Lee County Board Of County Commissioners
Agenda Item Summary

Blue Sheet No. 20050878

1. ACTION REQUESTED/PURPOSE: Approve award of formal quotation (RFP B&R 2661-SM117) and issuance of a purchase order to KSB, Inc., the low price proposer, meeting all specification requirements for two boiler feed water pumps, one electric and one steam driven, in an amount of $307,785.00, plus a not-to-exceed amount of $1610.00 per day for field service technician.

2. WHAT ACTION ACCOMPLISHES: Provides the necessary feed water pumps for the Waste To Energy Expansion Project.

3. MANAGEMENT RECOMMENDATION: Staff recommends approval of the requested motion.

4. Departmental Category: 8 C8D			**5. Meeting Date:** 06-28-2005
6. Agenda:	**7. Requirement/Purpose:** *(specify)*		**8. Request Initiated:**
X **Consent**	____ **Statute**		**Commissioner**
____ **Administrative**	____ **Ordinance**		**Department** Public Works
____ **Appeals**	X **Admin. Code**	4-1	**Division** Solid Waste
____ **Public**	____ **Other**		**By:** Lindsey J. Sampson
____ **Walk-On**			

9. Background: Sealed quotes were received by the County's design engineer, Burns & Roe, on behalf of the Solid Waste Division on March 29, 2005. On that date three (3) responses were received. On April 29, 2005, KSB offered alternate pumps using more appropriate electric motor and steam turbine. After review, recommendation was made to award to the low-priced proposer meeting all specification requirements. Note, evaluated pricing includes a factor for energy consumption during normal operation. Although Flowserve Pump Division had a lower equipment price (approx. $10,650 lower), it was penalized by an operating cost factor of $60,384, thus negating the lower equipment price. Backup documentation refers to an adder of $1,597 for an optional performance bond. The Solid Waste Division does not want to make use of this option.

Funds are available in account string: 200923 40102.506540

Attachments: Burns & Roe bid evaluation dated 5/24/2005
Tabulation sheet
Covanta Comments on the B&R bid evaluation dated 6/13/2005

10. Review for Scheduling:

Department Director	Purchasing or Contracts	Human Resources	Other	County Attorney	Budget Services				County Manager/P.W. Director
					Analyst	Risk	Grants	Mgr.	
6-15-05	N.A. per I.S. n/a	NA							6-15-05

11. Commission Action:

____Approved
____Deferred
____Denied
____Other

RECEIVED BY COUNTY ADMIN: 6/15/05 2:30
COUNTY ADMIN FORWARDED TO: 6/16 2:34

Date: 6/15/05
Time: 1:15
Forwarded To: Admin

May 24, 2005

LEE COUNTY
WTE EXPANSION PROJECT
FORT MYERS, FLORIDA

RFP 2661-SM117
BOILER FEED PUMPS

BID EVALUATION

Burns and Roe Enterprises, acting on behalf of Lee County issued Request for Proposal No. 2661-SM117 "Boiler Feed Pumps "on February 28, 2005 to the following pre-approved bidders: KSB, Inc.; Sulzer Pumps (US) Inc.; Flowserve Pump Division; and ITT Goulds Pumps. On March 29, 2005 ITT/Goulds declined to bid due to not having a suitable offer for conditions as specified.

On March 30, 2005 bids were received from:

-KSB Inc. proposal # 503104, dated 3/29/05

-Flowserve Pump Division proposal # 3679-50819, dated 3/4/05

-Sulzer Pumps proposal # USA2810.CNT.04.0922, dated 3/23/05

RECOMMENDATION:

Deferred at this time, subject to further review and comments from Covanta and Lee County.
The (2) Evaluated Bidders Flowserve and KSB were both found to be Technically Acceptable. Both Bidders were requested to provide their Best and Final offering with understanding that outstanding commercial issues would need further review and resolution. The result of this offering is noted in the Bid Abstract Attachment 1. Flowserve, is slightly lower in price, approximately 3.5%, than KSB. Both Bidders had taken exception to the County's Purchase Conditions. KSB, through negotiated efforts, now has more favorable terms, but is 3.5% higher in price. Flowserve withdrew certain exceptions, however, would not delete specific items deemed unacceptable. A recapped of terms is below. Covanta and Lee County to determine acceptable terms.

Commercial Issues, Recap:

- Flowserve Adjusted Best and Final Price $ 297,125.

  Exceptions (see attached e-mail 5-17-05 for details of points) as follow:

  - Clause 2 Agreement/Corformance/Changes
  - Clause 3 Delivery/Title
  - Clause 4 Payment
  - Clause 5 Warranty
  - Clause 6 Cancellation
  - Clause 7 Indemnity
  - Clause 8 Insurance
  - Clause 13 Relationship Assignment
  - Clause 14 Dispute Resolution
  - Clause 16 Limitation of Liability (**New Added by Flowserve**)

- KSB Best and Final Price $307,785.

