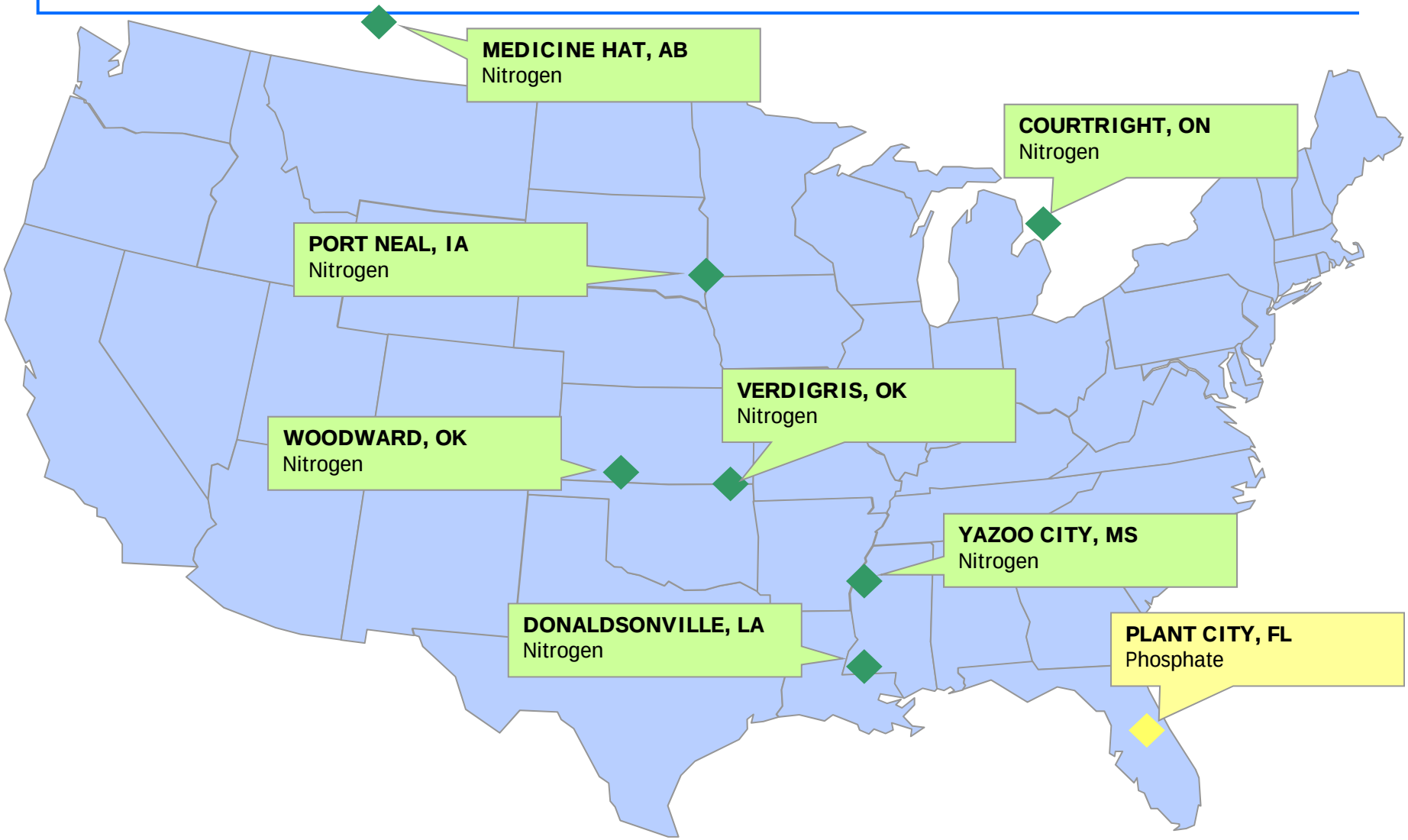
Phosphate

We Dig It!

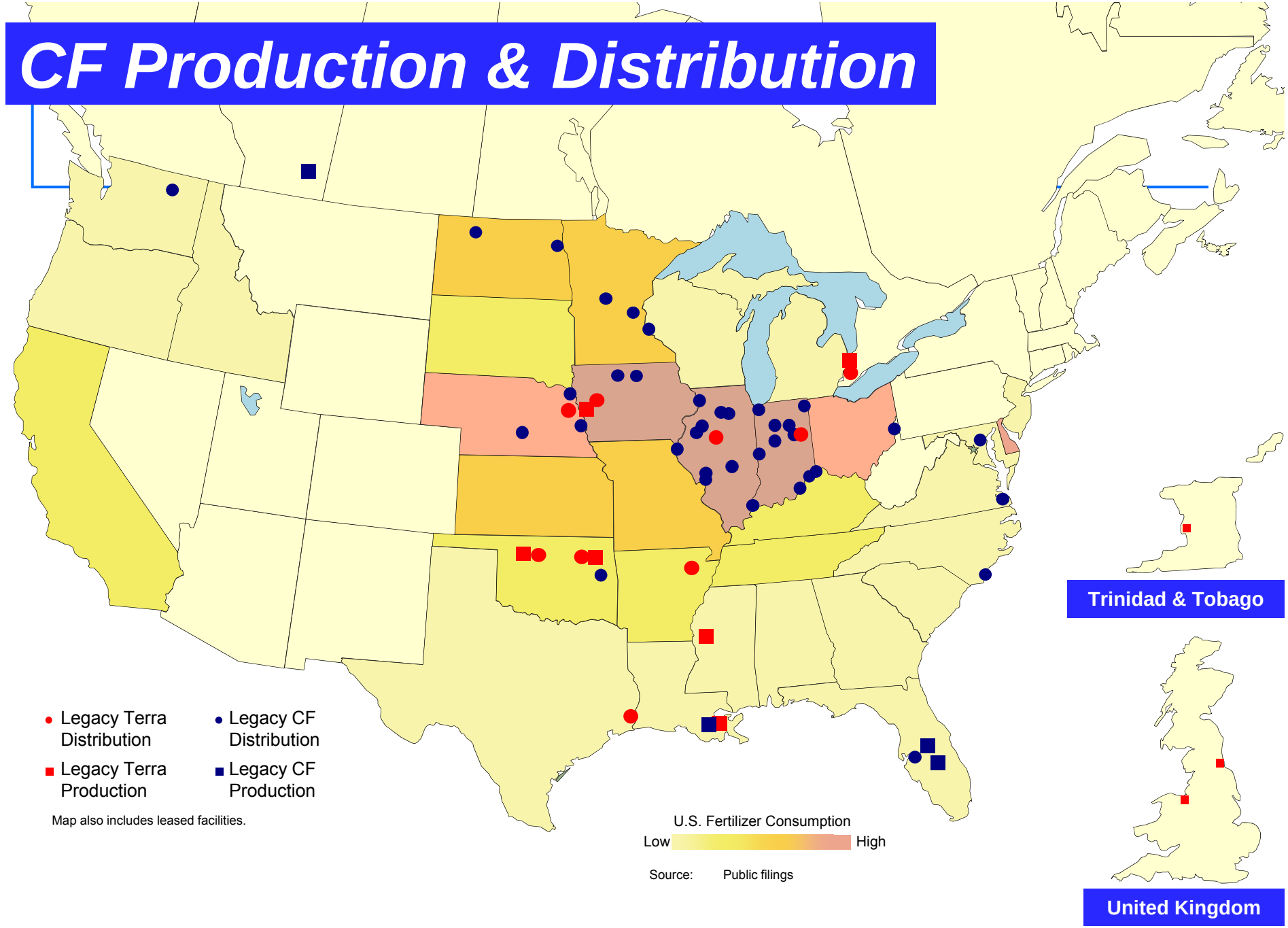
Leader in Nitrogen Fertilizer

- Number 2 Globally in nitrogen and the clear leader in North America
- Third largest producer of phosphate fertilizer among public companies globally
- Strong balance sheet
  - Committed to maintaining flexibility through deleveraging
- Favorable natural gas position and production located in markets to best serve North America

CF Production Locations



CF Production & Distribution



Note: (1) Includes CF's Tampa ammonia terminal & dry product warehouse; excludes plant storage and leased storage locations

