

**ATTACHMENT J33**

# **NAS JRB Ft Worth Electrical Distribution System**

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# J33 NAS JRB Ft Worth Electrical Distribution System

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## J33.1 NAS JRB Ft Worth Overview

The mission of Naval Air Station Fort Worth Joint Reserve Base (NAS JRB) is to provide a high quality training environment for active and Reserve components of all branches of the Armed Services. NAS JRB is tasked with carrying out the Goldwater-Nichols Defense Reorganization Act of 1986, to improve the operability among all four military services; to reduce redundancy and overhead by developing joint doctrine and operate the procedures that create seamless functionality amongst host and tenant commands in base support and community service programs. The host command is the Commander Naval Air Reserve Force. Major tenants include:

- 301<sup>st</sup> Air Force Fighter Wing
- 136<sup>th</sup> Airlift Wing of the Texas Air National Guard
- Marine Air Group 41
- VFA 201
- VMFA 112
- VMGR 234
- VR 59
- Naval Reserve Readiness Command 11
- Commander Fleet Logistics Support Wing
- Headquarters 10<sup>th</sup> Air Force
- Army/Air Force Exchange Service
- Naval Reserve Intelligence Command
- Naval Reserve Security Group
- 14<sup>th</sup> Marine Regiment

Naval Air Station Ft. Worth Joint Reserve Base (NAS JRB) is located in north-central Texas in Tarrant County, eight miles west of downtown Fort Worth. The main base comprises 1,871 acres, and contains 330 buildings, enclosing 2.7 million square feet. There is one main North-South 12,000 foot runway; there are 66 aircraft assigned to the base. The base falls within the jurisdiction of the cities of Fort Worth and White Settlement, and within an unincorporated portion of Tarrant County. The base is bordered by Lake Worth to the north, the West Fork of the Trinity River and Westworth Village to the east, Fort Worth to

the northeast and southeast, White Settlement to the west and southwest, and Air Force Plant #4 to the west.

The base has a total population of over 3,500 people including military and civilians. It has a combined payroll of \$15 million per year.

A number of new facilities are planned for NAS JRB Ft Worth, and existing facilities will be upgraded or replaced to meet future mission requirements. Key projects planned for the Base are expected to increase the total square footage in Base buildings by approximately 2 percent over the next 5 years:

New Bachelor Quarters

New Warehouse

New Administration Buildings

## **J33.2 Electrical Distribution System Description**

### **J33.2.1 Electrical Distribution System Fixed Equipment Inventory**

The NAS JRB Ft. Worth electric distribution system consists of all appurtenance physically connected to the distribution system from the point in which the distribution system enters the Base, and/or Government ownership currently, starts to the point of demarcation defined by the real estate instruments. Generally, the point of demarcation will be the building footprint. The system may include, but is not limited to, substations, transformers, underground and overhead circuits, utility poles, switches, vaults, and lighting fixtures. The following description and inventory is included to provide the Offeror with a general understanding of the size and configuration of the distribution system. The inventory is assumed to be approximately 90 percent complete. The Offeror shall base the proposal on site inspections, information in the bidders library, other pertinent information, and to a lesser degree the following description. Under no circumstances shall the successful Contractor be entitled to any rate adjustments based on the accuracy of the following description and inventory.

#### **J33.2.1.1 Description**

NAS JRB Fort Worth purchases all its electrical power from Texas Utilities Electrical Company (TU). TU supplies the Station via a 138 KV/12.47 KV substation located near the main entrance to the Station. The TU substation is loop fed from an overhead 138 KV transmission line. The substation consists of a tap-changing-under-load transformer rated 13.44/17.92/22.44 MVA, OA/FA/FOA, 142.3 KV/13.2 KV, delta-wye connected, 11.56% impedance. TU's nominal transmission line voltage is 138 KV and the nominal distribution voltage is 12.47 KV. The transformer regulator is set to provide bus regulation and maintain a fairly constant voltage level at the substation secondary bus. The TU substation also has two switched 2,400 KVAR capacitor banks for power factor correction.

