DEPARTMENT OF THE AIR FORCE
HEADQUARTERS ARNOLD ENGINEERING DEVELOPMENT CENTER (AFMC)
ARNOLD AIR FORCE BASE, TENNESSEE

4 September 2001

MEMORANDUM FOR ALL PROSPECTIVE OFFERORS

FROM: USAF Procurement Branch
Contracting Division
100 Kindel Drive, Suite A332
Arnold AFB TN 37389-1332

SUBJECT: Request For Quote No. F40650-01-Q-0021, Supply and Install Standby Generator Set at Coffee County Landfill

1. Attached is Request For Quote No. F40650-01-Q-0021. Quotes are due not later than close of business 14 September 2001 (local time). Facsimile responses are authorized. My fax number is (931) 454-7330.

2. If you have any questions please call me at (931) 454-3918.

Tony Clayborne

TONY CLAYBORNE
Contracting Officer

ORDER FOR SUPPLIES OR SERVICES

1. CONTRACT/PURCH ORDER/AGREEMENT NO.	2. DELIVERY ORDER/CALL NO.	3. DATE OF ORDER/CALL (YYYYMMMDD)	4. REQUISITION/PURCH REQUEST NO.	5. PRIORITY
			F1SD1200-02	C9e

6. ISSUED BY CODE

USAF Procurement Branch
100 Kindel Drive, Suite A332
Arnold AFB TN 37389-1332
Buyer/Symbol: Tony Clayborne/PKP/(931) 454-3918

7. ADMINISTERED BY *(If other than 6)* CODE

8. DELIVERY FOB
- [X] DESTINATION
- [ ] OTHER *(See Schedule if other)*

9. CONTRACTOR CODE FACILITY

NAME AND ADDRESS

10. DELIVER TO FOB POINT BY *(Date)* (YYYYMMMDD)

11. X IF BUSINESS IS
- [ ] SMALL
- [ ] SMALL DISADVANTAGED
- [ ] WOMEN OWNED

12. DISCOUNT TERMS

13. MAIL INVOICES TO THE ADDRESS IN BLOCK
See Block 6

14. SHIP TO CODE

N/A

15. PAYMENT WILL BE MADE BY CODE

DFAS-DY/FV
1050 Forrer Blvd.
Dayton OH 45420-1472

MARK ALL PACKAGES AND PAPERS WITH IDENTIFICATION NUMBERS IN BLOCKS 1 AND 2.

16. TYPE OF ORDER

- DELIVERY/CALL [ ] This delivery order/call is issued on another Government agency or in accordance with and subject to terms and conditions of above numbered contract.
- PURCHASE [X] Reference your furnish the following on terms specified herein.

ACCEPTANCE. THE CONTRACTOR HEREBY ACCEPTS THE OFFER REPRESENTED BY THE NUMBERED PURCHASE ORDER AS IT MAY PREVIOUSLY HAVE BEEN OR IS NOW MODIFIED, SUBJECT TO ALL OF THE TERMS AND CONDITIONS SET FORTH, AND AGREES TO PERFORM THE SAME.

NAME OF CONTRACTOR | SIGNATURE | TYPED NAME AND TITLE | DATE SIGNED (YYYYMMMDD)

[ ] If this box is marked, supplier must sign Acceptance and return the following number of copies:

17. ACCOUNTING AND APPROPRIATION DATA/LOCAL USE

5713400 301 4711 04 724417 53502 78008F 5030000 00009710

18. ITEM NO.	19. SCHEDULE OF SUPPLIES/SERVICES	20. QUANTITY ORDERED/ ACCEPTED*	21. UNIT	22. UNIT PRICE	23. AMOUNT
	SEE PAGE 2 OF 7				

**If quantity accepted by the Government is same as quantity ordered, indicate by X. If different, enter actual quantity accepted below quantity ordered and encircle.*

24. UNITED STATES OF AMERICA
BY: TONY CLAYBORNE CONTRACTING/ORDERING OFFICER

25. TOTAL

29. DIFFERENCES

26. QUANTITY IN COLUMN 20 HAS BEEN
- [ ] INSPECTED
- [ ] RECEIVED
- [ ] ACCEPTED, AND CONFORMS TO THE CONTRACT EXCEPT AS NOTED

DATE | SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE

27. SHIP. NO.
- [ ] PARTIAL
- [ ] FINAL

28. D.O. VOUCHER NO.

30. INITIALS

31. PAYMENT
- [ ] COMPLETE
- [ ] PARTIAL
- [ ] FINAL

32. PAID BY

33. AMOUNT VERIFIED CORRECT FOR

34. CHECK NUMBER

35. BILL OF LADING NO.

36. I CERTIFY THIS ACCOUNT IS CORRECT AND PROPER FOR PAYMENT.

DATE | SIGNATURE AND TITLE OF CERTIFYING OFFICER

37. RECEIVED AT	38. RECEIVED BY *(Print)*	39. DATE RECEIVED (YYYYMMMDD)	40. TOTAL CONTAINERS	41. S/R ACCOUNT NUMBER	42. S/R VOUCHER NO.