  Exceptions:
  - Clause 3 Change "Time is of Essence" To "Time is of Importance"
  - **Add** – "Incidental and Consequential Damages are specifically excluded. Total Liability of Seller shall not exceed 125% of the final Purchase Order Price.

COMMERCIAL EVALUATION:

Two (2) of three (3) bids were reviewed based on bidder's compliance with the Scope of the RFP and Purchase Conditions and are tabulated in Attachment #1, the Bid Abstract.

Sulzer, Based on initial review it was apparent Sulzer Pumps misinterpreted the requirements of the RFP, and this was reflected in their exceptionally high pricing. This was later verified on 4/5/05 by their revised offering that was lower but still substantially higher than both KSB and Flowserve. Therefore, no further consideration was required nor given.

KSB Inc.'s original offering of $217,121 was based on their selected Pump Model HGM, one a 450HP electric motor driven pump and the other, with a Skinner Turbine Drive. Based on initial review BREI engineering determined the motor driven pump would require a 500HP drive to satisfy the motor rating Service Factor (SF). Also, at this time, BREI was advised, by Covanta that they rejected "Skinner", for the turbine driven pump and that KSB's selected Model HGM was also rejected on basis of not being suitable for boiler feed application and had also indicated that Model HGC would be the preferred selection. This was conveyed to KSB on 4/25 and 4/27/05.

On 4/29/05 KSB revised their offering based on above as well as all other technical bid conditioning issues. KSB's 4/29/05 proposal represents an increase of approximately 43% over their original proposal but still very competitive and now overall second lowest on basis of equipment cost and Low Bidder Based on Evaluated Estimated Cost as noted in the Commercial Bid Abstract Attachment 1 and the Technical Evaluation.

KSB submitted exceptions/clarifications to the Services/Goods Purchase Conditions. The exceptions were reviewed and further negotiated with KSB. Remaining exceptions are as follows:

- Clause 3 Delivery/Title, first line second sentence Replace "Time is of the Essence" with "Time is of Importance"

  ADD Language: Limitations of Liability, Incidental and Consequential damages are specifically excluded. Total Liability of Seller Not To Exceed 125% of Purchase Price.

Final Review and Acceptance by Lee County is Required.

Commercially, KSB has proposed the following terms:

Payment Terms:

10% - submittal of approval drawings
45% - successful factory performance test
45% - delivery at site

Deliverables:

a) GA-Drawings:	30 days after receipt of order (ARO)
b) Assembly Drawings	30 days ARO
c) Fondations & Anchor Bolts	30 days ARO
d) Pump Curves	30 days ARO

(and all else as specified in specification 2661-SM117, Attachment 4, Documents Submittal Schedule.)

Equipment Delivery – 22 to 23 weeks ARO

Flowserve's base bid was approximately 25% higher than KSB's bid but still considerably lower in price than Sulzer. To maintain a competitive situation it was decided to further condition this bidder's offering. Bid conditioning questions were prepared and sent to Flowserve, their responses have been recorded and noted in the Technical Evaluation section. As a result of the bid conditioning effort Flowserve's offering was adjusted to include added cost for inclusion of required Forced Oil Lubrication System for the Turbine Drive, adder to include 900# discharge nozzle flange ratings and are reflected as adjustments in the Bid Abstract. Additionally and in view of piping deficiencies between the oil skid and the steam turbine an evaluated estimated cost was accessed to Bidders total price, as well as, an overall "Efficiency Penalty" and all of which is also reflected in attached Bid Abstract under, Total Evaluated Price.

Flowserve submitted extensive exceptions/clarifications to the Services/Goods Purchase Conditions. Although Flowserve withdrew certain exceptions, additional discussions to further clarify or negotiate Flowserve's exceptions have been unsuccessful as of this evaluation write up. These exceptions are noted in Flowserve's e-mail dated 5/11/05 and as further modified by e-mail dated 5-17-05, copy attached.

Flowserve's Commercial Terms are now NET 30 Days (Slight advantage over KSB, if cost of money is to be a consideration).

Delivery is 34 week ARO (Negotiable)

Outstanding Issues:

- Flowserve exceptions to the County Purchase Conditions requires further review, discussions and/or acceptance. See e-mail Dated 5-17-05 from Flowserve to BREI with Red Lined copy of Purchase Conditions.

TECHNICAL BID EVALTUATION

The Sulzer bid price of $403,785 was for a segmented ring type pump. Sulzer provided an alternate price of $477,459 for a split case pump. Both KSB and Flowserve bid a segmented ring type pump. The Specification allowed either type pump.

Sulzer's bid price was significantly higher than either KSB or Flowserve. Their pump efficiency did not render their offering any more competitive. Therefore, Sulzer was not given any further consideration.

KSB originally offered their model HGM pump and a Skinner steam turbine. The KSB HGM pump is a more compact design than their HGC line of pumps. It has been around since the mid 1990's. It is a more compact design in that it eliminates the two (2) external bearings and has one mechanical seal versus two (2) for the HGC model. The HGM model uses product lubrication bearings whereas the HGC utilizes oil lubricated ring type.

