Distribution Integrity Management (DIMP)

SD/ND/WY Pipeline Safety Operator Training
April 3, 2013

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NWE DIMP

Outline

- System Overview
- NWE's Approach
- Our Philosophy
- Implementation Challenges
- Challenges in the Future

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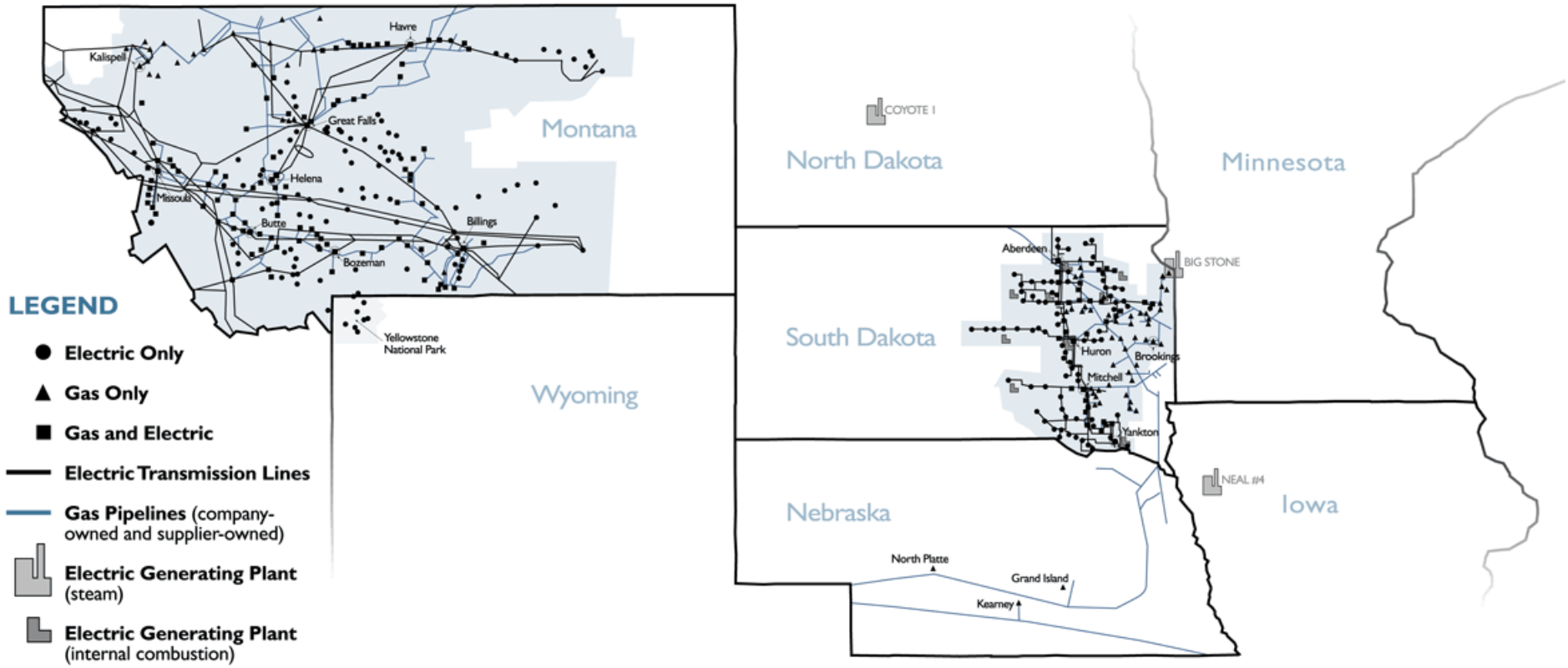
NWE System Overview



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NWE System Overview

System Vintage

Montana

1930s
Bozeman
Livingston
Big Timber
Columbus
Absarokee
Red Lodge
Roberts

Wolf Creek
Helena
East Helena
Fort Harrison
Deer Lodge
Galen
Warm Springs
Anaconda
Butte
Choteau (MDU)
Conrad (MDU)
Valier (MDU)

1940s
Fairfield
Fort Belknap (MDU)
Harlem (MDU)
Havre (MDU)
Chinook (MDU)
Chester (MDU)