ITEM NO.	SUPPLIES/SERVICES	QTY	UNIT	UNIT PRICE	TOTAL
0001	Supply and Install Standby Generator Set at Coffee County Landfill in accordance with Attachement 1 dated 12 January 2001 (15 pages)	1	LOT	$	$

INVOICES

An original and three copies of the invoice should be mailed to the address in Block 6 of the DD Form 1155. The invoice should reference the Purchase Order Number that appears in Block 1 of the form.

52.252-2 CLAUSES INCORPORATED BY REFERENCE (FEB 1998)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this address: http://farsite.hill.af.mil/

52.211-5	Material Requirments	AUG 2000
52.211-17	Delivery of Excess Quantities	SEP 1989
52.215-5	Facsimile Proposals	OCT 1997
52.222-3	Convict Labor	AUG 1996
52.222-19	Child Labor-Cooperation with Authorities and Remedies	FEB 2001
52.222-21	Prohibition of Segregated Facilities	FEB 1999
52.222-26	Equal Opportunity	FEB 1999
52.222-35	Affirmative Action for Disabled Veterans and Veterans of the Vietnam Era	APR 1998
52.222-36	Affirmative Action for Workers with Disabilities	JUN 1998
52.222-37	Employment Reports on Disabled Veterans and Veterans of the Vietnam Era	JAN 1999
5.223-5	Pollution Prevention and Right-To-Know Information	APR 1998
52.225-13	Restrictions on Certain Foreign Purchases	JUL 2000
52.232-1	Payments	APR 1984
52.232-8	Discounts for Prompt Payment	MAY 1997
52.232-9	Limitation on Withholding of Payments	APR 1984
52.232-11	Extras	APR 1984
52.232-23	Assignment of Claims	JAN 1986
52.232-25	Prompt Payment Paragraph (a)(5)(i), 2nd line, "7th day" is amended to read "30th calendar day."	MAY 2001
52.232-33	Payment by Electronic Funds Transfer--Central Contractor Registration	MAY 1999
52.233-1	Disputes	DEC 1998
52.233-3	Protest After Award	AUG 1996
52.243-1	Changes - Fixed Price	AUG 1987
52.246-1	Contractor Inspection Requirements	APR 1984
52.246-2	Inspection of Supplies - Fixed-Price	AUG 1996
52.246-16	Responsibility for Supplies	APR 1984
52.247-34	F.o.b. Destination	NOV 1991
52.249-1	Termination for Convenience of the Government (Fixed Price)(Short Form)	APR 1984
52.249-8	Default (Fixed-Price Supply and Service)	APR 1984

DEPARTMENT OF DEFENSE SUPPLEMENT TO FEDERAL ACQUISITION REGULATION CLAUSES

252.204-7004	Required Central Contractor Registration	MAR 2000
252.225-7002	Qualifying Country Sources as Subcontractors	DEC 1991
252.225-7036	Buy American Act—North American Free Trade Agreement Implementation Act—Balance of Payments Program	MAR 1998
	Alternate I	SEP 1999
252.242-7000	Postaward Conference	DEC 1991
252.243-7001	Pricing of Contract Modifications	DEC 1991

The following Federal Acquisition Regulation (FAR) Clauses are hereby incorporated in full text:

52.219-1 SMALL BUSINESS PROGRAM REPRESENTATIONS (MAY 2001) (ALTERNATE I) (OCT 2000) (ALTERNATE II) (OCT 2000)

(a)(1) The North American Industry Classification System (NAICS) code for this acquisition is 335312.

(2) The small business size standard is not over 1,000 employees.

(3) The small business size standard for a concern which submits an offer in its own name, other than on a construction or service contract, but which proposes to furnish a product which it did not itself manufacture, is 500 employees.

(b) Representations. (1) The offeror represents as part of its offer that it [ ] is, [ ] is not a small business concern.

(2) (Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.) The offeror represents, for general statistical purposes, that it [ ] is, [ ] is not, a small disadvantaged business concern as defined in 13 CFR 124.1002.

