

APPLICATION FOR APPROVAL AND CERTIFICATE OF CONSTRUCTION

1 APPROVAL REQUESTED OF: Non-Precedent

2 TYPE: Conversion

3 AAR NO: M157044A

4 DATE: 12/16/2015

4.1 ORDER DATE: 08/07/2015

5 APPLICANT'S NO: 39669-A&B

7 TANK SPECIFICATION: DOT-111A100W1

8 STENCILED SPEC: DOT-117R100W

10 NUMBER OF CARS: 2

6 APPLICANT: Union Tank Car Company
175 W. Jackson Blvd.
Suite 2100
Chicago, IL 60604

9 REPORTING MARKS AND CAR NUMBERS: UTLX 210105, UTLX 210116

11	Initial Commodity	Ethanol*	12	Density (LB Per Gallon)	6.6
13	Full Water Capacity (Gallons)	30000	14	Dome Capacity or Outage (Gallons)	per DOT 173.24b (a) (1)
15	Material Type / Grade Heads	ASTM A516, Gr. 70	15.1	Tank Head Material Normalized	No
15.2	Tank Head Spliced	No	15.3	Charpy Requirements	
16	Material Type and Grade Shell	AAR TC-128, Gr. B	16.1	Tank Shell Material Normalized	No
16.2	Charpy Requirements		17	Material Thickness Heads (Inches)	.46875
18	Material Thickness Shell (Inches)	.4375	19	Lining Type	None
20	Inside Diameter - Center (Inches)	119.1875	21	Inside Diameter - End Rings (Inches)	119.1875
22	Head Radius, Main (Inches if not 2:1)	2:1	23	Test Pressure (PSI)	100
24	Insulation Type	CF-Ceramic Fiber	25	Insulation Thickness (Inches)	.50
26	Thermal Conductivity (BTU - in/hr. -ft sq. - degree F)	0.26	27	Type of Safety Relief Devices	Valve
27.1	Number of Safety Relief Devices	1	28	Pressure Relief Device Start-to-Discharge (PSI)	75
29	Pressure Relief Device Flow Capacity (CFM Required)	2,495	30	Pressure Relief Device Flow Capacity (CFM Actual)	21,272
31	Tank Surface Area (Sq Ft)	1,757	32	Underframe or Stub Sill Type	UTLZBG-UTLZBG Stub Sill Design
33	Center of Gravity, Loaded (Inches)	90.41	34	Estimated Light Weight (lb)	80,513
35	AAR Clearance Diagram	C	36	Rail Load Limit (lb)	286000
37	Truck Capacity (Tons)	100	38	Head Shield Type	F-Full Shield
38.1	Head Shield Thickness (inches)	.50			

Notes: *And products authorized by DOT Part 173 for which there are no special commodity requirements and non-regulated commodities with this class of car.
Other Related Drawings are attached which should be verified.

Original Certificate: L-067015B
Builder: Union Tank Car Company
Date: 11/03/2006
Former lading: Ethanol

The Following Drawings Apply:

- 39 General Arrangement
- 40 Tank Arrangement
- 41 Reinforced Openings, Including Calculations
- 42 Anchorage, Including Calculations
- 43 Fittings Arrangement
- 44 Manway Assembly
- 45 Protective Housing
- 46 Venting, Loading, and Discharge Valves
- 47 Pressure Relief Devices
- 48 Heater Systems
- 49 Gauging Devices
- 50 Bottom Outlet Valve
- 51 Repairs
- 52 Manway Cover
- 53 Calculations
- 54 Tank Qualification Drawing

Drawing Number	The Following Prior Approvals Apply:	
	Drawing Number	Application/Certificate No
511657B-01 & 02		Submitted
511658A		Submitted
511844A		Submitted
See Line 43		
511847A,85381W		Submitted, PRD-127009

REVISIONS: A)12/08/15 - Added additional split to Line 5. Revised car numbers on Line 9. Revised number of cars on Line 10. Revised Bottom Unload Handle Assembly Dwg. (other related drawings). Updated drawing on Line 39 to show current revision level.

APPLICATION BY: Vernioa Hall

I certify that the foregoing conforms to all applicable DOT and AAR requirements, including specifications, regulations, rules of interchange, and the DOT Railroad Safety Appliance Standards.

