Equipment Analysis Summary – Primary Treatment Facility Project

Element	Justification	(1) % of Primary Treatment Facility Construction Cost	(2) % of Full Program Automation Build Out	Downside - Not Selecting	Procurement Options
Eutek HeadCell Grit Vortex System	• Most cost-effective grit removal alternative based on net present value analysis • Based on field testing at the WPCP, provides the best performance for removal of grit (based on characteristics of grit entering the facility) • Unique equipment design	$558K (0.6%)	NA	• Finer materials may cause premature wear on downstream equipment and increase maintenance • Grit accumulation in the digesters and loss of solids treatment capacity.	• Negotiate and pre-purchase (supply to installation contractor) • Negotiate and assign to installation contractor as part of bidding process
COANDA Fine Grit Washer	• Produces cleaner, drier & less odorous final product for disposal • Reduced costs for disposal and odor control • Unique equipment design	$525K (0.5%)	NA	• Higher cost for grit hauling and disposal • Larger Odor Control Facility (i.e., capital cost) • Higher ventilation rates for odor control (i.e., O&M cost) • Loss of a significant portion of captured grit, back to the process stream.	• Negotiate and pre-purchase (supply to installation contractor) • Negotiate and assign to installation contractor as part of bidding process
Huber SuperLaunder Screenings Washer Compactor	• Produces cleaner, drier, and less odorous final product for disposal • Reduced costs for disposal and odor control • Unique equipment design • Reduces potential for exposure of plant staff and outside haulers to fecal matter in screenings off-haul material	$350K (0.4%)	NA	• Higher cost for screenings hauling and disposal • Larger Odor Control Facility (i.e., capital cost) • Higher ventilation rates for odor control (i.e., O&M cost) • Increases potential for exposure of plant staff and outside haulers to fecal matter in screening off-haul material	• Negotiate and pre-purchase (supply to installation contractor) • Negotiate and assign to installation contractor as part of bidding process
Rockwell (Allen-Bradley) Programmable Logic Controller (PLC)	• Largest US market share • Best local factory and integration support presence • Lowest initial capital and lowest ongoing operational cost • Open architecture/ease of programming	$200K (0.2%)	$800K (5.4%)	• Use of Incompatible PLCs would result in higher costs of programming	• Allow competition amongst various suppliers to dictate price through low bid process • Conduct competitive bid or proposal process to pre-purchase equipment to supply to installation contractor • Conduct bid or proposal process to pre-select equipment supplier and assign to installation contractor as part of bidding process
Rockwell (Allen-Bradley) Intellicenter Motor Control Center and free standing Reduced Voltage Solid State (RVSS) and VFDs	• Largest US market share • Supports EtherNEt/IP Device Level Ring (DLR) communication at each overload and motor drivers (VFDs & RVSS) which reduces cabinet complexity and minimizes future maintenance • Lowest programming costs based on prewritten code for the Rockwell PLCs • Reduces number of Ethernet switches in the project and reduces maintenance and configuration time to set up the switches.	$500K (0.5%)	NA	• Reduces complexity of cabinet, minimizes future maintenance and reduces cost of programming	• Allow competition amongst various suppliers to dictate price through low bid process • Conduct competitive bid or proposal process to pre-purchase equipment to supply to installation contractor • Conduct bid or proposal process to pre-select equipment supplier and assign to installation contractor as part of bidding process
Rockwell (Allen-Bradley) FactoryTalk HMI Software and Associated Hardware	• Easiest integration with Rockwell PLCs. • Reduces costs associated with future integration of new PLCs and other software devices. • Lower initial capital and lower ongoing operational cost than other object-oriented programming packages • Offers large diversity of associated software programs from single developer	$450K (0.5%) Software and Associated Hardware	$450K (3.1%)	• More difficult integration with PLCs • Higher integration cost • Higher on-going operational costs • Associated third party software programs may also need to be sole sourced	• Allow competition amongst various suppliers to dictate price through low bid process • Conduct competitive bid or proposal process to pre-purchase equipment to supply to installation contractor • Conduct bid or proposal process to pre-select equipment supplier and assign to installation contractor as part of bidding process

(1) Estimated construction value of Primary Treatment Facility project $98 million
(2) Estimated value of full Automation and Control System Program build out $14.7 Million