(3) (Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.) The offeror represents as part of its offer that it [ ] is, [ ] is not a women-owned small business concern.

(4) (Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.) The offferor represents as part of its offer that it [ ] is, [ ] is not a veteran-owned small business concern.

(5) (Complete only if the offeror represented itself as a veteran-owned small business concern in paragraph (b)(4) of this provision.) The offeror represents as part of its offer that is [ ] is, [ ] is not a service-disabled veteran-owned small business concern.

(6) (Complete only if offeror represented itself as small business concern in paragraph (b)(1) of this provision). The offeror represents, as part of its offer, that--

(i) It [ ] is, [ ] is not a HUBZone small business concern listed, on the date of this representation, on the List of Qualified HUBZone Small Business Concerns maintained by the Small Business Administration, and no material change in ownership and control, principal office, or HUBZone employee percentage has occurred since it was certified by the Small Business Administration in accordance with 13 CFR Part 126; and

(ii) It [ ] is, [ ] is not a joint venture that complies with the requirements of 13 CFR Part 126, and the representation in paragraph (b)(6)(i) of this provision is accurate for the HUBZone small business concern or concerns that are participating in the joint venture. [The offeror shall enter the name or names of the HUBZone small business concern or concerns that are participating in the joint venture:

_____

Each HUBZone small business concern participating in the joint venture shall submit a separate signed copy of the HUBZone representation.

(7) (Complete if offeror represented itself as disadvantaged in paragraph (b)(2) of this provision.) The offeror shall check the category in which its ownership falls:

___ Black American.

___ Hispanic American.

___ Native American (American Indians, Eskimos, Aleuts, or Native Hawaiians).

___ Asian-Pacific American (persons with origins from Burma, Thailand, Malaysia, Indonesia, Singapore, Brunei, Japan, China, Taiwan, Laos, Cambodia (Kampuchea), Vietnam, Korea, The Philippines, U.S. Trust Territory of the Pacific Islands (Republic of Palau), Republic of the Marshall Islands, Federated States of Micronesia, the Commonwealth of the Northern Mariana Islands, Guam, Samoa, Macao, Hong Kong, Fiji, Tonga, Kiribati, Tuvalu, or Nauru).

___ Subcontinent Asian (Asian-Indian) American (persons with origins from India, Pakistan, Bangladesh, Sri Lanka, Bhutan, the Maldives Islands, or Nepal).

___ Individual/concern, other than one of the preceding.

(c) Definitions. As used in this provision--

"Service-disabled veteran-owned small business concern"-

(1) Means a small business concern-

(i) Not less than 51 percent of which is owned by one or more service-disabled veterans or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more service-disabled veterans; and
(ii) The management and daily business operations of which are controlled by one or more service-disabled veterans or, in the case of a veteran with permanent and severe disability, the spouse or permanent caregiver of such veteran.

(2) Service-disabled veteran means a veteran, as defined in 38 U.S.C. 101(2), with a disability that is service-connected, as defined in 38 U.S.C. 101(16).

"Small business concern," means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding on Government contracts, and qualified as a small business under the criteria in 13 CFR Part 121 and the size standard in paragraph (a) of this provision.

"Veteran-owned small business concern" means a small business concern-

(1) Not less than 51 percent of which is owned by one or more veterans (as defined at 38 U.S.C. 101(2)) or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more veterans; and

(2) The management and daily business operations of which are controlled by one or more veterans.

"Women-owned small business concern," means a small business concern --

(1) Which is at least 51 percent owned by one or more women or, in the case of any publicly owned business, at least 51 percent of the stock of which is owned by one or more women; and

(2) Whose management and daily business operations are controlled by one or more women.

(d) Notice.

(1) If this solicitation is for supplies and has been set aside, in whole or in part, for small business concerns, then the clause in this solicitation providing notice of the set-aside contains restrictions on the source of the end items to be furnished.

(2) Under 15 U.S.C. 645(d), any person who misrepresents a firm's status as a small, HUBZone small, small disadvantaged, or women-owned small business concern in order to obtain a contract to be awarded under the preference programs established pursuant to section 8(a), 8(d), 9, or 15 of the Small Business Act or any other provision of Federal law that specifically references section 8(d) for a definition of program eligibility, shall --

(i) Be punished by imposition of fine, imprisonment, or both;

(ii) Be subject to administrative remedies, including suspension and debarment; and

(iii) Be ineligible for participation in programs conducted under the authority of the Act.

