

DEPARTMENT OF THE ARMY
Omaha District, Corps of Engineers
106 South 15th Street
Omaha, Nebraska 68102-1618

:NOTICE: Failure to acknowledge : Solicitation No. DACA45 02 R 0004
:all amendments may cause rejec- :
:tion of the offer. See FAR : Date of Issue: 23 FEB 2002
:52.215-1 of Section 00100 : Date of Receiving Proposals:
27 MAR 2002

Amendment No. 0004
22 March 2002

SUBJECT: Amendment No. 0004 to specification and drawings for Construction of
SBIRS-MISSION CONTROL STATION BACK-UP, GLEN 00-3003, SCHRIEVER AFB,
COLORADO.
Solicitation No. DACA45 02 R 0004.

TO: Prospective Offerors and Others Concerned

1. The specifications and drawings for subject project are hereby modified
as follows (revise all specification indices, attachment lists, and drawing
indices accordingly).

a. Specifications. (Descriptive Changes.)

(1) Section 02552a, Pages 10 and 11, delete paragraphs 2.2.4
through 2.2.8 in their entirety and substitute:

2.2.4 Dimensions

Tank shall have nominal capacity of 37890 liters (10,000 gallons).
Tank shall have nominal outside diameter of 3.05 meters (10 feet).
Tanks shall have approximate overall length of 6.71 meters (22 feet).

2.2.5 Appurtenances And Accessories

2.2.5.1 Anchor Straps

Straps shall be FRP anchor straps as supplied by tank manufacturer.
Number and location of straps shall be as recommended by the tank
manufacturer.

2.2.5.2 Manways

Each tank shall be provided with one manway. Manways shall be flanged
and 550 mm I.D., complete with U.L. listed gaskets, bolts, and covers.
Manway extensions shall be FRP.

2.2.5.3 Lifting Lugs

Lifting lugs shall be capable of withstanding the weight of the tank
with a safety factor of 3:1.

2.2.5.4 Gauge Plates

Gauge plates shall be installed under each service fitting and manway opening.

2.2.5.5 Ladders

Ladders shall be the standard ladder as supplied by tank manufacturer.

2.2.5.6 NPT Threaded Fittings

All threaded fittings shall be a material of construction consistent with the requirements of the U.L. label. All standard threaded fittings shall be half couplings.

a. Fitting Connection Sizes

Gauge - 100 mm

Inlet - 150 mm (Inlet shall extend to within 150 mm of tank bottom)

Outlet - 150 mm (Outlet shall extend to within 150 mm of tank bottom)

Vent - 100 mm (2 Vents per tank as shown on Sheet M4.02)

Monitoring Probes - 40 mm (2 probes per tank as shown on Sheet M4.02)

b. Fitting Strength

NPT fittings shall withstand a minimum of 203.4 N-M of torque and 1356 N-M of bending, both with a 2:1 safety factor.

2.2.6 Not Used

2.2.7 Not Used

2.2.8 Warranty

Warranty shall be manufacturer's current standard warranty.

2.2A TANK LEVEL MONITORING SYSTEM

Tank level monitoring systems shall be a capacitance type providing a continuous monitoring of water level in the chilled water storage tanks. Each tank shall be provided with two (redundant) level probes with separate wiring and output signals. The systems shall be microprocessor based. The sensors shall be compatible with chilled water and designed for a maximum temperature of 37.8 degrees C and a maximum pressure of 690 kPa. The level sensors shall be capable of continuously monitoring the water 150 mm from the bottom of the tank to 150 mm from the top to the tank. The tank diameter is 6.71 meters. Level sensor outputs shall be 4-20mA signals connected into the HSQ Technology EMCS."

(2) **Section 02252a, Page 21.**

(a) Following paragraph 3.5.7, insert:

"3.5A TANK INSTALLATION

Tanks shall be installed in accordance with the manufacturer's recommendations.

(b) Paragraph 3.6, paragraph title, delete "TESTS" and

substitute "PIPING TESTS".

(3) Section 02552a, Page 23, delete paragraph 3.7 in its entirety and substitute:

"3.7 TANK TESTS

Tanks shall be tested in accordance with the manufacturer's recommendations."

(4) Section 15400A, Page 19, paragraph 2.3.1, line 3 from top of page, delete ", skid-mounted unit on welded structural steel fram".

(5) Section 15400A, Page 25, to the end of paragraph 2.15, add:

"Contractor shall provide systems in the computer room, technical room, and RGS room."

