David Sellers

From: Jeffrey Anecito <jeffrey.anecito@ableserve.com>
Sent: Thursday, June 17, 2021 8:36 AM
To: David Sellers
Cc: Ryan Stroupe (R2S2@pge.com); Bob VanBlargan
Subject: RE: Revised Bid request. (disregard the previous email)

Good Morning, Thanks for the detailed explanation on the requirements for the additional labor and materials to install the pump I had specified. This information will help to justify the bid price you had submitted and I look forward to working with you if ownership decides to install the new pump. I may still have to obtain an additional bid that aligns with yours as the property owner usually requires three bids when the project costs exceeds $25K.

Best Regards,

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From: David Sellers <dsellers@facilitydynamics.com>
Sent: Wednesday, June 16, 2021 5:50 PM
To: Jeffrey Anecito <jeffrey.anecito@ableserve.com>
Cc: Ryan Stroupe (R2S2@pge.com) <R2S2@pge.com>; Bob VanBlargan <BVANBLARGAN@hotmail.com>
Subject: RE: Revised Bid request. (disregard the previous email)

Hi Jeff,

You and Bob are doing an excellent job of paying attention and asking the contractor the right questions. I will answer your questions as the contractor for the time being to keep in the spirit of the exercise. After that, we can discuss outside of the pretend contractor role, either in a subsequent e-mail or in class.

As a side note, I built this exercise several years ago and the details are specific to the pump models and submittals that existed at the time. So, it is not out of the question that the exact pump model I used and the exact details would be slightly different if you were to go get the current submittal. So, "the contractor" is answering the questions in that context. But your questions are certainly the correct questions and bring up one of the lessons in the exercise (pumps are not "plug and play").

See below for the contractor's answers.

David

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A Field Guide for Engineers at http://av8rdas.wordpress.com/
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From: Jeffrey Anecito <jeffrey.anecito@ableserve.com>
Sent: Wednesday, June 16, 2021 3:43 PM
To: David Sellers <dsellers@facilitydynamics.com>
Cc: Ryan Stroupe (R2S2@pge.com) <R2S2@pge.com>; Bob VanBlargan <BVANBLARGAN@hotmail.com>
Subject: Re: Revised Bid request. (disregard the previous email)

David, To further add to item 2 in the previous email, why are we adding additional valves and flanges. The pump we're replacing already has an isolation valve on the suction side and triple duty valve on the discharge side of the pump. If we need to change the piping to compensate for the slight difference in the centerline of the new pump couldn't we use a special flange or fitting on the discharge of the pump? Looking forward to hearing back so we can present two bids to my landlord that are closer in final costs.

Thanks, Jeff

Sent from my iPhone

> On Jun 16, 2021, at 2:47 PM, Jeffrey Anecito <jeffrey.anecito@ableserve.com> wrote:
>
> David, I had two concerns about the bids received.
>
> 1. The bid to trim or provide new impellers doesn't have list new bearings, unless it's included in the seal set. If it's not can you make a change to this bid so we can replace the bearings too. I'd hate to ask ownership for more money to replace the bearings and install new seals if the bearing fails a short time later.

[Mr. Contractor] Hi Mr. Anecito,

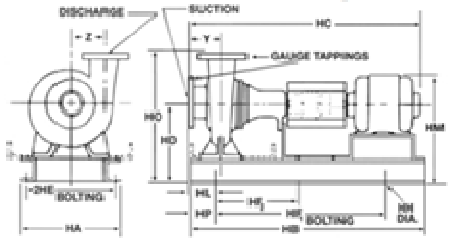
My line item for the Seal Set should more appropriately have read Seal Set and Bearings. My quote from the local rep included both.

2. The bids for the new pump installation are far apart and I'd like either a correction if not clarification. Both bids have a cost for the installation of the pump ($4,620) yet the higher bidder has included fittings, valves and other work adding roughly $9,200 in material and labor to the project cost. I do see where three of the dimensions that don't match up, though two of the dimensions (Y & HD) can easily be resolved in the field. The "Z" dimension could require some re-work or a special flange, but other than that it seems like there shouldn't be too much added to the pump installation labor price of $4,620. The other issue is that the higher bidder has his pump priced $2,363 above the next highest bidder which is a little unusual. I could understand q few hundred difference in some cases but not over $2,300. If you could revisit this for me as there could be some sound reasoning for the higher bid but I'd like to have some understanding as to why his bid is respectable and worth awarding the job.