The NAS JRB Main Switching Station is located immediately adjacent to the TU substation and is supplied by on overhead line. The Switching Station consists of a main circuit

breaker and eight feeder circuit breakers. The feeders are designated Feeder Nos.1 through 8. The Main Breaker and Feeder Breaker No. 8 are vacuum type breakers, while Feeder Nos. 1 through 7 are oil type. The Main Breaker is rated at 2000 Amperes, Feeder Breaker No. 1 at 600 Amperes, and Feeder Breaker Nos. 2 through 8 at 1200 Amperes. The age of the circuit breakers varies from 6 to 31 years. There is one spare breaker space in the switching station for installation of an additional circuit breaker should one ever be required. The Switching Station is equipped with a transfer buss whereby any feeder can be supplied from any other circuit breaker if a particular breaker fails or must be taken out of service for maintenance. This increases the reliability of the electrical system.

The TU transformer is reactor grounded on the wye secondary side in order to reduce the line-to-ground fault level below the three-phase fault level. The fault available at the TU transformer secondary, as indicated in a 1985 short circuit analysis and coordination study, is provided below:

Three Phase- 4,889 Amperes rms symmetrical @ X/R = 31.04  
 Line-to-Ground – 3,870 Amperes rms symmetrical @X/R = 25.12

Each of the circuit breakers is equipped with overcurrent and reclosing relays. The reclosing relays allow the circuit breakers to automatically reclose after a trip in order to clear any temporary faults caused by squirrels or tree limbs coming in contact with the overhead line conductors. The reclosers lock out if the fault is not cleared after three reclosures.

Each of the eight feeders consists mainly of overhead construction. Some underground exist in the vicinity of the airfield and the new construction for the Texas National Guard. Feeder conductor sizes exiting the Main Switching Station range from 2/0 AWG copper to 336 MCM aluminum. Each feeder is equipped with a neutral conductor.

### J33.2.1.2 Inventory

Table 1 provides a general listing of the major electrical system fixed assets for the NAS JRB Ft Worth electrical distribution system included in the purchase. The system will be sold in an “as is, where is” condition without any warrant, representation, or obligation on the part of the Government to make any alterations, repairs, or improvements. All ancillary equipment attached to and necessary for operating the system, though not specifically mentioned here in, is considered part of the purchased utility.

**TABLE 1**  
 Fixed Inventory  
 Electrical Distribution System Inventory, NAS JRB Ft Worth

ITEM	SIZE	QTY.	UNIT	APPROXIMATE YEAR OF CONSTRUCTION
<b>MAIN SWITCHING STATION</b>				
Oil Circuit Breaker + Recloser		7	ea	1960
Vacuum Circuit Breaker + Recloser		2	ea	

<b>Battery House</b>		1	ea
<b>POLE MOUNTED TRANSFORMERS</b>			
	7.5KVA	1	ea
	10KVA	25	ea
	15KVA	42	ea
	25KVA	80	ea
	37.5KVA	44	ea
	50KVA	49	ea
	75KVA	32	ea
	100KVA	4	ea
	150KVA	1	ea
	167KVA	3	ea
<b>PAD MOUNTED TRANSFORMERS</b>			
	15KVA	1	ea
	25KVA	5	ea
	30KVA	1	
	45KVA	3	
	50KVA	4	
	75KVA	20	
	100KVA	5	
	112.5KVA	7	
	150KVA	24	
	225KVA	17	
	300KVA	12	
	500KVA	15	
	750KVA	3	
	1000KVA	2	
	1500KVA	3	
	2000KVA	1	
<b>POLE-TYPE TRANSFORMERS ON CONCRETE PADS</b>			
	10KVA	4	ea
	15KVA	4	ea
	25KVA	3	ea
	37.5KVA	5	ea
	50KVA	3	ea
	75KVA	18	ea
	100KVA	18	ea
	167KVA	6	ea
	250KVA	3	ea
<b>DISTRIBUTION and LIGHTING POLES</b>			
Wood (average) + crossarms		597	ea
Open type gang operated air switches		26	ea
4-WAY SF6 SWITCHES		25	ea
Pad mounted H/V switches [fused]		5	ea
<b>MANHOLES</b>		97	ea
<b>OVERHEAD DISTRIBUTION SYSTEM CONDUCTORS</b>			
Primary distribution line OH		365,900	LF
Secondary distribution line OH		259,376	LF
Primary distribution line UG		182,456	LF
Secondary distribution line UG		136,042	LF
Utility line ducts		16,623	LF
<b>UNDERGROUND DISTRIBUTION SYSTEM CONDUCTORS</b>	Various	30,000	LF

