Abandoned Mine Lands Division

Md. Department of the Environment

Land Management Administration

Mining Program

What is Acid Mine Drainage?

- Acidic water that runs off of or through previously mined and abandoned lands.
- Creates poor water quality and habitation
  - Low pH
  - High Metals and Acid Concentrations
  - Destruction of habitat

Acid Mine Drainage Formula

Air + H_2O + Pyrite ⇨ AMD

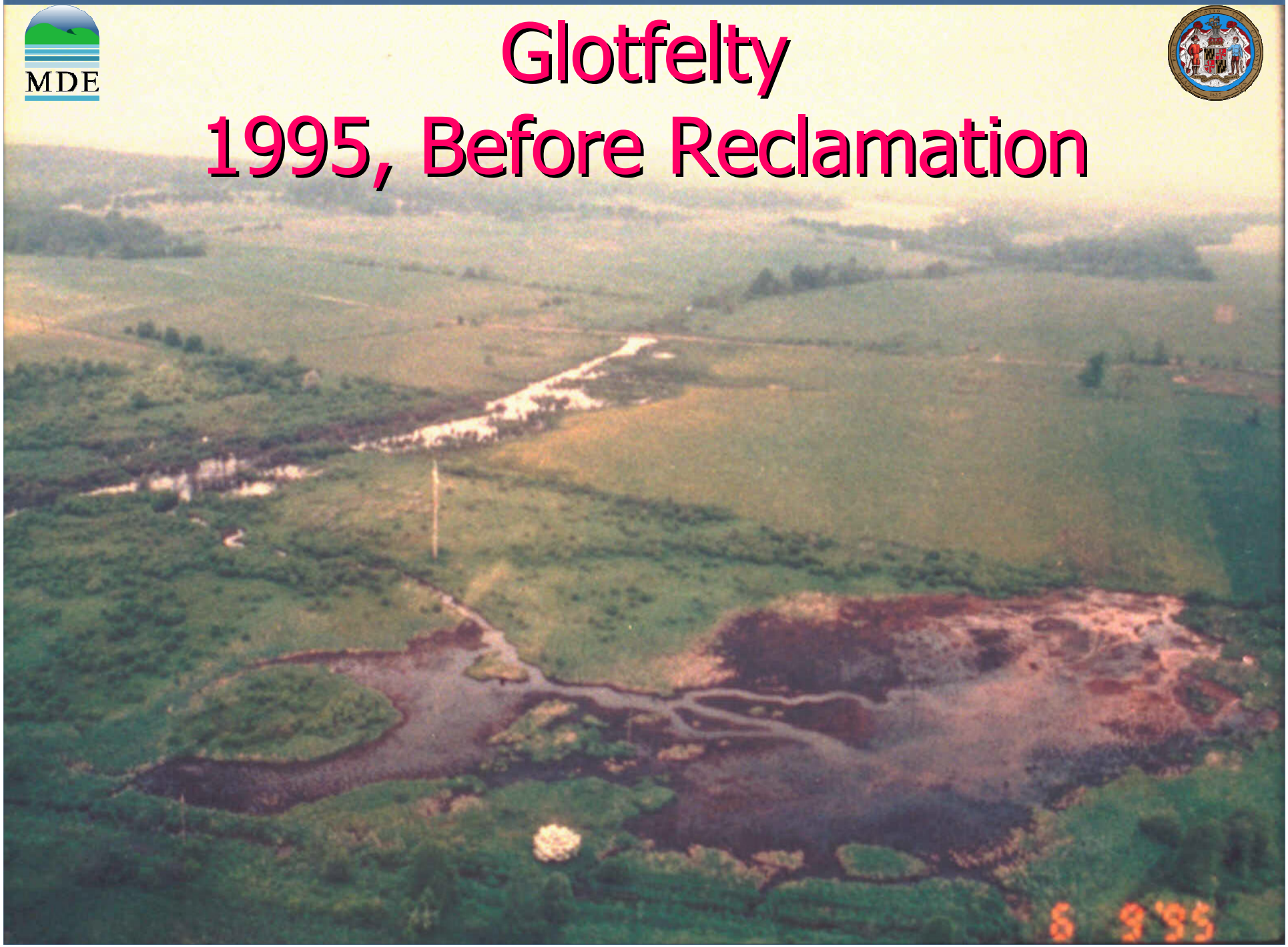
1981 PPR(Siting)P Study

Assessment of Acid Inputs to Deep Creek Lake, Garrett County, Maryland. First Annual Report.

