

**Lee County Board Of County Commissioners
Agenda Item Summary**

Blue Sheet No. 20051772

1. ACTION REQUESTED/PURPOSE:

Approve award of formal quotation (RFP B&R 2661-SC-301) and issuance of a purchase order to ABB, Inc., the sole-source provider / proposer, meeting all specification requirements for a Distributive Control system including engineering, system design, and all equipment, in the not to exceed amount of \$635,000.00 that includes an allowance of approximately \$7,000.00 for additional start-up and training service to be utilized if required.

2. WHAT ACTION ACCOMPLISHES:

Provides the necessary plant-wide distributive control equipment/system for the Waste To Energy Expansion Project.

3. MANAGEMENT RECOMMENDATION: Staff recommends approval of this request.

4. Departmental Category: 8

C8D

5. Meeting Date:

12-20-2005

6. Agenda:

- Consent
- Administrative
- Appeals
- Public
- Walk-On

7. Requirement/Purpose: (specify)

- Statute
- Ordinance
- Admin. Code 4-1
- Other

8. Request Initiated:

Commissioner _____
 Department Public Works
 Division Solid Waste
 By: **Lindsey J. Sampson**

Lindsey J. Sampson

9. Background:

All finalized information and pricing (Revision 2) were received by the County's design engineer, Burns & Roe, on behalf of the Solid Waste Division on September 8 & 13, 2005. Only one vendor's proposal, ABB, Inc. was received (the sole-source provider meeting all technical requirements for this system and equipment) because this control system must be compatible with and communicate with the existing "Bailey" plant-wide distributive control system (DCS). ABB now owns and services the DCS product line that evolved from "Bailey Control Systems, Inc). After review and conformance for technical and commercial requirements recommendation was made to award to ABB, Inc.

Funds are available in account string: 200923 40102.506540

Attachments: Burns & Roe technical review of proposal

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.	
<i>[Signature]</i>	NA per JS	NA		<i>[Signature]</i>		<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>

11. Commission Action:

- Approved
- Deferred
- Denied
- Other

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DISTRIBUTED CONTROL SYSTEM
TECHNICAL REVIEW OF PROPOSAL
FOR SC-301

SUMMARY

A single proposal was received, from ABB Inc., for the DCS. ABB now handles the DCS product line that evolved from the Bailey Controls DCS that was installed when the Lee County Waste to Energy plant was originally constructed. They were the sole source bidder for the DCS for the Expansion project.

ABB has offered a system made up of current production hardware, but one that is specifically configured to be as compatible as possible with the existing system. Integration of the system with the existing one is included in the vendor's scope and the resulting system will function seamlessly to provide control for all new and existing plant equipment. Under a separate contract, Covanta is upgrading their existing operator stations to the current ABB product line and the operator station furnished under this specification will match the upgraded ones.

SPECIFIC ISSUES

Several issues were raised during the evaluation of the initial bid that required resolution. These are discussed below.

QUANTITY OF PROCESS CONTROLLERS

The specification divided the required process control functions into 3 distinct groups, Boiler 3, Turbine 2 and Balance of Plant (BOP), and separate process controllers were defined for each group. Based on the physical location of I/O points that make up these 3 groups, I/O cabinet locations were defined. Turbine related I/O was grouped into one cabinet in the 13.8KV Switchgear room. Boiler 3 related I/O was grouped into 2 locations, the majority of points in the Boiler 3 MCC room and a smaller quantity of points in Electrical Room 2. Similarly, BOP I/O was grouped into 2 locations, the majority being in the 13.8KV Switchgear Room and a smaller quantity being in Electrical Room 2. The intent of the specification was that there would be one set of controllers for each process group, even in cases where the I/O was split into 2 locations. The original quote, however, included a separate pair of redundant controllers for each I/O group, even though the smaller I/O groups had only 12 and 21 points. ABB was requested to reconfigure their proposed system to utilize one pair of controllers for each process group, by employing a multi-drop remote I/O arrangement or similar architecture. This will make it so all process control functions associated with a particular process group are executed within one pair of controllers and should reduce system hardware by 2 pairs of controllers. The price change for this item is included in ABB's revision 1 dated August 23, 2005.

SEQUENCE OF EVENTS RECORDING

The Sequence of Events Recording (SER) design of the expansion project DCS is based on expanding the existing Sequence of Events Recorder system to include the SER points associated with the new plant systems. The existing SER system is a Rochester Event Recorder that was purchased fully installed as part of the original DCS. This product line has now been taken over by Ametek. At a meeting prior to issuance of the DCS bid specification, ABB contacted Ametek and confirmed that the system could be expanded and that hardware for the system is still available and supported. At the time the DCS bid was submitted by ABB, they did not have full definition of all the part numbers and prices for the expansion SER equipment, but it was submitted later (7/26/05 e-mail from D. Myers). The inclusion of this equipment resulted in a cost increase of \$23,653.

