

Mississippi Phosphates Corporation

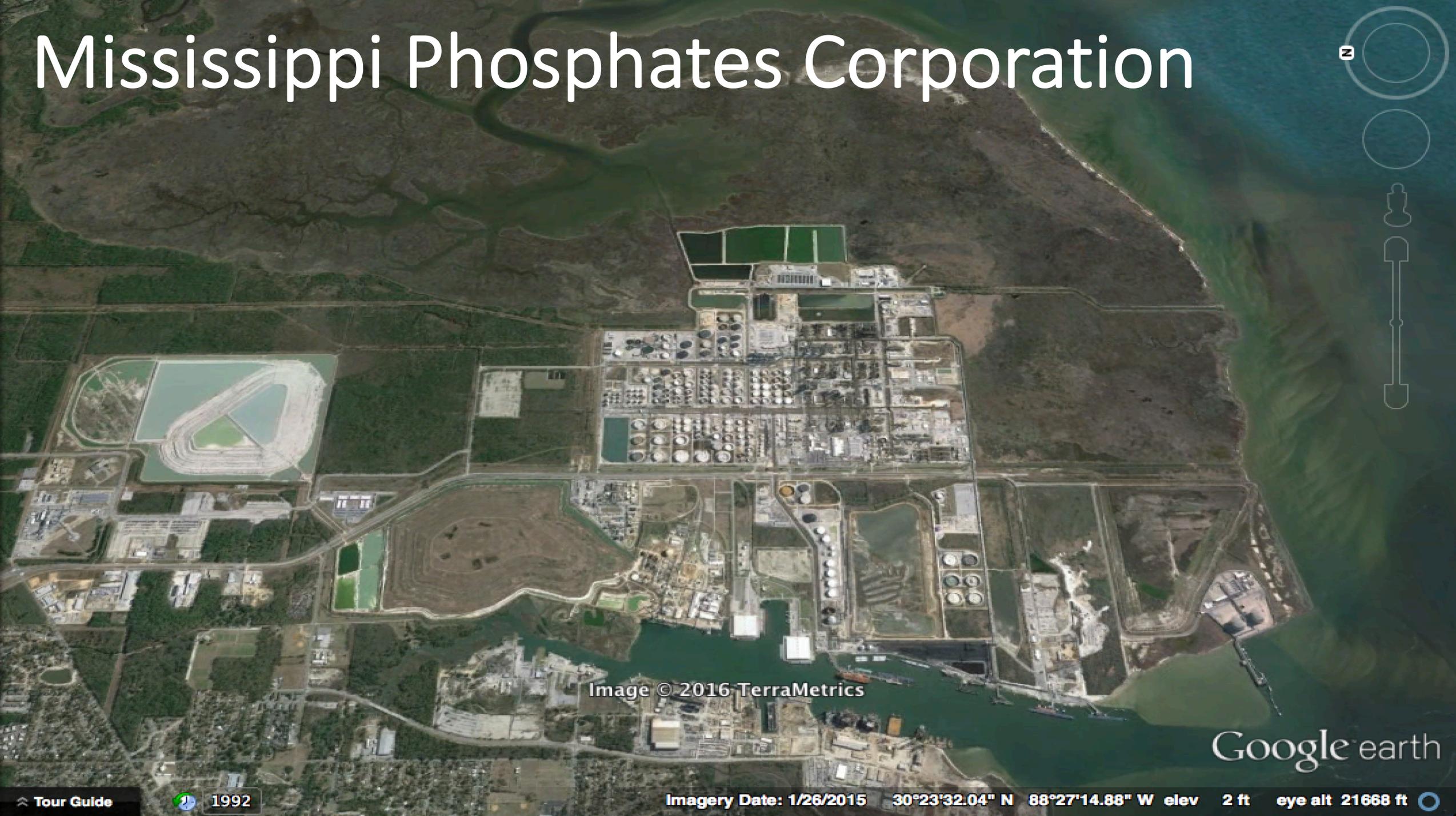


Image © 2016 TerraMetrics

Google earth



Mississippi Phosphates Corporation
Bayou Casotte / Gulf of Mexico
Pascagoula, Mississippi



Grand Bay Wildlife Management Area

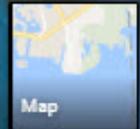
MPC Site

Grand Bay National Estuary Research Reserve

Chevron Refinery

Bayou Casotte

Gulf of Mexico



Grand Bay Savanna Coastal Reserve

This 26,900-acre bioserve, contained in Mississippi and Alabama, is home to 28 rare/endangered species and is one of the largest expanses of Gulf Coastal Savanna remaining in relatively undisturbed condition.