**Notes:** Note 1: This represents length of run; there are 3 conductors per run: i.e.; 7,000 LF X 3 = 21,000 feet of 336MCM.

KVA = nominal kilovolt amperes  
 ea = each  
 LF = linear feet  
 Al = aluminum conductor  
 Cu = copper conductor

### J33.2.2 Electrical Distribution System Non-Fixed Equipment and Specialized Tools Inventory

**Table 2** lists other ancillary equipment (spare parts) and **Table 3** lists specialized vehicles and tools included in the purchase. Offerors shall field verify all equipment and tools prior to submitting a bid. Offerors shall make their own determination of the adequacy of all equipment and tools. The successful Contractor shall provide any and all equipment, vehicles, and tools, whether included in the purchase or not, to maintain a fully operating system under the terms of this contract.

TABLE 2  
 Spare Parts  
 Electrical Distribution System NAS JRB Ft Worth

Qty	Item	Make/Model	Description	Remarks
None Identified				

TABLE 3  
 Specialized Equipment and Vehicles  
 Electrical Distribution System NAS JRB Ft Worth

Description	Quantity	Location	Maker
None Identified			

### J33.2.3 Electrical Distribution System Manuals, Drawings, and Records Inventory

**Table 4** lists the manuals, drawings, and records that will be transferred with the system.

TABLE 4  
 Manuals, Drawings, and Records  
 Electrical Distribution System NAS JRB Ft Worth

Qty	Item	Description	Remarks
	None		

### J33.3 Specific Service Requirements

#### **Emergency Response Time Requirement:**

The emergency response times required by NAS JRB represent a site specific requirement. The emergency response times as defined below are more stringent than the response times outlined in section C.8.2. of this solicitation.

In order to protect the NAS JRB mission integrity and to avoid a degradation of utility service the required response times for emergencies that occur during working hours are as follows:

For emergency requests received during normal duty hours (0700 - 1600) the Contractor shall respond immediately, the contractor shall have a representative knowledgeable of the system and the Service Interruption/Contingency Plan on the site of the emergency within 15 minutes during working hours. Additionally, repair crews appropriate to eliminate the condition must respond to the emergency site within 1 hour during working hours. Work will be continuous until the emergency condition is eliminated or downgraded and service is restored. All emergencies will be remedied or downgraded to a non-emergency status within 24 hours. Non-Duty emergencies will be covered under section C.8.2 of this solicitation.

### J33.4 Current Service Arrangement

Currently, Texas Utilities Electrical Company supplies electric service to NAS JRB Ft Worth. Electric power annual consumption at NAS JRB Ft Worth is about 57.6 million kilowatt-hours (kWh). The peak demand for FY98 was approximately 7.6 million kilowatt-hours (kWh), occurring in June.

As noted in Section J33.1, key projects planned for NAS JRB Ft Worth will increase the total square footage of buildings on Base by nearly 2 percent.

NAS JRB Ft Worth is included within an electric Certificate of Public Convenience and Necessity held by Texas Utilities Electrical Company. As required by this contract, the Contractor shall demonstrate the ability to meet and shall establish any and all requirements to provide electric service to NAS JRB Ft. Worth.