[Mr. Contractor] Hi Mr. Anecito,

The reason I have included pipe valves and fittings, etc. in my bid is that you simply can not remove the pump that is there and replace it with a different pump; a number of dimensions do not line up. If you compare the HD, Y and Z dimensions in the drawings below (the top pump is the pump that you have and the bottom pump is the pump you asked for), you can see there are slight differences.

Series 1510 6G Centrifugal Pump Submittal



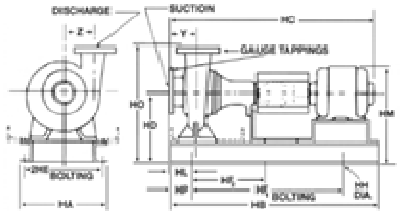
FLANGE DIMENSIONS IN INCHES (MM)			
	SIZE	THICKNESS	O.D.
Discharge	6" (152)	1-7/16 (37)	12-1/8 (308)
Suction	8" (203)	1-5/8 (41)	14-3/4 (375)

FLANGES ARE: 125# ANSI - STANDARD
250# ANSI - AVAILABLE

DIMENSIONS - Inches (mm) — STANDARD SEAL 1510, 1510-F

MOTOR FRAME	HA	HB	HC MAX	HD	2HE	HF_1	HF_2	HH	HL	HM MAX	HO	HP	Y
	"L" FRAME												
256T	24 (610)	56 (1422)	49-5/8 (1260)	16-1/2 (419)	21-1/2 (546)	44 (1118)	22 (559)	1 (25)	6-1/4 (159)	23-3/8 (594)	30-1/2 (775)	6 (152)	6-1/ (165
90LT	24	56	50-5/8	16-1/2	21-1/2	44	22	1	6-1/4	24-1/2	30-1/2	6	6-1/

Series e-1510 6BD Centrifugal Pump Submittal



FLANGE DIMENSIONS IN INCHES (MM)			
	SIZE	THICKNESS	O.D.
Discharge	6" (152)	1-7/16" (37))	12-1/8" (308)
Suction	8" (203)	1-5/8" (41)	14-3/4" (375)

FLANGES ARE 125# ANSI - STAINDARD
250# ANSI - AVAILABLE

DIMENSIONS - Inches (mm) — STANDARD SEAL

MOTOR FRAME	HA	HB	HC MAX	HD	2HE	HF_1	HF_2	HH	HL	HM MAX	HO	HP	Y
	"L" FRAME												
254T	16 (406)	46-1/2 (1181)	50-5/8 (1286)	15 (381)	14 (356)	36-1/2 (927)	18-1/4 (464)	7/8 (22)	8-3/8 (213)	21-7/8 (556)	25-1/2 (648)	5 (127)	7 (178)

To accommodate this, our plan is to;

1) *Adjust for elevation by using the existing mounting bolts with a pair of jamb nuts added to each to bring the elevation up to the required level and allow us to level the pump base. After the pump is set in place we will grout the base all of the way down to the pad level.*
2) *We will align the suction diffuser centerline with the new pump centerline.*
3) *As a result of items 1 and 2, there will be a misalignment between the discharge flange and the centerline of the existing discharge pipe. In order to minimize the disruption, we plan to come into the plant on a cool evening when you are at low occupancy and only require 1 chiller and*
    a) *Isolate the pump from the system by closing the butterfly valve on the suction side of the pump and the butterfly valve on the entering side of the evaporator on the chiller it serves.*
    b) *Drain the segment of piping thus isolated.*
    c) *Remove the triple duty valve, flex connector and spool piece on the discharge side of the pump.*
4) *This creates enough space for us to go back with a butterfly valve with memory stop (which can serve as an isolation valve and also a throttling valve if you need it after this – hopefully not if the Cx provider's math was right) along with an eccentric reducer.*

    The measurements we took when we walked the job indicated that we can probably roll the reducer and get the centerlines lined up that way. But worst case, we can cut the spool piece that will go between the reducer and the flange for the check valve so that it makes a slight offset – probably 2-3° at the most, so insignificant from a pressure drop stand point, especially given the line size and flow rate.

