Acid Solutions®
Contaminated Water Treatment Services
FIXING THE ENVIRONMENT

Highly contaminated water treated with the CRAB and inline bulk treatment system (IBTS) to match drinking water quality.

Customer Name	- Name withheld (confidentiality requested)
Site Location	- Southeast Queensland
Site Problem	- pH & Acidity - damaging plant
Water Volume	- 35 megalitres and 15 megalitres
Water pH	- 2.43 and 2.62
Acidity	- 3320 mg/l and 2090 mg/l
Suspended Solids	- low
Treatment Objective	- produce quality water capable of re-use in plant and mining process
What is causing the problem	- Mining and quarrying
Dams/Pits	- 2 pits
Length of water body	- 185metres and 115 metres
Width of Water body	- 60 m and 35m
Water Depth	- 3+metres and 3.5+metres
Bottom Type	- smooth
Aquatic Flora	- Nil
Vehicle Access and Flora	- easy access
Environmental Sensitivity	- contained and controlled
Aquatic Life	- nil
Drains or Streams nearby	- yes, environmental risk
Regulatory requirements	- None – no discharge
Treatment urgency	- urgent

PURPOSE

Acid Solutions approached a sand and gravel producer and extracted a large volume of highly acidic water.
Trials were conducted to test the efficiency of our inline bulk treatment system (IBTS).

BACKGROUND

The contamination of the water was mostly caused by a large and extremely acidic seam of Argillite (black shale).

After heavy rainfall, the acidic water was pumped from the quarry to a holding pit for treatment. When this photo was taken, the pit had an acidity level of 3340 mg/l with extremely high dissolved metal loads, eg iron levels >600 mg/l.

TREATMENT METHODS

The CRAB ATS750 with its automatic pH correlation system was used in combination with our specially designed blending and transfer system, treating more than 75,000 lt/hr (20 lt/sec) of pit water with an acidity >2000 mg/l.

Hydrated lime was the only reagent used and was processed by the CRAB at 122 kilograms per hour.

Our CRAB ATS1200 and CRAB ATS1500 will operate identically with reagent outputs to 4.4 tonnes per hour and accuracy to within 2 percent.

The difference between the raw pit water containing a high metal load and the pit water after treatment.

TREATMENT RESULTS

Inline treatment results	Raw Pit water	Treated to 8.8pH	Treated to 9.9 pH	ANZECC Drinking Limits	% metals removed
Ph	2.6	8.8	9.9		-
CaCO3Acidity	2090	-22	-94		-
Al Aluminium	130	7.8	25	0.2	94.00%
As Arsenic	0.39	<0.01	<0.01	0.007	97.43%
Cd Cadmium	0.030	<0.002	<0.002	0.002	93.33%
Cu Copper	33	0.08	0.07	2.0	99.78%
Cr Chromium	0.37	<0.02	<0.02	0.05	94.60%
Fe Iron Total	340	0.21	0.81	0.3	99.94%
Mg Magnesium	26	12	1.5	5.0	94.23%
Mn Manganese	7.9	0.16	0.02	0.5	99.74%
Ni Nickel	2.8	0.04	<0.01	0.02	98.57%
Zn Zinc	2.0	0.01	<0.01	5.0	99.50%
All results are measured in mg/l					

CONCLUSION

The high percentage of metals removed demonstrated that the Acid Solutions treatment system was a highly efficient and fast means to deal with Acid Mine Drainage problem such as this.
The CRAB system is easily transportable, quick to set up and operate, and achieves required targets thereby offering the customer substantial savings in capital costs associated with other technologies.

Subsequent to these trials, the system design has been modified to allow treatment of >1 megalitre per hour of contaminated water.

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