



# Acid Solutions®

Contaminated Water Treatment Services

Department of Natural Resources & Mines & QASSIT (Queensland Acid Sulphate Soils Investigation Team) uses the CRAB to treat leachate from 800 hectares of highly Acidic disturbed Acid Sulphate Soils.

July 2003

<b>Name</b>	Department of Natural Resources & Mines
<b>Site Location</b>	Cairns - North Queensland
<b>Site Problem</b>	Contaminated land leaching Acidic low pH water
<b>Water Volume</b>	Tidal creeks, Swamps & drains
<b>Water pH</b>	pH 2.4 and above
<b>Acidity</b>	Variable
<b>Suspended Solids</b>	Mild
<b>Treatment Objective</b>	Treatment of leaching Acid to stop fish kills
<b>What is causing the problem</b>	Past land clearing for farming
<b>Length of water body</b>	Many
<b>Width of Water body</b>	Narrow drains to 30 metres
<b>Water Depth</b>	up to 3.5 metres
<b>Bottom Type</b>	Irregular/snags
<b>Aquatic Flora</b>	Surrounding
<b>Vehicle Access and Flora</b>	Limited Access
<b>Environmental Sensitivity</b>	very sensitive
<b>Aquatic Life</b>	fish, turtles, crocodiles other
<b>Drains or Streams nearby</b>	Trinity Bay Nearby
<b>Regulatory requirements</b>	EPA Controls site
<b>Urgency level</b>	Extremely urgent & ongoing



## **BACKGROUND**

In 2002 Acid Solutions was approached by the Department of Natural Resources & Mines to purchase a CRAB water treatment system. The CRAB was purchased & is used to treat low pH Acidic leachate forming in 800 hectares of highly acidic previously cleared & now re-grown land.

This property is now owned by the Queensland Government & operated by the Environmental Protection Agency. The Acidity problem is being handled by DNRM & QASSIT.

This site is situated less than 2.0 kilometres east of Cairns City marina.

## **SITE DESCRIPTION**

The 800 hectare site was bunded and drained to allow clearing for cane farming in the 1970's. Flood gates were installed on all creeks and drains leading into Trinity Bay. Due to the high acidity formed from pyritic sediments, this farming area was not as productive as expected. Many channels have been constructed throughout this area to help drainage. Due to the clearing and lower water levels there are many tea tree swamps now leaching quite strong acidity and metals from the soil structure.

Many have suggested re-flooding the site but this would most certainly produce horrendous acid leaching and fish kills in trinity bay.

## **TREATMENT**

The treatment of certain sites is dependant on tidal flows and heights.

The CRAB is easily programmed to apply the precise rate of reagent throughout a tidal sequence & to automatically switch off at the desired time. This allows automatic and precise operation without an operator on hand.

## **RESULTS**

This system not only treats the acid produced on a daily basis but it reduces the ongoing acid being produced from this site by applying reagent on the incoming tide.

No fish kills have been recorded in Trinity Bay originating from this site since treatment started with the CRAB.



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FIXING THE ENVIRONMENT

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