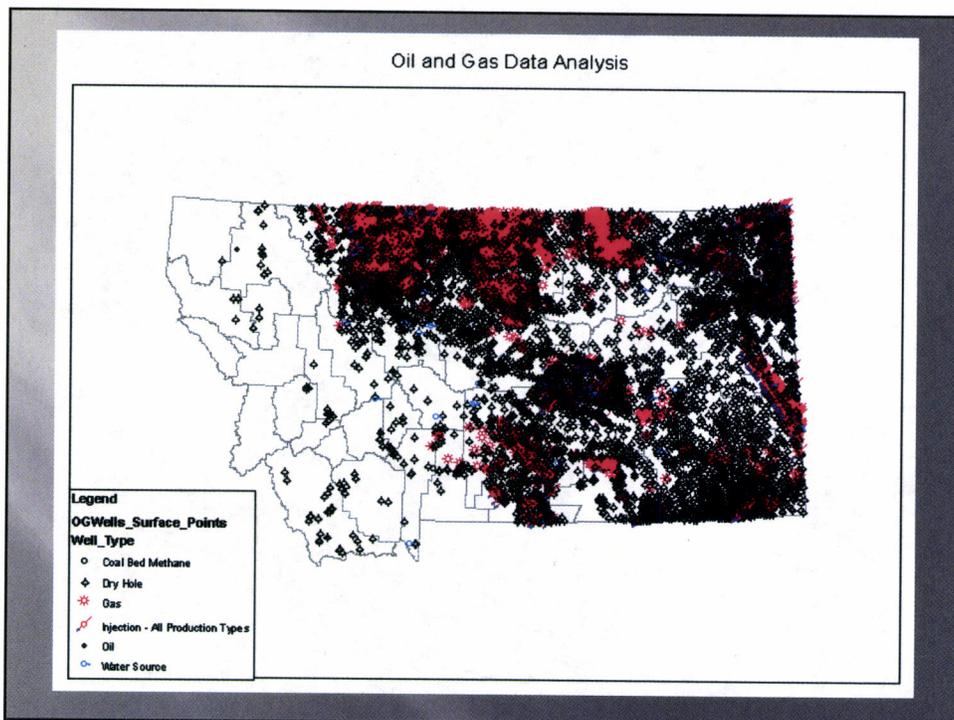


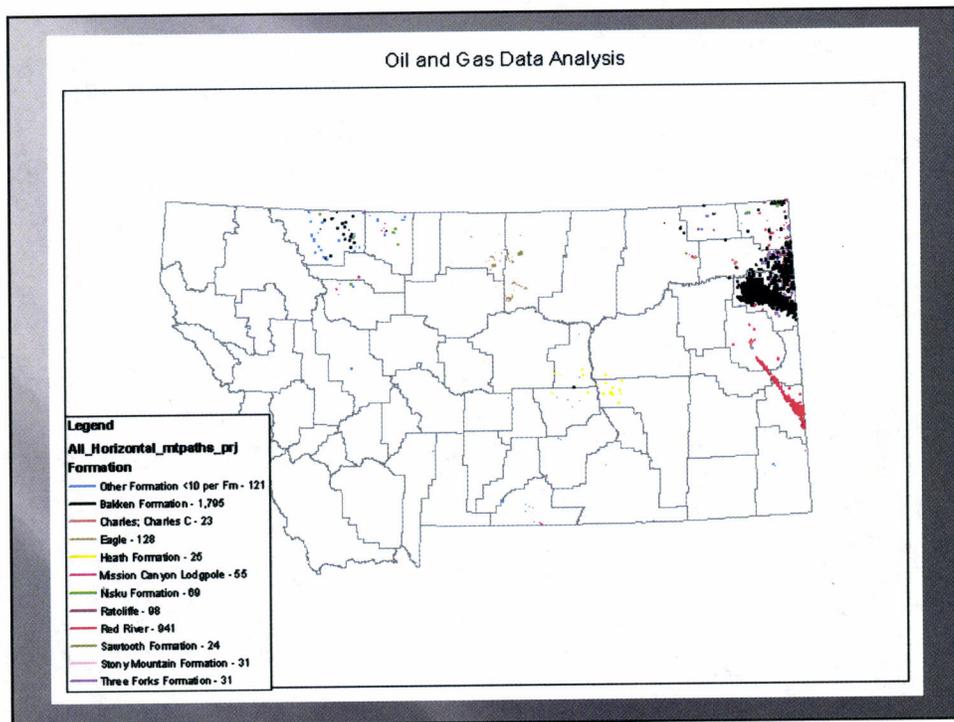


DEQ'S ROLE IN THE BAKKEN

