

## SECTION 01 11 13

### SUMMARY OF WORK

#### Kasaan and Tatitlek Bulk Fuel Upgrade (BFU) Project

##### Scope of Work

This specification provides technical requirements for shop-fabricated, horizontal bulk fuel tanks and integral dispenser systems for the Kasaan & Tatitlek BFU Projects. Definitions for terms used in this specification are in accordance with those listed in UL 142 & 2085. The successful Bidder shall provide the following:

##### Base Bid Items

Bid Item 1 - Kasaan 3,000-gallon Tank: Provide one (1) **new** three thousand (3,000) gallon nominal volume, UL-142 Listed, double wall, horizontal, skid mounted, aboveground storage tank for diesel service. The tank shall include an integral hose reel dispensing system, meter, and all code required appurtenances as shown on the procurement drawings and described herein. Maximum outer tank shell dimensions shall be 8 feet in diameter by 13 feet long. Contractor shall deliver tank FOB City Shop Building, Kasaan Alaska.

Bid Item 2 – Kasaan 5,000-gallon Tank: **Retrofit** one (1) owner-provided, 5,000-gallon, double wall, dual product, UL-2085 dispensing tank. Owner provided tank is available for contractor pick up at the AEA warehouse in Anchorage, Alaska. Contractor shall provide all labor, materials, and freight to provide a fully functional system. Contractor shall transport owner provided tank from the AEA warehouse to Contractor's facility for performance of the work. Work shall include lengthening the existing tank skid and furnishing and installing a dual product dispenser, pumps, piping, valves, and other code required appurtenances as described in the specifications and procurement drawings and in accordance with the approved shop drawings. Original manufacturer shop fabrication drawings for the owner provided 5,000-gallon tank are included in the appendices. Contractor shall deliver tank FOB City Shop Building, Kasaan Alaska.

Bid Item 3 – Tatitlek 11,600-gallon Tank: **Retrofit** one (1) owner-provided, 11,600-gallon, double wall, dual product, UL-2085 protected dispensing tank. Owner provided tank is available for contractor pick up at the AEA warehouse in Anchorage, Alaska. Contractor shall provide all labor, materials, and freight to provide a fully functional system. Contractor shall transport owner provided tank from the AEA warehouse to Contractor’s facility for performance of the work. Work shall include lengthening the existing tank skid and installing a dual product dispenser with card reader, hose reel, meter, dispenser/hose reel enclosure, pumps, piping, valves, and other code required appurtenances as described in the specifications and procurement drawings and in accordance with the approved shop drawings. Original manufacturer shop fabrication drawings for the owner provided tank are included in the appendices. Final FOB point shall be the Contractor’s secured yard.

### **Additive Alternates**

Additive Alternate 1 – Onsite Storage: Provide 6 months of onsite storage for the completed Tatitlek tank system (Base Bid Item 3). If fewer than 6-months of storage is required contractor shall charge on a pro-rated basis.

Contractor shall provide secure, fenced, storage for the completed tank for up to 6 months (180 calendar days). Storage location shall be approved by the Owner and shall provide ease of access to ocean transport services. The storage period will begin when the tank is substantially complete. The Owner will provide written notification when the tank is considered substantially complete and the storage period has begun.

### **General Requirements:**

The drawings show the desired functionality and general layout of the proposed systems. The intent is not to show every required component but to provide the contractor with sufficient information to prepare shop drawings for final review and approval prior to fabrication. It is assumed that the contractor has established methods for fabricating integral tank / dispensing systems and it is the contractor’s responsibility to supplement the schematic drawings as necessary to provide a fully functional, code compliant system.

Contractor is not responsible for electrical wiring of the tank/skid mounted components.

Contractor shall integrate required supports, stand offs, etc as necessary to facilitate the field installation of electrical conduit, conductor, and devices

required to power the systems. Furnishing & field installation of conduit and conductor by others.

AEA reserves the right to inspect the tanks at any time during the fabrication and shipping process upon 24 hours notification to the contractor. Any deficiencies noted during the inspections shall be corrected by the Contractor to the satisfaction of AEA prior to shipment.