52.222-22 PREVIOUS CONTRACTS AND COMPLIANCE REPORTS (FEB 1999)]

The offeror represents that--

(a) It [ ] has, [ ] has not participated in a previous contract or subcontract subject to the Equal Opportunity clause of this solicitation;

(b) It [ ] has, [ ] has not, filed all required compliance reports; and

(c) Representations indicating submission of required compliance reports, signed by proposed subcontractors, will be obtained before subcontract awards.

52.222-25 AFFIRMATIVE ACTION COMPLIANCE (APR 1984)

The offeror represents that (a) it [ ] has developed and has on file, [ ] has not developed and does not have on file, at each establishment, affirmative action programs required by the rules and regulations of the Secretary of Labor (41 CFR 60-1 and 60-2), or (b) it [ ] has not previously had contracts subject to the written affirmative action programs requirement of the rules and regulations of the Secretary of Labor.

The following Department of Defense Supplement to the Federal Acqusition Regulation (DFARS) Provision is hereby incorporated in full text:

252.225-7000 BUY AMERICAN ACT – NORTH AMERICAN FREE TRADE AGREEMENT IMPLEMENTATION ACT--BALANCE OF PAYMENTS PROGRAM CERTIFICATE (MAR 1998)

(a)Definitions.

"Domestic end product," "foreign end product," "Canadian end product," and "qualifying country end product" have the meanings given in the Buy American Act—North American Free Trade Agreement Implementation Act--Balance of Payments Program clause of this solicitation.

(b)Evaluation.

Offers will be evaluated in accordance with the policies and procedures of Part 225 of the Defense Federal Acquisition Regulation Supplement. For line items subject to the North American Free Trade Agreement Implementation Act, offers of qualifying country end products or Canadian end products will be evaluated without regard to the restrictions of the Buy American Act or the Balance of Payments Program.

(c)Certifications.

(1)The Offeror certifies that--

(i)Each end product, except those listed in paragraphs (c)(2) of this provision, is a domestic end product; and

(ii)Components of unknown origin are considered to have been mined, produced, or manufactured outside the United States or a qualifying country.

(2)The Offeror must identify all end products that are not domestic end products.

(i) The Offeror certifies that the following supplies are qualifying country (except Canada) end products:

Line Item Number	Country of Origin
_____	_____

(ii) The Offeror certifies that the following supplies qualify as Canadian end products:

Line Item Number	Country of Origin
_____	_____

(iii) The following supplies are other foreign end products:

Line Item Number	Country of Origin
_____	_____

52.252-1 SOLICITATION PROVISIONS INCORPORATED BY REFERENCE (JUN 1998)

This solicitation incorporates one or more solicitation provisions by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. The offeror is cautioned that the listed provisions may include blocks that must be completed by the offeror and submitted with its quotation or offer. In lieu of submitting the full text of those provisions, the offeror may identify the provision by paragraph identifier and provide the appropriate information with its quotation or offer. Also, the full text of a solicitation provision may be accessed electronically at this address: http://farsite.hill.af.mil/

52.211-6	Brand Name or Equal	AUG 1999
52.215-5	Facsimile Proposals The Facsimile Telephone Number is (931) 454-7330	OCT 1997

ATTACHMENT 1 **12 January 2001**

CONTRACT SPECIFICATIONS
FOR INSTALLATION OF STANDBY GENERATOR

AT

ARNOLD ENGINEERING DEVELOPMENT CENTER

ARNOLD AIR FORCE BASE, TENNESSEE

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SECTION 01010
SUMMARY OF WORK

PART 1 – GENERAL

1.1 WORK COVERD BY CONTRACT DOCUMENTS

A. Turnkey services to size, supply, and install one complete gas fueled standby generator set at the closed Coffee County Landfill adjacent to Highway 55 on Arnold Air Force Base property. The generator will be capable of operation using natural gas and liquid propane fuels.

B. Provide reinforced concrete slab adequate to support the selected standby generator set loads.

C. Construct gas piping and connections from existing underground natural gas utility and existing liquid propane tank to standby generator set.

D. Construct electrical conduit, wiring, and terminations from existing electrical to generator set.

E. Start-up/testing of completed generator set to demonstrate the ability of the standby generator to assume the emergency load of all equipment as described herein.

PART 2 PRODUCTS (NOT USED)
PART 3 EXECUTION

3.1 SCHEDULE

All work covered by the contract documents shall be completed within 90 calendar days after contract award.

END OF SECTION

SECTION 03301
REINFORCED CONCRETE

PART 1 – GENERAL

1.1 GENERATOR SLAB

The contractor shall design and construct a concrete slab to support the selected generator set. The slab shall be designed and constructed to resist all applicable design loads and vibrations in accordance with the Standard Building Code (SBC), published by the Southern Building Code Congress International (SBCCI). All reinforced concrete shall be in accordance with the American Concrete Institute (ACI) 318/318R, Building Code Requirements for Reinforced Concrete.