- ~50% of Acid into Deep Creek Lake is coming from Cherry Creek
- ~50% of Acid into Deep Creek Lake is Atmospheric Deposition
- Deep Creek Lake is buffering but mechanism is not understood. Handles more Acid input than expected.
- pH of Cherry Creek, after 4 years, varied from 3.5 to 4.5

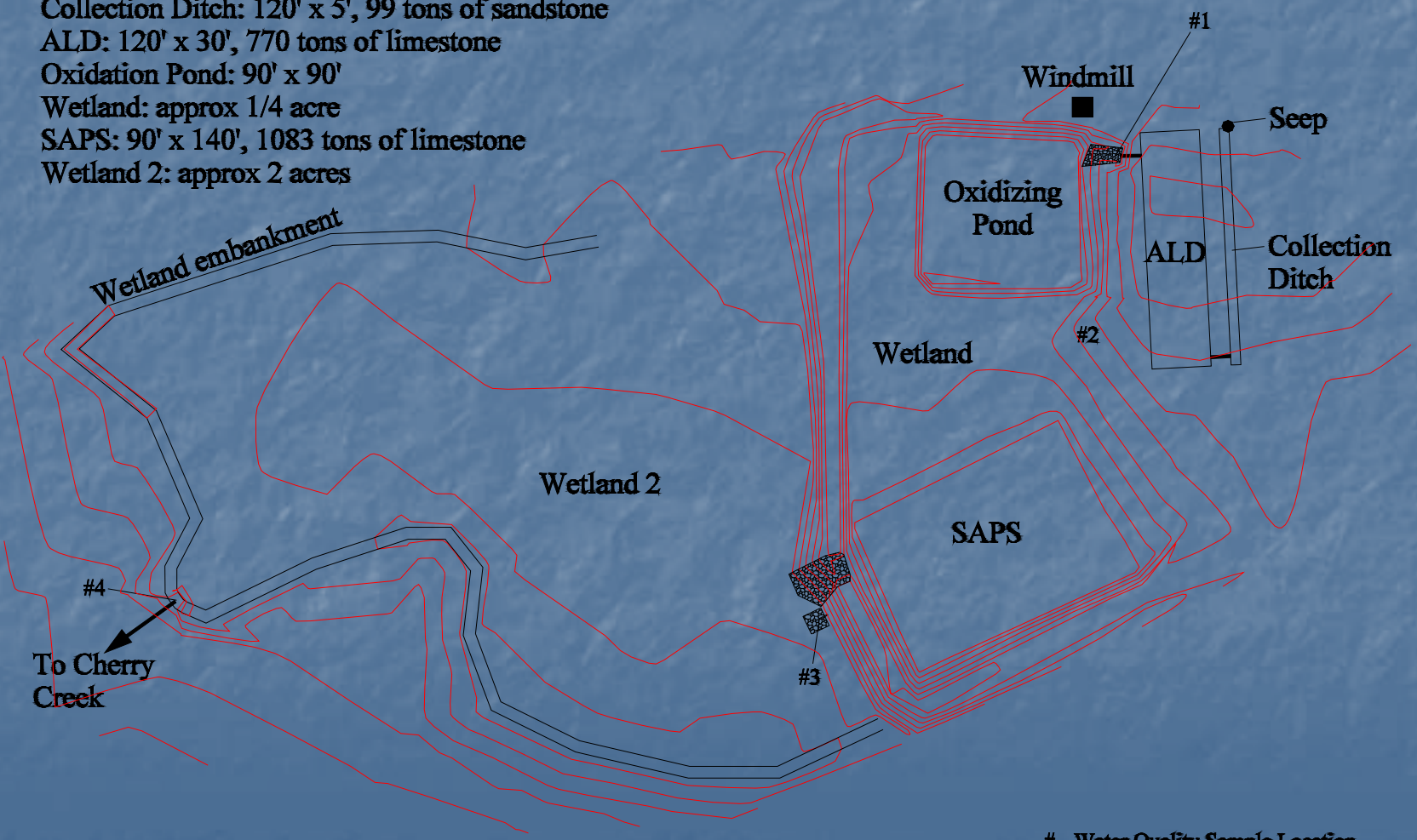
Wetlands "Program", Mid-1980's

Glotfelty
1995, Before Reclamation



Glotfelty Reclamation Plan

Collection Ditch: 120' x 5', 99 tons of sandstone
ALD: 120' x 30', 770 tons of limestone
Oxidation Pond: 90' x 90'
Wetland: approx 1/4 acre
SAPS: 90' x 140', 1083 tons of limestone
Wetland 2: approx 2 acres