Covanta notified BRE that the HGM pump model was not recommended and that the Skinner steam turbine was not acceptable. BRE advised KSB to provide a revised proposal with their HGC pump. In addition, both KSB and Flowserve were advised that Skinner was not acceptable and to provide either an Elliott, Dresser Rand or Tuthill (Coppus) steam turbine package.

KSB provided a revised quote with a model HGC 3/7, 7 stage pump with an Elliott steam turbine. The KSB model HGC 3/7 pump has an efficiency of 71.24% at the pump specified conditions. KSB's proposed HGC 3/7 pump meets the performance requirements specified in Specification SM-117.

KSB has indicated that balanced drum leakoff and warm up orifice are not required for their pump. The KSB pump design does not require a pressurized lube oil system.

KSB's pump is more efficient that Flowserve; 71.24% versus 69.5%. Flowserve, therefore, was penalized +$19,084 based on a capitalized power cost of $3642/KW.

KSB's revised proposal includes an Elliott steam turbine, Model BYRH with an Elliott EDG Governor. KSB offered two different options for the steam turbine; one with steam inlet conditions at 850 psig and 825°F and the other with steam inlet conditions at 680 psig and 505°F. KSB's base price with the higher steam inlet conditions is $466,803. They have offered a deduct of ($163,608) to go with the alternate steam turbine at a

lower inlet pressure and temperature. The total base price for this KSB offering is $303,195.

KSB has provided a forced lube oil system for the steam turbine which includes oil reservoir, shaft driven oil pump, electric auxiliary pump, heat exchanger and oil filter. This is acceptable. Other KSB steam turbine accessories included are vibration switches, lagging, solenoid trip device, tachometer, RTD's and testing of the steam turbine (no load run test and hydrostatic testing). All proposed accessories are in accordance with specification requirements. The proposed Elliott steam turbine drive is deemed acceptable by BRE.

KSB provided a list of technical exceptions, clarifications and comments. BRE resolution of these exceptions, clarifications and comments are attached. BRE finds the KSB proposal technically acceptable.

KSB has offered an option price of $80,927 for the Magnadrive adjustable speed drive. BRE does not recommend exercising the magnadrive option.

Flowserve bid their model 3WX-10A ring section pump with 8 stages. Flowserve's offered pump meets specification performance requirements.

Flowserve initially bid a 600# pump discharge nozzle. They were advised that 600# was not acceptable and to furnish a 900# discharge nozzle. Flowserve furnished pricing at $980 per pump to change to a 900# ANSI rated discharge nozzle.

Flowserve's steam turbine subcontractor, Tuthill, stated that a forced lubrication system is required and that it is to be furnished by Owner. Flowserve was made aware that the system is to be provided by Flowserve's steam turbine supplier. Flowserve included a price add of $35,789 to include the forced oil lubrication system.

Flowserve provided a list of technical exceptions, clarifications and comments. BRE resolution of these exceptions, clarifications and comments are attached. BRE finds the Flowserve proposal technically acceptable.

TECHNICAL BID EVALUATION
BOILER FEED PUMPS
SM-117
LEE COUNTY

Description	KSB	Flowserve	Sulzer	Remarks
Total price	$466,803	$269,558 plus $35,789 for a Coppus steam turbine with a forced oil lubrication system = $305,347	$403,785	Sulzer quoted an option price for split case pump for a total of $477,459. Flowserve's total price includes Tuthill (Coppus) steam turbine with forced oil lubrication system.
Delivery	FOB Jobsite	FOB Jobsite	FOB Factory	Flowserve's total price includes Tuthill (Coppus) steam turbine with forced oil lubrication system.
Pump Model Number	HGC 3/7	3W X-10A FPD-C-6	MC, Size 80-260	
Type Pump	Ring Section	Ring Section	Ring Section	
Number of stages	7	8	7	
Pump Speed	3576	3540		
Performance				

Description	KSB	Flowserve	Sulzer	Remarks
Flow	490 gpm	490 gpm		
Total Head	2800 feet	2800 feet		
Pump Efficiency	71.24%	69.5%	70.8%	
NPSH Required	22.75 ft	18.1 ft	14.4	
Specific Suction Speed	7,955	8,944		KSB specific suction speed was calculated by BRE based on their submitted pump data.
BHP required	447.26	454	451	
Minimum continuous Flow	174	145		
Operating KW	347.56 KW	352.8 KW		
Δ KW	Base	+5.24 KW		
Capitalized power cost based on $3,642/KW (G)	Base	+$19,084		

Description	KSB	Flowserve	Sulzer	Remarks
Pump Testing	Not-witnessed - Hydrostatic - Performance (5 points) - NPSH - Vibration Test - Strip Test (internal clearances check)	Non-witnessed - Hydrostatic - Performance - NPSH - Vibration - Measurement of bearing temperature		
Pump accessories	PMC Beta (or equal) vibration switch, Bearing RTD's	Temperature detector on axial bearing, vibration switch, warm up orifice		
Mechanical Seal	Water cooled, John Crane, API 23	Flow serve, Type QB, water cooled		
Motor				
Motor HP	500	550	500	
Enclosure	TEFC	TEFC	TEFC	
Manufacturer	Siemens, WEG or equal	WEG		
Electrical	4000/3/60	4000/3/60		
Service Factor	1.0	1.15	1.0	