1.2 REFERENCES

A. The following is a list of standard references for this section:

1. Southern Building Code Congress International (SBCCI):
   a) Standard Building Code (SBC)
2. American Concrete Institute (ACI):
   a) 301, Specifications for Structural Concrete for Buildings.
   b) 318/318R, Building Code Requirements for Reinforced Concrete.
   c) 347, Formwork for Concrete.
3. American Society for Testing and Materials (ASTM)
   a) A497, Standard Specification for Steel Welded Wire Fabric, Deformed for Concrete Reinforcement.
   b) A615, Standard Specifications for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
   c) C31, Standard Practice for Making and Curing Concrete Test Specimens in the Field.
   d) C39, Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
   e) C94, Standard Specification for Ready-Mixed Concrete.
   f) C150, Standard Specification for Portland Cement.
   g) C260, Standard Specification for Air-Entraining Admixtures for Concrete.
   h) C494, Standard Specification for Chemical Admixtures for Concrete.
4. Concrete Reinforcing Steel Institute (CRSI)
   a) Manual of Standard Practice
   b) Recommended Practice for Placing Reinforcing Bars.

1.3 SUBMITTALS

A. Shop Drawings:

1. Submit to the Contracting Officer for approval 3 complete sets of engineering drawings and details for construction of slab, prior to slab placement. Reinforcing steel in accordance with CRSI 1990 Manual of Standard Practice and ACI Standard Practice.
2. Complete data on the concrete mix, including aggregate gradation and admixtures, in accordance with ASTM C94.

B. Quality Control Submittals

1. Ready-mix delivery tickets for each truck in accordance with ASTM C94.

1.4 QUALITY ASSURANCE

A. Formwork: Follow the recommendations of ACI 347.

B. Concrete and Reinforcement: Meet the requirements of ACI 301 and ACI 318/318R.

1.5 ADDITIONAL REQUIRMENTS

A. Do not place concrete when the ambient temperature is below 40 degrees F or approaching 40 degrees F, without special protection to keep concrete above 40 degrees F.

B. Use water curing methods only. Note: potable water is not available on site.

PART 2 – PRODUCTS

A. Ready-mixed meeting ASTM C94, Option A.

B. Portland Cement: ASTM C150, Type II.

C. Admixtures:

1. Air-entraining: ASTM C260.
2. Water-reducing: ASTM C494, Type A or D.

D. Mix Design:

1. Minimum allowable 28-day Compressive Field Strength: 3,000 psi when cured and tested in accordance with ASTM C31 and C39.
2. Coarse aggregate size: 1 inch and smaller.
3. Slump range: 3 to 5 inches.
4. Air entrainment: 3 to 6 percent by volume.
5. Water reducers: Use in concrete without plasticizers.

E. Mixing: Minimum 70 and maximum 270 revolutions of mixing drum.

2.2 REINFORCING STEEL

A. Deformed Bars: ASTM A615, Grade 60.

B. Welded Wire Fabric: ASTM A497.

PART 3 – EXECUTION

3.1 FORMWORK

A. Form Materials:

1. Used plywood for exposed areas, and new shiplap or plywood for unexposed areas.
2. Earth cuts may be used for forming footings.

B. Form Ties:

1. Fixed conical or spherical type inserts that remain in contact with forming material and allow for dry packing of form tie holes.
2. Ties shall withstand pressures and limit deflection of forms to acceptable limits.

C. Construction:

1. In accordance with ACI 347.
2. Make joints tight to prevent escape of mortar.
3. Brace formwork as required to prevent distortion during concrete placement.

D. Form Removal:

1. Remove after concrete has cured for 7 days, or as approved by the Contracting Officers Representative.
2. Carefully remove forms to prevent scarring and damage to the surface.

3.2 PLACING REINFORCING STEEL

A. Place reinforcing steel in accordance with CRSI Recommended Practice for Placing Reinforcing Bars.

B. Splices and Laps:

1. Lap top bars 42 diameters or minimum 24 inches.
2. Lap all other bars 30 diameters or minimum 18 inches.
3. Tie splices with 18-gauge annealed wire as specified in the CRSI Standard.

3.3 PLACING CONCRETE

A. Place concrete in accordance with ACI 301.

B. Prior to concrete placement, remove water, debris, and foreign material from excavation and forms. Inspect reinforcing steel for proper placement and correct discrepancies.