## **Submittals**

### **Kasaan Bulk Fuel Upgrade Project:**

Within two (2) weeks of project award, Contractor shall submit to AEA electronic shop drawings and material lists (with catalog cuts for any proposed substitutions). All submittals must be approved prior to the start of fabrication. All deviations from this Specification and the attached Drawings shall be clearly identified as changes on the shop drawings.

### **Tatitlek Bulk Fuel Upgrade Project:**

Within four (4) weeks of project award, Contractor shall submit to AEA electronic shop drawings and material lists (with catalog cuts for any proposed substitutions). All submittals must be approved prior to the start of fabrication. All deviations from this Specification and the attached Drawings shall be clearly identified as changes on the shop drawings.

## **Design Service Conditions**

All tank system components shall be UL listed and labeled, and shall be rated for the following service conditions:

- Fluid: Diesel fuel, Ultra Low Sulfur Diesel Fuel, and gasoline.
- Operating Temperature Range: -20°F to +100°F

## **TANKS**

### **Tank Design Criteria**

The tank design criteria shall be in accordance with the latest adopted version of the International Building Code and International Fire Code as follows:

Specific Gravity = 1.0

Classification of Structure: Category III (IBC 2012)

#### Importance Factors (IBC 2012)

- Seismic = 1.50
- Snow = 1.20
- Wind = 1.15

#### Design Loading:

- Seismic  
 $S_1 = 0.040$   
 $S_s = 0.091$
- Ground Snow load = 60 PSF
- Wind = 120 MPH Exposure D

The tanks shall be designed, or supplemented, for anticipated shipping and handling loads. Lifting connections shall be provided for tank handling where shown on the Drawings and where required for shipping and handling. Each lifting eye shall be capable of fully supporting the static weight of the completed assembly (empty) without damage.

The tanks shall include the nozzles, fittings, and appurtenances shown on the Drawings. Provide shop-built water draw assemblies and clock gage stilling wells on all new tanks as detailed on the Drawings.

For each tank compartment, provide a 10-mil laminated tank depth-to-volume chart and an approved anti-static gauge rod which displays depth in feet and inches from the inside bottom of tank.

#### **Tank Joints**

The new tank shall incorporate UL-142 approved weld joints (shell joints in accordance with UL 142 Figure 6.1, detail No. 1 or No. 2 and head joints in accordance with UL142 Figure 6.2).

#### **Tank bolt-on components (Ladders, Catwalks, Pipe Supports, etc)**

Equip tanks with exterior bolt on ladders, catwalks, and pipe supports as shown on the Drawings.

The Owner provided tanks include ladders & catwalks as shown in the provided Shop Drawings. The components are stacked loose and stored near the tanks at the AEA yard. It is the Contractors responsibility to collect the catwalks/ladders, provide any missing components or hardware, and modify as required to ensure fitment on the tanks

All bolt-on components shall be designed by the tank manufacturer and constructed in accordance with federal OSHA, International Building Code, International Fire Code and UL 142 & 2085 requirements.

All bolt on components (ladder, catwalk, and pipe supports, etc) shall be shop assembled for field installation and hot dipped galvanized. Design shall permit field installation of bolt on components without field welding. Verify fit of all bolt-on components to tanks prior to painting. Provide temporary labeling to allow matching of tanks with pre-fit bolt on components. Remove and package bolt-on components separately for shipping.

## **Tank & New Structural Steel Coatings**

New tanks and related components shall be shop coated in accordance with the following specification and in accordance with the coating manufacturer's recommendations. Note that the owner provided tanks were shop coated same as below. Contractor shall touch up owner provided tank as required in accordance with manufacturer recommendations.

- Surfaces to be Coated: Exterior surface of tank, nozzles, skids, pipe supports, fittings, and pipe.
- Surfaces not Coated: Flange and nozzle faces, penetration threads, flange and manhole bolts, galvanized components.
- Surface Preparation: All surfaces to be coated shall be prepared in accordance with the Structural Steel Painting Council SSPC-SP10 near white blast criteria. Alternate methods of surface preparation which provide equal, or better, surface preparation will be considered. Identify proposed alternate surface preparation methods, if any, on bid.
- Coatings:
  - Prime Coat- Devoe Catha-Coat 302H (3 mils minimum DFT)
  - Intermediate Coat- Devoe Bar-Rust 236 (5-6 mils minimum DFT)
  - Top Coat- Devoe Devthane 389 (2-3 mils DFT)
- Coat Colors: All coats shall be contrasting colors. Top coat color shall be white except for piping. Piping shall be color coded red for gasoline, green for diesel.
- Touch-up Paint: Provide 1 gallon each (3 gallons total) of prime, intermediate and top coat coatings. The touch-up coating shall be color matched to coatings applied to the tanks.

