

Liquid De-Icing Storage Tanks

Kansas DOT

- Background
 - KDOT has roughly 200 polyethelene Storage Tanks
 - 145 of those 200 tanks over 10 years old
 - Primarily Store Salt Brine
 - 10,000 gallon tanks

Liquid De-Icing Storage Tanks

Kansas DOT

- Background
 - **KDOT began using liquid deicers in the mid 1990's**
 - **Assigned a 15 year replacement cycle**
 - **Replacement was NOT a priority**



16 year old tank in Atwood, KS

- Collapsed while KDOT employee was making brine and loading into the tank
- He had just climbed off of loader when the collapse occurred
- Pieces of the tank struck the employee injuring his shoulder and cutting his forehead









KDOT makes and Stores Brine in every Subarea

- Typical setup includes a brine maker and a 10,000 gallon Storage Tank
- Many remote locations have salt storage and brine storage









Investigation

- Sent questions to other DOTs thru Clear Roads
- Discovered research document developed by Purdue University titled *Poly Tanks for Farms and Businesses*
- Includes inspection procedures for identifying tanks near failure

Inspection Techniques

- Color a 6" x 6" section of the tank exposed to the sun with a water soluble marker. Wipe of marking and look for cracks or crazing
- Whack empty tank with a baseball bat

KDOT committed to replacing all MY 2000 and older tanks ASAP

- Determined a need to replace 74 Poly Storage Tanks in the current budget
- Estimated to cost \$750,000

Fiberglass as an Alternative to Poly Brine Storage Tanks

- Working life of 25 to 35 years plus
- Options for larger storage capacities
- Price competitive
- Made in KANSAS

KDOT signed contract with KBK Industries to supply Fiberglass Tanks

- Average cost delivered
 - 10,000 gallon - \$7,500
 - 20,000 gallon - \$10,900
- Comparable Poly Price
 - 10,000 gallon - \$9,000



KDOT just ordered 64 Storage Tanks

- Tanks built to specification
- Delivery to begin 4 weeks after order
- \$630,000 with 2/3 of tanks 20,000 gallon











QUESTIONS?