Bangs Lake

East Gypstack and Pond Complex

Pond 6

Pond 5

P4

P3

East Gypstack

In Situ Treatment Ponds
4 ponds @ ~12 million gal
5-7 day batch treatment

West Gypstack
(in interim closure)

MPC
Plant
Site

Chevron
Refinery

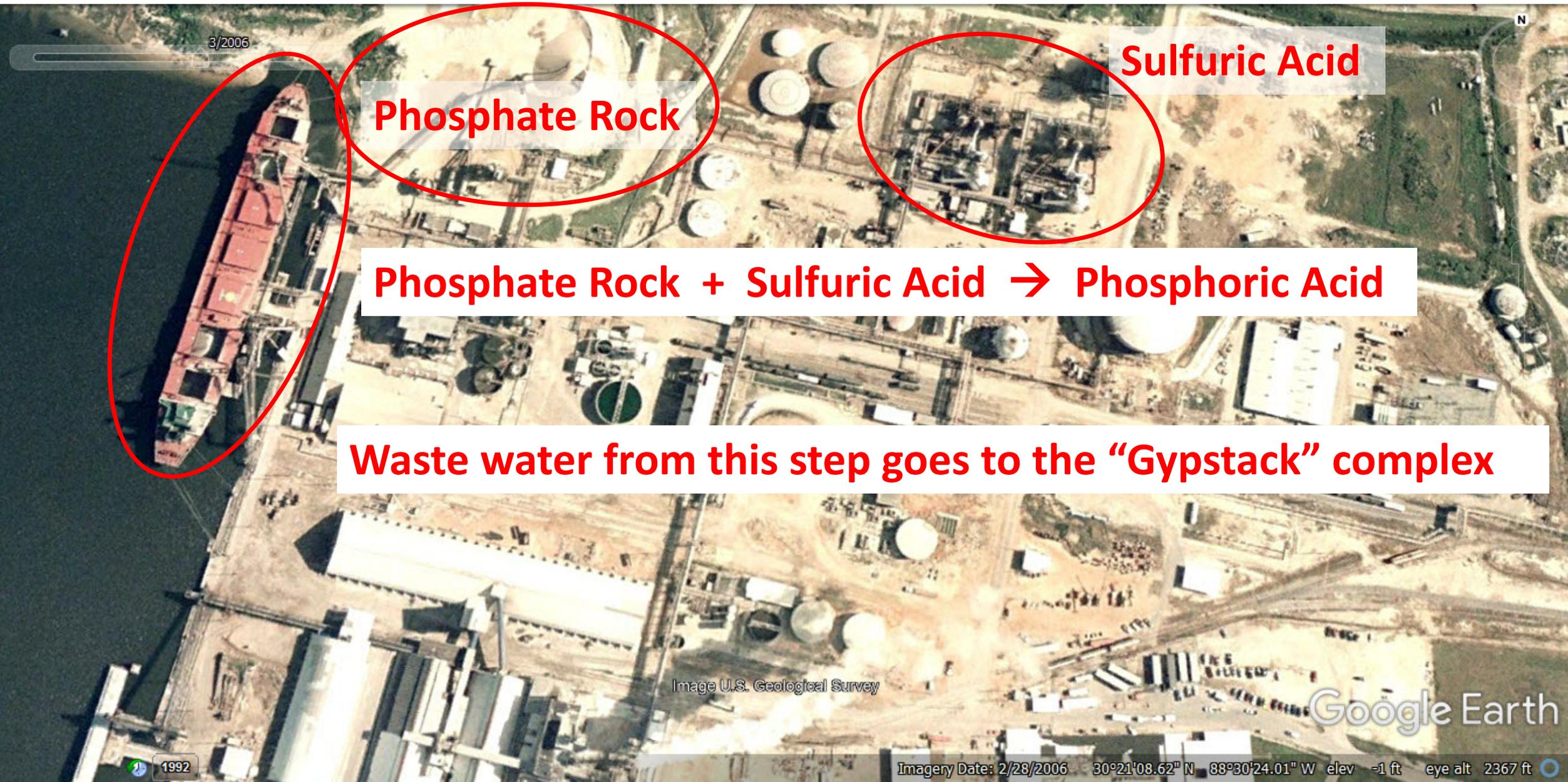
Image © 2016 TerraMetrics

Bayou Casotte -
deep water port

Gulf of Mexico

Google earth

Diammonium Phosphate Fertilizer Process – Step 1



Diammonium Phosphate (DAP) Process – Step 2

a) Ammonia + Phosphoric Acid → DAP

Wastewater Treatment Plant

~1.2 MGD (excess wastewater)
Waste water from this step goes to the "Gypstack" complex

b) Dry and pelletize

c) Load and ship

Image NOAA

Google Earth

Imagery Date: 5/4/2010 30°21'09.01" N 88°30'24.66" W elev 1 ft eye alt 2262 ft

Sense of Scale



Sense of Scale





Figure 2: Pond 3 on Top of the East Gypsum Stack



Figure 3: Berm between Ponds 3 and 4, East Gypsum Stack

Stakeholder Concerns



THE UNITED STATES
DEPARTMENT of JUSTICE

en ESPAÑOL



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JUSTICE NEWS

Department of Justice
Office of Public Affairs

FOR IMMEDIATE RELEASE Wednesday, August 19, 2015

Mississippi Phosphates Corp. Pleads Guilty to Clean Water Act Violation and Agrees to Transfer 320 Acres to Grand Bay National Estuary

Mississippi Phosphates Corp. (MPC), a Mississippi corporation which owned and operated a fertilizer manufacturing facility located on Bayou Casotte in Pascagoula, Mississippi, pleaded guilty today to a felony information charging the company with a criminal violation of the Clean Water Act, announced Principal Deputy Assistant Attorney General Sam Hirsch of the Justice Department's Environment and Natural Resources Division and U.S. Attorney Gregory K. Davis for the Southern District of Mississippi.

As part of the guilty plea, MPC admitted discharging more than 38 million gallons of acidic wastewater in August 2013. The discharge contained pollutants in amounts greatly exceeding MPC's permit limits, resulting in the death of more than 47,000 fish and the closing of Bayou Casotte. MPC also admitted that, in February 2014, MPC discharged oily wastewater from an open gate on a storm water culvert into Bayou Casotte, creating an oily sheen that extended approximately one mile down the bayou from MPC.