SIGNATURE: Vernioa Hall

TITLE: Fleet Records Supervisor

APPROVAL - AAR Tank Car Committee

Date Approved 01/12/2016 Kenneth Dorsey

(signature) on behalf of the Tank Car Committee

CERTIFICATION: The cars enumerated below conform to the above approved description and to all applicable DOT and AAR requirements, including specifications, regulations, rules of interchange, and the DOT Railroad Safety Appliance Standards. Copy of this Certificate of Construction will be furnished to the owner and others, as required by 49 CFR Part 179.5, before these cars are placed in service

Initials and Car Numbers:

UTLX 210105 UTLX 210116

Name: Peter Douglas

Date: 02/04/2016

Title: Project Engineer

9 This application will be used as a precedent for filing R-1's (TCID).

29 (8.1.1c)
Safety Valve sized using default values.

38 Full 0.500" thick jacket heads, A516-70.

46 Additional Fittings/Approval Numbers:
E107011 -- 3-UFR-3636TT - 503013A - McKenzie
E107011 -- 2-UFR-3636TT - 503013A - McKenzie
E087019 -- Flgd. Compact VRV - 509978C - McKenzie

Scope of Work:

- Apply ½" Ceramic Fiber insulation (CPC-1318 compliant and 49CFR 179.202-13(e).
- Apply 11 gage Jacket with ½" thick heads.(49CFR 179.202-13(d) and (f).
- Apply fittings protection in compliance with (CPC-1317) M-1002 Appendix E paragraph 9.3.1 to the top fittings assembly. Modify pressure relief device nozzle in compliance with M-1002 Appendix E paragraph 9.3.2 and apply new pressure relief valve sized in accordance with M-1002 Appendix A paragraph 7.1.
- Apply disengaging BOV handle compliant with M-1002 Appendix E paragraph 9.1.2.8 and 49CFR 179.202-13(g)..
- Modify trucks for capability to operate at 286,000 GRL in compliance with AAR Standard S-286. Cars will comply with 49CFR Part 179 and meet the requirements of specification DOT117R as set forth in HM-251.

47 75# McKenzie Pressure Relief Device

Other Related Drawings:

511667.pdf	Jacket Assembly
511874.pdf	Insulation Assembly
512068.pdf	Bottom Unload Handle Assembly

APPLICATION FOR APPROVAL AND CERTIFICATE OF CONSTRUCTION

1 APPROVAL REQUESTED OF: PRECEDENT 2 TYPE: CONSTRUCTION WELDED REPAIRS 3 AAR NO. L-077017 Rev. A

NON-PRECEDENT ALTERATION OTHER 4 DATE: 6/15/2007

CONVERSION 5 APPLICANTS NO. 5920

6 APPLICANT: UNION TANK CAR COMPANY, 6325 Highway 1 North, Alexandria, LA 71303 7 TANK SPECIFICATION: DOT/TC 111A100W

9 REPORTING MARKS AND CAR NUMBERS: See Page 2 8 STENCILED SPEC. DOT 111A100W1

10 NUMBER OF CARS 496

11	Initial Commodity	ETHANOL*	12	Density, lb., per gal	6.6
13	Full Water Capacity, gal	30,000	14	Dome Capacity or Outage, gal	173,24b
15	Material Type and Grade - Heads	A516-70	16	Material Type and Grade - Shell	TC-128-B
17	Material Thickness - Heads, in.	15/32"	18	Material Thickness - Shell, in.	7/16"
19	Lining Type	None	20	Inside Diameter - Center, in.	119 3/16"
21	Inside Diameter - End Rings, in.	119 3/16"	22	Head Radius, Main, in. (if not 2:1)	-----
23	Test Pressure, psi	165	24	Insulation Type	None
25	Insulation Thickness, in.	NA	26	Thermal Conductivity, Btu-in./hr-sq.ft.-F	NA
27	Type and Number of Pressure Relief Devices	Valve (1)	28	Pressure Relief Device Start-to-Discharge, psi	165
29	Pressure Relief Device Flow Capacity, cfm required	26,292 (8.1.1.1a)**	30	Pressure Relief Device Flow Capacity, cfm, actual	38,902
31	Tank Surface Area, sq. ft.	1,757	32	Underframe or Stub Sill Type	UTL-ZBG
33	Center of Gravity, Loaded, in.	89.86	34	Estimated Light Weight, lb.	65,900
35	AAR Clearance Diagram	C	36	Rail Load Limit, lb.	263,000
37	Truck Capacity, tons	100	38	Head Shields	None

