/4	165,964	3/4	176,305	3/4	186,638	3/4		3/4		3/4		3/4		3/4		3/4	
7	155,810	7	166,180	7	176,520	7	186,853	7		7		7		7		7		7	
1/4	156,026	1/4	166,396	1/4	176,735	1/4	187,068	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	156,242	1/2	166,612	1/2	176,951	1/2	187,284	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	156,458	3/4	166,828	3/4	177,166	3/4	187,499	3/4		3/4		3/4		3/4		3/4		3/4	
8	156,674	8	167,044	8	177,381	8	187,714	8		8		8		8		8		8	
1/4	156,890	1/4	167,260	1/4	177,596	1/4	187,930	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	157,106	1/2	167,476	1/2	177,812	1/2	188,145	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	157,322	3/4	167,692	3/4	178,027	3/4	188,360	3/4		3/4		3/4		3/4		3/4		3/4	
9	157,538	9	167,908	9	178,242	9	188,576	9		9		9		9		9		9	
1/4	157,754	1/4	168,123	1/4	178,457	1/4	188,791	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	157,970	1/2	168,339	1/2	178,673	1/2	189,006	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	158,186	3/4	168,555	3/4	178,888	3/4	189,222	3/4		3/4		3/4		3/4		3/4		3/4	
10	158,402	10	168,770	10	179,103	10	189,437	10		10		10		10		10		10	
1/4	158,619	1/4	168,986	1/4	179,319	1/4	189,652	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	158,835	1/2	169,201	1/2	179,534	1/2	189,867	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	159,051	3/4	169,416	3/4	179,749	3/4	190,082	3/4		3/4		3/4		3/4		3/4		3/4	
11	159,267	11	169,631	11	179,964	11	190,297	11		11		11		11		11		11	
1/4	159,483	1/4	169,847	1/4	180,180	1/4	190,509	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	159,699	1/2	170,062	1/2	180,395	1/2	190,720	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	159,915	3/4	170,277	3/4	180,610	3/4	190,932	3/4		3/4		3/4		3/4		3/4		3/4	

CERTIFIED CHART FOR THE ABOVE NAMED TANK ONLY.

STRAPPED: 02/15/2012 CL - SW
CALCULATED: 02/16/2012 CL
PRINTED: 02/16/2012 CL

CANCELS AND SUPERCEDES
ALL PRIOR TO 02/2012

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

BARGE "HFL 413"