Description	KSB	Flowserve	Sulzer	Remarks
Insulation Class	F	F		
Steam Turbine Manufacturer	Elliott, Coppus, or Equal	Coppus		
Model	BYRH	RLHA 19		
Rating	434 HP	550 HP		
Governor	Elliott EDG Governor, NEMA A	Woodward TG 17, NEMA A		
Steam Conditions	680 psig, inlet 505°F	650 psig, 809°F inlet		
Steam Turbine Accessories				

Description	KSB	Flowserve	Sulzer	Remarks
Oil System	Oil reservoir, shaft driven oil pump, electric auxiliary pump, heat exchanger, oil filter	Oil reservoir, shaft driven oil pump, electric auxiliary pump, heat exchanger, oil filter		Flowserve's proposal includes a separate base mounted forced oil lubrication system. Interconnecting piping between steam turbine and oil skid will be by the GC mechanical piping contractor. KSB's forced oil lubrication system includes piping to steam turbine bearings.
Vibration switch	PMC Beta Model 440D, one (1) per bearing housing	PMC Beta Model 440D, one (1) per bearing housing		
Lagging	Yes, Removable Insulation Jacket	Yes, Removable Insulation Jacket		
Solenoid Trip	Yes	Yes		
Tachometer	Yes	Yes		
RTD's	One per each bearing housing	One per each bearing housing		

Description	KSB	Flowserve	Sulzer	Remarks
Tests	No load run test, hydrostatic testing of Turbine	Hydrostatic test, no load test.		
Deduct to go with lower steam inlet pressure and temperature (A)	($163,608)	Not Applicable		
Commissioning/start up spares (B)	$1,264	Included in Price		
Price add to include 900# discharge flanges (C)	Already included	$980/pump x 2 = $1960		
Price add for Motor Bearing RTD's (D)	$1,238	Included		
Price add for Motor sleeve bearings (E)	$2,357	Included		
Price for reverse rotation detection device (F)	$2,899	N/A		
Total Price, sum of (A) plus (B) plus (C) plus (D) plus (E) plus (F)	$310,953	$307,307		

Description	KSB	Flowserve	Sulzer	Remarks
Estimated price for Desuperheating Station including piping, valves, etc. to reduce steam temperature from ≈800°F to 505°F (H)	$15,000	Desuperheating station not required.		
Estimated price for lube oil piping between oil skid and steam turbine (I)	NA	$3000		
Total Evaluated Price (includes items (G), (H), and (I))	$325,953	$329,391		
Price Adder for Magnadrive adjustable speed drive	$80,927	Not Provided		

KSB TECHNICAL EXCEPTIONS,
CLARIFICATIONS AND COMMENTS

KSB Technical Exceptions, Clarifications and Comments		BRE Resolution
1.0 1.2	General Work to be Provided Due to the driver weight, motor will be shipped separated from the pump assembly, but in the same flat bed. Recirculation breakdown orifices to be provided by others. No special tools are required by the offered pumps.	All listed items are acceptable
2.0 2.1.1	Technical Requirements Applicable Codes	
	The offered pumps, and baseplates are designed and manufactured as per European Standards (DIN, ISO, TRD German pressure vessel standards, which are similar to ASME Section VIII, Division 1 Standards) and KSB standards, equivalent to those American standards listed on the specification. Attached you will also find a list of codes and standards applicable to the offered pumps.	Design to Western European Codes and Standards is acceptable.
	Pumps will be performed tested as per DIN procedures with tolerances as per Hydraulic Institute standards with KSB calibrated shop motor and at cold water.	Acceptable
	Pump materials are as per DIN standards. Therefore, any welding repair (if required) will be as per DIN standards.	Acceptable
	Customer's interface connections will be as per ANSI/NPT standard on cooling water connections, pump flanges, etc.	Interface connections to ANSI are required.
	Quality Control Plans will be as per KSB standards.	Acceptable

KSB Technical Exceptions, Clarifications and Comments				BRE Resolution
2.2	Performance 1st Paragraph: Pump Performance Test will be as per H.I. standards 2nd Paragraph: see comment above. Pumps will be test ed with cold water and efficiency at pump hot water will be calculated based on Karassik. 9th Paragraph: Pump Operating Range for continuous operation is 205-511 gpm.			All items are acceptable.
2.2.1	Tolerances on Guaranteed Performance Pump performance tolerances are as per H.I. standards, Level A			Acceptable
2.3 2.3.1	Construction General Suction and discharge nozzles are equipment with one connection threaded and plugged for Pressure Gauges.			Acceptable
2.3.2	Materials Materials offered are in accordance with ISO and DIN standards. Attached is a listed of the corresponding equivalent ASTM materials in the Din standard materials. Basically, we are offering pumps in chrome steel construction, which materials are of superior quality than the specified ones. Pump shaft is in carbon steel construction as the shaft is not subject to high velocity areas. This pump material construction is based on thousands of successful installation.			Materials of Construction are acceptable.
	Pressure retaining materials and bolts are per German Boiler Code (see comments above).			
	Part No.	Description	Material **Similar to ASTM**	
	107	Discharge casing	A743, Grade CA 6NM	
	108.01	Stage casing, first stage	A276, Type 410	
	108.02	Stage casing subsequent stages	A276, Type 410	

