



CASE STUDY

Heavy Vehicle Water Treatment Plant

CUSTOMERS: Major Multi-national Mining Company

LOCATIONS: Pilbara Region, Western Australia

Application

Recycle water from HV Washbay for reuse

FLOW RATE

17 L/sec, 1220m³/day

OBJECTIVE

Treat process water with contaminant levels:

Concentration specified 50mg up to <200mg, Grease & Oil in very small emulsions

DATA

Average discharge levels with OLEOLOGY:

TPH <5ppm typical <10ppm, TSS <10mg/L,
Oil Droplet <5micron, Coliforms & E Coli –
Not Detected



Company profile

- This major iron ore miner exports to the world from mines in the WA Pilbara region
- Full site facilities to enable open cut mining
- A fleet of heavy vehicles are maintained in workshops on site

Business situation

The client operates under a mining license with strict environmental compliance requirements for recycling of water onsite.

An upgraded HV only washbay required a compliant water treatment plant for water recycling. Monitoring equipment and incorporated programming was necessary for the overall integration of each facility supplying and drawing from the Water Treatment Plant.

Technical situation

To keep up with the demand for clean reusable water at the required flow rate for the washbay cannons, the system had to be big in through put, but within a manageable footprint.

The optimized process consists mainly of three stages (solids settling, oil separation and water polishing), each designed to achieve a specific goal.

Solution

The water treatment is staged beginning with gross oil & solids removal, dosing with selected flocculants, through detention tanks, then to a clarifier pack which passes to a columnar sump with 2 pumps, duty and standby. Final water polishing by the MyCelx filters is discharged and monitored for TPH and pH compliance and corrected with pH dosing if required.

Water quality monitoring is a high priority with environmental staff onsite constantly testing the treated water. An oil content meter (OCM) was a part of the HV Water Treatment Plant to monitor the discharge water. The OCM continuously samples water after the final MyCelx polishing stages, it is certified by Lloyds register. The approved oil content monitor is coupled with the control system such that only treated water with less than 10 ppm is discharged from the system to the clean water holding tank.

Benefits & Impact

The commissioned HV Water Treatment Plant enabled the following benefits:

- Reduce water usage - potable water usage has declined with the incline of recycled water onsite
- Reduce running costs
- Risk reduction for environmental non-compliance – monitoring equipment to set reject over the limit discharge water



Further Information

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