Step 2: Facility Tour and Findings – Berm Erosion



Facility Tour Findings – Sloughing



Facility Tour Findings – Sidewall Seeps



Facility Tour Findings – Inadequate Freeboard

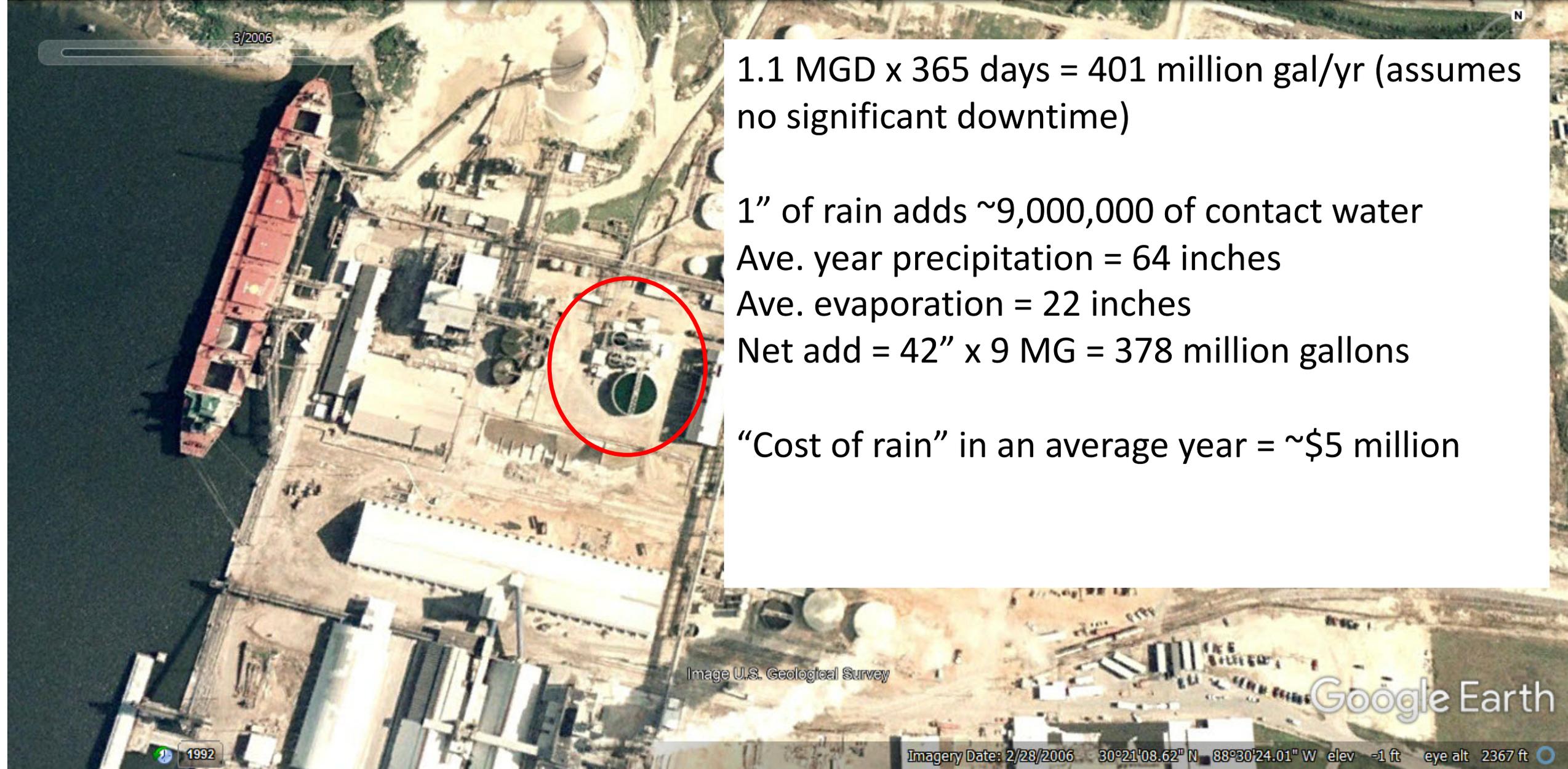


Figure 2: Pond 3 on Top of the East Gypsum Stack



Figure 3: Berm between Ponds 3 and 4, East Gypsum Stack

Facility Tour Findings – Inadequate Water Treatment Capacity



1.1 MGD x 365 days = 401 million gal/yr (assumes no significant downtime)

1" of rain adds ~9,000,000 of contact water
Ave. year precipitation = 64 inches

Ave. evaporation = 22 inches

Net add = 42" x 9 MG = 378 million gallons

“Cost of rain” in an average year = ~\$5 million

Image U.S. Geological Survey

Google Earth

Imagery Date: 2/28/2006 30°21'08.62" N 88°30'24.01" W elev -1 ft eye alt 2367 ft

Recommendations

Immediate:

- ✓ Repair and maintain berms
- ✓ Reduce water levels to attain adequate freeboard
- ✓ Increase water treatment capacity
- ✓ Maintain high-level management visibility and support

Longer term:

- Reduce contact water footprint to reduce “cost of rain”

