Replace Effluent Pump Type and Style

Adam Bradbury | 27 Sep 2024 | ID419

Idea of the Month Competition Nominees

Closed with success by Adam Bradbury

Approver: Adam Bradbury
Implementation coordinator: Adam Bradbury
Plan: Quick Wins
Classes: Commercial + Efficiency + Employee Engagement + Energy Awareness + Health & Safety + Water Management

Problem, context, environment, status

Current WGR 200/200 MK2 is not fit for purpose. Using RCA's and data comparison this pump is second on the list for downtime at Bramshill. This pump was purchased by previous management from Weir Minerals as a refurbished return, the pump mounts and feed are off center with the mounting plate being at the bottom of a 10 foot sump from previous plant installations. This sump fills with water from poor alignment, old steel walls and rain. Due to ongoing issues with gland seals and pump faults the chamber fills with silt regularly requiring a vac tanker to remove. A second pump removes water overnight but cannot be left on at weekends should it fail/burn out meaning in wet season the whole chamber is flooded and requires time to pump out. This effects the bearing cartridge which fails more often than manufacture expectation. The Linatex impeller does not hold up against the stone/sand/organics discharged by the plant causing damage and blockages which require specialist contractors and cranes to replace and work on.

Resources: WGR Placement

WGR Placement

Description of the initiative

Replace WGR pump with a High Chrome impeller Vertical Shaft Pump. This will enable a lower KW motor

running at higher efficiency. The VSP design and chromium impeller will be able to handle organic content of effluent material. Approached a new supplier Yellow Pumps as found a 10-15k cost saving against current Cemex vendors.

Resources: Yellow Pump Walkway

Yellow Pump Walkway

Expected benefits

Massive reduction in breakdowns caused by blockages

Reduction in downtime due to chamber filling

No replacement costs of bearing cartridges and gland seals due to being submerged

Decrease in site power use due to lower KW motor and IE4 efficiency

Health and Safety benefits from removing a confined space from site. Improved access with new walkway and service points.

Financial analysis

Title	Impact distributed over time	Forecast amount
Purchase of Pump Purchase of new pump	26-04-2024	-£21,850.0
Motor Platform Purchase	28-05-2024	-£5,182.0
Change from 55kw motor to Based on 8 hours running per day over 220 working days	01-01-2025 – 31-12-2025	£9,020.4
Dowtime Costs of WGR for 2024	01-01-2025 – 31-12-2025	£65,506.1
Total cost amount		-£27,032.0
Total gains amount		£74,526.6
ROI		**£47,494.6**
Profitability		176%

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