1950s
Drummond
Clinton
Missoula
Hamilton

Ramsay
Rocker

Harlowton
Judith Gap
Lewistown
Shawmut

Whitehall
Manhattan
Three Forks
Belgrade
Trident
Logan

Augusta
Fort Shaw
Simms
Sun River
Vaughn

Gildford
Hingham
Inverness
Joplin
Kremlin
Rudyard

1960s
Browning
East Glacier
West Glacier
Coram
Hungry Horse
Columbia Falls
Whitefish
Kalispell

Amsterdam/Churchill

Garrison

Phillipsburg
Hall

Dillon
Sheridan
Twin Bridges

Boulder
Clancy
Elliston
Jefferson City

1970s
Willow Creek (Aldyl)

Vaughn (Steel)
Sun Prairie (Aldyl)

Big Sandy (Aldyl)
Fort Benton (Aldyl)
Floweree (Aldyl)
Loma (Aldyl)

1980s
Four Corners

1990s
Reedpoint
Townsend

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NWE System Overview

System Vintage

South Dakota

1950s
- Aberdeen
- Brookings
- Arlington
- Howard
- Madison
- Volga
- Huron
- Bryant
- Clark
- Conde
- De Smet
- Lake Preston
- Raymond
- Vienna
- Willow Lake
- Yale
- Mitchell
- Alexandria
- Spencer

1960s
- Oldham
- Doland
- Frankfort
- Redfield
- Turton

1980s
- Aurora (Aldyl-A)
- Lake Norden
- Hazel

1990s
- Bristol
- Ferney
- Groton
- Holmquist
- Warner
- Webster
- Altamont
- Big Stone City
- Castlewood
- Clear Lake
- Esteline
- Hayti
- Labolt
- Milbank
- Revillo
- Clarmont Colony
- Wentworth/Lake Madison
- Goodwin
- Kranzburg
- Verdon
- Hutterville Colony
- Hill Crest Colony
- Hillside Colony
- Clark Colony
- Fordham Colony
- Spank and Glendale Colony

1990s
- Dimock
- Ethan
- Mount Vernon
- Parkston
- Tripp
- Elm/Oaklane Colonies
- Canistota
- Freeman
- Marion
- Menno
- Monroe
- Olivet
- Parker
- Scotland

2000s
- Mellette
- Wolsey
- Mayfield Colony
- Tea

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NWE System Overview

- **System Vintage**

  Nebraska

  1950s
  Grand Island
  Kearney
  North Platte

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NWE System Overview

- **Historical Construction Practices**
  - » **Southern MT (MPC)**
    - ♦ Brazing
    - ♦ Swing Joints
    - ♦ Goosenecks
    - ♦ Threaded Curb Valves
  - » **Northern MT (MDU)**
    - ♦ Bolt-On Tees
    - ♦ Dressered Curb Valves
    - ♦ Dressered 90s at Riser
  - » **South Dakota**
    - ♦ More “Modern” Construction Practices (OA, Arc)
    - ♦ Some Reconditioned Pipe
    - ♦ Small Pocket of Threaded Services
    - ♦ 1st Cuts
  - » **Nebraska**
    - ♦ More “Modern” Construction Practices (OA, Arc)
    - ♦ Some Reconditioned Pipe
    - ♦ Small Pocket of Threaded Services
    - ♦ 2 Small Low Pressure Systems

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NWE System Overview

- **Historical Materials and Joining**
  - **Montana**
    - **Moved to OA and ARC Welding Standard in the 1950's**
    - **Transitioned to PE in late 1960's (Aldyl "A"), then Yellow pipe early 1980's**
    - **Never had any Cast Iron, Copper, PVC**
  - **South Dakota / Nebraska**
    - **Replaced most existing piping in the 1950's**
    - **Transitioned to PE (Century) late 1960's, then Aldyl "A" in the 1970's, then Yellow pipe late 1980's**
    - **Never any Cast Iron, Copper, minimal PVC**

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NWE System Overview

- **Generally**
  - **Many of our systems where constructed by others with minimal or no constructions records transfer at the time**
  - **Only historic information is pipe location on a paper map**
  - **Paper Ditch Cards/Service Records do exist for service lines, but not 100%**
  - **Detail of record keeping varies widely over time and areas**
  - **Most knowledge exists with Field personnel (SME's)**