TSUNAMI OF PHOSPHATE TAILINGS FROM ICL PLANT INUNDATE 20KM OF DRY VALLEY NEAR DEAD SEA



Israeli Chemicals Fertilizer Plant (June 2017)

- Partial collapse of 150-foot-high wall
- Released 26.4 million gallons of highly acidic wastewater in the Ashalim riverbed
- Wake of ecological destruction more than 12 miles long

A collapsed wall of a reservoir holding a highly acidic wastewater is seen in Mishor Rotem, in Southern Israel July 4, 2017. REUTERS/Baz Ratner

August 2017

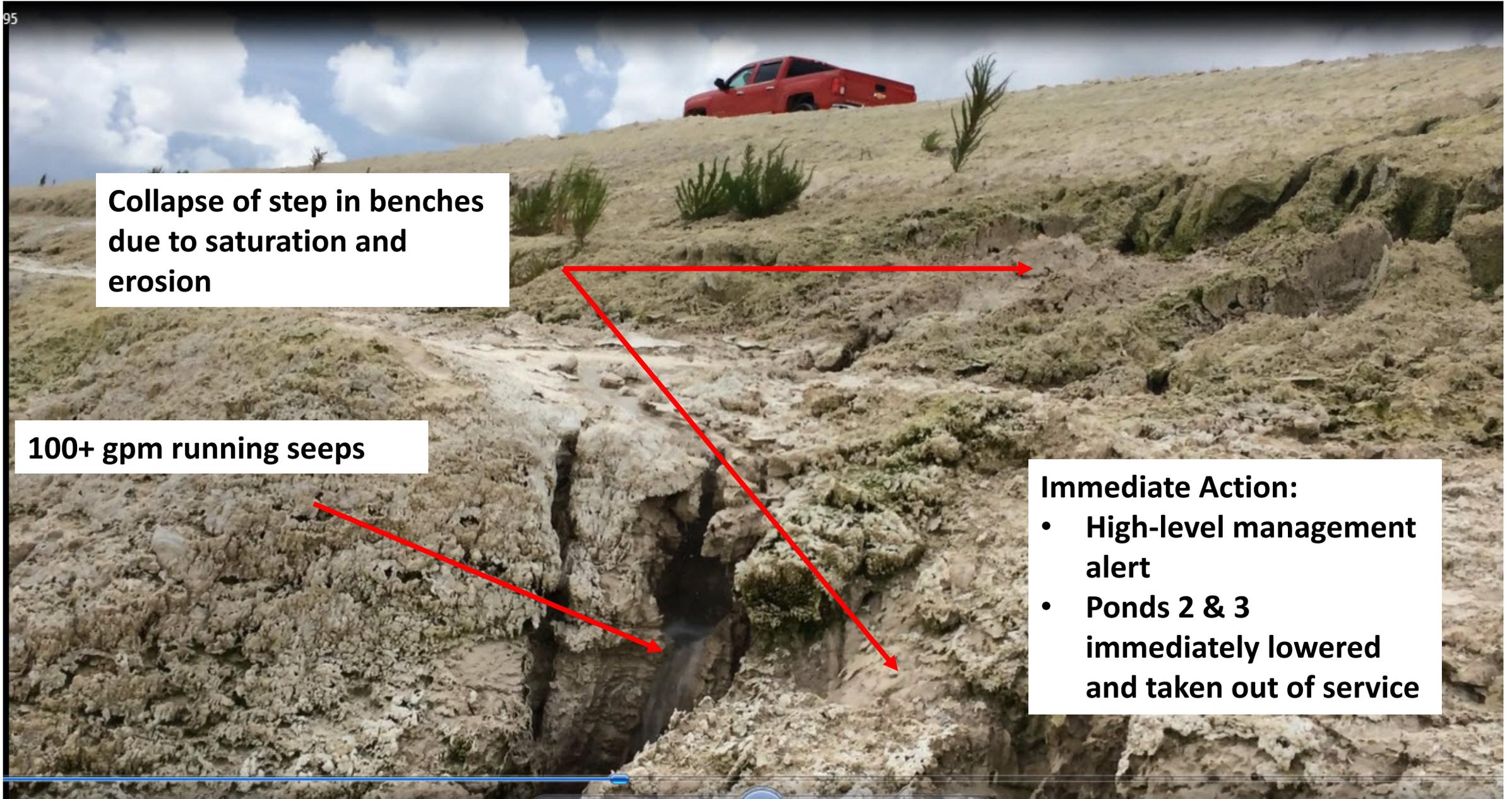
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**Collapse of step in benches
due to saturation and
erosion**

