

Wastewater Department

To: Public Works Commission

From: Tim Hayden

Date: September 2, 2026

Subject: Purchase of Orthophosphate Analyzer

Background

The Wastewater Treatment Plant's WPDES discharge permit requires removal of Total Phosphorus to 1 ppm. An online orthophosphate analyzer allows staff to monitor phosphorus levels continuously and adjust ferric chloride feed accordingly, reducing chemical usage and cost while maintaining compliance.

The Plant's existing analyzer, a YSI Alyza IQ PO4 online orthophosphate analyzer purchased in 2015, has experienced ongoing reliability problems since installation. Over the past four years, the unit has been down for maintenance or repair 31 times, and none of the repairs performed have resolved the underlying issue for any meaningful length of time. The unit has consistently had difficulty processing the Plant's effluent, which has made it difficult for staff to rely on it for the continuous, accurate data needed to manage chemical dosing and demonstrate permit compliance.

As one example, the unit was sent to the manufacturer for repair, returned to service, and that day exhibited the same performance problems it had before the repair. The vendor's follow-up recommendation at that point was to run five consecutive cleaning cycles on the unit, a step that falls outside the manufacturer's standard maintenance procedures for the analyzer. This outcome indicates that conventional troubleshooting has not been able to identify or correct the root cause of the problem.

Because of these ongoing issues, the Department arranged a demonstration of the Hach NP600 Phosphate Analyzer as an alternative to the existing unit. The demo unit has been in continuous operation at the Plant for over six months and has performed reliably throughout, with straightforward maintenance requirements. This purchase is included as part of the Facilities Plan Equipment Update.

Budget Goal

Our goal was to identify a reliable replacement analyzer that would meet the Plant's stringent orthophosphate monitoring needs without the repeated service issues experienced with the current unit.

Based on the six-month, on-site demonstration period, the Hach NP600 Phosphate Analyzer meets this goal and has proven well suited to the Plant's effluent characteristics.

Financial Impact

Two options were evaluated. The vendor for the Plant's existing analyzer, Mulcahy Shaw Water, quoted a replacement of the same YSI Alyza IQ PO4 unit at a discounted price. This option was not pursued because it would not resolve the reliability problems the Plant has experienced with that technology since 2015. The second option, a Hach NP600 Phosphate Analyzer supplied by Energenecs, was evaluated instead based on the successful six-month demonstration at the Plant.

Item	Total Cost
Mulcahy Shaw Water – YSI Alyza IQ PO4 (replacement/upgrade of existing unit)	\$27,215.00
Energenecs – Hach NP600 Phosphate Analyzer with Warranty Plus	\$60,510.00

The Hach NP600 quote of \$60,510 includes the Warranty Plus service partnership, which provides full coverage for parts, labor, and travel for instrument startup, one preventative maintenance visit, and priority status for on-site repairs. Because Warranty Plus includes professional startup and installation, the Department will not need to install the unit itself, which avoids any question of whether future issues could be attributed to installation errors.

Staff requested comparison quotes from other suppliers, including Crane Engineering, another supplier of similar equipment, Ender Hauser instrumentation. We were unable to get a quote, and no vendor other than Energenecs provided a quote for the recommended equipment.

Funding for this purchase is included in the Facilities Plan Equipment Update, capital account 02-97-30-12.

Recommendation

We recommend that the Public Works Commission authorize the purchase of one (1) Hach NP600 Phosphate Analyzer with Warranty Plus from Energenecs for a total cost of \$60,510, to replace the Plant's existing YSI Alyza IQ PO4 analyzer. Although this cost exceeds the quote received for a like-for-like replacement of the existing unit, that unit's underlying technology has been down for maintenance or repair 31 times over the past four years and has not provided the reliability needed to consistently support the Plant's Total Phosphorus permit limit. The Hach NP600, by comparison, has been fully demonstrated on-site for over six months without issue. Staff believes the added reliability and the reduced staff time and risk associated with fewer service disruptions justify the higher initial cost.

Sincerely,

Tim Hayden

Assistant Water Systems Manager