NOTES: * AND PRODUCTS AUTHORIZED BY DOT PART 173 FOR WHICH THERE ARE NO SPECIAL COMMODITY REQUIREMENTS AND NON-REGULATED COMMODITIES COMPATIBLE WITH THIS CLASS OF CAR.
 **SAFETY VALVE SIZED USING DEFAULT VALUES.

Original Certificate _____
 Builder _____
 Date _____
 Former Lading _____

The Following Drawing Apply:

- 39 General Arrangement
- 40 Tank Arrangement
- 41 Reinforced Openings, Including Calculations
- 42 Anchorage, Including Calculations
- 43 Fittings Arrangement
- 44 Manway Assembly
- 45 Protective Housing
- 46 Venting, Loading, and Discharge Valves
- 47 Pressure Relief Devices
- 48 Heater Systems (Int. Ext.)
- 49 Gauging Devices
- 50 Bottom Outlet Valve 4" UFPFR2236TM
- 51 Calculations
- 52 Manway Cover
- 53 Calculations
- 54 Tank Qualification Drawing

Drawing Number		The Following Prior Approvals Apply:	
		Drawing Number	Application/Certificate No.
507375F-01-03			SUBMITTED
See Page 2			
X8537A	X8535A		L-027053, L-027053
N.A.			
See Page 2			
507414C			SUBMITTED
505643D			L-047053B
See 43			
UTC 501605B-02, 506831A			SRD987090, L-067015
None			
VISUAL BAR			
503674A-01, 506854A			E-027046, L-067015
X8536B	X8539B		L-047054
507405A			E-047023
X8534A			L-027053
X8425A			L-017023

REVISIONS: A: 1/8/07 Reduced No. of cars by 270. New Revision for GA (line 39), and added lines 02, 03. Moved the Tank to page 2 to reflect a new assembly (507110C), also moved the Fittings to page 2 to reflect a new assembly (507320A). New revision to the Manway and Protective housing assembly.

APPLICATION BY: Stephen Reitzel

I certify that the foregoing conforms to all applicable DOT and AAR requirements including specifications, regulations, rules of interchange and the DOT Railroad Safety Appliance Standards.

SIGNATURE _____

TITLE AAR/DOT Coordinator

APPROVAL - AAR Tank Car Committee

Date Approved MAR 03 2008

CERTIFICATION: The cars enumerated below conform to the above approved description and to all applicable DOT and AAR requirements, including specifications, regulations, rules of interchange, and the DOT Railroad Safety Appliance Standards. Copy of this Certificate of Construction will be furnished to the owner and others as required by 49 CFR Part 179.5 before these cars are placed in service.

Initials and Car Numbers:

Name _____ Date 3/10/08

Title QA Director

Drawing Number	Precedent Drawing Number	Precedent Application Number	Remarks
Line 9	Car Numbers		UTLX 207553-207589, UTLX 207598-207720, UTLX 209258-209481 PROX 44461-44486, PROX 44617-44702
Line 43	Fittings Assyembly		
		E-989012	507021A-02 SUBMITTED
		E-987000	2" & 3" Jamesbury 6FR-3600TT UTC 304 S.S. 3/4 PSI Vacuum Relief Valve (98751)
		E-987000	507323A SUBMITTED UTC 304 S.S. 3/4 PSI Vacuum Relief Valve (98751)
		E-989012	507320A SUBMITTED
		E-987000	2" & 3" Jamesbury 6FR-3600TT
		E-002003	UTC 304 S.S. 3/4 PSI Vacuum Relief Valve (98751) Midland B-612 Magnetic Gauge Device
Line 40	Tank Arrangement		
			507139C SUBMITTED
			507110C SUBMITTED
			507425A SUBMITTED
			ALTERNATE BOTTOM OUTLET VALVE 507220A 4" Midland A-520-CI-UTC-CS E-022012
			ALTERNATE PRESSURE RELEIF DEVICES Midland A-2165 SRD979007 Pressure Relief Device flow Capacity, cfm, acutal 35,608
			ALTERNATE GAUGE DEVICE Midland B-612 E-002003

APPLICATION BY : Stephen Reitzell

I certify that the foregoing conforms to all applicable DOT and AAR requirements including specifications, regulations, rules of interchange, and the DOT Railroad Safety Act.