## **Tank Saddles and Skids (New Tanks Only)**

Provide tanks with integral steel saddles and skid foundations in accordance with UL 142 and the attached Drawings. Saddles to be seal welded to tank; bolt on or strap on saddles will not be accepted. Locate saddles near each end of the tank in accordance with UL 142. Provide W8x35 skids. Skids shall extend 12" beyond each end of the tank/dispenser assembly. Skids shall be capped with a ½ inch thick end plate, and be provided with 4" diameter schedule 80 steel pipe tow bars at each end to allow dragging of the tank and lifting from one end with no structural damage to the tank assembly. Skid and saddles shall be constructed such that the vertical distance between the bottom of the tank skid and the bottom of the tank is no greater than 12 inches.

## **Tank Labeling**

All tanks shall be labeled in accordance with the requirements of the most recent adopted versions of the IFC and NFPA 704. All tank penetrations shall be labeled in accordance with the attached Drawings in 2" high black lettering.

## **Project Equipment Specifications**

Provide tank appurtenances and equipment in accordance with the Drawings and these specifications.

Dual product retail dispenser - UL listed dual product dispenser for use with remote submersible pump. Dispenser shall be certifiable for retail sales. Gilbarco S Series two product, two hose dispenser with 5.7 color, EMV-capable Flexpay™ IV CRIND, EMV & SCR Europay installed, software upgrade for full EMV/SCR. EPP. 40.5" frame and standard graphics. Bezel door standard black, lower door painted, decaled white, side sheathing Duramax tuxedo. Dispenser activation method: lever. Fuel product unleaded and diesel. Passport version 10 service pack P or higher. Cat 5 cable for EMV transactions. CRIND display softkeys activated. No vapor recovery. Full cabinet heater installed. Provide with the following appurtenances:

### **A. Dispenser Appurtenances:**

1. Retail Dispensing Facility Arctic Hose: Low temperature (-60 deg F) ¾ inch fuel dispensing hose, 300 psi working pressure, Goodyear Arctic Ortac, or approved equal. Provide hose swivels at each end.
2. Retail Dispensing Facility Breakaway Coupling: UL listed, ¾ inch, breakaway fitting, EBW model# 679-137 with hose connection, or

approved equal.

3. Retail Dispensing Shear Valve: 1-1/2" x 1-1/2" shear valve with fusible link. Morrison Bros. Co. model# 636F, or approved equal.
4. Retail Dispensing Facility Hose Swivel: UL listed dispenser hose swivel. OPW model# 45M-0492, or approved equal.
5. Retail Dispensing Hose Nozzle: UL listed, automatic shut-off, automotive fill nozzle with hold open rack and color coded handles (black for gasoline, green for diesel). OPW model#11BP-0400 and 11B-0100, or approved equal.

Submersible Pump - Submersible explosion proof turbine pump with intake screen and integral leak detector specifically designed for pumping gasoline and diesel fuel. Arranged for vertical installation in 4-inch NPT tank opening. 208/230 VAC, single phase, 3/4 hp motor as shown on the Contract Drawings. Red Jacket Model P75S1 with trapper intake screen OAE.

Meter- positive displacement meter rated for 100 GPM of continuous flow with a 150 psi working pressure. Accuracy shall be +/- 0.22% or better from 6-60GPM. Provide 2 inch inlet & outlet companion flanges with o-ring seals, preset counter with direct mechanical linkage to shut-off valve, resettable register, non-resettable totalizer, air eliminator and strainer. All elastomeric seals shall be low temperature nitrile rubber (buna-n). Factory calibrate for no. 1 diesel fuel or gasoline as appropriate. Liquid controls m-7-k-1, or approved equal.