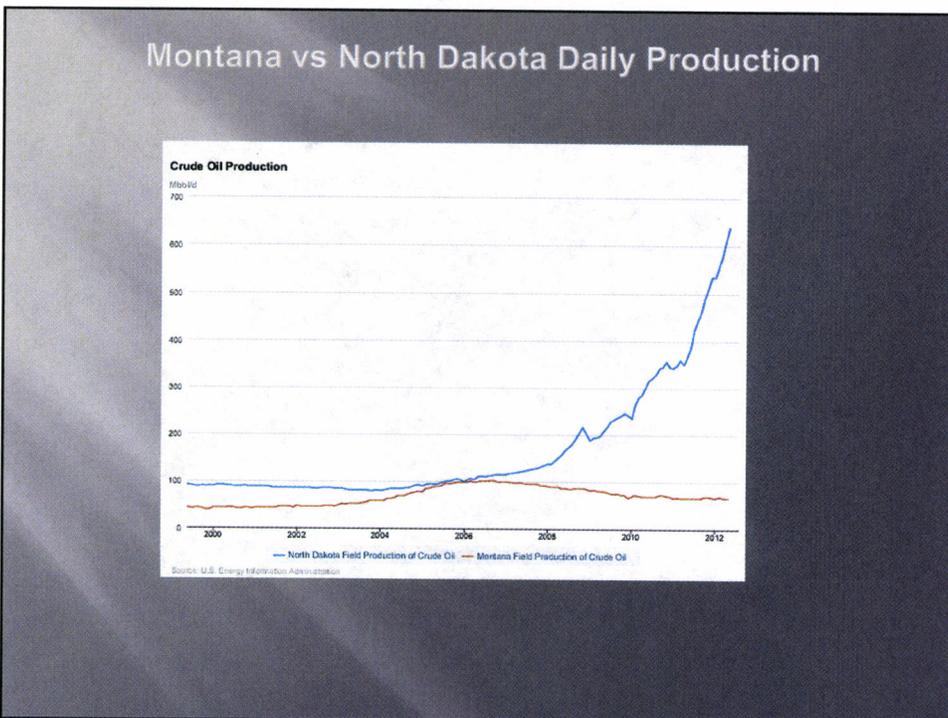
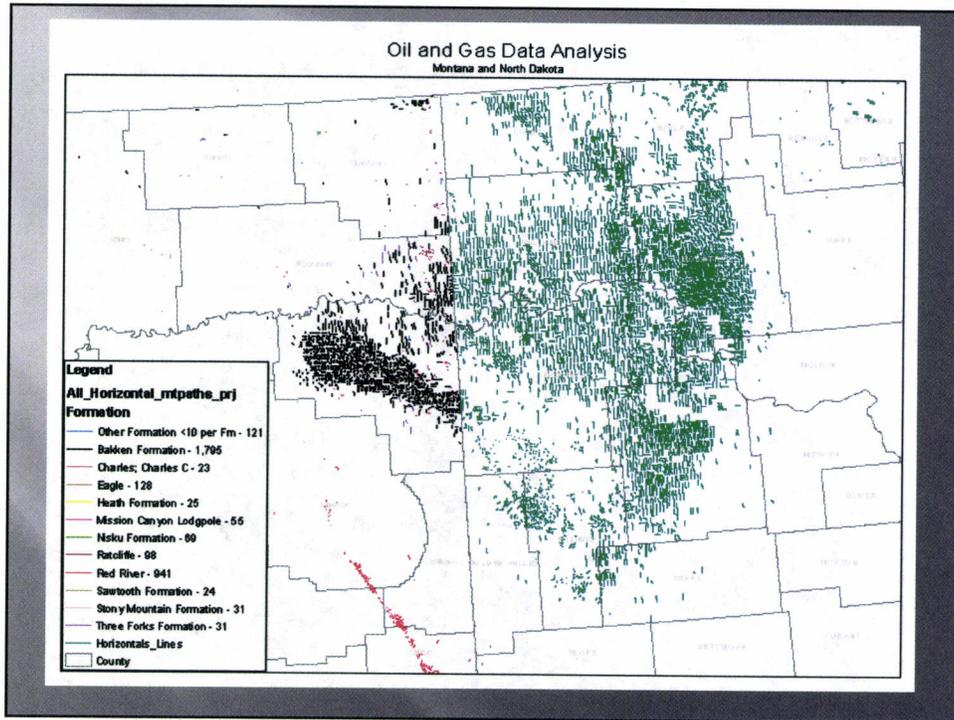
STEVE KILBREATH, MDEQ
DATA FROM BOGC & NDIC