(6) Section 15895A, Page 19, paragraph 2.8.1.1, delete last sentence reading "Factory-fabricated reducing fittings for systems using ... angles specified."

(7) Section 16261N, Page 7, Paragraph 2.1 a., delete text of paragraph in its entirety and substitute:

"Input circuit breaker per UL 489 with a minimum of 10,000 amps symmetrical interrupting capacity, but not less than the rating of the first upstream panelboard or switchboard as indicated on One-Line diagrams (sheets E5.01 through E5.05). The circuit breaker shall also have a door interlocked external operator."

(8) Section 16261N, Page 7, paragraph 2.1 c., line 5, delete "18 pulses" and substitute "6 pulses".

(9) Section 16263A, Pages 18 and 19, paragraph 1.4.9, delete the paragraph in its entirety and substitute "1.4.9 Not Used".

(10) Section 16263A, Page 22, paragraph 2.3.1.2, lines 1 thru 3, delete first sentence reading "Auxiliary fuel pumps shall be provided ... drawings." and substitute:

"Auxiliary fuel pumps shall be provided when deemed necessary by the engine manufacturer to maintain the required engine fuel pressure."

(11) Section 16263A, Pages 23, 24 and 25, delete paragraphs 2.3.4 through 2.3.5.6 in their entirety and substitute:

'2.3.4 Integral Day Tank

The Contractor has the option to provide one integral day tank, as specified in this paragraph, for each engine or two remote day tanks, as specified by Paragraph 2.3.5 Remote Day Tank. Each integral tank shall be factory installed and provided as an integral part of the diesel generator manufacturer's product. Each integral tank shall be provided with connections for fuel supply line, fuel return line, local fuel port, gauge, vent line, and float switch assembly. A fuel return line cooler shall be provided as recommended by the manufacturer and

assembler. The temperature of the fuel returning to the tank shall be below the flash point of the fuel.

2.3.4.1 Capacity

Each integral day tank shall have capacity to supply fuel to the engine for an uninterrupted 4-hour period at 100% rated load without being refilled.

2.3.4.2 Local Fuel Fill

Each local fuel fill port on the integral day tank shall be provided with a screw-on cap.

2.3.4.3 Fuel Level Controls

a. Each integral day tank shall have a float-switch assembly to perform the following functions:

- (1) When the main storage tank is located higher than the day tank, open the solenoid valve located on the fuel supply line entering the day tank and start the supply of fuel into the day tank. Start the supply of fuel into the day tank when the fuel level is at the "Low" level mark, 75% of the rated tank capacity.
- (2) When the main storage tank is located higher than the day tank, stop the supply of fuel into the day tank and close the solenoid valve located on the fuel supply line entering the day tank. Stop the supply of fuel into the day tank when the fuel level is at 90% of the rated tank capacity.
- (3) Activate the "Overfill Fuel Level" alarm at 95% of the rated tank capacity.
- (4) Activate the "Low Fuel Level" alarm at 70% of the rated tank capacity.
- (5) Activate the automatic fuel supply shut-off valve located on the fill line of the day tank and shut down the fuel pump which supplies fuel to the day tank at 95% of the rated tank capacity. The flow of fuel shall be stopped before any fuel can be forced into the fuel overflow line.

2.3.4.4 Arrangement

Integral day tanks may allow gravity flow into the engine. Gravity flow tanks and any tank that allows a fuel level above the fuel injectors shall be provided with an internal or external factory installed valve located as near as possible to the shell of the tank. The valve shall close when the engine is not operating. Integral day tanks shall be provided with any necessary pumps to supply fuel to the engine as recommended by the generator set manufacturer. The fuel supply line for the integral day tank to the manufacturer's standard engine connection shall be welded pipe.

2.3.5 Remote Day Tank

The Contractor has the option to provide two remote day tanks, as specified in this paragraph and shown on the drawings, or one integral day tank for each engine, as specified by Paragraph 2.3.4 Integral Day Tank. Each remote day tank shall be provided with connections for fuel

supply line, fuel return line, local fuel port, gauge, vent line, and float switch assembly. A fuel return line cooler shall be provided as recommended by the manufacturer and assembler. The temperature of the fuel returning to the tank shall be below the flash point of the fuel.

2.3.5.1 Not Used

2.3.5.2 Capacity

Each remote day tank shall have a capacity to supply fuel to two engine generator sets for an uninterrupted 4-hour period at 100% rated load without being refilled, plus any fuel which may be returned to the main fuel storage tank. The calculation of the capacity of each remote day tank shall incorporate the requirement to stop the supply of fuel into the remote day tank at 90% of the ultimate volume of the tank.