C. Place concrete as soon as possible after leaving mixer.

3.4 FINISHING

1. Bull float and trowel.
2. Broom finish for nonskid surface.
3. Finish exposed edges with steel edging tool.

3.5 FINISHING AND PATCHING FORMED SURFACES

A. Cut out honeycombed and defective areas.

B. Cut edges perpendicular to surface at least 1-inch deep. Do not feather edges. Soak area with water for 24 hours.

C. Finish surfaces to match adjacent concrete. Keep patches damp for a minimum of 7 days.

D. Fill form tie holes with nonshrink grout.

3.6 PROTECTION AND CURING

A. Protect fresh concrete from direct sunlight, wind, and rain.

B. Keep concrete slab continuously wet for 7 day period during periods of excessive heat.

C. Remove and replace any concrete damaged by freezing.

END OF SECTION

SECTION 16235
STANDBY GENERATOR

PART 1 - GENERAL

1.1 STANDBY ENGINE GENERATOR

The installation of a standby electric power system shall include a Caterpillar electric generator set or approved equal. The standby generator shall be 480V, 0.8 power factor, 3 phase, 60 Hertz. The standby generator shall be adequately sized to power the following equipment:

a) 2 centrifugal blowers – each 3 phase, 15 hp, 230/460V, 34/17 amps.
b) 1 transformer – single phase, 240/480V primary, 120/240V secondary, 7.5KVA.
c) 1 centrifugal pump – single phase, 1/3 hp, 115V @ 6.4 FLA, 208/230V @ 3.2 FLA.
d) 1 air compressor – 3 phase, 25 hp, 460V, 120V controls, total package 37 amps, contactor rating 45 amps, assembly rating 45 amps, locked rotor rating of assembly 360 amps.
e) 1 air dryer – single phase, 110/120V, power rating 44.1 watts, hold current 0.68 amps.
f) 1 centrifugal pump – single phase, 1 hp, 230/115V, 6.0/12 amps.
g) 2 centrifugal blowers – each single phase, 3 hp, 115/230V, 26.2/13.1 amps.
h) 2 air compressors each single phase, 10 hp, 230V, 40 amps.
i) 1 transformer – single phase H.V. 240/480V 208/104 amps, L.V. 120/240V 417/208 amps.
j) 1 main breaker – 60 amp.
k) 2 submersible pumps – each single phase, 1/3 hp, 115/230V, 7.8/4.6 FLA.
l) 1 submersible well pump – single phase, 1 hp, 230V, 10 amps.

The supplier of the generator set shall be responsible for verifying and insuring the generator is adequately sized to operate the above listed equipment under full load conditions.

The system shall be a package of new and current equipment consisting of:

a) An engine driven electric generating set to provide standby power.

b) An engine start/stop solid state system mounted on the generating set.

c) An automatic load transfer control to provide automatic starting and stopping of the engine and switching the load.

d) Mounted accessories as specified.

e) Weatherproof/Sound Attenuating enclosure.

The generator set shall be designed and manufactured in an ISO 9001 compliant facility. The generator set and all components shall meet or exceed the following: AS1359, AS2789, BS499, DIN6271, DIN6280, IEC 34/1, ISO3046/1, NEMA MG1-22.

1.2 RESPONSIBILITY

The generator set shall be built, tested and shipped by the manufacturer, who has been regularly engaged in the production of engine alternator sets and associated controls so there is one source of supply and responsibility.

1.3 MANUFACTURER QUALIFICATION

Firm regularly engaged in manufacturing and design of engine generator sets. The firm shall have produced engine generator sets that have been in continuous satisfactory operation in similar service. Manufacturer must have a service firm that has been factory authorized.

1.4 MANUFACTURER'S REQUIREMENTS

Single manufacturer responsibility for the complete engine generator set including the manufacture of the engine and/or the alternator, building of set, factory test, factory warranty and shipping. The manufacturer shall submit to the Contracting Officer with their quote 3 copies of printed literature and brochures describing the standard series offered (not a one of a kind fabrication). The manufacturer shall submit 3 copies to the Contracting Officer for approval schematic and wiring diagrams for the complete standby power system prior to installation of the generator set.

1.5 SUPPLIER QUALIFICATION

Firm engaged in supervising installation, servicing, and start-up of engine generator sets. Firm maintains a factory authorized service organization with factory trained service technicians and offer 24 hour service availability, 7 days a week.

1.6 ACCEPTABLE MANUFACTURERS

Caterpillar or other approved.