CF Florida Operations

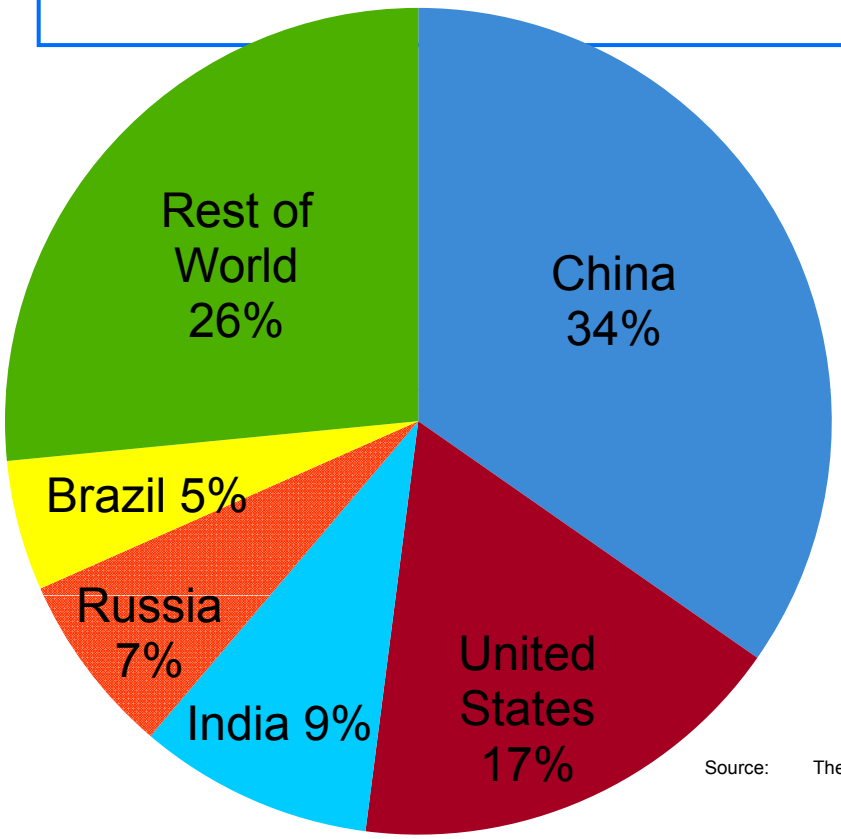
Plant City Phosphate Complex

Hardee County Phosphate Complex

Tampa Terminal and Warehouse

Corporate EHS & Engineering Office

USA - Major Phosphate Producer

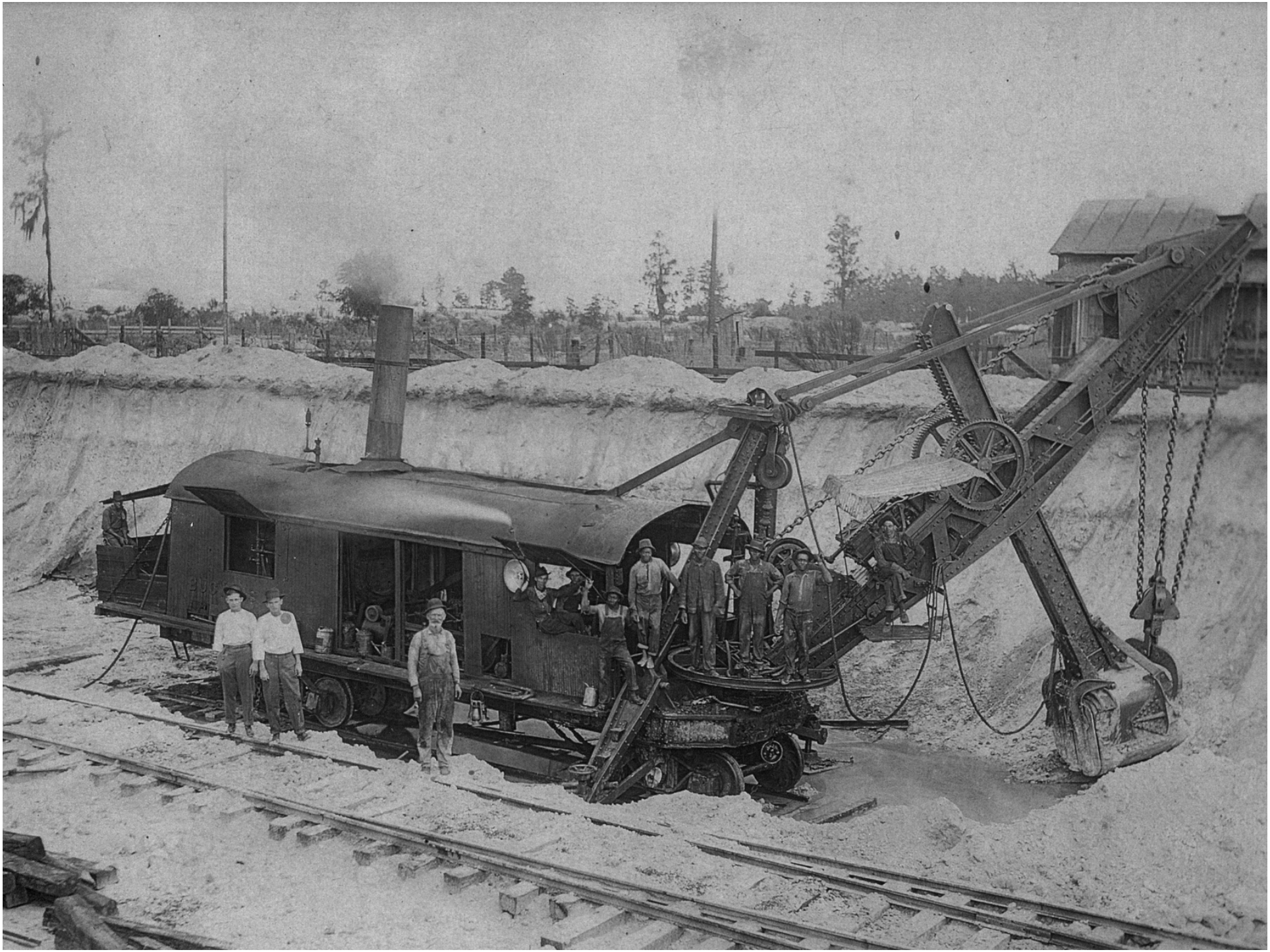


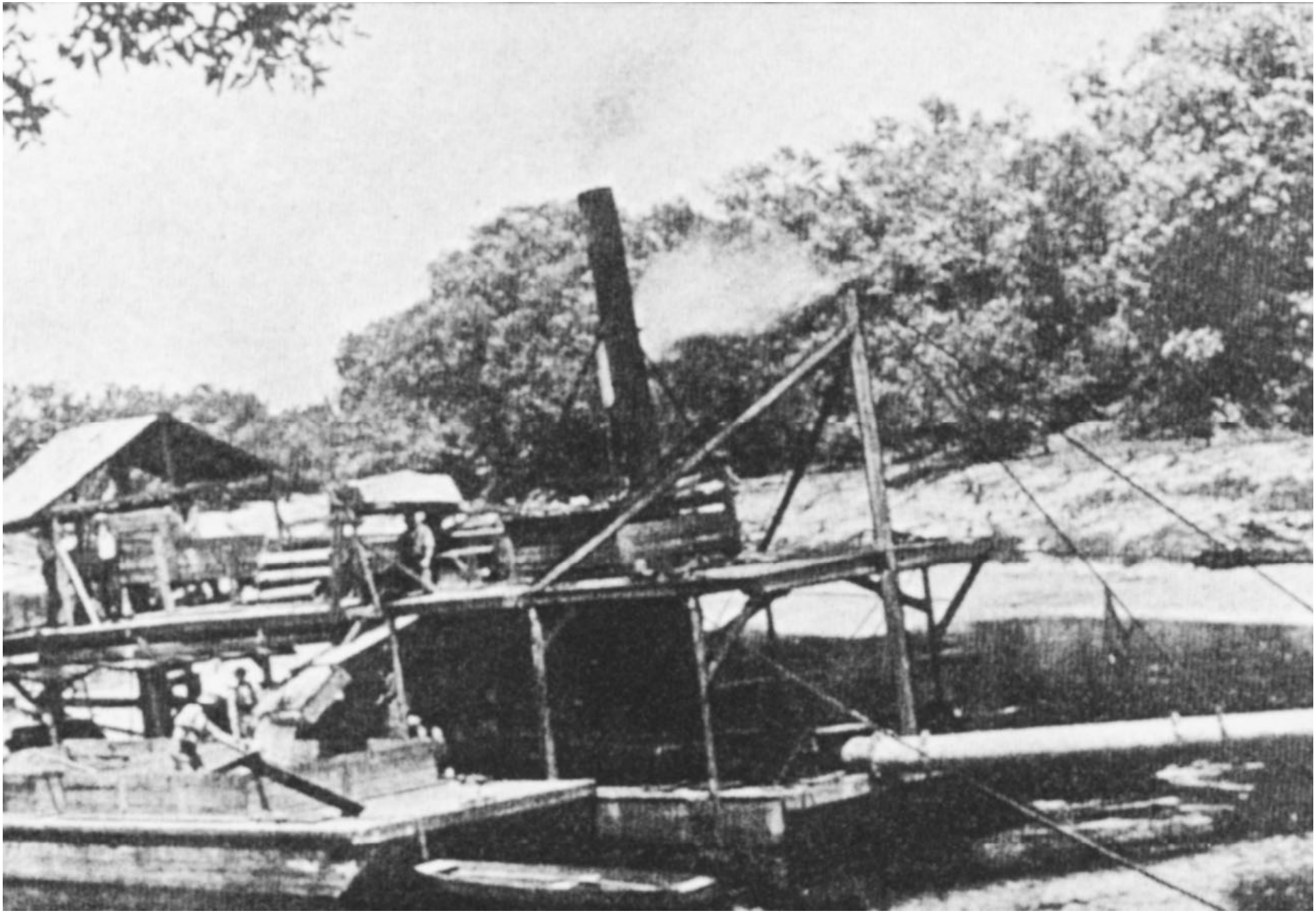
Source: The Fertilizer Institute

90% of the phosphate mined in the U.S. is used to make fertilizer.

Phosphorus is essential for plant life, and its functions cannot be performed by any other nutrient.

It is required for optimum plant growth and reproduction.





World-Class Phosphate Facilities

Hardee County, Florida Phosphate Mine & Beneficiation Plant is newest in U.S.

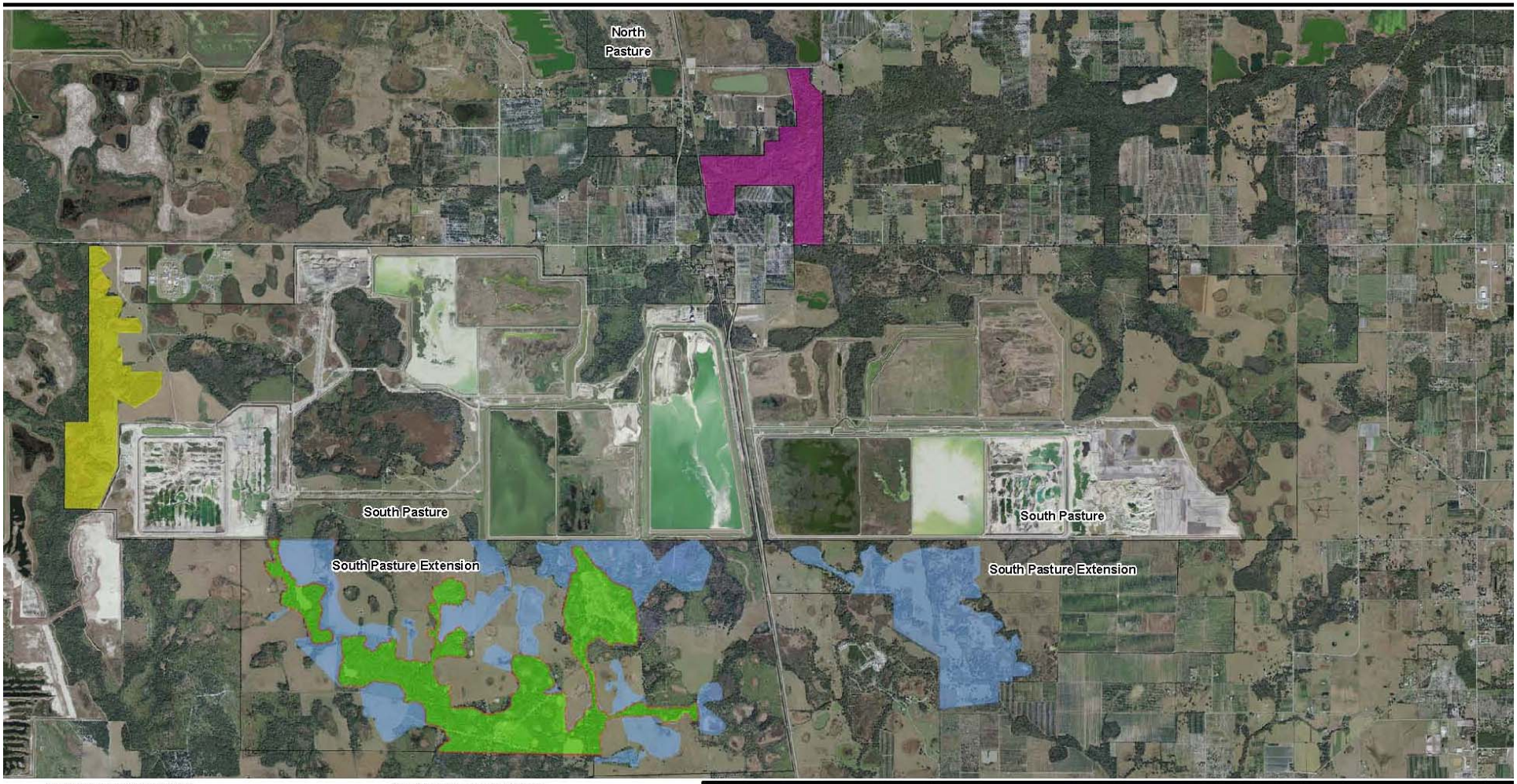
- Currently permitted through 2024
- Permit process underway to extend mining for 9 additional years

CF

The Mining Process

Before we begin mining….