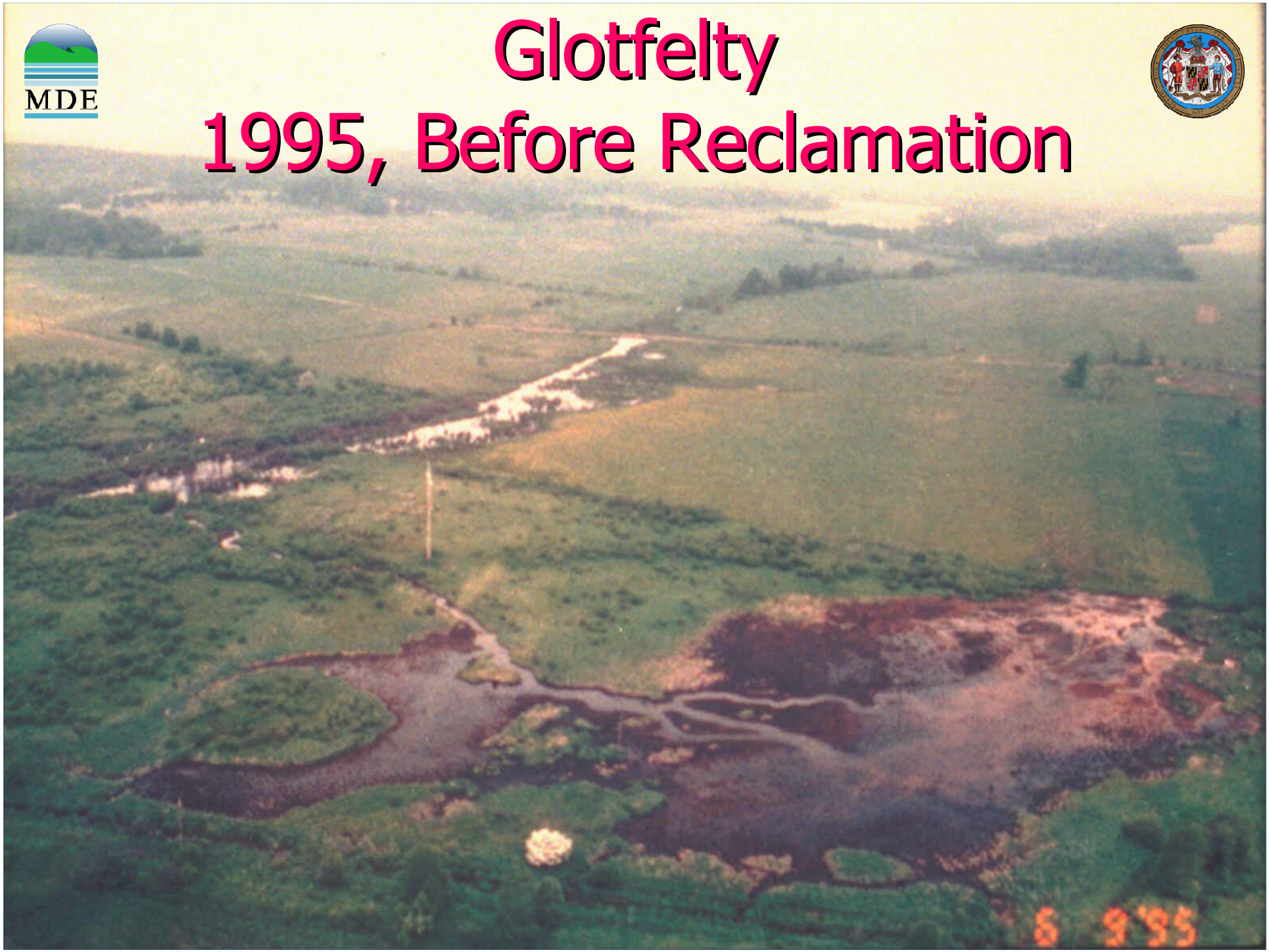


- Water Quality Sample Location

Anoxic Limestone Drain

SAPS During Construction

Glotfelty
1995, Before Reclamation



Glotfelty, 2000, Post-Construction

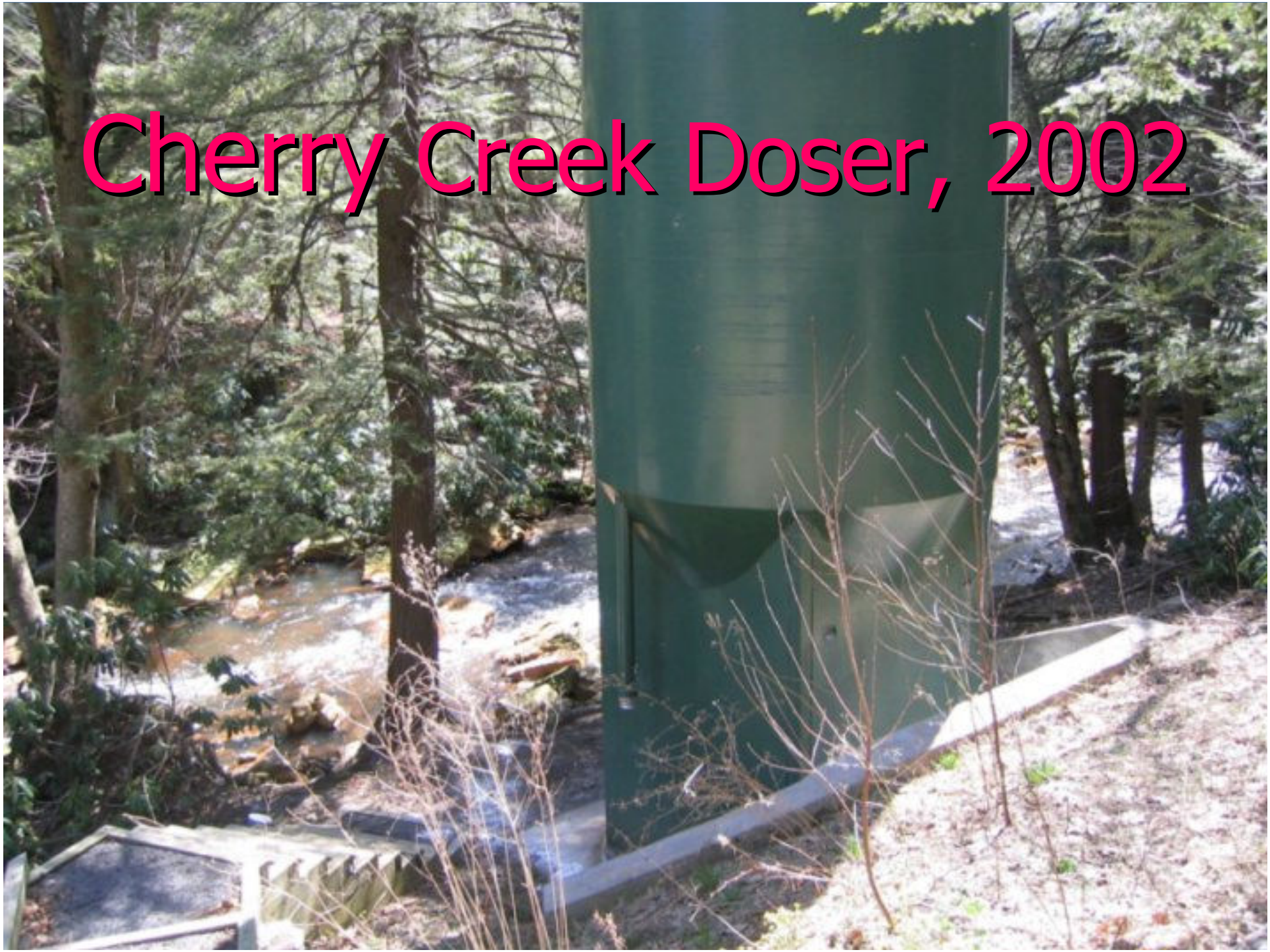
Everhart Treatment Wetland – 1985

