Acid Solutions®
Contaminated Water Treatment Services
FIXING THE ENVIRONMENT

200 megalitres of Copper Contaminated water treated for Environmental Protection.

October 2009

Name	Name Withheld (confidentiality requested)
Site Location	Mt Isa, QLD
Site Problem	Copper and Nickel Contamination
Water Volume	200 Megalitres
Water pH	7.8 pH
Acidity	NA
Suspended Solids	Above license limits
Treatment Objective	Environmental Protection/Release
What is causing the problem	Contamination from nearby extracted rock
Dams/Pits	1
Length of water body	220 metres
Width of Water body	140 metres
Water Depth	To 17 metres
Bottom Type	Rough and erratic
Aquatic Flora	None
Vehicle Access and Flora	Road access no Flora
Environmental Sensitivity	Contained and Controlled
Aquatic Life	None
Drains or Streams nearby	Yes – environmental risk
Regulatory requirements	Yes - discharge
Urgency level	Very urgent – EPA Order for remediation

INTRODUCTION

Acid Solutions was contracted to treat a 3 hectare copper contaminated pit in Mt Isa Queensland. The pit water required treatment to improve water quality to allow dewatering and contaminated site cleanup.

OVERVIEW

Approximately 200 Megalitres of contaminated water was contained in a decommissioned copper extraction pit approximately 140 metres wide by 220 metres long and up to 17.5 metres deep. The water had a pH of 7.8 and contained dissolved Copper and Nickel concentrations above release limits.
The water in this pit did not meet release quality and required treatment for environmental protection and disposal.

SITE INSPECTION

The water body contained little or no stratification. Stratification and volume can sometimes provide difficulty with application, time frames and reagent requirements.
Acid Solutions has several specially designed applicators for deeper water bodies and difficult sites.

WATER QUALITY OBJECTIVES

It was requested that the water quality be improved to reduce contaminants to within ANZECC guidelines for Livestock quality to allow dewatering and disposal.
The contaminants of concern were Copper and in some samples Nickel.

TREATMENT REAGENTS

The Treatment Reagents used were Calcium Hydroxide (Ca(OH)2) and 2 other of our specialized reagents. These reagents when applied at the correct rates provide extremely efficient metal reduction when applied accurately and at the correct stage of treatment.
Acid Solutions specialize in the use of these difficult but highly efficient reagents.

TREATMENT METHOD USED

The method for treatment used was in-situ treatment. Reagents are applied in varying combinations and rates accurately throughout the water body with 3 specialized applicators to provide the required result.

TREATMENT RESULTS

Contaminant Mg/L	Raw Water Quality	Treatment Results	Required Quality
pH	7.89	7.44	6 – 9 pH
Aluminium	0.16	0.09	5.0
Arsenic	<0.001	<0.001	0.5
Cadmium	<0.0001	<0.001	0.05
Cobalt	0.264	0.208	1.0
Copper	2.24	0.020	0.4
Chromium	<0.001	<0.001	1.0
Iron	0.06	<0.05	10
Lead	<0.001	<0.001	0.1
Manganese	0.167	0.122	-
Mercury	<0.0001	<0.0001	0.002
Molybdenum	0.002	0.002	-
Nickel	0.042	0.028	1.0
SO4 Sulphate	177.0	196.0	<500
Zinc	<0.005	<0.005	20.0

Water clarity after treatment.

FAST RESULTS

Acid Solutions successfully completed the treatment of this site within 9 days. Our reagent combinations and application methods specifically targeted copper as the reagent for reduction to below the level required.
Acid Solutions produced outstanding results considering the depth, time frames involved and the specific nature of the contaminant to be reduced.

The CRAB™ is a powerful compact system even in comparison to the largest of permanent treatment infrastructure

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