100+ gpm running seeps

Immediate Action:

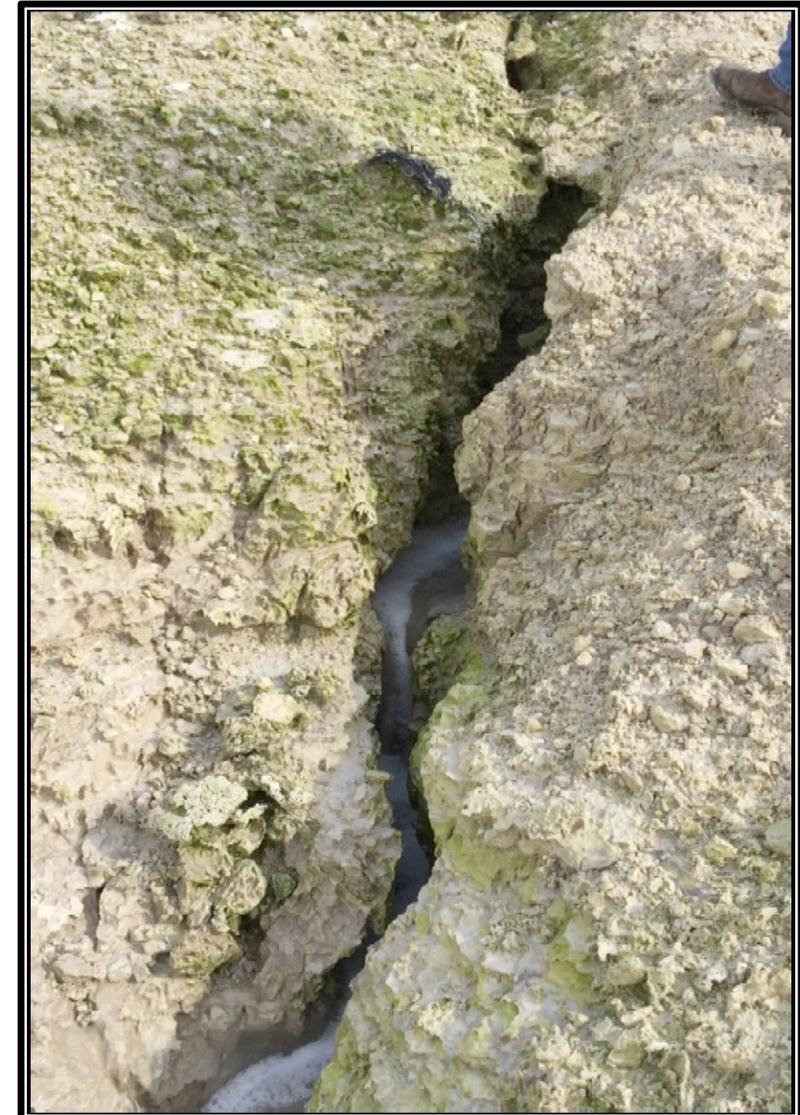
- **High-level management alert**
- **Ponds 2 & 3 immediately lowered and taken out of service**