SIGNATURE _____

TITLE AAR/DOT Coordinator

APPROVAL - AAR Tank Car Committee

Date Approved

MAR 03 2008

Customer	Car Numbers	Number	General Arrang	Tank Assem	Bottom Unload	Fittings Asse	Pressure Relief Device	Gauging Device	Paint Arran	Gasket Kit	Safety Valve	Bottom Outlet Valve
Verasun Energy	UTLX 207718	1	507375-02	507540-01	507220-01	507021-02	Midland A-2165	Visual Bar	507075-01	506445-01, 506538-01	503967-02	4" Midland A520-C1-UTC-CS
Verasun Energy	UTLX 207719	1	507375-02	507540-01	507220-01	507021-02	UTC 165#	Visual Bar	507075-01	506445-01, 506538-01	506831-01	4" Midland A520-C1-UTC-CS
Verasun Energy	UTLX 207720	1	507375-02	507540-01	507220-01	507021-02	Midland A-2165	Visual Bar	507075-01	506445-01, 506538-01	503967-02	4" Midland A520-C1-UTC-CS
Verasun Energy	UTLX 209260	1	507375-02	507540-01	507220-01	507021-02	Midland A-2165	Visual Bar	507075-01	506445-01, 506538-01	503967-02	4" Midland A520-C1-UTC-CS
Verasun Energy	UTLX 209261	1	507375-02	507540-01	507220-01	507021-02	UTC 165#	Visual Bar	507075-01	506445-01, 506538-01	506831-01	4" Midland A520-C1-UTC-CS
Verasun Energy	UTLX 209262	1	507375-02	507540-01	507220-01	507021-02	Midland A-2165	Visual Bar	507075-01	506445-01, 506538-01	503967-02	4" Midland A520-C1-UTC-CS
Verasun Energy	UTLX 209263	1	507375-02	507540-01	507220-01	507021-02	Midland A-2165	Visual Bar	507075-01	506445-01, 506538-01	503967-02	4" Midland A520-C1-UTC-CS
Verasun Energy	UTLX 209266	1	507375-02	507540-01	507220-01	507021-02	UTC 165#	Visual Bar	507075-01	506445-01, 506538-01	506831-01	4" Midland A520-C1-UTC-CS
Verasun Energy	UTLX 209269	1	507375-02	507540-01	507220-01	507021-02	UTC 165#	Visual Bar	507075-01	506445-01, 506538-01	506831-01	4" Midland A520-C1-UTC-CS
Verasun Energy	UTLX 209273	1	507375-02	507540-01	507220-01	507021-02	UTC 165#	Visual Bar	507075-01	506445-01, 506538-01	506831-01	4" Midland A520-C1-UTC-CS
Aventine	UTLX 209398	1	507375-03	507110-01	506854-01	507021-02	UTC 165#	Visual Bar	507075-01	506445-01, 506538-01	506831-01	4" Mckenzie UFPFR 2236
Aventine	UTLX 209399	1	507375-03	507110-01	507220-01	507021-02	UTC 165#	Visual Bar	507075-01	506445-01, 506538-01	506831-01	4" Midland A520-C1-UTC-CS
Verasun Energy	UTLX 207713	1	507375-01	507139-01	507220-01	507021-02	UTC 165#	Visual Bar	507075-01	506445-01, 506538-01	506831-01	4" Midland A520-C1-UTC-CS
Verasun Energy	UTLX 209258-209259	2	507375-02	507540-01	507220-01	507021-02	Midland A-2165	Visual Bar	507075-01	506445-01, 506538-01	503967-02	4" Midland A520-C1-UTC-CS
Verasun Energy	UTLX 209264-209265	2	507375-02	507540-01	507220-01	507021-02	UTC 165#	Visual Bar	507075-01	506445-01, 506538-01	506831-01	4" Midland A520-C1-UTC-CS