- CF's commitment to Environmental Health & Safety shapes the mining process.
- Environmental Stewardship Considerations
  - **The most pristine areas/water systems are not mined**
  - Intensely complex process to map wetlands, topography, sampling of fauna, flora, and soils
  - Wetlands that are mined must be replaced acre-for-acre and type-for-type



South Pasture Extension
Proposed Conservation Easements

South Pasture Extension No-Mine Conservation Easement	1,094.6 Acres
South Pasture Extension Post Reclamation Conservation Easement	1,789.4 Acres
Total South Pasture Extension Conservation Easement	2,884 Acres

South Pasture Extension
Proposed Additional Conservation Easements

Horse Creek Conservation Easement (Currently Deed Restricted)	490 Acres
Payne Creek Conservation Easement (Currently Deed Restricted)	425 Acres
Total Additional Acres In Conservation Easement	915 Acres

1:54,000
,250 0 2,500 5,000 7,500 10,000 Feet
1 inch = 4,500 feet

Legend

Proposed Conservation Easements & No-Mine Area

- No Mine Area Conservation Easement
- Post Reclamation Conservation Easement
- Property Boundary
- Horse Creek Conservation Easement (Currently Deed Restricted)
- Payne Creek Conservation Easement (Currently Deed Restricted)
- South Pasture Extension No-Mine Area

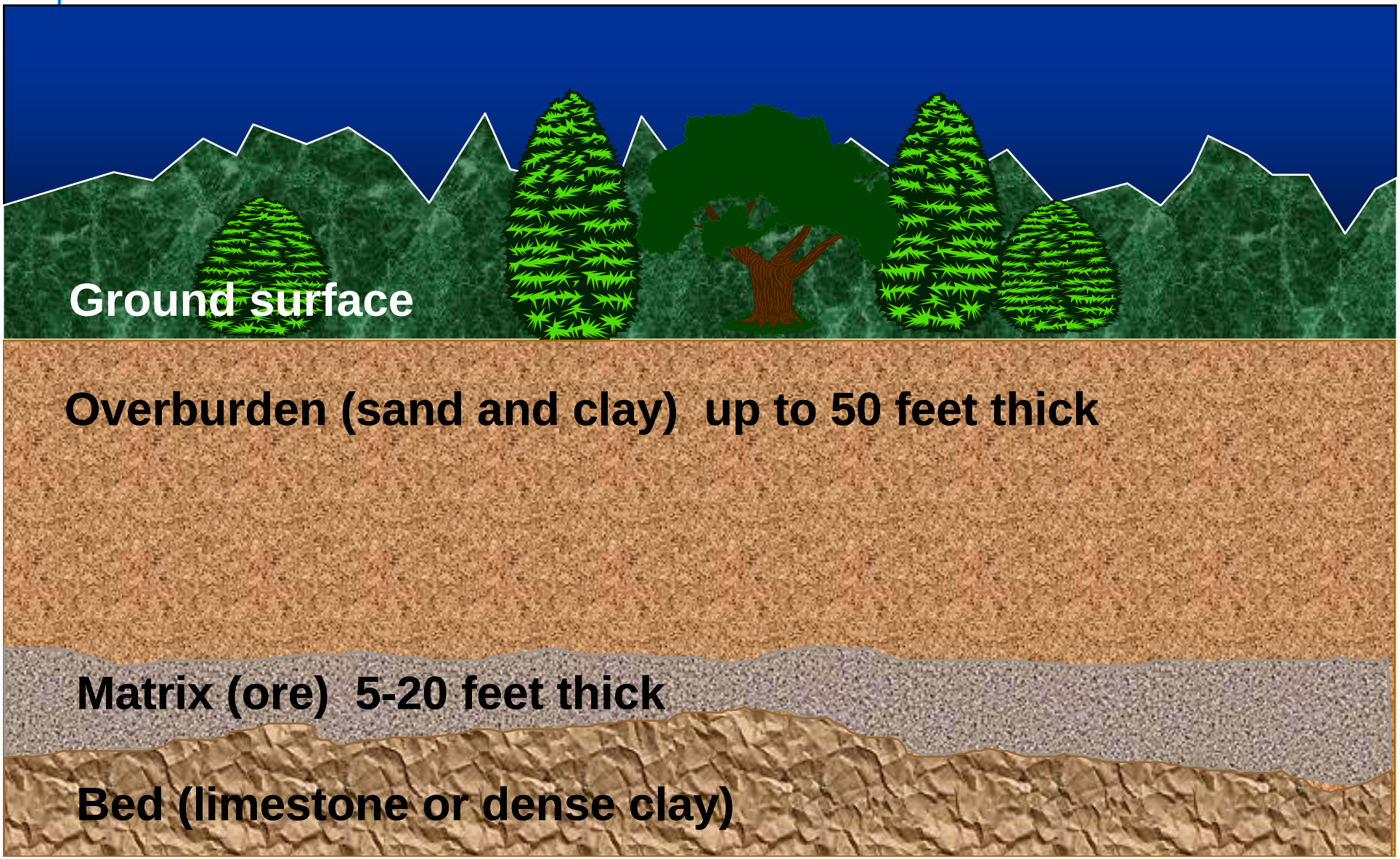
CFIndustries
Hardee Phosphate Compl

South Pasture Extension
CF Proposed No-Mine Areas and
Conservation Easements
(Brushy, Lettis, Horse Creek and Payne Cr

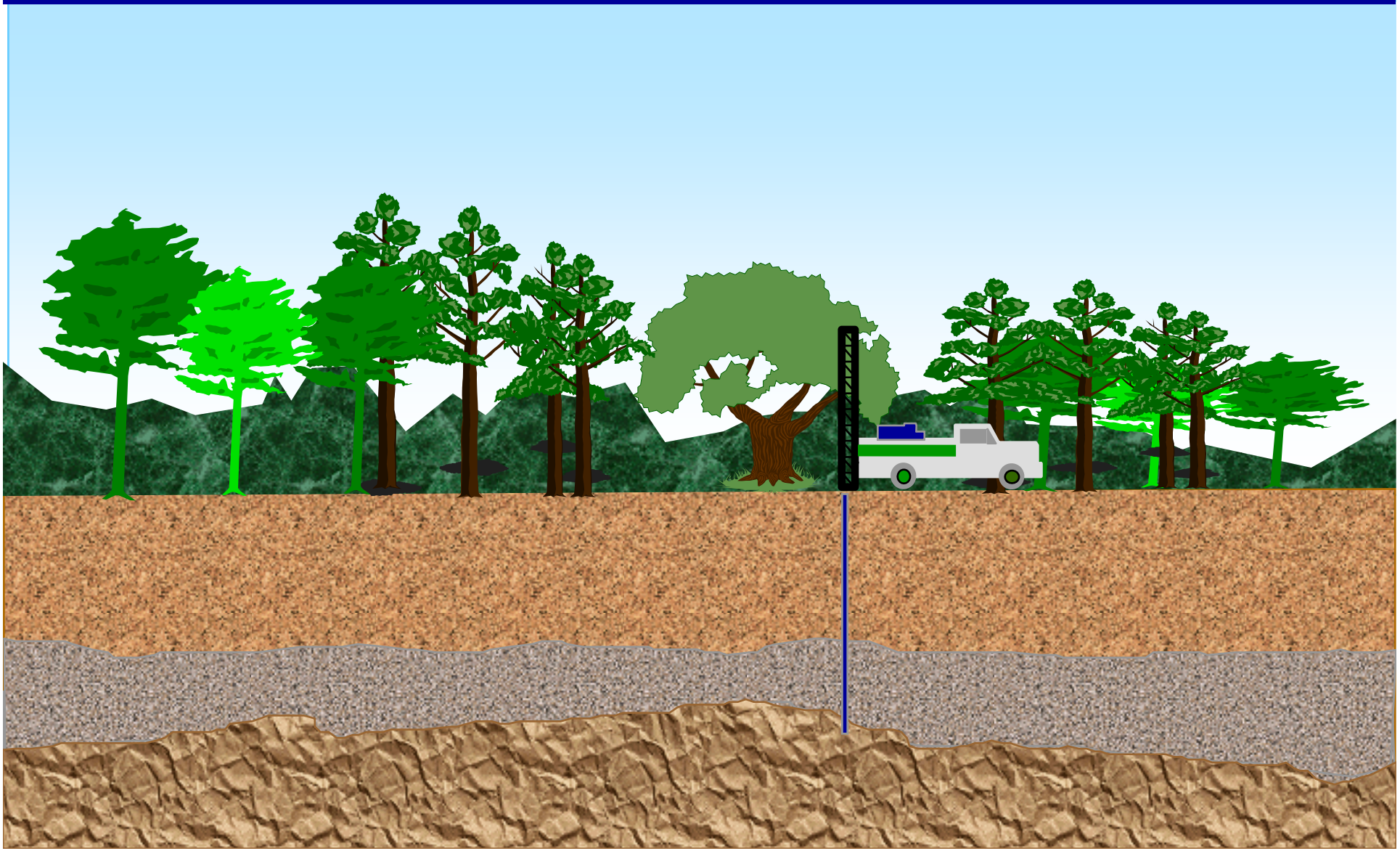
Created By	Approved By	Date	Shee
GAB	qb	9 Marcht 2010	1 o

S:\SP & SP Ext Permitting\SP Extension ERP Application\No Mine Adjustment Scenarios\SPE Cl