Upon review of equipment submitted, it was determined that while the specification called for the new SER Input hardware to be installed in three of the new DCS cabinets, ABB had quoted based on putting it all in the same cabinet as the existing SER system. This would greatly increase the amount of field wiring and would require significant work in one of the existing Bailey cabinets, which we were hoping to avoid. ABB acknowledged this error and provided pricing for the specified arrangement in their e-mail of 9/8/05. In this e-mail ABB also quoted a fourth SOE input unit for Schweitzer relay points, as discussed below, but this fourth unit is not required.

After the DCS specification was issued for bid, some discussions with Covanta took place wherein Covanta stated that SER points identified in the (external) Schweitzer protective relays should be included in the DCS logging of SER points. Burns and Roe investigated the requirements to accomplish this and found that the protective relay SER points can be time tagged in the Schweitzer relays and communicated, along with the time tag to a monitoring system using DNP communication protocol. This can be accomplished most readily through the use of a Schweitzer communications processor known as an SEL-2032. ABB was contacted and indicated that DNP is a communication protocol that they support. To ensure that the points time tagged by the Schweitzer system are synchronized to the points tagged in the Ametek SER, they need to be using the same time reference. Both the SEL-2032 and the Ametek SER can be synchronized to a time clock using IRIG-B protocol. Pricing for ABB to furnish this DNP interface and a time clock for the SER system was included in ABB's Revision 1 dated August 23, 2005.

Upon review of proposal Revision 1, it was determined that the proposed system does not, in fact, support the full functionality of the Schweitzer 2032 communications. ABB is actually converting the DNP signal to Modbus using a third-party converter. All the data from the relays can be communicated this way, but the time tagging cannot be communicated through this method. Due to this inability, it was decided to instead hardwire just these Schweitzer SER points into the SER system, but keep the datalink for the Schweitzer relay data, and the time clock to synchronize the relays to the DCS. The revised SER pricing mentioned above includes this increase in SER point count within the original three SOE input locations.

THIRD PARTY INTERFACES

The proposal from ABB showed the appropriate number of Modbus interfaces (Turbine, BOP Swgr Rm, BOP Elec Rm and BLR3 Elec Rm.) although the BLR3 interface was shown connected to the BOP electronics cabinet whereas it should connect to the BLR3 electronics cabinet. The proposal also included the appropriate number of Allen Bradley Ethernet links (Blr3 SNCR, Blr3 Sootblower, Blr3 Aux Burner and Wtr Treatment) and the Allen Bradley DH+ link to the Stoker. The Ethernet links were shown connected to a device labeled as an "Existing Ethernet Switch". ABB was contacted and explained that this reference was actually to a new Ethernet switch that is being furnished to the site under a separate contract to upgrade their consoles. But after discussion, it was clarified that the Ethernet links shall all be brought into the system via hardware that is all furnished under this specification, not the separate console contract.

As mentioned above, there is now a need to bring in another interface, this one being for the protective relays. In proposal Revision 1, ABB provided the pricing to add this DNP protocol interface to the Schweitzer SEL-3032 which will consist of approximately 50 Read-Only points associated with the BOP Process controller.

UPDATED I/O COUNT

During the period since the specification was issued, the I/O count has been updated based on design progress and has increased somewhat.

The following table represents the changes in I/O count by type for each I/O location.

I/O Group/Location	BLR3	TURB	BOP	BOPE2	BLR3E2
Analog In	-12	+17	0	0	0
Analog Out	+6	+1	0	0	0
Thermocouple In	+35	0	0	0	0
RTD In	0	-4	0	0	0
Digital In 120V Ext Pwr	+2	-4	+8	+2	0
Digital In Dry Cont	+3	+9	+38	+15	-5
Digital Out 2A, 120 VAC Ext	+1	-3	+3	+2	-3
Digital Out 120VAC Int Pwr	0	0	+15	0	0
Seq of Events	0	-20	0	0	+20

ABB provided pricing reflecting this updated I/O count in proposal Revision 1 dated August 23, 2005.

CONCLUSION

In the end, after adjustments due to comments and issues raised during the evaluation, the bid from ABB was found technically acceptable. Final pricing for the adjusted system scope has been furnished by ABB in proposal revision 2 dated 9/8/05, and e-mail dated 9/13/05.