PORT SLOP
INNAGE TABLE

CAPACITIES GIVEN IN WHOLE GALLONS

GAUGE HEIGHT 6'-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	96	0	1,249	0	2,402	0	3,553	0	4,706	0		0		0		0		0	
1/4	120	1/4	1,273	1/4	2,426	1/4	3,578	1/4	4,730	1/4		1/4		1/4		1/4		1/4	
1/2	144	1/2	1,297	1/2	2,449	1/2	3,602	1/2	4,754	1/2		1/2		1/2		1/2		1/2	
3/4	168	3/4	1,321	3/4	2,473	3/4	3,626	3/4	4,777	3/4		3/4		3/4		3/4		3/4	
1	192	1	1,345	1	2,497	1	3,650	1	4,801	1		1		1		1		1	
1/4	216	1/4	1,369	1/4	2,521	1/4	3,674	1/4	4,825	1/4		1/4		1/4		1/4		1/4	
1/2	240	1/2	1,393	1/2	2,545	1/2	3,698	1/2	4,848	1/2		1/2		1/2		1/2		1/2	
3/4	264	3/4	1,417	3/4	2,569	3/4	3,722	3/4	4,872	3/4		3/4		3/4		3/4		3/4	
2	288	2	1,441	2	2,593	2	3,746	2	4,896	2		2		2		2		2	
1/4	312	1/4	1,465	1/4	2,617	1/4	3,770	1/4	4,919	1/4		1/4		1/4		1/4		1/4	
1/2	336	1/2	1,489	1/2	2,641	1/2	3,794	1/2	4,943	1/2		1/2		1/2		1/2		1/2	
3/4	360	3/4	1,513	3/4	2,665	3/4	3,818	3/4	4,967	3/4		3/4		3/4		3/4		3/4	
3	384	3	1,537	3	2,689	3	3,842	3	4,990	3		3		3		3		3	
1/4	408	1/4	1,561	1/4	2,713	1/4	3,866	1/4	5,014	1/4		1/4		1/4		1/4		1/4	
1/2	432	1/2	1,585	1/2	2,737	1/2	3,890	1/2	5,037	1/2		1/2		1/2		1/2		1/2	
3/4	456	3/4	1,609	3/4	2,761	3/4	3,914	3/4	5,061	3/4		3/4		3/4		3/4		3/4	
4	480	4	1,633	4	2,785	4	3,938	4	5,084	4		4		4		4		4	
1/4	504	1/4	1,657	1/4	2,809	1/4	3,962	1/4	5,096	1/4		1/4		1/4		1/4		1/4	
1/2	528	1/2	1,681	1/2	2,833	1/2	3,986	1/2	5,108	1/2		1/2		1/2		1/2		1/2	
3/4	552	3/4	1,705	3/4	2,857	3/4	4,010	3/4	5,119	3/4		3/4		3/4		3/4		3/4	
5	577	5	1,729	5	2,881	5	4,034	5	5,131	5		5		5		5		5	
1/4	601	1/4	1,753	1/4	2,905	1/4	4,058	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	625	1/2	1,777	1/2	2,929	1/2	4,082	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	649	3/4	1,801	3/4	2,953	3/4	4,106	3/4		3/4		3/4		3/4		3/4		3/4	
6	673	6	1,825	6	2,977	6	4,130	6		6		6		6		6		6	
1/4	697	1/4	1,849	1/4	3,001	1/4	4,154	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	721	1/2	1,873	1/2	3,025	1/2	4,178	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	745	3/4	1,897	3/4	3,049	3/4	4,202	3/4		3/4		3/4		3/4		3/4		3/4	
7	769	7	1,921	7	3,073	7	4,226	7		7		7		7		7		7	
1/4	793	1/4	1,945	1/4	3,097	1/4	4,250	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	817	1/2	1,969	1/2	3,121	1/2	4,274	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	841	3/4	1,993	3/4	3,145	3/4	4,298	3/4		3/4		3/4		3/4		3/4		3/4	
8	865	8	2,017	8	3,169	8	4,322	8		8		8		8		8		8	
1/4	889	1/4	2,042	1/4	3,193	1/4	4,346	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	913	1/2	2,066	1/2	3,217	1/2	4,370	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	937	3/4	2,090	3/4	3,241	3/4	4,394	3/4		3/4		3/4		3/4		3/4		3/4	
9	961	9	2,114	9	3,265	9	4,418	9		9		9		9		9		9	
1/4	985	1/4	2,138	1/4	3,289	1/4	4,442	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	1,009	1/2	2,162	1/2	3,313	1/2	4,466	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	1,033	3/4	2,186	3/4	3,337	3/4	4,490	3/4		3/4		3/4		3/4		3/4		3/4	
10	1,057	10	2,210	10	3,361	10	4,514	10		10		10		10		10		10	
1/4	1,081	1/4	2,234	1/4	3,385	1/4	4,538	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	1,105	1/2	2,258	1/2	3,409	1/2	4,562	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	1,129	3/4	2,282	3/4	3,433	3/4	4,586	3/4		3/4		3/4		3/4		3/4		3/4	
11	1,153	11	2,306	11	3,457	11	4,610	11		11		11		11		11		11	
1/4	1,177	1/4	2,330	1/4	3,481	1/4	4,634	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	1,201	1/2	2,354	1/2	3,505	1/2	4,658	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	1,225	3/4	2,378	3/4	3,529	3/4	4,682	3/4		3/4		3/4		3/4		3/4		3/4	

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 THREADS ON "MMC" VALVE.

STRAPPED: 02/09/2012 CL - SW
CALCULATED: 02/10/2012 CL
PRINTED: 02/10/2012 CL

CANCELS AND SUPERCEDES
ALL PRIOR TO 02/2012

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

BARGE "HFL 413"