1.7 SUBMITTALS

Provide 3 copies of submittals to the Contracting Officer for review and approval prior to generator set purchase. The submittals shall include engine data, installation drawings, all wiring and interconnect diagrams, the manufacturers published warranty, specification sheets and all other pertinent information relative to this unit and the complete standby power system. At project completion, submit 3 copies of operations and maintenance manual and computer software required for system operation.

Part 2 - PRODUCTS

2.1 ENGINE

The engine shall be 4 cycle, water cooled with mounted radiator, fan, water pump and closed recovery system. The engine shall be capable of operating on natural gas and liquid propane fuels. The radiator shall be capable of providing sufficient cooling capabilities for operation in 110 degrees Fahrenheit ambient temperature.

The engine shall have hard faced exhaust valves with rotators. Lubrication shall be full pressure as supplied by a positive displacement lube oil pump. The engine shall be equipped with a dry type air cleaner and oil filter with replaceable elements.

Engine speed shall be electronic governor controlled to maintain alternator frequency within 3 Hertz from no load to rated alternator output. The engine shall have a 12 or 24 volt battery charging DC alternator with a transistorized voltage regulator. Remote starting shall be by a 12 or 24 volt solenoid shift electric starter.

The generator set shall contain a complete solid state start/stop control which starts the engine on closing contact and stops the engine on opening contact. Cycle cranking shall be provided to open the start circuit after eight attempts to start the engine have failed.

2.2 ALTERNATOR

The alternator shall be four pole revolving field design with a temperature compensated Volts/Hertz voltage regulator and brushless excitation system. The stator shall be directly connected to the engine flywheel housing and the rotor shall be drive through a semi-flexible flange to insure alignment. The insulation system shall be class F as defined by NEMA MG-1.65 definition. The three phase alternator shall be 12 lead reconnectable for voltages required.

Frequency regulation shall not exceed 3 Hertz from no load to rated load. Voltage regulation shall be with +/- 2% of rated voltage at 60 Hertz from no load to full load. The instantaneous voltage dip shall be less than 12.5% of rated voltage when full 3 phase load and rated power factor is applied to the alternator. Recovery to stable operation shall occur within 2 seconds. A rheostat shall provide a minimum of +/- 5% voltage adjustment from rated value. Temperature rise shall be within NEMA MG-22.40 definition.

2.3 INSTRUMENT PANEL

The alternator instrument panel shall be housed in a NEMA 1 enclosure, wired, tested and shock mounted on the generating set by the manufacturer of the alternator. It shall contain panel lighting, automatic reset circuit breaker, oil pressure gauge, coolant temperature gauge, DC battery charge ammeter, frequency meter, running time meter, voltage adjusting rheostat, AC voltmeter, AC ammeter and phase selector switch. In addition, it will have the following shutdowns and indicator lights which will latch in the on position should a fault occur until manually reset. A test and reset switch shall also be provided to test the operation of the lights.

a) Low oil pressure

b) High coolant temperature

c) Low coolant level

d) Overcrank

e) Overspeed

f) RPM sensor loss

The control panel shall also have the following pre-alarm lights:

a) Low oil pressure

b) High coolant temperature

c) Low coolant temperature

d) High battery voltage

e) Low battery voltage

f) Low fuel

g) Switch not in auto.

2.4 MISCELLANEOUS EQUIPMENT

The standby power system shall also have the following items:

a) Semi-residential type muffler

b) Flex exhaust connection

c) Starting batteries

d) Battery rack

e) Battery cables

f) Flexible fuel lines

g) Main line circuit breaker

h) Block heater

2.5 BATTERY CHARGER

A trickle type battery charger shall be included to maintain starting batteries at proper voltage. One battery charger shall be provided and shall be fully automatic, float type, self-regulating, constant voltage 12 or 24 volt output, 120 volt input, 10 amp minimum, mounted in a NEMA 1 cabinet. The charger shall have a high charge rate of at least 9 amps. It shall have silicon diode rectifiers, automatic surge suppressor, DC output ammeter, auto reset, DC circuit breaker and AC fuse.

2.6 WEATHER/SOUND ATTENUATING HOUSING

The standby generator will be located outdoors and shall be enclosed in a weather protective/sound attenuating enclosure. The enclosure shall be constructed of 14 gage or heavier zinc coated steel and painted with a 2 mil or thicker baked polyester powder coating. The color

of the enclosure shall be ASA 61 gray or other approved color. The enclosure shall be equipped with lockable, gasketed doors with access to routine maintenance items including battery, oil, and coolant. All doors shall be equipped with stainless steel lift off hinges. The enclosure shall also include the following: pitched roof, radiator guard, sound absorbing insulation, exhaust silencing system housed inside enclosure, exhaust pipe and rain cap, heavy duty skidable base of formed steel. The enclosure and exhaust silencing system shall ensure operating sound levels do not exceed 75 dba at 25 feet from the generator set.