KSB Technical Exceptions, Clarifications and Comments				BRE Resolution
	162	Suction cover	A217, Grade CA 15	
	171	Diffuser	A743, Grade CA 15	
	210	Shaft	A576, Grade 1040	
	230	Impeller	A217, Grade CA 15	
	231	Suction stage impeller	A217, Grade CA 15	
	441	Shaft seal housing	A276, Type 420	
	502	Casing wear ring	A276, Type 416	
	523	Shaft sleeves	A743, Type CA 15	
	545	Bear bush	Noricrom®	
	59-4	Piston	A276, Type 420/-	
	603	Balance drum	A276, Type 403	
	905	Tie bolt	A540, Grade B24	
2.3.3	Casing Hydrostatic Tests will be as per KSB Standards, which exceeds HI requirements (see attached KSB Data Sheets for details) As the HGC pump is a radial casing design removal of the rotor is not possible without disconnection of the suction nozzle piping. Please note that all wearing clearances can be checked by disconnecting the suction piping only. The pumps does not have to be disassembled to check wearing clearances.			All items are acceptable.
	Special tools are not required by the offered pumps. Connections for eyebolts or lifting lugs are not available in the pumps			Acceptable
2.3.4	Connections 2nd Paragraph: not applicable. The offered pumps do not require pre-warming			Acceptable
2.3.5	Piping Seal Piping will be as per codes listed in the attached pages (List of Applicable Codes)			

KSB Technical Exceptions, Clarifications and Comments		BRE Resolution
2.3.6	Impellers The offered pumps have single suction, low NPSH impeller design. The impellers are in a stacked arrangement, fit on fit assembly design. The impellers are individually secured against axial movement in both directions. Individual components are statically balanced and then complete rotating assembly is dynamically balanced.	Acceptable
2.3.7	Wear Rings KSB only incorporates casing wear ring in its design. The mating wear parts are of the same nongalling and antiseizing material. These parts are of extremely low wear material patented by KSB that also act as the pump bearing mating parts.	Acceptable
2.3.8	Shafts and Shaft Sleeves Sleeves' hardness will be as per KSB standard/experience.	Acceptable
2.3.11	Couplings KSB Standard disc coupling with Spacer is provided (Thomas Rexnord, 71 series or equal, meets AGMA Class 9) for motor and steam turbine driven units.	Acceptable
2.3.12	Reverse Rotation Exception is taken to this item. The pumps are not designed for reverse rotation.	KSB has provided an option price for a reverse rotation detection device.
	Operating in reverse rotation will damage pump internals (mechanical seal, balancing device, etc.) as well as drivers. An option for Reverse Rotation Detection Device will be provided shortly.	
2.3.13	Base	Acceptable

KSB Technical Exceptions, Clarifications and Comments		BRE Resolution
	KSB standard open I-beam baseplate is provided. Any leakage is collected in the pump balance line. The baseplate is designed to accommodate pump and driver. It does not extend full length	
2.3.14	Vibration 01 vibration switch is provided per pump and 01 per turbine bearing housing (total of 2 per turbine). Pump vibration levels meet H.I. standards.	Acceptable
2.3.15	Balance Drum Leakoff Not applicable. Pump balance line returns to suction nozzle of the pump	Acceptable
2.3.17	Warm-up Not applicable. The offered pumps do not require any pre-warming.	Acceptable
2.3.18	Instrumentation and control Last Paragraph: The instrumentation available by the offered pumps is: - Pressure gauges - - Vibrations switch Items "a" is not applicable to the offered pumps (product lubricated bearings) For the instrumentation offered with the turbine, please see attached quotes.	Acceptable
2.4	Noise: Combined noise level exceeds 85 dB(A) at 3 ft.	Proposed noise levels are marginally acceptable. KSB stated they can offer lower noise at additional cost.
3.0 3.1.1 3.1.2	Test and Guarantees Non Destructive Examination If performed, we will be as per KSB standards. Please see attached KSB QCP for details Hydrostatic Test	Acceptable