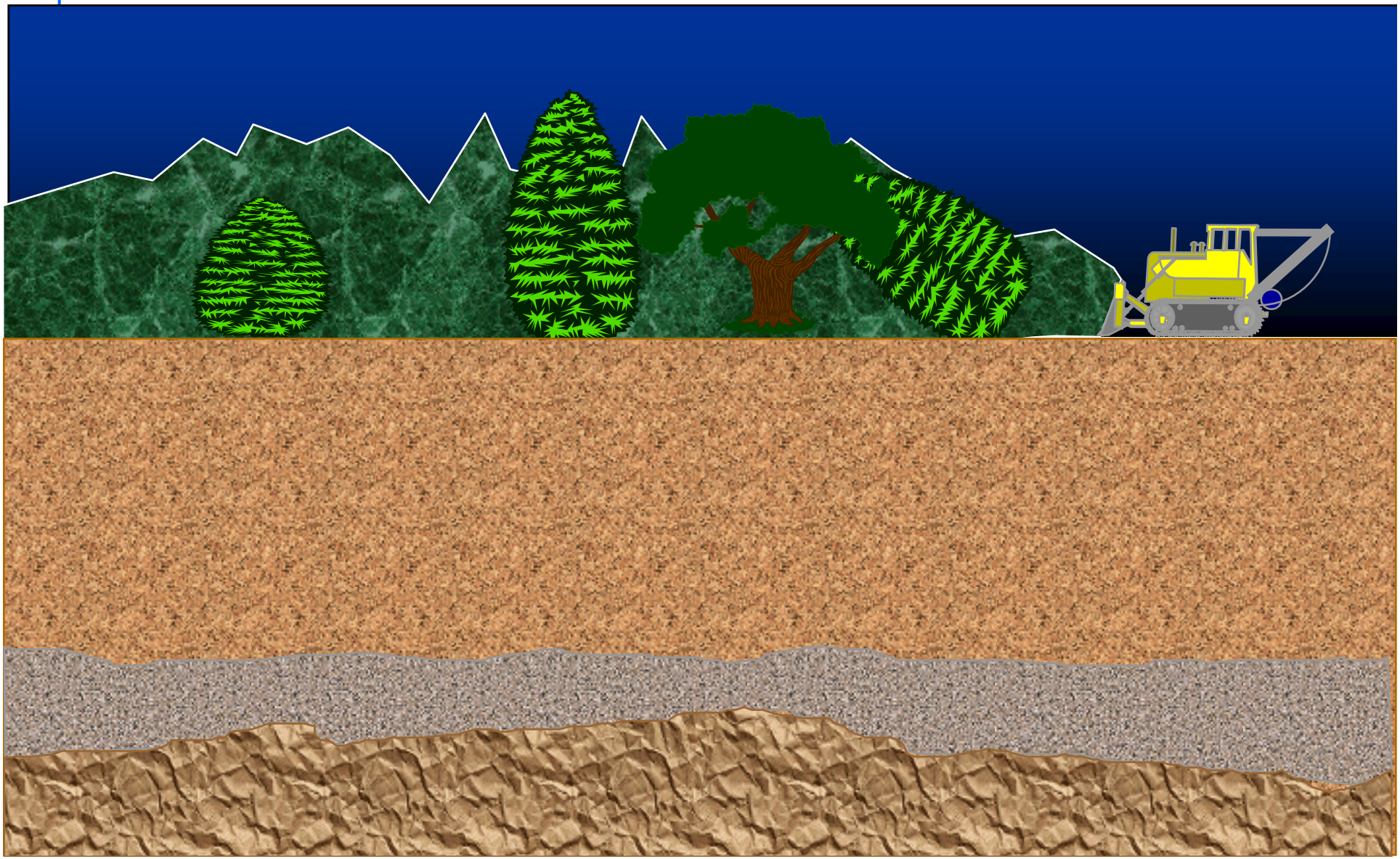
Geology


Ground surface
Overburden (sand and clay) up to 50 feet thick
Matrix (ore) 5-20 feet thick
Bed (limestone or dense clay)

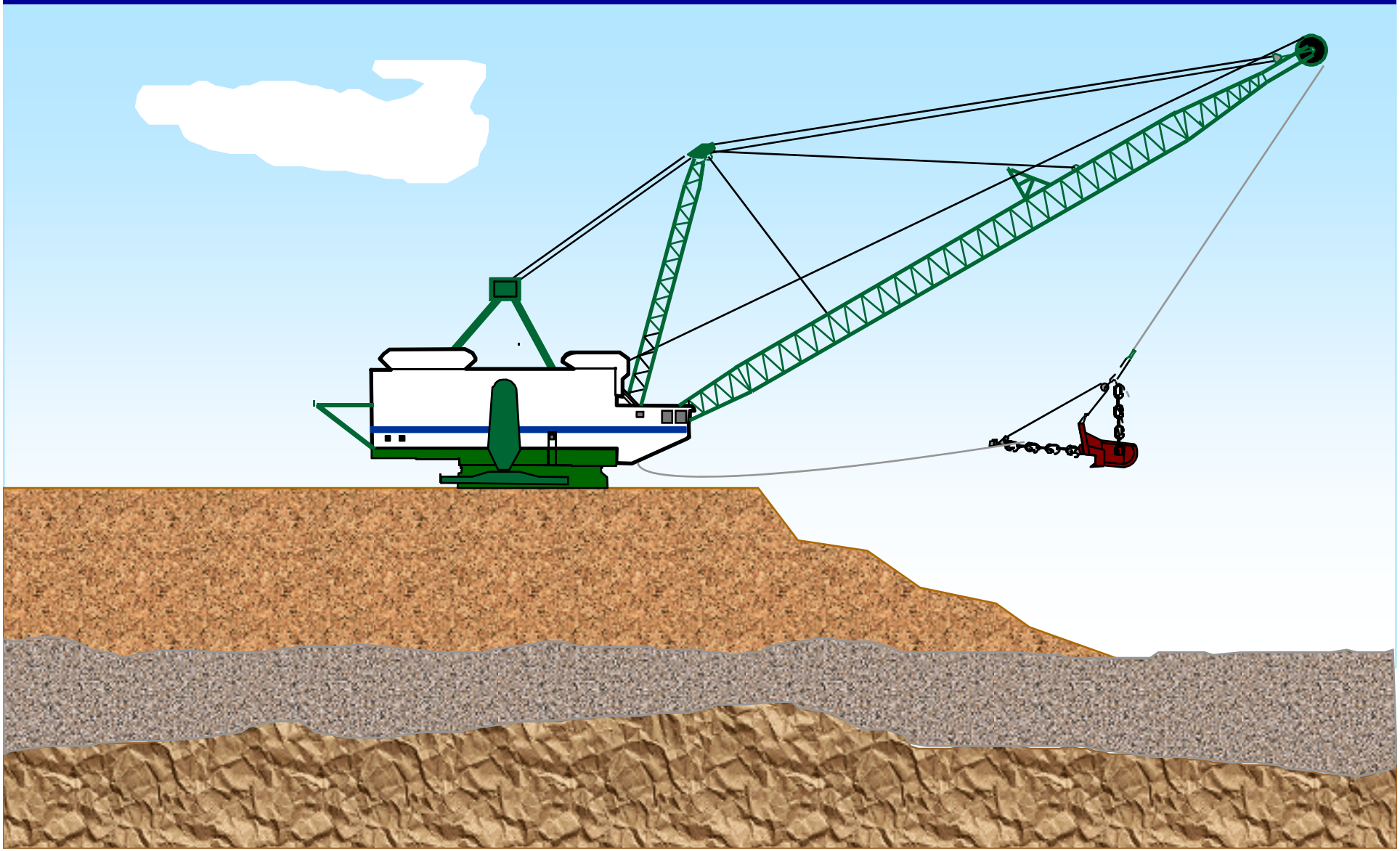
Where is the Phosphate?