Hose reel – spring rewind hose reel capable of holding 40 feet of 1 1/2 inch i.d. Hose. Reel shall be top rewind. Hannay 922-25-26a(tr) (top rewind) with utility hose rollers and ball stop for 1 1/2 arctic hose, or approved equal. Provide with the following appurtenances:

A. Hose Reel Appurtenances:

1. Hose Reel Hose - 1 1/2 inch diameter with 1 1/2 inch NPT connections at each end. Provide 20 foot long section of hose with each hose reel assembly. Goodyear arctic ortac or approved equal.
2. Bulk Transfer Breakaway Connection: UL listed 1 1/2-inch breakaway fitting. OPW model no. 66SP-5150 with custom fabricated 18-inch hose section, 1 1/2" NPT connections at each end.
3. Hose Swivel: UL listed hose swivel. PT Coupling model F0B150MF, or approved equal.
4. Hose Nozzle: UL listed automatic shut off, heavy duty, high flow fill nozzle with hold open latch and color coded handle, green for diesel #1 and #2 and red for gasoline. OPW 1290-0050, or approved equal.

Static Grounding Reel: Enamel coated steel frame and reel with permanently sealed spring return. Provide with 50 feet of 1/8 inch galvanized carbon steel cable, minimum 100 ampere grounding clip, and stop ball. Hannay GR75, or approved equal.

Manholes: 5/16" steel lid, 1/4" mild steel ring with 7" riser height. Provide complete set of bolts and BUNA-N gasket for each lid. Clay & Bailey MR820-0600 or approved equal.

Pipe Supports, Ladders, Catwalks and Standoffs – Fabricate in accordance with UL 142 & 2085 and the Drawings. All pipe supports, strut, clamps, fittings, and hardware shall be stainless steel.

Pressure Vacuum Vent - Pressure/vacuum vent with mechanical adjustable float activated high intensity alarm, for mounting on 2-inch NPT riser. 8 ounce per square inch pressure relief setting and 1 ounce per square inch vacuum setting. Morrison Bros Model 922.

Emergency Vents - UL listed, aluminum body, brass seat, cast iron cover, flanged connections, sized in accordance with UL 142. 16 ounces per square inch pressure setting. Morrison Bros., Model 244 with companion flange for vents 6 inches or smaller, OAE.

Gauge Hatch: Brass cap, brass adapter, and brass chain, Buna-N gasket, 2-inch FPT connection. Morrison Bros Figure 307, OAE.

Clock Gauge- Clock-style gauge with readout in feet and inches up to 12 feet, accurate to ¼-inch over full scale. Aluminum body, 2-inch MPT connection, stainless steel float sized to pass through 2-inch bung opening. Morrison Figure 818 OAE.

Swing check valves - (2" and larger) carbon steel body, ansi 150# raised face flanged ends, steel disc and trim, 150 psig minimum working pressure. Crane class 150 no. 147 or approved equal. (1") bonney forge bolted bonnet full/reduced threaded swing check valve

Flanged ball valves - reduced port carbon steel uni-body, ANSI 150# raised face flanged ends, stainless steel ball and trim, glass filled teflon seat, graphite seals, lockable handle, 150 psig minimum working pressure, nace mr0175 conformance, fire safe per API 607. PBV c5410-31-2236-ftnl, no substitutes. Provide all-weather padlock for each valve, all padlocks to be keyed alike.

Threaded ball valves - carbon steel body, threaded ends, stainless steel ball and trim, PTFE seat, graphite seals, lockable handle, 150 psig minimum working pressure, nace mr0175 conformance, fire safe per API607. PBV c5312-38-2236-ftnc, no substitutes. Provide all-weather padlock for each valve, all padlocks to be keyed alike.

Flanged pressure relief valves - steel body, ANSI 150# raised face flange inlet and outlet, 1/2" soft seat orifice, closed cap, size and pressure setting as indicated. Taylor or approved equal.

Anti-siphon valves - bronze body anti-siphon valve set to open at 20-ft head pressure with special expansion relief set at 25 psi. Morrison bros. Co. Model 910er-7215 AP with expansion relief, or approved equal.

