

# SOUTH DAKOTA TANK PATHOLOGY STUDY

Evaluating the  
Integrity of Tank  
Systems in  
South Dakota



South Dakota  
Petroleum Release  
Compensation Fund



# South Dakota Tank Pathology Study

- 17 UST sites were selected excavation and observation to evaluate the actual condition of the tanks, lines and other components.
- All sites believed to be in compliance with both federal and state UST regulations.
- Sites were being voluntarily closed for economic reasons.
- EPA grant - \$25,000

# South Dakota Tank Pathology Study

- Staff and contractor training – petroleum equipment (John Hartman and Assoc.)
- Records review and preliminary site investigation
- Bidding and contractor awards
- Preconstruction meetings
- Line testing: both conventional pressure testing and helium gas testing
- Tank system removal and observation
- Corrective action if necessary
- All costs paid by state

# Summary of Results

- Releases discovered at 6 out of 17 sites requiring additional corrective action
- All releases were from lines, dispensers or fill
- Most tanks in acceptable condition – no leaks
- Improper spill buckets cause for chronic problems
- Worst releases from lines
- Many defects and installation errors that could cause future problems
- Poor tank system management and inadequate record-keeping at most sites

	Line Test		Release	Year of Install	Source of Release	Contaminated Soil Volume (Cys)	Further Corrective Action Required
	(Pass/Fail)						
Site Location	Pres s	Helium	(Yes/No)				
Coastal Mart - Madison	P	P	Y	1981	Prev.	130	X
Big D - Spearfish	P	P	Y	1988	Prev.Sys./Disp.?	102	X
Bozied Texaco - Brookings	F	F	Y	1969	Pipe?/Disp.	52	
Casey's - Lennox	N/A	N/A	Y	1984	Prevbus Leak	357	
Stone's Truck Stop - Watertown	P	P	Y	1985	Overfills	214	X
Big D - Box Elder	P	P	Y	1985	Prev.Sys./Disp.?	220	X
Sioux Valley Co-op (Ampride) - Watertown	P	P	Y	1988	Spill Bucket Failure	13	
12th Street Sindair - Sioux Falls	F	F	Y	1990	Pipe/Disp./Prev.	29	X
Flying J - Box Elder	P	P	Y	1990	Prev.Release/Disp?	5	
R&M Convenience - Sioux Falls	P	P	Y	1986/97	Prev.Sys./Disp.	430	X
Elkton Farmers Union - Elkton	P	P	N	1988	N/A	0	
Wayne's Amoco - Clear Lake	P	P	N	1993	N/A	0	
Big D - Sturgis	P	P	N	1993	N/A	0	
Bill's Texaco - Brandon	P	P	N	1994	N/A	0	
Broadway Texaco - Yankton	P	P	N	1996	N/A	0	
Westside Convenience - Yankton	P	P	N	1998	N/A	0	
Northview Bait - Sioux Falls	P	P	N	1999	N/A	0	

# Required Records Retention

Description	Required Records Retention	Applicable Sites	Sites w/ Documentation	%
Cathodic Protection Tests	Last 2 inspections	15	4	27%
Repaired or Lined Tank Certification & Performance Tests	Life of tank	3	1	33%
Annual Line Testing	1 year or until next test is performed	18	7	39%
Release Detection	1 year	18	7	39%
Performance Claims for Release Detection	5 years from install	2	0	0%
Schedules or req. calibration and maintenance provided by the manufacturer of Release Detection Equip.	5 years from install	2	0	0%
Written documentation of calibration, maintenance, and repair of Release Detection Equipment*	1 year from servicing	18	0	0%

\* No information available regarding repairs conducted at any sites.

# Lessons Learned

- Understanding of petroleum equipment is important to a state fund and regulatory agency
- Ongoing training is beneficial
- Many small releases or minor component defects may not be identified by routine inspections
- Even minor installation errors may result in major future problems
- More frequent and intense inspections may be beneficial
- Good tank management must be aggressively promoted
- Major action needed to prevent installation errors

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*The End*

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