ENVIRONMENTAL QUALITY
COUNCIL. 2013-14



INTERESTING DIFFERENCES
MONTANA VS NORTH DAKOTA



Rigs and Production

- ▣ March 2013 Production
 - ▣ Montana - 2,466,969 barrels
 - ▣ North Dakota - 24,272,461 barrels

- ▣ March Rig Count
 - ▣ Montana - 11
 - ▣ North Dakota - 184

- ▣ Completions - Horizontal
 - ▣ Montana - 181 for all of 2012
 - ▣ North Dakota - 142 for March 2013

DEQ Related Issues

Permitting and Compliance
Gravel mining
Subdivision Stuff - Temporary Work Force
Wastewater, Wastewater, Wastewater
Zombies
Air registry permits
Solid Waste
Discharge permits - produced water
Sewage Pumpers
Water Quality Issues
Enforcement

Community Challenges



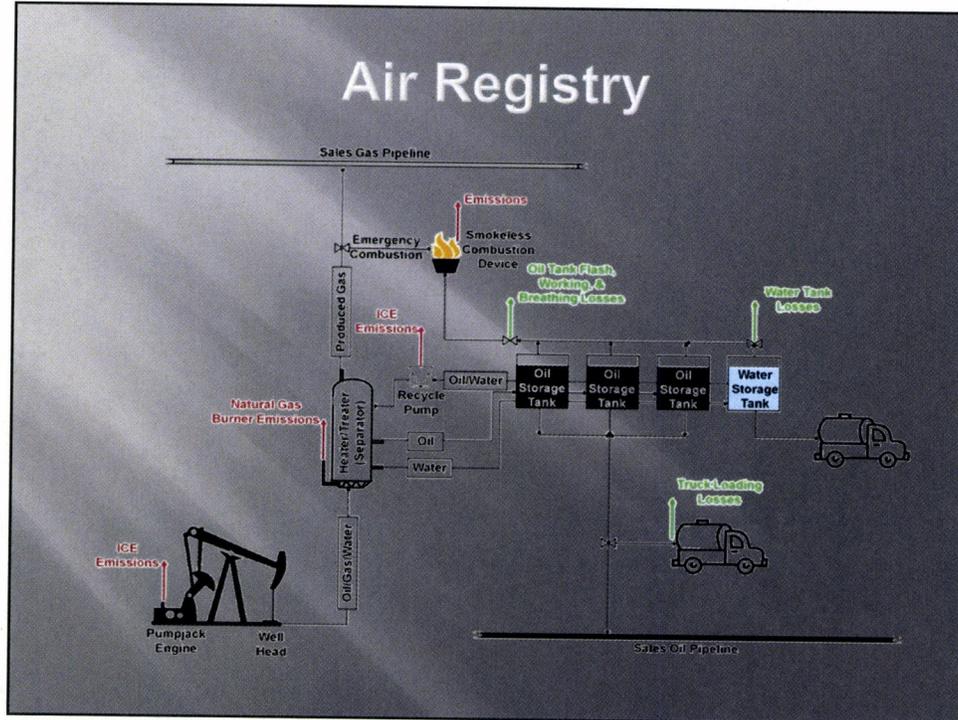
RV's and Blue water ?

