



CASE STUDY

Shell Tank Compound & Truck Loading Gantry

CUSTOMER: Shell

LOCATION: North Fremantle, Western Australia

Application

EPA Compliance Treatment Onsite

FLOW RATE

10KL/hr

OBJECTIVE

Treat waste water onsite for compliant discharge

TRH	25ppm,
BTEX	23ppm
TSS	14ppm
Grease & Oil Emulsions	

DATA

Average discharge levels with OLEOLOGY:

TRH	<1ppm,
BTEX	0.7ppm
TSS	<0.05mg/L
Sheen Free	



Company profile

- This major fuel producer supplies to major locations national and internationally
- Fuel holding site and major machinery operations occur on site

Technical Situation

All water from the Shell tank compound and truck loading gantry at North Fremantle was treated by a 3 stage in ground primary separator then by an existing plate separator, the discharge water was still above the levels sought for discharge to the environment and meet EPA requirements.

Solution

OLEOLOGY was sought to remove residual hydrocarbon levels and importantly remove any spikes that occurred from time to time.

The MyCelx polisher was added after the existing equipment. The MyCelx polisher was skid mounted on a footprint of 1 x 1.2m plus a break tank. The small footprint enabled minimal impact in the compound plus being more efficient than the existing plate separator.

Water quality is a high priority with onsite environmental staff constantly monitoring the treated water.

Results

NFR Water Polsiher	UNITS	METHOD	LOR	Pre MyCelx 12/02/2009	Post MyCelx 12/02/2009	Reduction % Change
				Water	Water	
Hydrocarbons C ₆ -C ₉	µg/L	AN433	<40	25000	742	97%
TRH C ₁₀ -C ₁₄	µg/L	AN403	<40	905	69	92%
TRH C ₁₅ -C ₂₈	µg/L	AN403	<200	<200	<200	
TRH C ₂₉ -C ₃₆	µg/L	AN403	<200	<200	<200	
Benzene	µg/L	AN433	<0.5	120	43	64%
Toluene	µg/L	AN433	<0.5	6500	380	94%
Ethyl Benzene	µg/L	AN433	<0.5	2400	41	98%
Xylenes	µg/L	AN433	<1.5	14000	240	98%
Total Suspended Solids @103°C	mg/L	AN114	<5	14	<5	LOR
cBOD	mg/L	AN183	<5	11	<5	LOR
pH	pH Units	AN101	<0.1	7.69	7.71	0%
Dissolved Oxygen	mg/L	AN177	<0.5	7.58	6.44	15%
Oil & Grease (grav)	mg/L	PEI-050	<5	<5	6.8	LOR
MBAS, calculated as LAS	mg/L	AN192	<0.05	0.21	0.2	5%
Total Organic Carbon	mg/L	AN190	<1	14.81	10.99	26%
Soluble Zinc, Zn	mg/L	AN050- AN321	<0.01	0.203	0.159	22%
Soluble Iron, Fe	mg/L	AN321	<0.02	0.322	0.201	38%
Soluble Lead, Pb	mg/L	AN322	<0.005	<0.005	<0.005	LOR

Results (continued)

The above table, taken from the analysis report indicates the reduction in percent post MyCelx filtration.

Importantly across the entire range of hydrocarbons post MyCelx polishing there is less than 1ppm of TRH residual in the water. The significant point of this analysis is the removal of the highly soluble BTEX from the water, not possible through the preceding equipment, the primary in ground CPI nor the Baldwin separator.

BTEX analysis - significant reductions across the group down from a total of 23,030ppb to 704 ppb (parts per billion) a **reduction of 97%**.

As expected suspended solids (TSS) and BOD have been reduced to LOR in accord with other published data on MyCelx filtration.

Metals have also been reduced with Zn and Fe evident in the flow at low levels further reduced by approximately 25%.

It should also be noted that the presence of surfactants (represented as MBAS) is a negating factor in the removal of hydrocarbons and it is evident that despite the MBAS level that there is no significant deviation from expected performance by the MyCelx filtration media.

Benefits & Impact

- Managed water treatment onsite, no trucking and offsite removal costs
- Minimal running costs, no chemicals required
- Risk reduction for environmental compliance with EPA

Further Information

Please call **OLEOLOGY** +61 (0)8 9314 7081 or email info@oleology.com.au