

Quarry Running Cost Case Study

South West England



FUEL EFFICIENCY CASE STUDY



The client, a quarry located in the South West of England invited Pioneer to their site for recommendations to improve the fuel efficiency of the pumping system currently in place.

THE PROBLEM

Due to ever increasing fuel costs, the client tasked Pioneer with evaluating their pumping installation and to provide a solution to reduce their current expenditure on fuel.

The site currently had three pumping arrangements in place. The primary concerning arrangement controlled the levels in the Lagoon and was fed by a 12" pump manufactured by a competitor to Pioneer Pump. Upon investigation by the Pioneer team, this pump was identified to use 840 litres of fuel every 7 days resulting not only in considerable costs but significant amounts of time spent refueling by staff.

THE SOLUTION

Based on the system curve calculated by the Pioneer team, they identified that a Pioneer 6" 150SL would be able to achieve an increase of 20m³ per hour in flow over the competitors pump on site whilst utilising only half of the amount of fuel per hour.

In addition to being a more efficient pump, the Pioneer 6" 150SL pump offered to the client was fitted with automatic float controls resulting in less man power required for operation as the controls monitor the level of the lagoon and automatically activate the pump once the set level has been reached.

To further decrease the man power required for operation of the pump, Pioneer fitted a telemetry unit to the 6" 150SL pump to allow for remote operation. The telemetry unit allows for the operator to access the pump controls from a mobile app or desktop removing the need to travel to and from the pump when additional operation is required outside of the scope of the automatic float devices.

THE RESULT

Upon submission of the proposal, Pioneer submitted a cost saving analysis of the pump proposed resulting in estimated savings of over 19,000 litres of fuel which - at current fuel prices post changes to red diesel legislation - results in cost savings in excess of £32,000 per year!

Installation of the float switch controls would also be expected to increase this saving by preventing unnecessary usage of the pump in times of lower rainfall and water levels.

Whilst considerably financial savings were made on the conversion to the 6" Pioneer Pump 150SL, further immeasurable savings were made on wasted staff time spent refueling, restarting pumps and visually monitoring lagoon levels allowing staff to spend their time focusing on other projects.

Reduced Fuel consumption

Increased Environmental sustainability

PUMP FEATURES

- Automatic float controls provided with installation
- Telemetry unit built-in to pump

PERFORMANCE DETAILS

- High Head Max Flow: 520 m³/h
- High Head Shut-Off: 27m
- Fuel Consumption @ BEP: 5.6L
- Max running hours @ BEP: 36h

RESULTS

- Over 50,000kg of CO₂ saved per year
- 19,000 litres of fuel saved per year
- Fuel burn halved