Verasun Energy	UTLX 209267-209268	2	507375-02	507540-01	507220-01	507021-02	UTC 165#	Visual Bar	507075-01	506445-01, 506538-01	506831-01	4" Midland A520-C1-UTC-CS
Verasun Energy	UTLX 209270-209272	3	507375-02	507540-01	507220-01	507021-02	UTC 165#	Visual Bar	507075-01	506445-01, 506538-01	506831-01	4" Midland A520-C1-UTC-CS
Verasun Energy	UTLX 207714-207717	4	507375-01	507139-01	507220-01	507021-02	Midland A-2165	Visual Bar	507075-01	506445-01, 506538-01	503967-02	4" Midland A520-C1-UTC-CS
Verasun Energy	UTLX 207578-207582	5	507375-01	507139-01	507220-01	507021-02	Midland A-2165	Visual Bar	507075-01	506445-01, 506538-01	503967-02	4" Midland A520-C1-UTC-CS
Procor/Moose Jaw	PROX 44461-44466	6	507375-01	507139-01	507220-01	507323-01	Midland A-2165	Visual Bar	507326-01	506445-01, 507308-01	503967-02	4" Midland A520-C1-UTC-CS
Verasun Energy	UTLX 207706-207712	7	507375-01	507139-01	507220-01	507021-02	Midland A-2165	Visual Bar	507075-01	506445-01, 506538-01	503967-02	4" Midland A520-C1-UTC-CS
BP NA	UTLX 207583-207589	7	507375-01	507139-01	507220-01	507021-02	Midland A-2165	Visual Bar	507075-01	506538-01, 506445-01	503967-02	4" Midland A520-C1-UTC-CS
Procor/Moose Jaw	PROX 44617-44626	10	507375-03	507110-01	507220-01	507320-01	UTC 165#	Midland B-612	507326-01	506766-01, 506538-01	506831-01	4" Midland A520-C1-UTC-CS
Procor/Gibson	PROX 44627-44636	10	507375-03	507110-01	507220-01	507320-01	UTC 165#	Midland B-612	507326-01	506766-01, 506538-01	506831-01	4" Midland A520-C1-UTC-CS
Procor/Multichem	PROX 44467-44486	20	507375-01	507139-01	507220-01	507021-02	Midland A-2165	Visual Bar	507326-01	506445-01, 506538-01	503967-02	4" Midland A520-C1-UTC-CS
Tate & Lyle	UTLX 207553-207577	25	507375-01	507139-01	507220-01	507021-02	Midland A-2165	Visual Bar	507075-01	506445-01, 506538-01	503967-02	4" Midland A520-C1-UTC-CS
Verasun Energy	UTLX 209274-209301	28	507375-02	507540-01	507220-01	507021-02	UTC 165#	Visual Bar	507075-01	506445-01, 506538-01	506831-01	4" Midland A520-C1-UTC-CS
BP NA	UTLX 207598-207630	33	507375-01	507139-01	507220-01	507021-02	Midland A-2165	Visual Bar	507075-01	506445-01, 506538-01	503967-02	4" Midland A520-C1-UTC-CS
Procor/Fleet	PROX 44637-44702	66	507375-03	507110-01	506854-01	507320-01	UTC 165#	Midland B-612	50732601	506445-01, 506538-01	506831-01	4" Mckenzie UFPFR 2236
Lansing Ethanol	UTLX 207631-207705	75	507375-01	507139-01	507220-01	507021-02	Midland A-2165	Visual Bar	507075-01	506445-01, 506538-01	503967-02	4" Midland A520-C1-UTC-CS
Aventine	UTLX 209400-209481	82	507375-03	507110-01	506854-01	507021-02	UTC 165#	Visual Bar	507075-01	506445-01, 506538-01	506831-01	4" Mckenzie UFPFR 2236
Verasun Energy	UTLX 209302-209397	96	507375-03	507110-01	507220-01	507021-02	UTC 165#	Visual Bar	507075-01	506445-01, 506538-01	506831-01	4" Midland A520-C1-UTC-CS