GRAIN BIN SAFETY SYMPOSIUM
Assumption, IL
March 23, 24

TUNNEL DESIGN AND WATERPROOFING
DESIGN CONSIDERATIONS

• Equipment Access
  – Size of equipment
  – Bin discharge Gate Access
  – Frequency of inspection
  – Clean standards

• Installation and removal
  – How do we get the equipment in and out?

• Maintenance
  – What will normal routine be and how often is it performed?
  – What access will be required?
BELT CONVEYOR ACCESS AND MAINTENANCE

– Access both sides to access bearings for greasing
  • Walkway along each side preferred
  • Walkway one side of 36” is best, 30” minimum with 18” on back side minimum
  • 12” clearance off the tunnel floor

– Access at head for motor, drive and guard

– Access at tail (or head) for take-up access
  • Do we have enough distance to work the wrench to loosen or tighten take-up screws?
  • Can we get the drive components off without cutting?
DRAG CONVEYOR ACCESS AND MAINTENANCE

– Access one side
  • Walkway one side of 36” is best, 30” minimum with 6” clear on back side minimum
  • 12” clearance off the tunnel floor to allow for liner replacement

– Access at head for motor, drive and guard
  • Can the drive components be removed without cutting?

– Access at tail (or head) for take-up access
  • Do we have enough distance to work the wrench to loosen or tighten take-up screws?
WATERPROOFING

• Is there a better way for construction?
• Only good time for waterproofing is during initial construction
• Waterproof on outside
• Keep water out before it gets in
• Condensation will occur
• Sump pits for water that does get in
INITIAL WATERPROOFING

• Building mastic
• Bentonite clay panels or equal
  – Wrap from bottom of foundation to top of tunnel
  – Ease corners
• Vapor barrier plastic
• Granulated backfill to aid in water travel
• Perforated drain tile with small gravel
• Outside sump well connecting drains
CLEARANCE ISSUES
PLAN AT HEAD
Questions?