Horses for Courses

Sand Washing Equipment Selection

Old vs New

Rick Madara: McLanahan Corporation
Introduction

Two major circuit choices for washing construction sand in USA:

- Classic (Screws, Tanks)
- Process Equipment (Cyclones & Dewatering Screens)
- Combination of both
Simple Screw Circuit
Classic Equipment – Screw Washers

Advantages
- Simple
- Well known
- Flexible
- Low hp

Disadvantages
- Product moisture
- Wash Efficiency
- Losses to Ponds
- Fine Sand capacity
Sand Tank and Screw Washer(s)
Classic Equipment – Sand Tanks

Advantages
• Well known
• Product Management
• Low hp

Disadvantages
• Product moisture
• Wash Efficiency
• Losses to Ponds
• High Wear Costs
• Misapplied Applications
• Capital Costs/Structure
Simple Process Circuit
Process Equipment

Advantages
- Dry Product
- Wash efficiency
- Yield
- Very Predictable

Disadvantages
- Power
- Capital Cost
- Feed/Volume Dependent
Dewatering Screen vs Screw C-33 Sand

SCREW & SCREEN

SCREEN ALONE

SCREW & SCREEN

SCREEN ALONE

SCREW & SCREEN

SCREEN ALONE

Dewatering Screen Plants - VD-18.mp4

VD21S.mp4
Things to Consider

200 tph Product @ 80% Solids
= 496gpm Slurry or 200gpm water
200(gpm)x60(min)x2000(hours) = 24,000,000 Gallons

200 tph Product @ 85% Solids
= 438gpm Slurry or 141gpm water
141(gpm)x60(min)x2000(hours) = 16,920,000 Gallons

Reduction of 7,080,000 Gallons
5tph Recovery \times 2000 \text{ operating hours} = 10,000 \text{ tons}
Sand Plant Evolution

Raw Feed → Sand → To Ponds
Sand Plant Evolution

Raw Feed

To Ponds

Sand
Sand Plant Evolution
Is there better solution?
Solution?