## J33.5 Secondary Metering

The Base may require secondary meters for internal billings of their reimbursable customers, utility usage management, and energy conservation monitoring. The Contractor shall assume full ownership and responsibility for existing and future secondary meters IAW Clause C.3.

### J33.5.1 Existing Secondary Meters

**Table 5** provides a listing of the existing (at the time of contract award) secondary meters that will be transferred to the Contractor. The Contractor shall provide meter readings once a month for all secondary meters IAW H.5 and J33.5 below.

**TABLE 5**  
Existing Secondary Meters  
Electrical Distribution System NAS JRB Ft. Worth

Meter Location	Meter Description
Approximately 110 at various locations	

### J33.5.2 Required New Secondary Meters

The Contractor shall install and calibrate new secondary meters as listed in Table 6. New secondary meters shall be installed IAW Clause C.17, Transition Plan. After installation, the Contractor shall maintain and read these meters IAW Clauses C.3, H.5, and J33.5 below.

**TABLE 6**  
New Secondary Meters  
Electrical Distribution System NAS JRB Ft. Worth

Meter Location	Meter Description
None Identified	

## J33.6 Monthly Submittals

The Contractor shall provide the Government monthly submittals for the following:

1. Invoice (IAW G.2). The Contractor's monthly invoice shall be presented in a format proposed by the Contractor and accepted by the Contracting Officer. Invoices shall be submitted by the 25<sup>th</sup> of each month for the previous month. Invoices shall be submitted to:

*Name:*

*Address:*

*Phone number:*

2. Outage Report. The Contractor's monthly outage report will be prepared in the format proposed by the Contractor and accepted by the Contracting Officer. Outage reports shall include the following information for Scheduled and Unscheduled outages:

**Scheduled:** Requestor, date, time, duration, facilities affected, feedback provided during outage, outage notification form number, and digging clearance number.

**Unscheduled:** Include date, time and duration, facilities affected, response time after notification, completion times, feedback provided at time of outage, specific item failure, probability of future failure, long term fix, and emergency digging clearance number.

Outage reports shall be submitted by the 25<sup>th</sup> of each month for the previous month. Outage reports shall be submitted to:

*Name:*

*Address:*

*Phone number:*

3. Meter Reading Report. The monthly meter reading report shall show the current and previous month readings for all secondary meters. The Contractor's monthly meter reading report will be prepared in the format proposed by the Contractor and accepted by the Contracting Officer. Meter reading reports shall be submitted by the 15<sup>th</sup> of each month for the previous month. Meter reading reports shall be submitted to:

*Name:*

*Address:*

*Phone number:*

4. System Efficiency Report. If required by Paragraph C.3, the Contractor shall submit a system efficiency report in a format proposed by the Contractor and accepted by the Contracting Officer. System efficiency reports shall be submitted by the 25<sup>th</sup> of each month for the previous month. System efficiency reports shall be submitted to:

*Name:*

*Address:*

*Phone number:*

## J33.7 Energy Savings Projects

IAW C.3, Utility Service Requirement, the following projects have been implemented by the Government for managing and monitoring I&I:

- None

## J33.8 Service Area

IAW Clause C.4, Service Area, the service area is defined as all areas within the NAS JRB Ft Worth boundaries.

## J33.9 Off-Installation Sites

There are no off-installation sites associated with this scope.

## J33.10 Specific Transition Requirements

IAW Clause C.17, Transition Plan, **Table 7** lists service connections and disconnections required upon transfer, and **Table 8** lists the improvement projects required upon transfer of the NAS JRB Ft Worth electrical distribution system.

**TABLE 7**  
Service Connections and Disconnections  
Electrical Distribution System NAS JRB Ft Worth

Location	Description
None Identified	

**TABLE 8**  
System Improvement Projects  
Electrical Distribution System NAS JRB Ft Worth

Project Location	Project Description
None Identified	

## J33.11 System Deficiencies

None Identified.