2.3.5.3 Drain Line

Each remote day tank drain line shall be accessible and equipped with a shutoff valve. Remote day tanks shall be arranged to allow drainage into a 305 mm (12 inch) tall bucket.

2.3.5.4 Local Fuel Fill

Each local fuel fill port on the remote day tank shall be provided with a screw-on cap.

2.3.5.5 Fuel Level Controls

a. Each remote day tank shall have a float-switch assembly to perform the following functions:

- (1) When the main storage tank is located higher than the day tank, open the solenoid valve located on the fuel supply line entering the day tank and start the supply of fuel into the day tank. Start the supply of fuel into the day tank when the fuel level is at the "Low" level mark, 75% of the rated tank capacity.
- (2) When the main storage tank is located higher than the day tank, stop the supply of fuel into the day tank and close the solenoid valve located on the fuel supply line entering the day tank. Stop the supply of fuel into the day tank when the fuel level is at 90% of the rated tank capacity.
- (3) Activate the "Overfill Fuel Level" alarm at 95% of the rated tank capacity.
- (4) Activate the "Low Fuel Level" alarm at 70% of the rated tank capacity.
- (5) Activate the automatic fuel supply shut-off valve located on the fill line of the day tank and shut down the fuel pump which supplies fuel to the day tank at 95% of the rated tank capacity. The flow of fuel shall be stopped before any fuel can be forced into the fuel overflow line.

2.3.5.6 Arrangement

Remote day tanks may allow gravity flow into the engine. Gravity flow tanks and any tank that allows a fuel level above the fuel injectors shall be provided with an internal or external factory installed valve

located as near as possible to the shell of the tank. The valve shall close when the engine is not operating. Remote day tanks shall be provided with any necessary pumps to supply fuel to the engine as recommended by the generator set manufacturer. The overflow connection and fuel supply line for remote day tanks, which do not rely upon gravity flow, shall be arranged so that the highest possible fuel level is below the fuel injectors. When the main fuel storage tanks are located below the day tank, a check valve shall be provided in the fuel supply line entering the remote day tank. When the main fuel storage tanks are located above the remote day tank, a solenoid valve shall be installed in the fuel supply line entering the remote day tank. The solenoid valve shall be in addition to the automatic fuel shutoff valve. The fuel supply line from the remote day tank to the manufacturer's standard engine connection shall be welded pipe.'

(12) **Section 16263A, Page 26**, paragraph 2.5.2.1, lines 1 through 4, delete "Heat exchanger may be factory coated with corrosive resistant film, provided that correction measures are taken to restore the heat rejection capability of the radiator to the initial design requirement via over sizing, or other compensating methods."

(13) **Section 16375A, Paragraph 2.9.4.2 b.**, delete "Fused disconnects shall be hook-stick operated." and substitute "Not Used".

b. **Specifications (Revised and Reissued)**. None.

c. **Drawings (Not Reissued)**. The following sheets of drawing code AF 131-90-01 are revised as indicated below with latest revision date of 22 March 2002. These drawings are not reissued with this amendment.

(1) **Sheet M1.05**, PLUMBING FLOOR PLAN - EAST SEGMENT, near drawing coordinate B-2, note reading "100 RD & OD DROP @ +150 AFF, SPILL TO SPLASHBLOCK", delete "100 RD" and substitute: "150 RD".

(2) **Sheet M2.05**, Detail 7 GENERATOR FUEL OIL FLOW DIAGRAM, the shutoff valves in horizontal fuel line mains between DT-3 and G-1, revise to show the shutoff valves to be moved to a vertical position serving DT-3.

(3) **Sheets M1.01 an M3.01**, delete numeric and graphic scale shown for "1:200" and substitute a numeric and graphic scale for "1:100" (See Sheet for M1.02 for correct numeric and graphic scale).

(4) **Sheet M6.01**, GSO ALARM SYSTEM, following item f), insert:

"g) LOW LOW LEVEL ALARM 37,890 LITERS (10,000 GALLON) STORAGE TANK.

h) LOW LOW LEVEL ALARM 37,890 LITERS (10,000 GALLON) STORAGE TANK."

(5) **Sheet M6.03**, COMPUTER ROOM AIR CONDITIONING (CRAC) UNIT CONTROL, note reading "FOR COMPLETE AREA WATER DETECTION SYSTEM SEE SPECIFICATION 15400 & ELECTRICAL DRAWINGS ... RGS ROOM", after "& ELECTRICAL DRAWINGS", insert "SHOW LOCATIONS OF CONTROL PANELS ONLY".