SAPS Being Flushed

- Successive Alkalinity Producing Systems

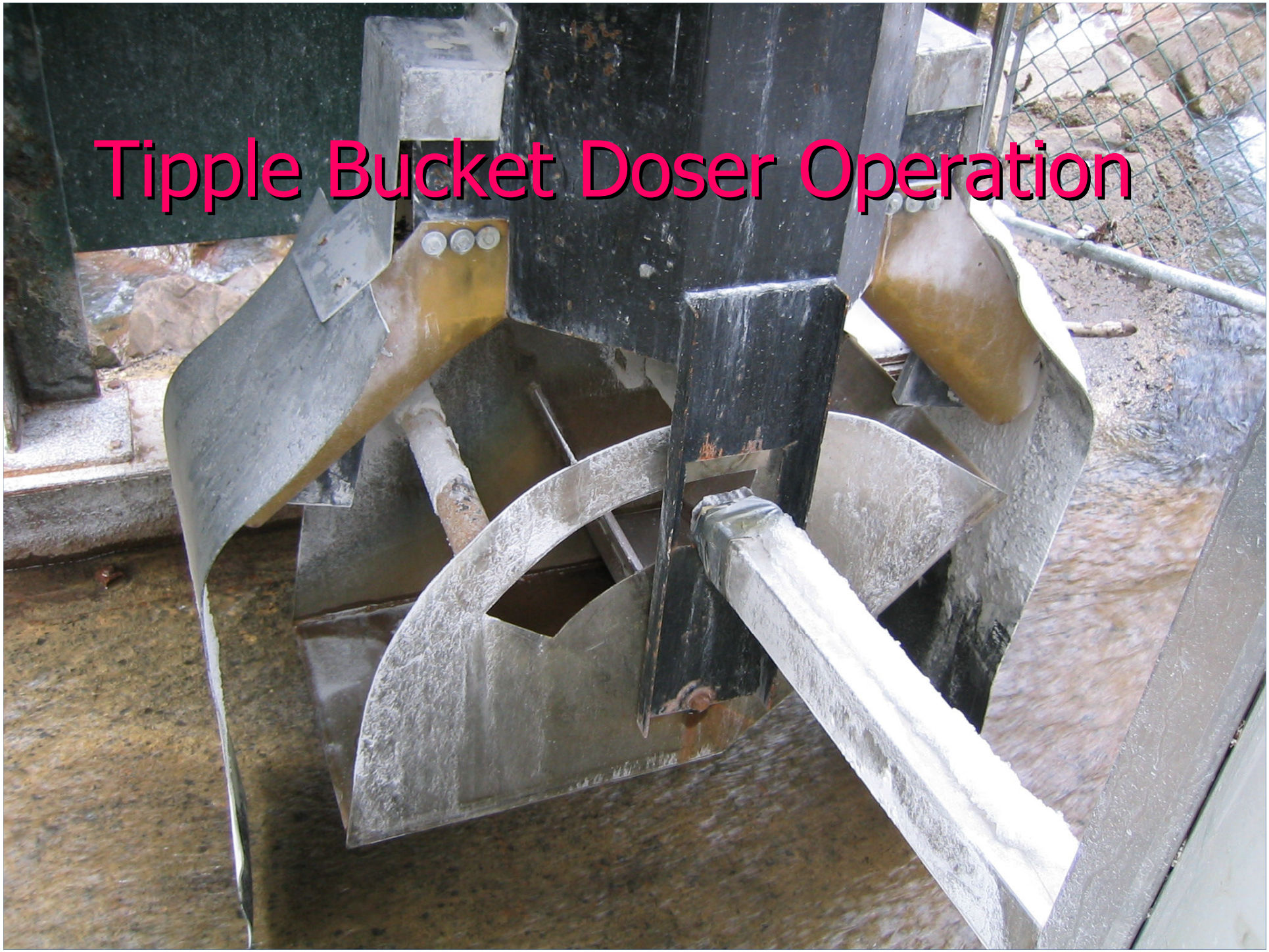
Everhart, Completed 2001

Teets, Pyrolusite Beds, 2002


Cherry Creek Doser, 2002

Tipple Bucket Doser Installation

Tipple Bucket Doser Operation



Water Intake

Limestone Discharge

Chemistry at The Cove 2010 to 2014

- pH = range 7.2 to 7.7
- Total Fe = range 0.31 mg/l to 2.61 mg/l
- Net Alkalinity ($T_{alkalinty} - T_{acidity}$) = range -1.0 mg/l to 38.0 mg/l
- Sulfates = range 18.6 mg/l to 204.6 mg/l (mid 30's mg/l)