Strainer - flanged ends, carbon steel body, bottom clean-out y-strainer with blow off tapping plug. Provide #10 screen. Mueller steam specialties fig. 781, or approved equal.

Flex Fittings - Stainless steel corrugated inner core with stainless steel braided outer cover. ASME Class 150 fixed flange by floating flange ends with 18" live length or as indicated. 150 psi maximum working, factory tested to 225 psi minimum. Metraflex Metra-Mini or approved equal.

### **Owner Provided Equipment Available for Contractor Use**

The Owner is in possession of miscellaneous materials, tank appurtenances and equipment. In an effort to reduce fabrication costs and provide the most cost effective solution for the project, the materials and equipment listed in Table 1 below will be available to the contractor for incorporation into the work at the contractor's discretion. All materials listed in the table are new and are located FOB the AEA warehouse in Anchorage, Alaska. **Note: Only materials and equipment that meet the Project Equipment Specifications above may be utilized. The Owner does not guarantee that all items listed in Table 1 meet the specification requirements.** The Contractor shall be responsible for transport of any and all owner provided equipment utilized.

**Table 1 – Owner Provided Materials and Equipment Available for Contractor Use**

ITEM	QUANTITY.	SIZE.	LOCATION
<b>BOLTS AND HARDWARE</b>			
WASHER	48	5/8"	AEA YARD
THROUGH BOLT	24	1/2" X 3 1/2"	AEA YARD
BOLT NUT	24	1/2"	AEA YARD
WASHER	48	1/2"	AEA YARD
KNEE BRACE	8	19 3/4"X2"X3/8"	AEA YARD
GRATING PANEL	9	3'X5'	AEA YARD
GRATING PANEL	1	3'X4'	AEA YARD
GRATING PANEL	2	3'X3-11"	AEA YARD
GRATING PANEL	1	3'X2'-10"	AEA YARD
<b>DISPENSING RELATED EQUIPMENT</b>			
P75S1-T2 3/4 HP RED JACKET SUBMERSIBLE PUMP	2	4"	AEA YARD
P75S1-T3 3/4 HP RED JACKET SUBMERSIBLE PUMP	3	4"	AEA YARD
00144-194-5 RETROFIT KIT-TRAPPER	5	-	AEA YARD
99LD-220 LEAK DETECTOR	6	-	AEA YARD
C8753KXTW2-FIL ATLAS DISPENSER	1	-	AEA YARD
CC1001 PULSE OUTPUT	-	-	AEA YARD
70012 MICRON ELEMENT	10	5"x3.5"	AEA YARD
3/4"x18" ARCTIC ORCTAC HOSE	2	3/4"X18"	AEA YARD
66V-300 BREAK AWAY	2	3/4'	AEA YARD
636F 000AVU EMERGENCY SHUTOFF VALVE	2	1.5X1.5 636F	AEA YARD
636-000AVU SHEAR VALVE	2	3/4"	AEA YARD
1VP-0300 RED NOZZLE	1	-	AEA YARD
1VP-0300 GREEN NOZZLE	1	-	AEA YARD
M7K METER	2	-	AEA YARD