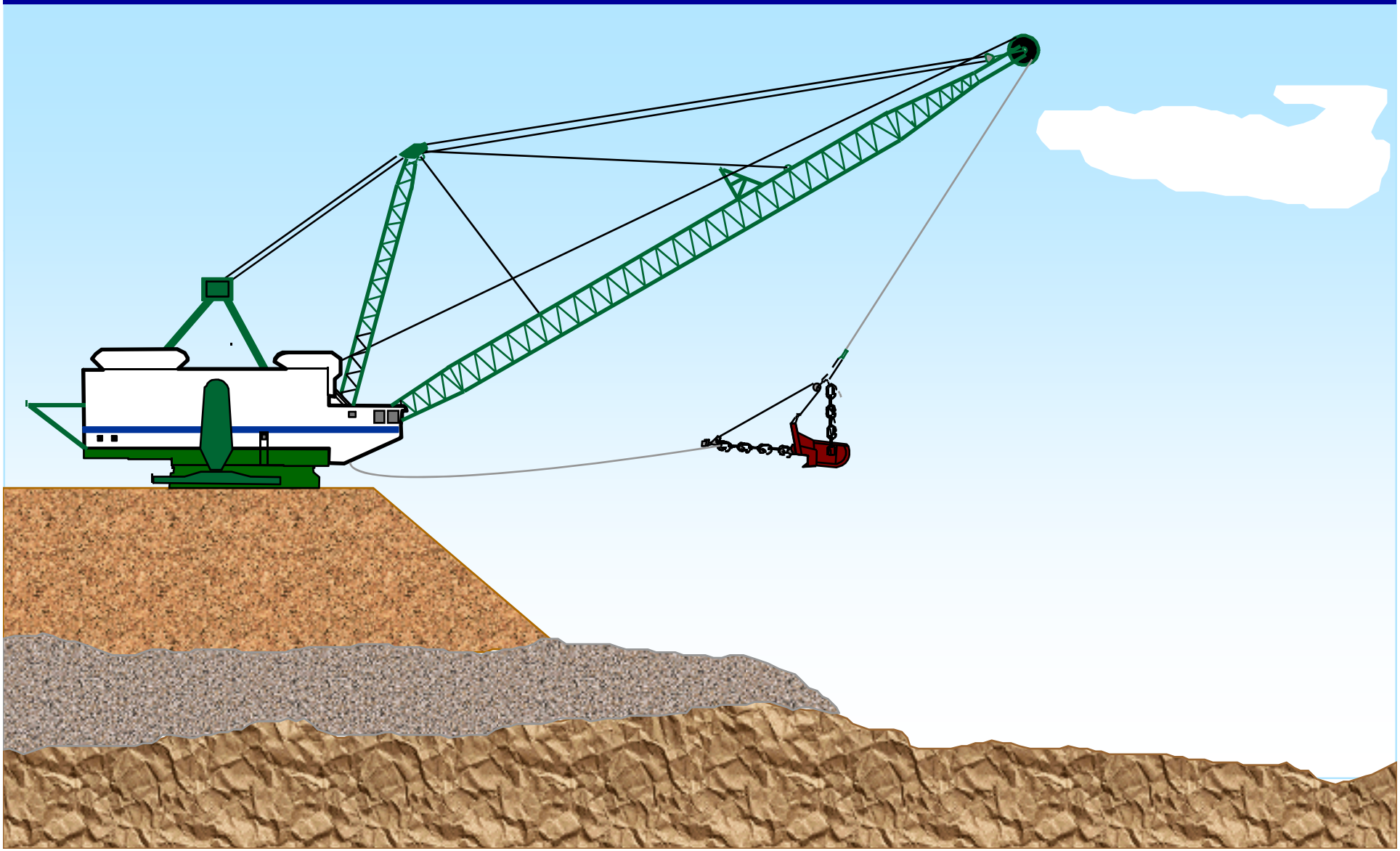
Preparation for Mining



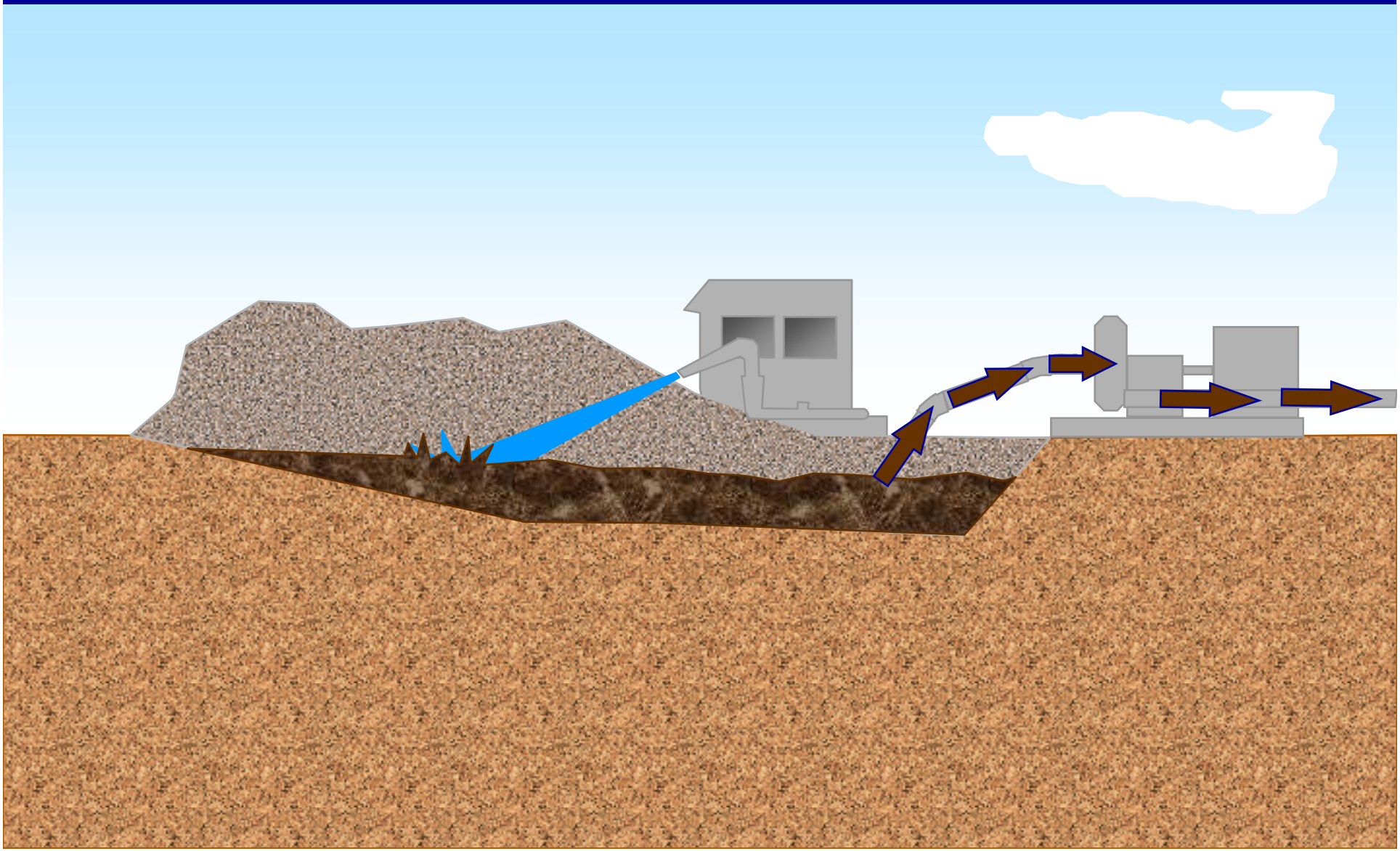
Stripping Overburden



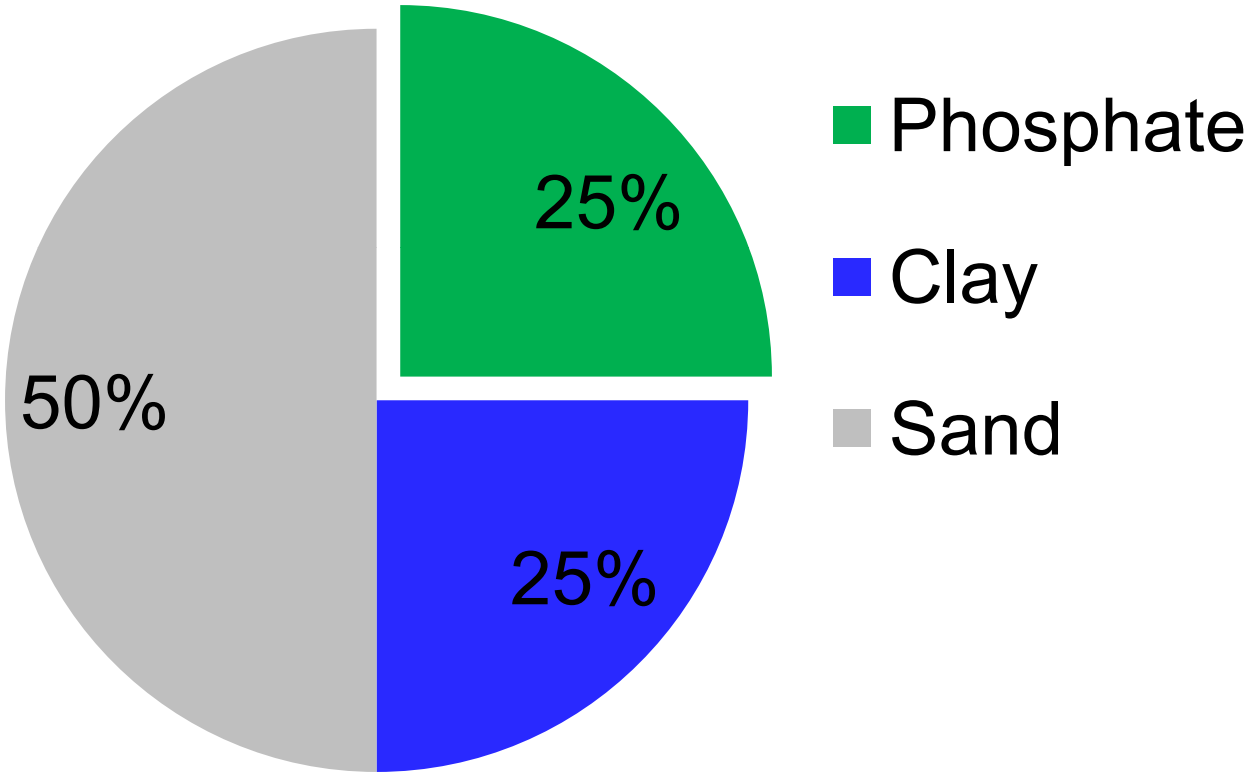
Mining Matrix



Transporting Matrix

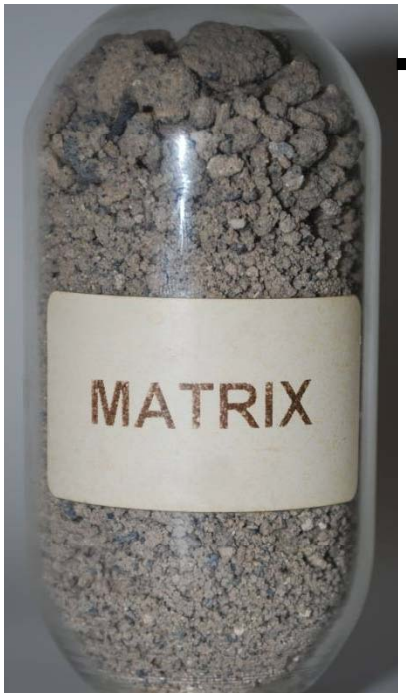


Matrix Composition



Beneficiation Plant

Mechanical Separation



Screening Process

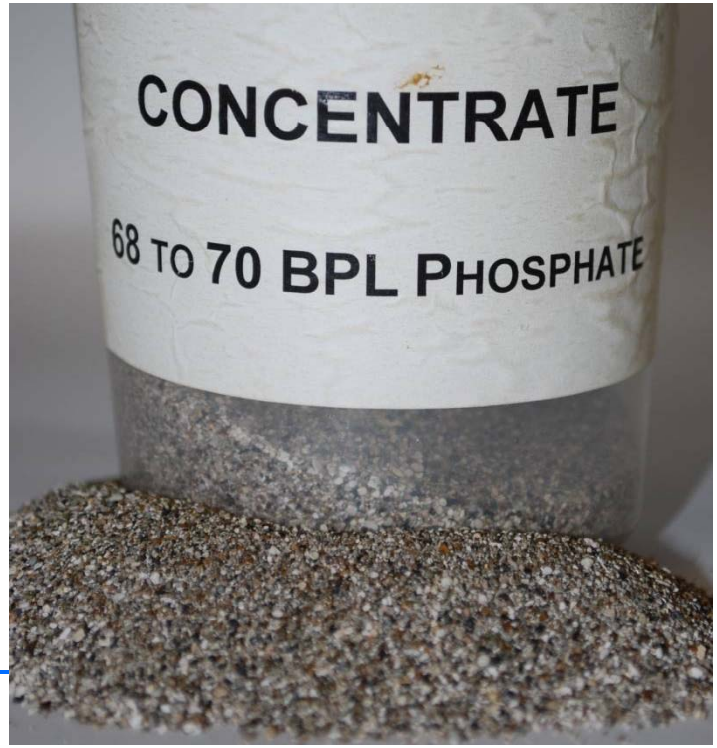
Hydrosizer

Flotation

Sand and Phosphate are the same size

Creates a “soap” that attaches only to Phosphate

Float the Phosphate rock in bubbles to surface and skim off



BPL vs. P_2O_5