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NWE System Overview

- **Operations**
  - » **Montana**
    - ♦ **Owns all of the Transmission lines delivering Gas to the Distribution Systems**
    - ♦ **Gas odorized in the Transmission system**
    - ♦ **Transmission Group has “ownership” of the Gate Stations**
    - ♦ **Distribution “owns” 800+ Farm Taps**
    - ♦ **Few District Regulator Stations**
    - ♦ **Distribution Operations organized into 6 Divisions and 5 Districts**

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NWE System Overview

- **Operations**
  - **South Dakota/Nebraska**
    - **Takes delivery of Gas to the Distribution Systems from other Transmission Companies**
    - **Receives un-odorized gas to Odorize in many locations**
    - **Owns and Operates the Town Border Stations at delivery points**
    - **Distribution “owns” 300+ Farm Taps**
    - **Has 460+ District Regulator Stations**
    - **Distribution organized into 7 Areas**

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DIMP at NWE…

- **DIMP Team selected in Dec 2009**
- **Team attended GTI training in March and May of 2010**
- **July 2010 Team starts actively working on DIMP Program**
- **Chose to use the GPTC Guide Material and Draft Written Plan**

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NWE DIMP - Philosophy

- **Chose one plan, one risk analysis for all 3 States**
  - **Corporate risk – should be addressing the highest risks regardless of State**
  - **NWE is not reducing any current O&M activities to fund DIMP A/A's**
  - **Corporately can't have different interpretations for different jurisdictions**

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NWE DIMP - Philosophy

- **Knowledge- Physical and Operational**
  - **Looked at Leak Reports 2004-10**
    - **Poor categorization**
    - **Insufficient detail**
  - **Paper Record**
    - **Impractical to assimilate**
    - **Inconsistent accuracy and detail**
  - **SME's**
    - **Best overall knowledge of system**
    - **Chose the SME approach**

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NWE DIMP - Philosophy

- **Threats**
  - **Choose “Buckets”**
    - **Limited detail to support very specific buckets**
    - **Chose buckets that represent a group of threats that could be more easily distinguished (Vintage)**
    - **Used only the 8 Threats listed in the GPTC for this iteration, no sub-threats**

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NWE DIMP - Philosophy

- **Split out Excavation Damage for separate evaluation**
  - **Apples and Oranges if together**
  - **Excavation far outweighs all other threats**
  - **Intent of rule is to address other threat not just excavation**

- **Risk Ranking – Another SME Approach**
  - **Likelihood X Consequences**
  - **Each Threat has its own Likelihood rating(s)**
  - **Each "bucket" and sub-bucket has it's own likelihood and consequences ratings**

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NWE DIMP - Philosophy

- **A/A's (Additional and Accelerated) Actions**
  - **Other Risks addressed while mitigating the higher risks**
  - **Replacement A/A's generally include on-going A/A's until the replacement is completed. i.e. 20yr replacement plan would include more frequent leak survey.**
  - **Some A/A's are phased in, quantified in 2012. Specific action planned and budgeted for 2013 and beyond**

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NWE DIMP - Philosophy

- **Future Knowledge – Fill in the gaps**
  - **New Ditch Cards**
    - **4”x 6” to 8 ½”x 11”**
    - **Scanned existing cards and entered all available data into the Database**
  - **New Bell Hole Form**
    - **Was 1 combination Bell/Leak form, front and back, just Bell hole now**
  - **New Leak Forms**
    - **Was 1 combination Bell/Leak form, front and back**
    - **4 Leak Forms, front and back**
  - **Databases created for all above forms**
    - **Processes designed and implemented for data entry.**

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Challenges…

- **Budgets**
  - **For MT most replacement A/A's are covered under Distribution System Infrastructure Program**
  - **As that changes and develops we need to make sure our DIMP A/A's are still covered**

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Challenges…

- **Keeping DIMP Alive**
  - **Management sometimes focuses on the future, and thinks DIMP is done and taken care of.**
- **Resources to Manage DIMP**
  - **As with many utilities our size, DIMP is the responsibility of one very small group, but uses may other resources.**

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NWE DIMP…

- **Questions**

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