(6) **Sheet M6.04.**

(a) Input-Output Schedule (left side of Sheet).

(i) Main heading "HARDWARE" for sub-heading "INPUT", under sub-heading labeled "DIGITAL", add a new column category "DIFFERENTIAL LEVEL ALARM".

(ii) Under column for POINT DESCRIPTION, below the entry for "SAFETY ALARM", insert the following four (4) new entries with a filled circle insert under the column headed "LEVEL" (Under DIGITAL):

"CHILLED WATER STORAGE TANKS HIGH-HIGH LEVEL ALARM 4@
CHILLED WATER STORAGE TANKS HIGH LEVEL ALARM 4@
CHILLED WATER STORAGE TANKS LOW LEVEL ALARM 4@
CHILLED WATER STORAGE TANKS LOW-LOW LEVEL ALARM 4@"

(iii) After the four new alarm entries required above, add a new entry labeled "CHILLED WATER STORAGE TANKS DIFFERENTIAL LEVEL ALARM 2 @" with a filled circle in the newly created column category heading called "DIFFERENTIAL LEVEL ALARM".

(b) "EMERGENCY COOLING SYSTEM" Sequence of Control (right side of Sheet), delete Items 2 and 3 in their entirety and substitute:

"2. EACH OF THE TWO CHILLED WATER STORAGE TANKS SHALL BE PROVIDED WITH A LEVEL MONITORING SYSTEM AS SPECIFIED. EACH TANK SHALL BE PROVIDED WITH REDUNDANT LEVEL PROBES (2 EACH TANK). THE MONITORING SYSTEM SHALL SIGNAL FIVE (5) ALARM CONDITIONS FOR EACH TANK TO THE HSQ TECHNOLOGY EMCS SYSTEM. THE FIVE (5) ALARM CONDITIONS ARE AS FOLLOWS:

- A) HIGH-HIGH ALARM - THE HIGH-HIGH ALARM SHALL SEND A SIGNAL TO THE EMCS WHEN THE FLUID LEVEL IN THE TANK REACHES 95% (ADJUSTABLE) OF TANK CAPACITY.
- B) HIGH ALARM - THE HIGH ALARM SHALL SEND A SIGNAL TO THE EMCS WHEN THE FLUID LEVEL IN THE TANK REACHES 90% (ADJUSTABLE) OF TANK CAPACITY.
- C) LOW ALARM - THE LOW ALARM SHALL SEND A SIGNAL TO THE EMCS WHEN THE FLUID LEVEL IN THE TANK REACHES 60% (ADJUSTABLE) OF TANK CAPACITY.
- D) LOW-LOW ALARM - THE LOW-LOW ALARM SHALL SEND A SIGNAL TO THE EMCS WHEN THE FLUID LEVEL IN THE TANK REACHES 50% (ADJUSTABLE) OF TANK CAPACITY.
- E) DIFFERENTIAL LEVEL ALARM - IF THE DIFFERENCE BETWEEN THE OUTPUT SIGNALS OF THE TWO SENSORS (AND THEREFORE FLUID LEVELS) IS MORE THAN 5 PERCENT, AN ALARM SIGNAL SHALL BE SENT."

(7) **Sheet E4.02,** NOTES, Note 3, lines 7 through 9, delete sentence reading: "SRG SHALL BE MADE UP OF 30% COPPER CLAD MESH FACTORY BRAISED ON 100mm CENTERS TO FORM A 100mm X 100mm GRID." and substitute:

"SRG SHALL BE MADE UP OF #6 SOLID COPPER MESH FACTORY BRAISED ON 100mm CENTERS TO FORM A 100mm X 100mm GRID."

2. This amendment is a part of the proposing papers and its receipt shall be acknowledged on the Standard Form 1442. All other conditions and requirements of the specifications remain unchanged. If the proposals have been mailed prior to receiving this amendment, you will notify the office where proposals are received, in the specified manner, immediately of its receipt and of any changes in your proposal occasioned thereby.

a. Hand-Carried Proposals shall be delivered to the U.S. Army Corps of Engineers, Omaha District, Contracting Division (Room 301), 106 South 15th Street, Omaha, Nebraska 68102-1618.

b. Mailed Proposals shall be addressed as noted in Item 8 on Page 00010-1 of Standard Form 1442.

3. Offers will be received until 3:00 p.m., local time at place of receiving proposals, 27 MAR 2002.

U.S. Army Engineer District, Omaha
Corps of Engineers
106 South 15th Street
Omaha, Nebraska 68102-1618

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