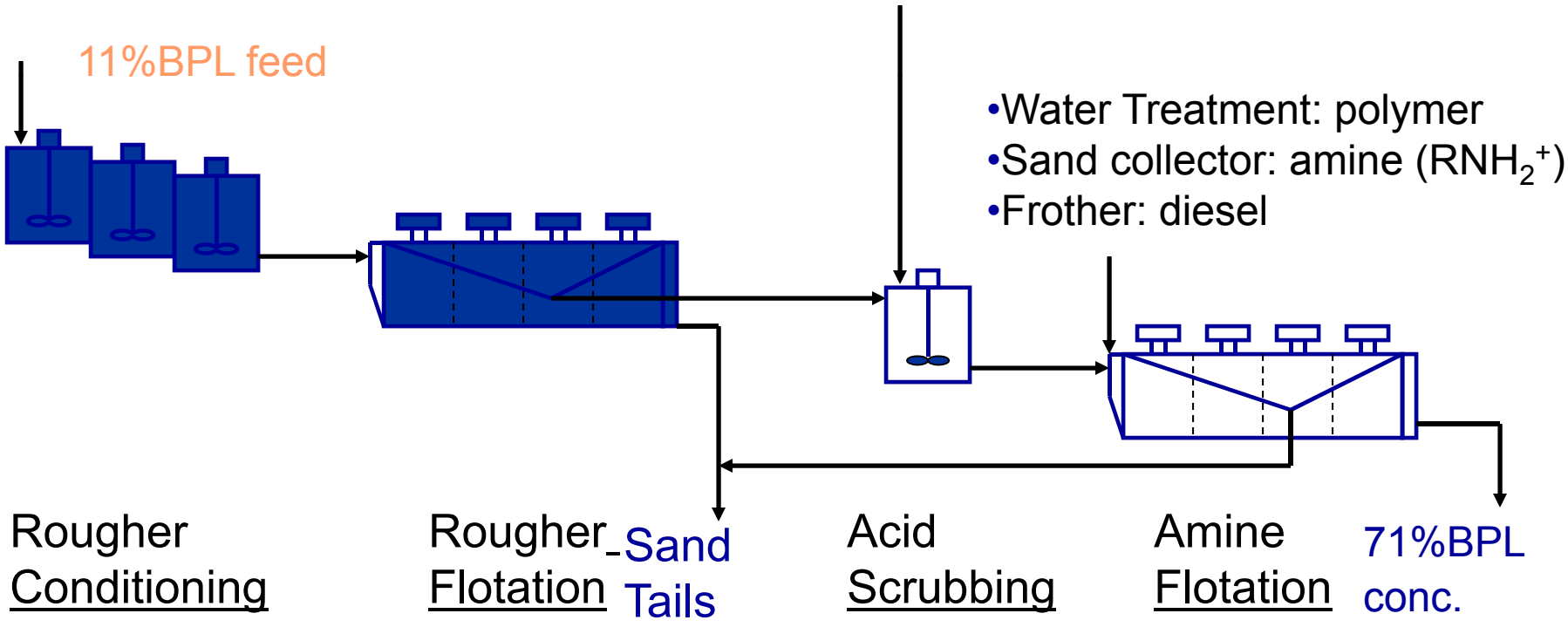
Bone Phosphate of Lime = 2.185 x P_2O_5

Pebble = 60 BPL
Intermediate Product = 52 BPL
Concentrate = 67 BPL

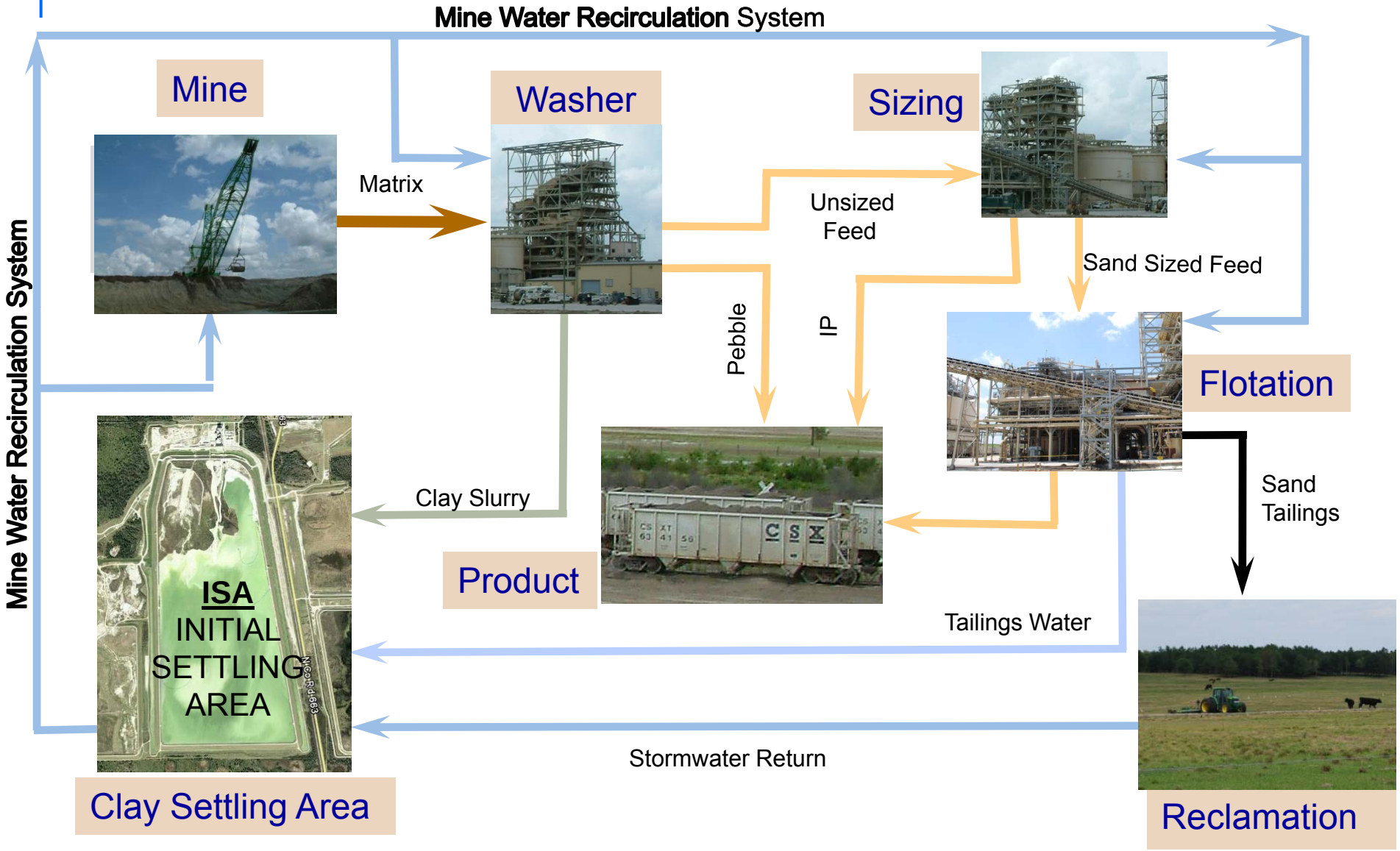
Crago Flotation Process

- Phosphate collector: fatty acid ($RCOO^-$)
- Frother: fuel oil
- Sand depressant: sodium silicate
- pH modifier: soda ash

- Scrubber: sulfuric acid



Mining and Beneficiation




CSX
CS 63 XT 41 21
CSX
CS 63 XT 41 56
CSX
CS 63 XT 41 35

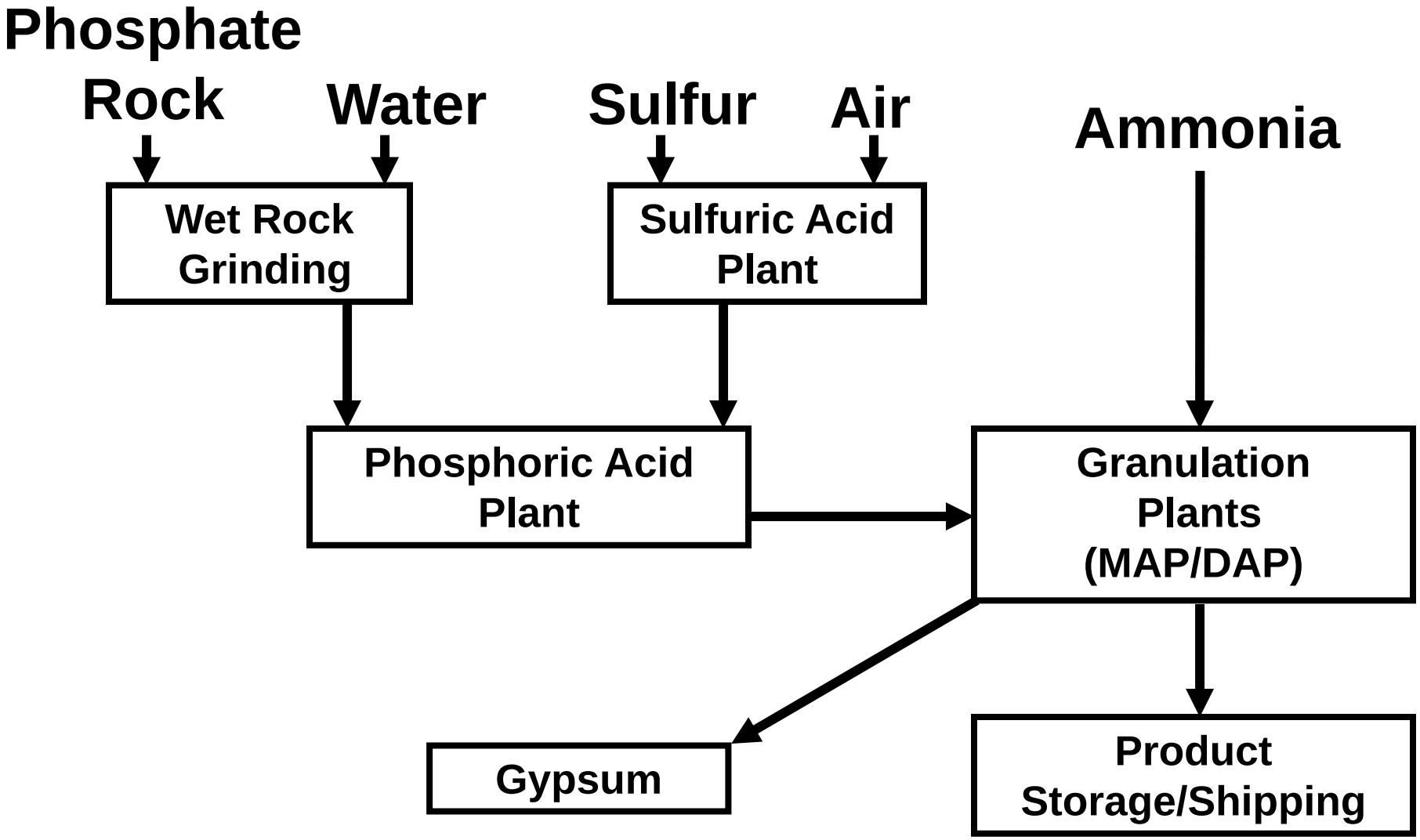
World-Class Phosphate Facilities

Plant City Phosphate Complex is one of largest in U.S.