KSB Technical Exceptions, Clarifications and Comments		BRE Resolution
	If will be as per KSB Standards, which exceed H.I. requirements: **Pressure test (static)** Standard pressure test plan — UA7 2634201 Test pressure — 1.3 x nominal pressure Suction casing — 232.0 psi g Chamber to disch. Casing — 2320.0 psi g Discharge casing — 2320.0 psi g Seal housing/balancing water chamber — 232.0 psi g	
3.1.3	Performance Test Performance test will be as per KSB/DIN standards (procedures) with tolerances as per H.I. standards, with cold water and KSB calibrated shop motor. Vibration tests will be performed with a handheld device. The following readings are not applicable: - Bearing Temperature (product lubricated bearing) - Oil Flows - Casing temperature - Balancing Leakoff	Acceptable
4.0 4.1.1	Supplementary Requirements Packaging KSB Standard soft crated packaging is provided suitable for inland transportation and indoor storage. Outdoor storage to be provided by others following KSB's recommendation for outdoor storage.	Acceptable
4.5 4.5.2	Data and Drawings An option for Reverse Rotation Detection Device will be provided shortly. Documents for Approval	Option price provided

KSB Technical Exceptions, Clarifications and Comments		BRE Resolution
	Item 3 Thrusts: please clarify the meaning of this term and where is applied (i.e. pump axial thrust, forces, etc.) Item 5 Static forces and moments at the nozzle shall be zero (pumps are not designed as piping support). The max. allowable forces and moments at pump nozzles are only valid when pumps are hot and operating. Item 9 is not applicable as orifices are to be provided by others.	
	Documents for Information Item 8 – KSB only provides certified GA drawings with dimension tolerances	This KSB comment is acceptable.
2.0	**Project Specific Requirements** 7. If head adjustment exceeds motor or turbine ratings, KSB will provide the price adder accordingly for such change. Purchaser shall inform the final TDH requirement within 30 days ARO. Revisions on TDH after this period may impact on pump final delivery time.	Acceptable

FLOWSERVE TECHNICAL EXCEPTIONS,
CLARIFICATIONS AND COMMENTS

Flowserve Technical Exceptions, Clarifications and Comments		BRE Resolution
1.2	Motors/drive equipment will be aligned at Flowserve's factory, however, will be removed and shipped separately from the baseplate and pump	Acceptable
2.1	The referenced Codes and Standards apply only where specific sections or paragraphs are identified elsewhere in the body of the pump specification. Any comments Flowserve may have to these specific sections are addressed elsewhere in our technical comments.	Acceptable
2.2	Efficiency guarantee is based on cold test with correction to hot value per HI.	Acceptable
2.3.4	The warming connection will be done with the use of the pump discharge. A casing drain connection will not be provided.	Acceptable
2.3.6	Impellers will be held in position by precision fit rather than shrink fits.	Acceptable
	The impellers will be individually balanced and placed on the rotor. A dynamic balance of the entire rotor for a segmental ring design is not beneficial.	
2.3.8	The interstage shaft sleeves are not sealed	Acceptable
2.3.9	A plan 23 will be provided with the pumps	Acceptable
2.3.12	The pump is able to go in reverse rotation only from stand still.	Acceptable comment
2.3.18	The limit switch is for the turbine and is not applicable to the pump	Acceptable
2.4	The expected noise level is 84 dBA. Due to the temporary nature of the test stand, noise testing is not included. Flowserve does not guarantee noise levels in that the measured readings are strongly influenced by site conditions.	Acceptable

Flowserve Technical Exceptions, Clarifications and Comments		BRE Resolution
3.5	Performance guarantees are based on certified testing in a Flowserve facility. If field test results differ from values obtained during shop testing, flowserve will work with the Engineer, Contractor, or Owner to determine the cause of the discrepancies.	Comment is acceptable

BID ABSTRACT - ATTACHMENT 1

BOILER FEED PUMPS

Burns and Roe Enterprises, Inc.

