GEOTECHNICAL APPLICATION OF AQUABLOK® INCLUDING ADDRESSING ARSENIC OUTBREAKS AT THE LUC-475-14.18 MECHANICALLY STABILIZED EARTH WALL PROJECT (PID NO. 77225)

MAY 7, 2013
TOPICS

- Introduction to AquaBlok® Technology
- Technical Advantages
- Various Application Scenarios
  - Sediment Encapsulation
  - Ponds and Basins
  - Barrier Trench
  - Anti-seep Collars
  - Borehole Sealing
  - Sink holes / Underground Mines
- Case Study: LUC-475-14.18 Mechanically Stabilized Earth Wall Project (PID NO. 77225)
Swell + Compaction = Low Permeability

powdered bentonite with adhesive binder

solid aggregate core

sodium bentonite powder + crushed limestone = AquaBlok® bentonite-stone composite particle
sodium bentonite and adhesive binder expands when hydrated

solid aggregate (limestone) core

average particle 1/4 - 3/8” (dry)

not to scale
INTRO TO AQUABLOK | HYDRATION

AquaBlok
1 min post hydration

AquaBlok
24 hr post hydration

(time)
INTRO TO AQUABLOK | GEOTECH PROPERTIES

- Dry State Characteristics
- Permeability
- Percent Swell
- Shear Strength
- Bearing Capacity
- Compaction
VALUES & TECHNICAL ADVANTAGES

- Technically Effective
  - Extreme low permeability a result of reliable swell
- Offers Targeted Placement
  - Even through water
    - Will not drift or dissipate
    - Minimal dusting
- Easy to Handle
  - Behaves much like aggregate
    - Installed by hand or using a broad range of standard construction equipment
    - In-field blending typically not recommended
    - Often no need to mechanically compact
VALUES & TECHNICAL ADVANTAGES

- Adds Safety
  - Reduces exposure and manual labor hours
- Durable
  - Self-healing (even through drying/wetting and freeze/thaw)
  - Self-supported (thanks to internal aggregate core)
- Eco-friendly
  - Comprised entirely of earthen ingredients
  - Does not detrimentally alter water chemistry
  - Evaluation by EPA in projects throughout US & beyond
- Versatile
  - Addresses a broad range of technical challenges
APPLICATIONS | PONDS & BASINS

Sealant "Blanket" Lining
Torn/Compromised Synthetic Liner
Fix Leaking Berms
Repairing/Discouraging Animal Damage
APPLICATIONS | PLUGGING FIELD TILES

Plugging Remnant Field Tiles
APPLICATIONS | ANTI-SEEP COLLARS
APPLICATIONS | ANTI-SEEPE COLLARS
APPLICATIONS | TRENCH DAMS

Trench Dams/Water Stops

bedding
AquaBlok

Trench Dams/Water Stops
Reinforcing/Bedding Control Structures
APPLICATIONS | I&I CONTROL STRUCTURES

Loose Mortar, Stub Outs, Fatigue Cracks
APPLICATIONS | I&I CONTROL STRUCTURES

Pre-cast Joints, Failing Rings
APPLICATIONS | SINK HOLES & UNDERGROUND MINES
APPLICATIONS | BANK STABILIZATION

Cellular Confinement/Bank Stabilization
APPLICATIONS | TEMPORARY DAMS

Temporary Dams/Stream Diversion
APPLICATIONS | FLOOD MITIGATION
APPLICATIONS | BOREHOLE BACKFILL/SEALING
LUC-475-14.18 MSE EARTH WALL (PID NO. 77225)
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PACKAGING OPTIONS

50-lb. bags*
48 bags/pallet (2,400-lbs.)
Durable 3-ply paper bags
Available singly and by the pallet

Bulk bags*
2,400-lb (1cy) per tote
Water resistant poly w/ discharge snout
Available singly or by the truckload

* Product extremely water sensitive -- should be stored under-roof or completely beneath reliable tarps prior to application
QUESTIONS

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For more information on AquaBlok® please visit
www.aquablok.com