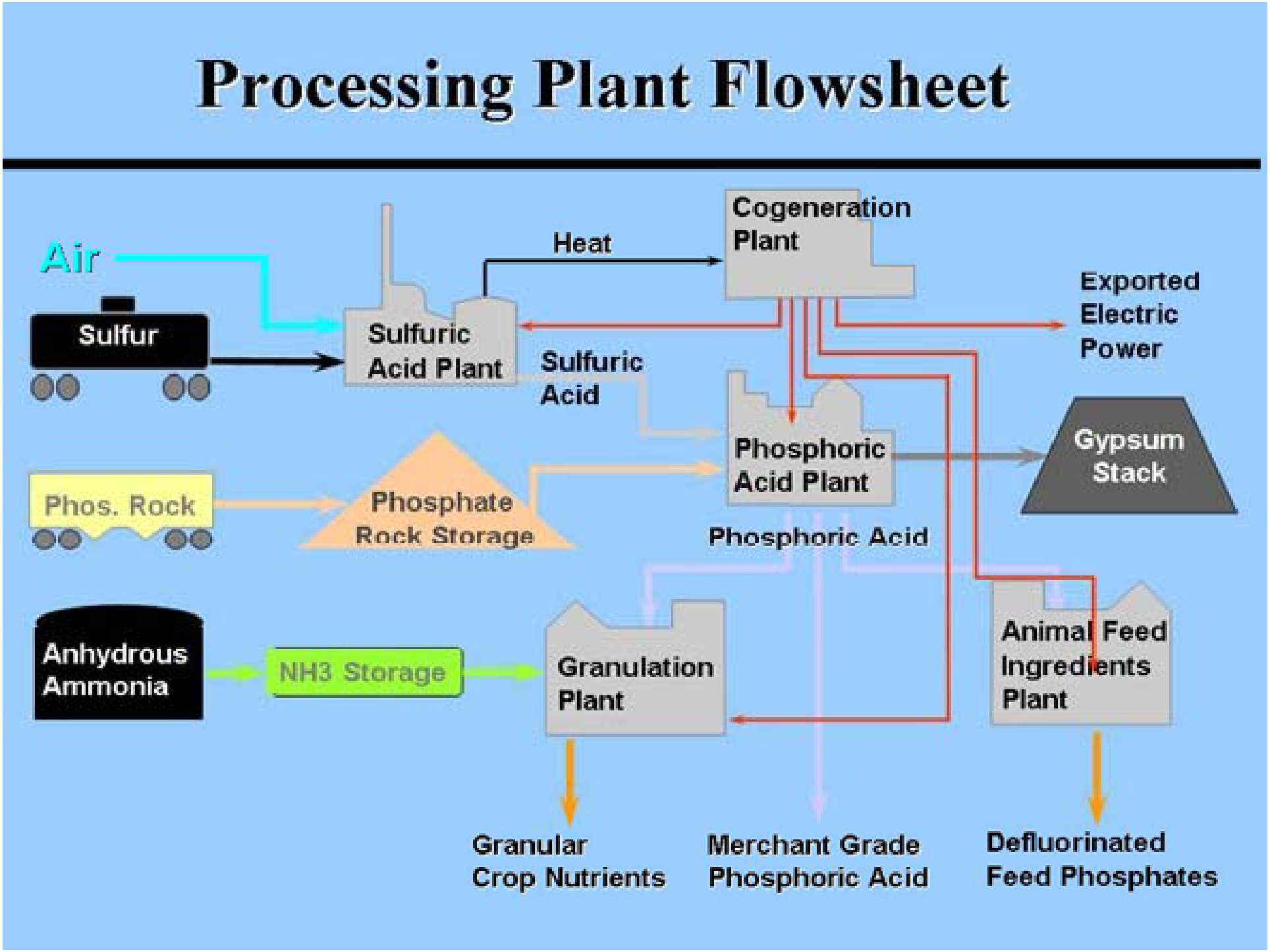
DAP & MAP capacity **exceeds 2.0 million** tons annually

Plant ships fertilizer by rail/truck to Port of Tampa Warehouse

Phosphate Fertilizer Manufacturing

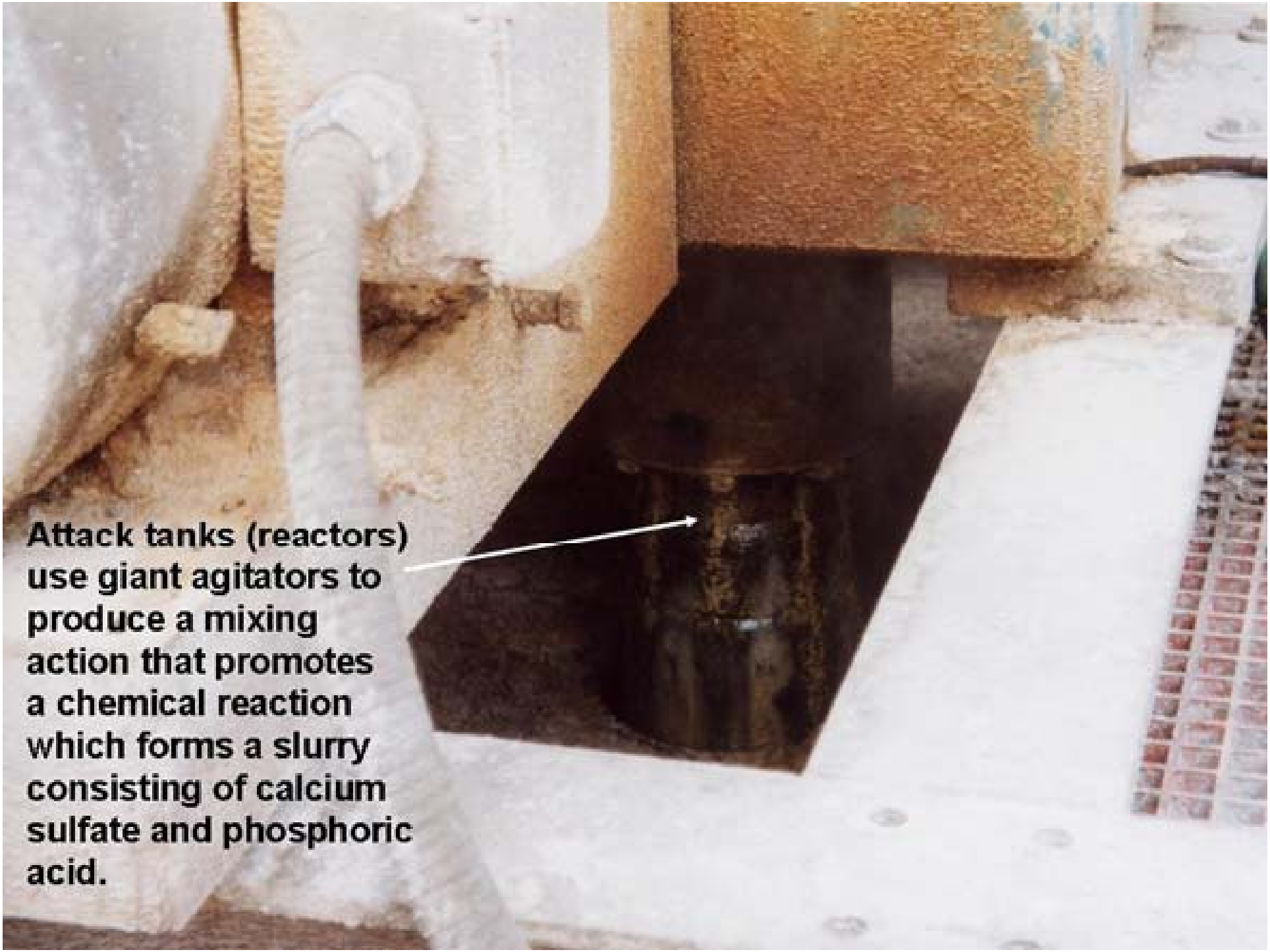


Processing Plant Flowsheet




2448
DVLX 2063
CAPY 13440 GAL
CAPY 50870 L
2448
MOLTEN SULPHUR

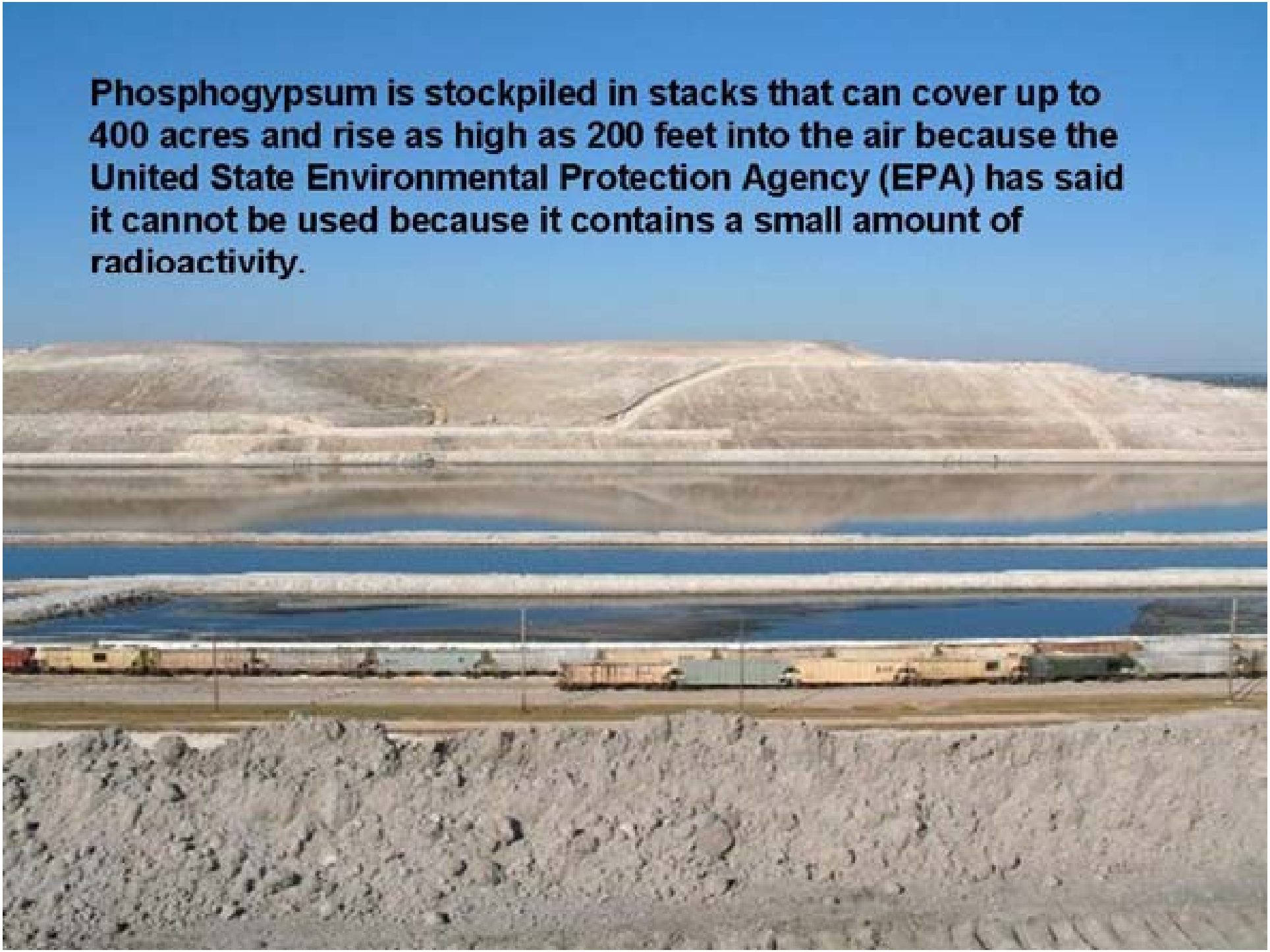
In the phosphoric acid plant, the slurry will be reacted with sulfuric acid that is stored in tanks like these.