W/O: 2661 Lee County Expansion Project
RFP 2661 BOILER FEED PUMPS
BUDGET: $

ITEM	QTY	UNIT	DESCRIPTION	1 KSB INC. Bid #503104 3/29/2005	2 KSB INC. Bid #503104 REV.1 4/29/05	3 FLOWSERVE Bid #3679-50019 3/4/2005	4 SULZER Bid#USA2810.cnt.04.0922 REV.1 4/5/05	5 SULZER ALTERNATE REV.1 4/5/05		
				MODEL HGM3/7	MODEL HGC3/7			SPLIT CASE DESIGN		
			BASE CASE Ring Section PUMPS	INITIAL OFFERING	REVISED TO	INITIAL OFFERING				
1	2	ea	Boiler Feed Pumps with Drivers,		INCLUDE COVANTA					
			in accordance with Spec.SM-117		COMMENTS					
			(1) Motor Driven	$ 81,996.00		$ 102,538.00	$ 137,030.00	$ 316,064.00		
			(1)Steam Turbine Driven	$ 135,125.00		$ 167,020.00	$ 266,755.00	$ 161,395.00		
			SubTotal	$ 217,121.00	$ 466,803.00	$ 269,558.00	$ 403,785.00	$ 477,459.00		
ADD/	DELETE:			BASE OFFER			BASED ON INITIAL EVALUATION AND EXTREMELY HIGH PRICING IT WAS			
			ADD TURBINE OIL LUBE SYSTEM	REJECTED BY	INCLUDED	$ 35,789.00	DECIDED NOT TO GIVE ANY FURTHER CONSIDERATION TO SULZER'S			
				COVANTA SEE			OFFERING, AT THIS TIME.			
			SubTotal		$ 466,803.00	$ 305,347.00				
			BID CONDITIONING ITEMS:							
			From PG. 11 of Technical Evaluation		-$ 155,850.00	$ 1,960.00				
			TOTAL		$ 310,953.00	$ 307,307.00				
			5-18-05 BEST AND FINAL OFFER		$ 307,785.00	$ 298,686.00				
			DEDUCT - 100% LETTER of Credit		N/A	-$ 7,475.00				
			ADD - WARRANTY 24 MOS. FROM DEL'VY.		INCLUDED	$ 5,914.00				
			5-23-05 ADJUSTED BEST and FINAL		$ 307,785.00	$ 297,125.00				
			ESTIMATED COST ADDERS:							
			(From Pg 12 Technical Evaluation)							
			EST. OIL SKID TO TURBINE PIPING		INCLUDED	$ 3,000.00				
			EST. DESUPERHEATING STATION		$ 15,000.00	N/A				
			EST. EFFICIENCY PENALTY		N/A	$ 19,084.00				
			TOTAL EVALUATED PRICE		$ 322,785.00	$ 319,209.00				
			OPTIONS:							
			100% Perf/Payment Bond or Letter of Credit		$ 1,597.00	$ 7,475.00				
			Start-Up Spare Parts		Included	Included				
			Field Service Tech		$ 1,610/Day"	$1245/Day				
			GRAND TOTAL(Excl. Tax- and Perform/Pay Bonds)							
			Drawings Submitted	4-8 wks ARO	4-8 wks ARO					
			Delivery of material	28-32 wks ARO	22-23 wks ARO	34 wks ARO				
			PAYMENT TERMS	PROGRESS NET 30	PROGRESS NET 30	PROGRESS NET 30				
			F.O.B. Delivered DESTINATION	FT.MYERS, FL	FT. MYERS, FL	FT.MYERS, FL				
			TECHNICALLY ACCEPTABLE		YES	YES				

$60,384

$360,509

AWARD RECOM MENDATION: KSB, INC.

REASON FOR R ECOMMENDATION: Lowest Evaluated Price, Least Commercial Exceptions

PREPARED BY: J DILIBERTI DATE: 5/24/2005

REVIEWED BY: DATE:

Lindsey Sampson - Boiler Feed Pump Selection and Recommendation

From: "Young,Peter" <pyoung@CovantaEnergy.com>
To: "Dennis Iavarone" <diavarone@roe.com>, "Lindsey Sampson" <SAMPSOLJ@leegov.com>
Date: 6/13/2005 6:34 PM
Subject: Boiler Feed Pump Selection and Recommendation
CC: "Stuhrke,Steve" <sstuhrke@roe.com>, "D'Amico,Don" <ddamico@roe.com>, "Anacker,Dennis" <danacker@CovantaEnergy.com>, "Kelly,Jim" <Jim_Kelly@CovantaEnergy.com>

Gentlemen,
Covanta has completed its review of B&R's Boiler Feed Pump Bid Evaluation dated May 24, 2005, posted on May 26, 2005. Based on our review and supported by B&R's (Steve Stuhrke) June 3, 2005 email below, Covanta recommends the selection of KSB, Inc. (in lieu of Flowserve as first recommended by B&R). KSB, when applying the applicable evaluated capitalized power, becomes the lowest evaluated bidder. Addtionally, KSB's terms & conditions are more favorable than Flowserve's.

This recommendation is pending a satisfactory confirmation that the alternate Elliot (680 psig) turbine included in the evaluation for KSB's HGC pump is capable of continuous operation at the design flow horsepower of 447. The data presented only indicates a 435 hp turbine and does not state that it is also capable of 450 hp. B&R to immediately have KSB confirm this.

We also have not received sufficient details to assess the lube oil systems quoted by KSB, but since KSB has not taken exception to the specification in this area, and in the interest of time, Covanta will review these details during the review of vendor submittals.

Additionally, B&R is requested to ensure that KSB's vibration switches will have shutdown and alarm circuits with 170ma, 250 volt, Pk, analog SPST switches or equivalent per D. Anacker's June 2, 2005 email to S. Stuhrke.

The following comments are for your further consideration and guidance:

1. Commercial Terms & Conditions - Vendor has accepted the RFP Services/Goods Purchase Conditions, except requested that a)"Time is of the essence" be changed to "Time is of importance"; b) incidental and consequential damages be specifically excluded; and c) total liability be limited to 125% of the PO price. B&R should modify the T&C's accordingly and submitted for the County's approval.

2. Price: Covanta concurs with B&R's award price of $307,785 for the KSB pumps. This compares to the March 13, 2005 estimate of $268,948 for this equipment excluding escalation since December 2004.

