LATEST PRACTICES IN GRAIN ELEVATOR DESIGN

Presented by: A. Kevin Fry, P.E.
2013 TEGMA Annual Meeting

January 25, 2013
FIRST GRAIN ELEVATOR IN US - BUFFALO, NY
FLOW CHART SHOWS OPERATION OF BUFFALO ELEVATOR

- Position of marine leg when not in use
- Spout to load canal boats
- Grain hand shoveled to leg in boats hold
- Dart's elevator flow sheet (some detail assumed)
CONVENTIONAL BAGHOUSE INSTALLATION
POINT-OF-USE DUST FILTER
POINT-OF-USE DUST FILTER APPLICATION FOR BOOT SECTION OF A BUCKET ELEVATOR
POINT-OF-USE DUST FILTER ON AN ENCLOSED BELT CONVEYOR
POINT-OF-USE DUST FILTER AT DISCHARGE OF AN ENCLOSED BELT CONVEYOR
POINT-OF-USE DUST FILTER ABOVE DISCHARGE OF ENCLOSED BELT CONVEYOR
POINT-OF-USE DUST FILTER USED TO VENT GRAIN SILOS
POINT-OF-USE DUST FILTERS ON A TRUCK DUMP
POINT-OF-USE DUST FILTERS ON A TRUCK DUMP
MOTORIZED GATE WITH COVER OVER THE BOTTOM TO KEEP DUST WITHIN SPOUT
SECTION OF TOTALLY ENCLOSED ROLLER SUPPORTED BELT CONVEYOR
TOTALLY ENCLOSED BELT CONVEYORS FILLING GRAIN BINS
TOTALLY ENCLOSED BELT CONVEYOR IN A RECLAIM APPLICATION
TOTALLY ENCLOSED BELT CONVEYORS
TOTALLY ENCLOSED BELT CONVEYORS FOR BARGE RECEIVING SYSTEM
TOTALLY ENCLOSED BELT CONVEYOR IN A RECLAIM TUNNEL
RECLAIM CONVEYOR
BARGE LOADOUT CONVEYOR
TOTALLY ENCLOSED BELT CONVEYOR IN A RECLAIM TUNNEL
AIR BELT CONVEYOR WITH POINT-OF-USE DUST FILTER
AIR SUPPORTED BELT CONVEYOR FOR BARGE RECEIVING
AIR BELT CONVEYORS FOR BARGE RECEIVING
DUAL DOCK LOADING CAPABILITY

AGRICO SHIP LOADER – CAN LOAD SHIPS ON BOTH SIDES OF A FINGER PIER
AGRICO SHIPLOADERS FOR EXPORT GRAIN
AGRICO SHIPLOADERS
BUHLER SHILOADERS IN ARGENTINA
Material flow

Deadbox

Geared motor for spring tensioning

Geared motors for residue unloading

Weigh hopper

Material backup

Lift

Cone valve

Reducing the grain fall energy in the dead box

Grain back up in the weigh hopper
DUST SUPPRESSOR, EXAMPLES
WITHOUT DUST SUPPRESSOR AND WITH DUST SUPPRESSOR
SHIPLOADER WITH DUST SUPPRESSOR AND WITHOUT ANY DUST CONTROL AT BOTTOM OF LOADING SPOUT
STATE OF THE ART CONTINUOUS SHIPUNLOADER (CSU) FOR GRAIN
(1) Kick-In / Kick-Out
(2) Marine leg HL-SKT for vertical unloading
(3) Sink-In
(4) Boom chain conveyor SKT for horizontal transport
(5) Spouting
(6) Aspiration system
The material handled proceeds from the boom SKT conveyor through a totally enclosed discharge chute via a vertical and inclined gravity spouting to the truck loading spouts or to the quay conveyor.
Large Facilities - Old Style

- Manual Operators
- Hard To Understand
- Prone To Accidents
- Extensive Training
GRAIN ELEVATOR AUTOMATION

Large Facilities - New Style

- Visual Graphics
- Intuitive to Follow
- Facility By Screens
- Easy to Use
GRAIN ELEVATOR AUTOMATION
GRAIN ELEVATOR AUTOMATION
GRAIN ELEVATOR AUTOMATION
GRAIN ELEVATOR AUTOMATION
A. Kevin Fry, P.E.
Vice President - Consultant
Direct 504.293.3926
Cell: 504.352.4588
kfry@riverconsulting.com

3510 N Causeway Blvd., Suite 515
Metairie, LA 70002
Office 504.293.3900

www.riverconsulting.com