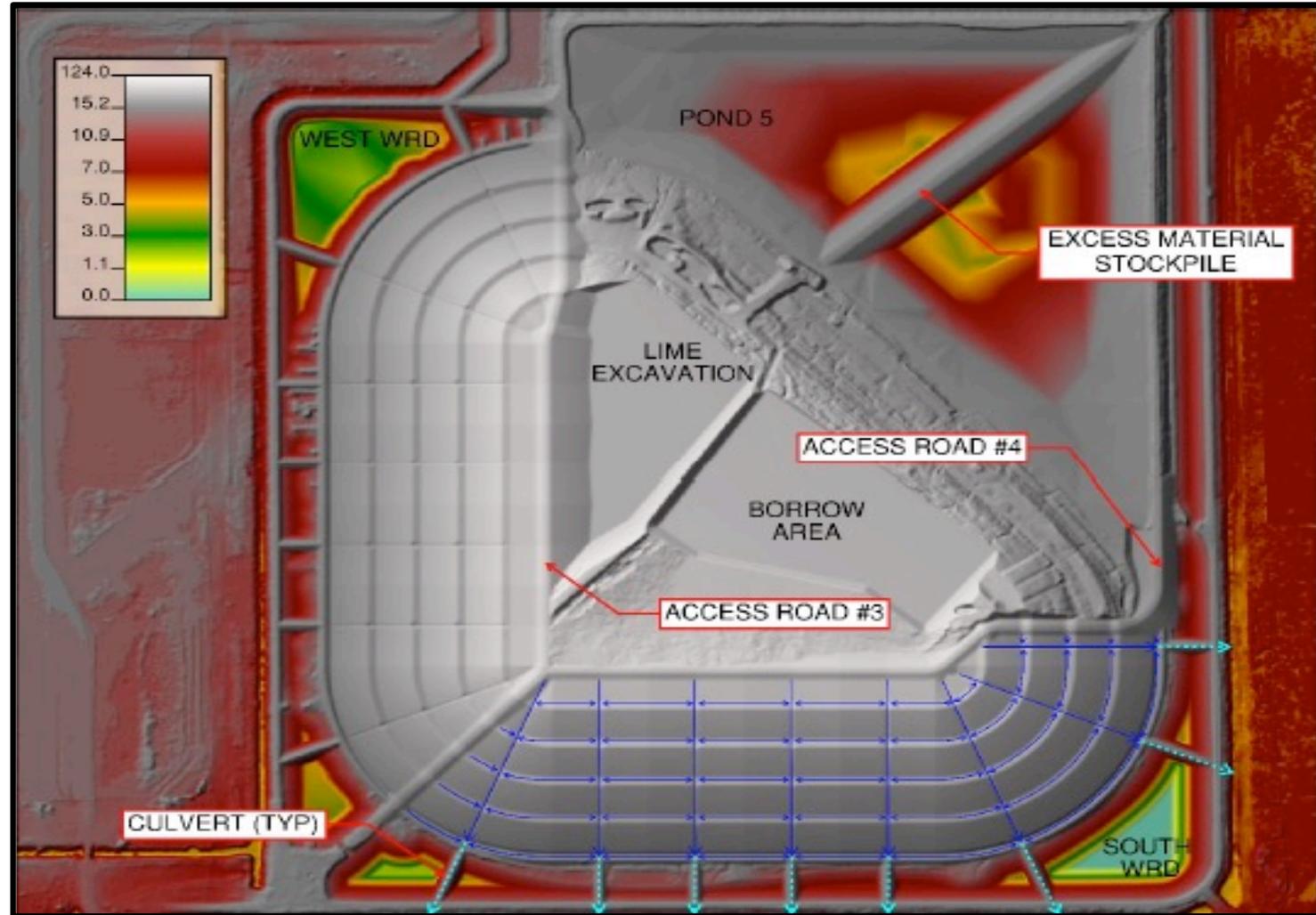
Emergency By-Pass Operations (2017)



- Dikes, berms & ponds of East Gyp Stack had structural integrity issues
 - Overtopping/desiccation/piping, etc.
 - Confirmed by multiple ERT inspections
- By-passes managed by EPA
 - pH neutralization only with sodium hydroxide
 - \approx 400 MGs over 5 events were by-passed between July and October 2017 to prevent uncontrolled releases from Ponds 3 and 4 on top of stack
 - Treatment costs per gallon = \$0.015727
 - Closely monitored to prevent eutrophication and algal blooms
 - No adverse impacts observed