3. Bond: Vendor quoted a bond for County's consideration. This is an equipment delivery only order, therefore County does not require a bond and is not included in the recommended award.

4. Payment Terms: 10% for drawings; 45% upon successful factory

performance test; and 45% upon delivery to site.

5. Schedule: Delivery Date of April 3, 2006 is required by Project's current Master Project Schedule. KSB quoted 22 to 23 weeks for delivery after receipt of order, which is earlier than needed. Don D'Amico is requested to have Vendor confirm a delivery not prior to April 3, 2006.

B&R should proceed immediately in completing and submitting 1) a purchase order term sheet that reflects the final agreements and understandings to be incorporated into the purchase order, and 2) a conformed specification, with all data sheet data filled-in, for inclusion in the purchase order.

B&R's original and current schedule for issuing this PO was April 27, 2005 and July 5, 2005, respectively. Covanta recommends that the County have this award approved by the BOCC no later than the June 28, 2005 BOCC Meeting to avoid the July BOCC recess.

Peter

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-----Original Message-----
From: Stuhrke,Steve
Sent: Friday, June 03, 2005 8:48 AM
To: Anacker,Dennis
Cc: D'Amico,Don; Dennis Iavarone
Subject: Re: Boiler Feed Pump Evaluation

Dennis,
Based on your comments, please note the following:

At Normal Flow (385 gpm), using the MCR or ~3/4 load motor efficiencies as provided for KSB Model HGC (0.955) and Flowserve (0.928), the calculated kW delta is 327.85 - 311.27 = 16.58. This provides a capitalized power cost adder to Flowserve of $60,384. This is based on 398.64 HP for KSB and 408 HP for Flowserve as provided. Please see Craig Alexander "e-mail" to me dated 6/2/05 4:08 PM for Flowserve calculated HP at normal flow.

Clearly based on the above the Flowserve offering is no longer the low evaluated bidder when considering normal flow. Flowserve's evaluated cost is now $360,509 against KSB (Model HGC) evaluated cost of $322,785. Note this is based on the adjusted best and final price as can be seen in the Bid Abstract - Attachment 1 of the bid evaluation (i.e. based on efficiency penalty change from $19,084 to $60,384).

Therefore, the evaluated low bidder for the boiler feed pumps should be KSB Model HGC and the evaluated difference is now ~11.7%.

Items #2, #3, and #4 in your "e-mail" below will be addressed separately.

If you have any questions, please call.
Steve Stuhrke
(201) 986-4096
sstuhrke@roe.com

For purposes of comparison only, the following is also offered. Using the Design Flow (490 gpm) and the full load motor efficiencies provided for KSB Model HGC (0.954) and Flowserve (0.94), the calculated kW delta is 353.02 - 349.6 = 3.42. This provides a capitalized power cost adder to Flowserve of $12,456. This is based on 447.26 HP for KSB and 445 HP for Flowserve as provided. Please note that when using the design flow, Flowserve's evaluated cost is now $312,581 due to using the actual provided motor efficiencies (against the original evaluated cost of $319,209 using an assumed motor efficiency of 0.96 for both bidders). This provides an evaluated difference of 3.26% ($312,581 versus $322,785) favoring Flowserve.

>>> "Anacker,Dennis" <danacker@CovantaEnergy.com> 5/31/2005 9:21:57 AM
>>>
I reviewed the boiler feed pump evaluation and need some clarifications:

1. The evaluated capitalized power for both vendors does not appear to have been correctly calculated. It was calculated at the maximum design flow point of 490 gpm instead of the normal MCR flow of 385 gpm. It appears to have been calculated on the basis of a theoretical 96% full load motor efficiency for both proposals.

From what I can tell from the Flowserve motor data sheet, the quoted WEG part load motor efficiency should be closer to 92.8% for the MCR horsepower although the exact pump horsepower at that operating point is not stated. Please have Flowserve provide their pump horsepower at 385 gpm, and recalculate their capitalized power at the MCR pump horsepower and corresponding quoted part load motor efficiency.

The revised 500 hp Siemens motor data sheet from KSB states their motor efficiency at the 385 gpm MCR point (398.64 hp) should be closer to 95.5%. Please recalculate their capitalized power at the MCR pump horsepower and corresponding part load motor efficiency.

This evaluation point should also apply to other motor driven equipment:
condensate pumps, miscellaneous pumps, fans etc.

2. Did Flowserve include a reverse rotation detection device? An adder was given for KSB and N/A for Flowserve.

3. Please confirm that the alternate Elliot (680 psig) turbine included in the evaluation for KSB's HGC pump is capable of continuous operation at the design flow horsepower of 447. The data presented indicates it is normal 435 hp turbine but does not state that it is also
capable of 450 hp.

4. Please advise as to which pieces of vendor correspondence identify the details of the lube oil systems quoted.

I will advise if we have any additional questions on the evaluation after Amrit and Demetrie finish looking at it.

Thanks,

Dennis Anacker