ARCTIC ORTAC 1.5"	2	1.5" I.D X 15.5"	AEA YARD
66SP-5150 BREAK AWAY	2	1.5"	AEA YARD
A0.75X18" ARCTIC ORTAC HOSE	2	3/4" X 18"	AEA YARD
A0.75X18" ARCTIC ORTAC HOSE	2	3/4" X 18"	AEA YARD
FOB150MF SWIVEL	2	1.5" X 1.5"	AEA YARD
3/4" X 18' ARCTIC ORTAC HOSE	2	3/4"	AEA YARD
AO1.5" X 30' ARCTIC ORTAC HOSE	2	1.5" X 30'	AEA YARD
1290 AUTO NOZZLE	2	-	AEA YARD
SPRING REWIND HOSE REEL	2	-	AEA YARD
HGR50-75 STATIC GROUNDING REEL	2	-	AEA YARD
15A-1000115 ADAPTOR	2	1.5"	AEA YARD
15V-101115 DUST CAP	2	1.5"	AEA YARD
10914R 340 FIRE EXTINGUISHER	2	5LB	AEA YARD
<b>VALVES AND PIPING</b>			
47F-3" GATE VALVE	3	3"	AEA YARD
147F-2" SWING CHECK VALVE	2	2"	AEA YARD
147F-3" SWING CHECK VALVE	5	3"	AEA YARD
C5410312236FTNL-1.5" BALL VALVE	4	1.5"	AEA YARD
C5410312236FTNL-2" BALL VALVE	8	2"	AEA YARD
C5410312236FTNL-3" BALL VALVE 1FLAX-0 SAFETY REIEF VALVE	1	3"	AEA YARD
910-2300AV ANTI SIPHON VALVE	5	2"	AEA YARD
1FLAXV-00 SAFTEY RELIEF VALVE (PRV)	8	1" INLET X 9/16" OUTLET 50PSI	AEA YARD
PF30A-60523000 FLANGED ADAPTER	3	3"	AEA YARD
30V-1000110 3" DUST CAP	3	3"	AEA YARD
30A 3" ADAPTOR	3	3"	AEA YARD
10A-1000110 1" ADAPTER	5	1"	AEA YARD

10V-1000110 1" DUST CAP	5	1"	AEA YARD
718F-3" STRAINER	3	3"	AEA YARD
FLEX CONNECT 2"	5	12"X2"	AEA YARD
FLEX CONNECT 1.5"	4	18"X1.5" MPT X FLANGED	AEA YARD
FLEX CONNECT 2"	4	12"X2" FLANGED X FLANGED	AEA YARD
FLEX CONNECT 2"	4	24"X2" FLANGED X FLANGED	AEA YARD
FUEL FILL HOUSING UNITS W. SPARE PADS	2 UNITS, 2 FILTERS	LARGE	AEA YARD
EXTRA FILTER	1 FILTER	LARGE	AEA YARD
FUEL FILTER MEDIUM	6 FILTERS	MEDIUM	AEA YARD
<b>TANK APPURTANENCES</b>			
922-0300AA PRESSURE VACUUM VENT	4	-	AEA YARD
2440F-0075AV 6" EMERGENCY VENT	2	6"	AEA YARD
2440F-0075AV 8" EMERGENCY VENT	1	8"	AEA YARD
2440F-0075AV 10" EMERGENCY VENT	1	10"	AEA YARD
354 0010 NUTS & BOLTS	3 BOXES	1.5" 2"	AEA YARD
MOR-14 NUTS AND BOLTS	2 BOXES	.75"DIA X 2"	AEA YARD
2440F-00102G GASKETS 6"	2	6"	AEA YARD
2440F-01102G GASKETS 8"	1	8"	AEA YARD
2440F-03102G GASKETS 10"	2	10"	AEA YARD
307-1011AC GAUGE HATCH 2"	4	2" Brass W/ CAP	AEA YARD
LS-1900 TYPE 7,TYPE 8 FLOAT SWITCH	4	-	AEA YARD
818-0400AG LEVEL CLOCK GAUGELS-1900 TPYE 8 FLOAT SWITCH	8	-	AEA YARD
419-02001T DROP TUBE	4	3"	AEA YARD
184-27001B DOUBLE TAP BUSHING	4	3X4X3	AEA YARD
4X12 NIPPLES	6	BLACK PIPE 4"X12"	AEA YARD
ORANGE STOPPERS	2	-	AEA YARD

## **Tank Packaging**

After completion, and prior to storage or shipment, tanks shall be packaged as follows:

Bolt on components (exterior ladders, catwalks and pipe supports, etc) shall be packaged separately from tanks. Packaging shall be sufficient to prevent damage during shipping. Extra care shall be taken to protect tank stand offs to ease field installation of bolt on components.

All threaded tank openings shall be sealed with plastic or tin plugs. All flanged tank openings shall be blind flanged. Provide provision for relief of excess pressure/vacuum, which may damage the tank, while preventing precipitation or salt water spray from entering tank. Minimum vent opening shall be ½" diameter.

Tank/dispenser assemblies shall be packaged at the factory for ocean transport. Lifting eyes shall be provided in accordance with the Drawings and as required for proper tank handling.