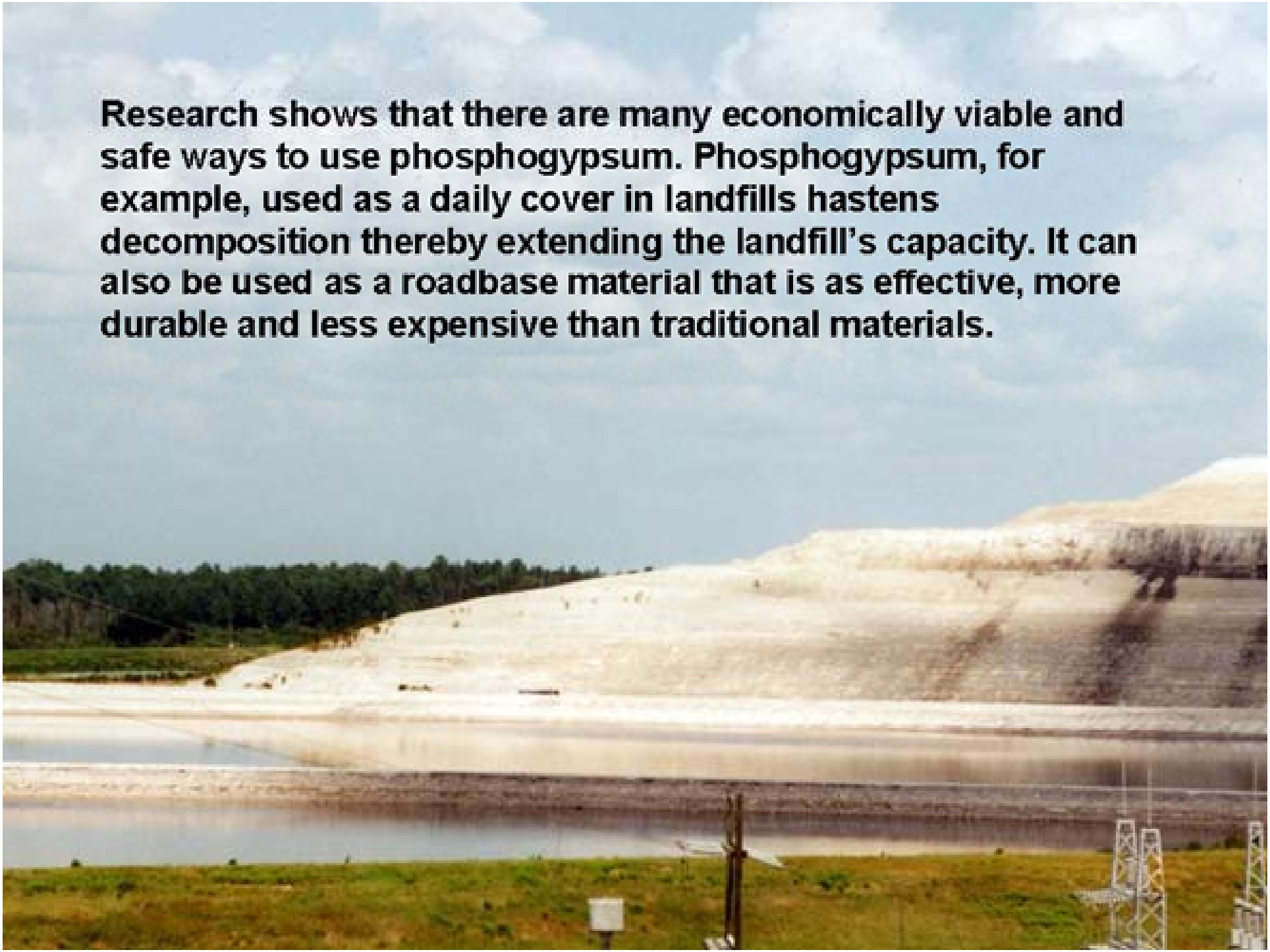

Attack tanks (reactors) use giant agitators to produce a mixing action that promotes a chemical reaction which forms a slurry consisting of calcium sulfate and phosphoric acid.

Product & Byproduct

We use the Phosphoric Acid to make MAP/DAP

Phosphogypsum (calcium sulfate) is filtered away from the Phosphoric Acid


Phosphogypsum is stockpiled in stacks that can cover up to 400 acres and rise as high as 200 feet into the air because the United State Environmental Protection Agency (EPA) has said it cannot be used because it contains a small amount of radioactivity.


Research shows that there are many economically viable and safe ways to use phosphogypsum. Phosphogypsum, for example, used as a daily cover in landfills hastens decomposition thereby extending the landfill's capacity. It can also be used as a roadbase material that is as effective, more durable and less expensive than traditional materials.

Phosphoric Acid & Ammonia

To add Nitrogen - Concentrated Phosphoric Acid (H_3PO_4) is reacted with Ammonia (NH_3)

That reaction forms

Diammonium Phosphate (DAP)
18-46-0

Monoammonium Phosphate (MAP)
11-52-0 & 10-50-0 (MAPito)


CAUTION
AMMONIA
STORAGE
CAUTION
AMMONIA
STORAGE
CAUTION
AMMONIA
STORAGE

World-Class Phosphate Facilities

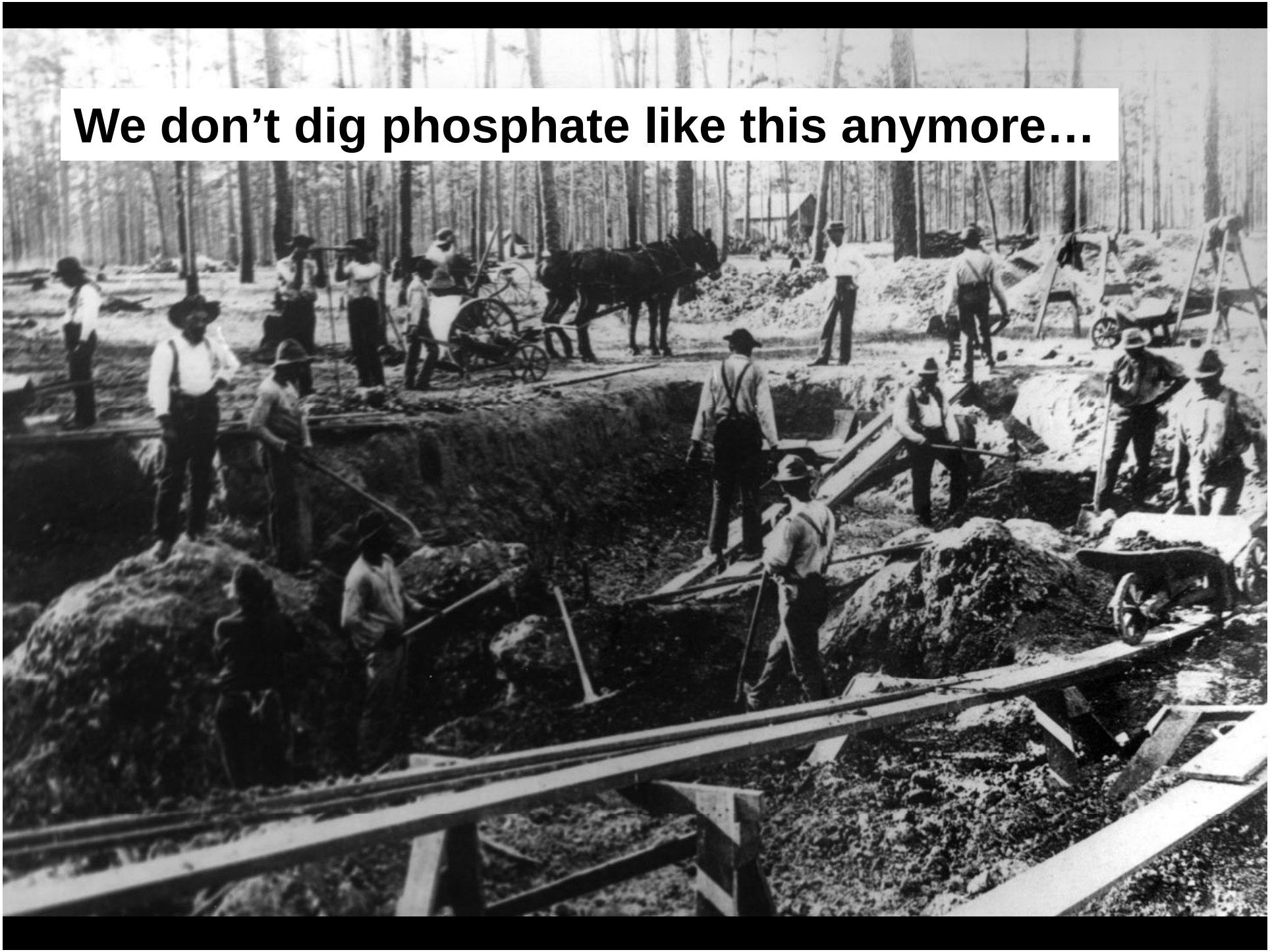
Port of Tampa

Serves Cross Gulf & International phosphate markets since 1965


ACACIA N
PANAMA

In Closing

1. Phosphate mining and production require large scale facilities and **consistent inputs** of Phosphate rock, Sulphur and Anhydrous Ammonia.
2. CF is a responsible steward of natural resources. We **recycle over 95% of water** used in processes.
3. CF's Mine, Chemical Plant, and Port Facilities are all **interdependent.**
4. Phosphate mining is one of the **most regulated** industries in the State of Florida – *it takes longer to permit a mine in the U.S. than anywhere else in the world.*
5. Public outreach/education is necessary to show that the **need for phosphate is critical.**


We don’t dig phosphate like this anymore…


CF®