2.7 GENERATOR CONTROLS

The generator shall be equipped with an electronic modular control panel. The control panel shall be a Caterpillar EMCP II+ and include all standard features. As optional features, the EMCP II+ shall also include common alarm/shutdown volt free contact and generator running volt free contact. The generator shall also be equipped with a Caterpillar Customer Control Module (CCM) for remote monitoring and control that includes all standard features. A modem compatible with the CCM shall also be provided. 3 copies of the computer software with all required licenses shall be provided with the CCM.

Part 3 - EXECUTION

3.1 MISCELLANEOUS

Contractor shall install the complete electrical generating system including all natural gas fuel piping and connections between existing underground utility and existing liquid propane tank, engine, etc., all in accordance with manufacturer's recommendations required for complete generator operation. All gas piping shall be installed in accordance with the American National Standards Institute Fuel Gas Code (ANSI Z223.1) and the National Fire Protection Association (NFPA) Bulletin No. 54. Contractor shall provide for the routing and termination of all electrical conduit and wiring required for complete generator operation including connection to existing electrical service. All electrical work shall be in accordance with the National Electrical Code (NEC). Contractor shall supply the Contracting Officer's Representative with 3 copies of detailed operation and maintenance manuals including complete parts list. Manuals shall include engine manufacturer's maintenance recommendations as well as alternator operating instructions.

3.2 WARRANTY

Standby electric generating components, complete electric generating components, complete electric plant (engine and alternator) instrument panel, shall be warranted by the manufacturer against defects in materials and factory workmanship for a period of one year. Such defective parts shall be repaired or replaced at manufacturer's option, free of charge for a period of 1 year with travel time and mileage free of charge for the first year of operation. The warranty period shall commence when the standby power system is first placed into service.

3.3 CHECK OUT AND START UP

Supplier of the electric generating plant and associated items covered herein shall provide factory trained technicians to check out the complete installation and perform the initial start-up of the system. They shall meet with the Contracting Officer's Representatives and provide a

minimum of 4 hours of training on the operation of the complete standby generator system. Once the system is operational, the load will be transferred to the standby generator system to demonstrate the ability of the standby generator to assume the full emergency load.

Part 4-AUTOMATIC TRANSFER SWITCH

4.1 GENERAL

The automatic transfer switch shall be rated for the required loads, 480 volts and have 3 poles. The standard control components shall be compatible with the requirements of the standby set and provide the following features:

a) UL 1008 listed.

b) 100% equipment rated. Can be used at rated current, continuous duty with deration

c) NEMA 3R.

d) Contacts shall be electrically operated and mechanically held.

e) There shall be front access to all solid state control boards.

f) Control boards are to be protected in a separate lockable enclosure located in the door of the automatic transfer switch. It shall have a transparent cover to allow visual reading of voltage settings and time delays.

g) The automatic transfer switch shall contain a neutral block suitable for the connection of all neutral conductors.

h) The transfer time shall be 160 milliseconds or less.

i) The normal source voltage shall be monitored across all phases of normal power with drop out and pick up points adjustable from 70% to 90%.

j) The switch must contain a manual operating handle.

k) Utility interrupt delay shall be adjustable from 5 seconds to 3 minutes.

l) The automatic transfer switch shall have an engine warm up bypass selector switch.

m) Standby voltage required before transfer shall be adjustable from 70% to 90% of nominal, standby frequency required before transfer shall be adjustable from 80% to 90% of nominal.

n) Return to utility delay shall be adjustable from 1 to 30 minutes.

o) Engine cool down timer shall be adjustable from 1 to 30 minutes.

p) Minimum run timer shall be adjustable from 5 to 30 minutes.

q) The automatic transfer switch shall include a 7 day exerciser.

r) The automatic transfer switch shall have status lights to provide a visual read out of operation sequence including:

Utility on, engine warm up, engine warm up bypass, standby voltage ready, standby frequency ready, standby operating, return to utility, engine cool down, engine minimum run, switch in fast test mode.

s) Front mounted controls shall include a selector switch for normal test and fast test mode. It will also have utility and emergency lights to indicate switch position and an lamp to indicate standby operating.

t) The automatic transfer switch shall provide one set of auxiliary contacts.

u) The 100 to 1200 Amp 600 Volt switches shall incorporate built-in-arc shutes to suppress and extinguish the arc.

END OF SECTION