    I realize that making an offset like that is tricky from a craftsmanship standpoint, but Rosie, who is the foreman (or I guess I should say foreperson) we plan to use on the job is one of the best and I am pretty sure that it will be a work of art when she gets done.

Bear in mind that we are not taking the plant down, just the pump and its associated chiller. Once we have the TDV out of the way and the butterfly valve in place, we can fill the small amount of piping that was drained back up so that if the chiller failed, you could open the cross-over valve and serve it with the other chilled water pump.

So the amount of time that you would be with out a redundant chiller is probably a couple of hours. And Rosie's plan is to get in there about a week ahead, pull the insulation, take her measurements, and have everything fabbed up – including the

offset if needed – so that on the day of the change, its kind of like an erector set in terms of putting it together.

Our electrician things that disconnecting and reconnecting the motor is not going to be much of an issue. The will have what they need to pull wire from the switch to the new motor if there really is not enough length in the existing wire and flex to accommodate the new motor location. But based on our field measurements, they thing the existing wiring will work and they will just need to modify the flex or cut a new piece to fit.

We reviewed this plan with your chief, Noreen, when we were doing our job walk and figuring it out and she said that as long as we did it during the evening, could have things buttoned up by the next morning, and you were below 80% occupancy and it was forecast to be below 85°F for a day or two after we started, she was O.K. with it. Once we have all of the materials on hand, we can be pretty flexible and coordinate with your occupancy and the weather forecast.

In terms of the cost for all of this, I realize that we are not reusing your TDV and spool piece. But I think we would have needed to replace the spool piece no matter what and my opinion - as well as Rosie's when I showed her the pictures and dimensions when I got back to the shop - was that there simply was not enough room between the TDV flange and pump flange to accommodate the reducer and an offset that was not severe. Thus, the new service valve and check valve and related flanges (of course the welds are the most expensive part).

For what it is worth, on a plant like this, I generally do not like to use TDVs because the check valve seat is also the service valve and throttling valve seat. So, if the seat fails (our general experience is check valve seats probably will need replaced or reground about every 10 years if the pumps cycle with any regularity) there is no way to isolate and replace the seat with out at least a partial outage.

In your case, you could do what we are doing and only be with out a chiller for a while. But I did a cleanroom central plant a while back where we used TDVs, and about a month before the warranty ran out, the seal on the TDV on one of the distribution pumps failed.

So there they were with the off line distribution pump spinning backwards at a pretty good clip stealing flow from the plant on – of course – the hottest day they had seen so far. All of this with one of the clean rooms doing qualification runs.

Fortunately, their lead operator was smart enough to know that if he tried to start the pump that was spinning backwards, it could blow up the drive or shear the impeller key, so they shut the distribution down briefly, then started both pumps and saved the clean room with out damaging the pump or drive.

But there I was stuck doing a warranty repair that involved trying to coordinate an outage with a cleanroom that was in 24/7 production because there was no way to isolate the pump from the system with out shutting down the valves in the various mains leaving the plant. So Rosie and her crew missed Christmas Eve with their families that year (but made some pretty good money), and ever since then, I have avoided TDVs on mission critical plants like yours.

In terms of why I was quoted a higher price for the pump than my competitor, you would have to ask the rep. I suspect it is because a lot of our work is in process piping, thus we do not buy much from the B&G vendor since their product line, or at least this product line, is commercially oriented.

In contrast, I believe our competitors are mostly focused on commercial work and purchase a lot more product from B&G. So they probably have a different multiplier from us. Our installation labor is about the same because most of us use a standard number of hours for things like this, partly because of work rules. I would not be surprised if found a similar number if you looked up this size pump in RS Means

In terms of why they feel they can simply pull the old pump and install the new one; you would have to ask them. But the drawings I was furnished with by B&G say things will not line up and you need to do something along the lines of what we priced. Perhaps they are more clever about this than we are.

In any case, I would be happy to discuss this further with you; perhaps I am missing something in my field notes etc. And certainly there is some "wiggle room" in our mark-ups, which we have exposed as requested. But we truly believe that the work we proposed is generally what will be required to accomplish the job and give you an installation that matches your very nicely maintained plant.

Best regards

Mr. Contractor

Best Regards,

Jeffrey Anecito
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