STBD SLOP
INNAGE TABLE

CAPACITIES GIVEN IN WHOLE GALLONS

GAUGE HEIGHT 6'-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	96	0	1,249	0	2,402	0	3,553	0	4,706	0		0		0		0		0	
1/4	120	1/4	1,273	1/4	2,426	1/4	3,578	1/4	4,730	1/4		1/4		1/4		1/4		1/4	
1/2	144	1/2	1,297	1/2	2,449	1/2	3,602	1/2	4,754	1/2		1/2		1/2		1/2		1/2	
3/4	168	3/4	1,321	3/4	2,473	3/4	3,626	3/4	4,777	3/4		3/4		3/4		3/4		3/4	
1	192	1	1,345	1	2,497	1	3,650	1	4,801	1		1		1		1		1	
1/4	216	1/4	1,369	1/4	2,521	1/4	3,674	1/4	4,825	1/4		1/4		1/4		1/4		1/4	
1/2	240	1/2	1,393	1/2	2,545	1/2	3,698	1/2	4,848	1/2		1/2		1/2		1/2		1/2	
3/4	264	3/4	1,417	3/4	2,569	3/4	3,722	3/4	4,872	3/4		3/4		3/4		3/4		3/4	
2	288	2	1,441	2	2,593	2	3,746	2	4,896	2		2		2		2		2	
1/4	312	1/4	1,465	1/4	2,617	1/4	3,770	1/4	4,919	1/4		1/4		1/4		1/4		1/4	
1/2	336	1/2	1,489	1/2	2,641	1/2	3,794	1/2	4,943	1/2		1/2		1/2		1/2		1/2	
3/4	360	3/4	1,513	3/4	2,665	3/4	3,818	3/4	4,967	3/4		3/4		3/4		3/4		3/4	
3	384	3	1,537	3	2,689	3	3,842	3	4,990	3		3		3		3		3	
1/4	408	1/4	1,561	1/4	2,713	1/4	3,866	1/4	5,014	1/4		1/4		1/4		1/4		1/4	
1/2	432	1/2	1,585	1/2	2,737	1/2	3,890	1/2	5,037	1/2		1/2		1/2		1/2		1/2	
3/4	456	3/4	1,609	3/4	2,761	3/4	3,914	3/4	5,061	3/4		3/4		3/4		3/4		3/4	
4	480	4	1,633	4	2,785	4	3,938	4	5,084	4		4		4		4		4	
1/4	504	1/4	1,657	1/4	2,809	1/4	3,962	1/4	5,096	1/4		1/4		1/4		1/4		1/4	
1/2	528	1/2	1,681	1/2	2,833	1/2	3,986	1/2	5,108	1/2		1/2		1/2		1/2		1/2	
3/4	552	3/4	1,705	3/4	2,857	3/4	4,010	3/4	5,119	3/4		3/4		3/4		3/4		3/4	
5	577	5	1,729	5	2,881	5	4,034	5	5,131	5		5		5		5		5	
1/4	601	1/4	1,753	1/4	2,905	1/4	4,058	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	625	1/2	1,777	1/2	2,929	1/2	4,082	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	649	3/4	1,801	3/4	2,953	3/4	4,106	3/4		3/4		3/4		3/4		3/4		3/4	
6	673	6	1,825	6	2,977	6	4,130	6		6		6		6		6		6	
1/4	697	1/4	1,849	1/4	3,001	1/4	4,154	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	721	1/2	1,873	1/2	3,025	1/2	4,178	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	745	3/4	1,897	3/4	3,049	3/4	4,202	3/4		3/4		3/4		3/4		3/4		3/4	
7	769	7	1,921	7	3,073	7	4,226	7		7		7		7		7		7	
1/4	793	1/4	1,945	1/4	3,097	1/4	4,250	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	817	1/2	1,969	1/2	3,121	1/2	4,274	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	841	3/4	1,993	3/4	3,145	3/4	4,298	3/4		3/4		3/4		3/4		3/4		3/4	
8	865	8	2,017	8	3,169	8	4,322	8		8		8		8		8		8	
1/4	889	1/4	2,042	1/4	3,193	1/4	4,346	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	913	1/2	2,066	1/2	3,217	1/2	4,370	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	937	3/4	2,090	3/4	3,241	3/4	4,394	3/4		3/4		3/4		3/4		3/4		3/4	
9	961	9	2,114	9	3,265	9	4,418	9		9		9		9		9		9	
1/4	985	1/4	2,138	1/4	3,289	1/4	4,442	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	1,009	1/2	2,162	1/2	3,313	1/2	4,466	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	1,033	3/4	2,186	3/4	3,337	3/4	4,490	3/4		3/4		3/4		3/4		3/4		3/4	
10	1,057	10	2,210	10	3,361	10	4,514	10		10		10		10		10		10	
1/4	1,081	1/4	2,234	1/4	3,385	1/4	4,538	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	1,105	1/2	2,258	1/2	3,409	1/2	4,562	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	1,129	3/4	2,282	3/4	3,433	3/4	4,586	3/4		3/4		3/4		3/4		3/4		3/4	
11	1,153	11	2,306	11	3,457	11	4,610	11		11		11		11		11		11	
1/4	1,177	1/4	2,330	1/4	3,481	1/4	4,634	1/4		1/4		1/4		1/4		1/4		1/4	
1/2	1,201	1/2	2,354	1/2	3,505	1/2	4,658	1/2		1/2		1/2		1/2		1/2		1/2	
3/4	1,225	3/4	2,378	3/4	3,529	3/4	4,682	3/4		3/4		3/4		3/4		3/4		3/4	

CERTIFIED CHART FOR THE ABOVE NAMED TANK ONLY.

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CANCELS AND SUPERCEDES
ALL PRIOR TO 02/2012

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