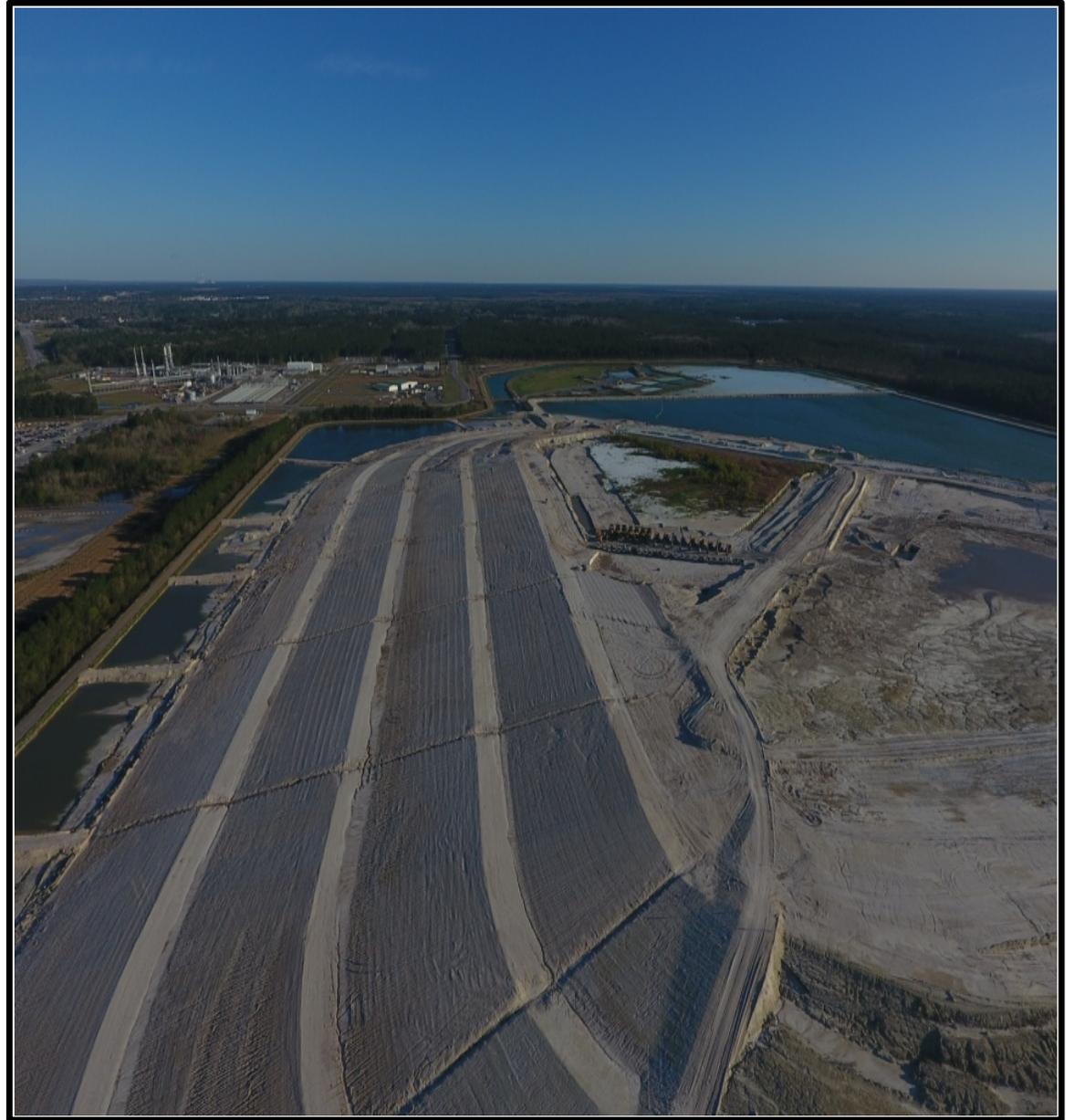
Closure Concepts



BEFORE



AFTER



BEFORE



AFTER



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