Permitting Challenges

- Example of a zombie system: this development was approved and occupied in the early 1980s, then vacated and returned to agricultural land, and is now being occupied again. How does this fit our regulations?



Air Registry

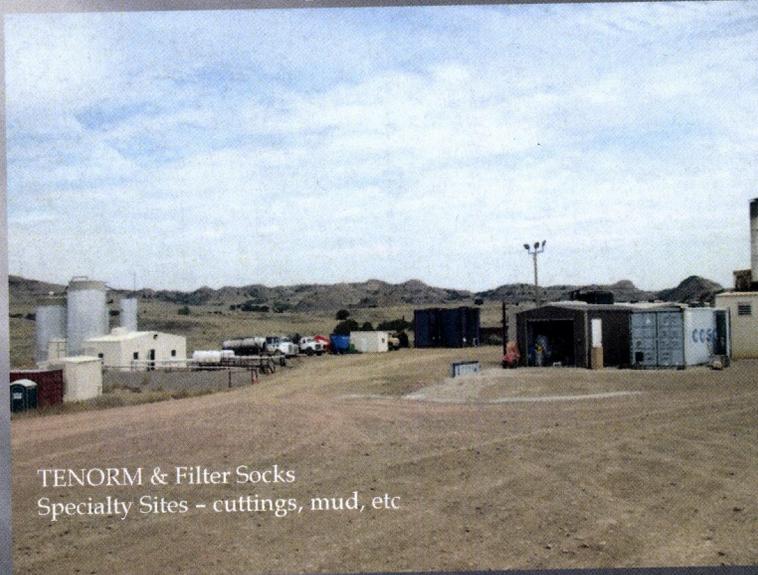


Solid Waste

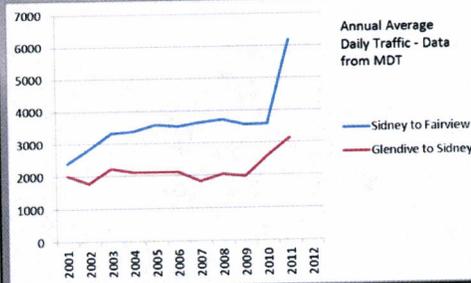
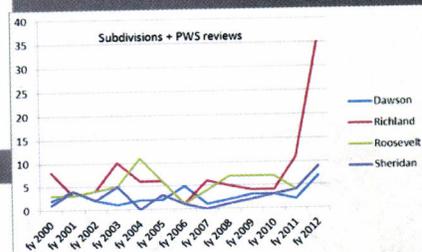
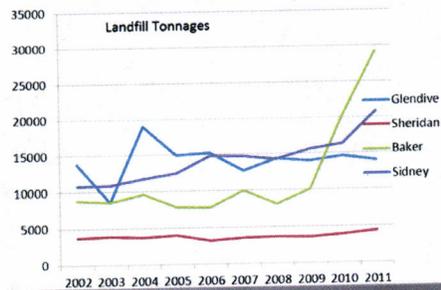


E&P vs MSW

UIC sites/ produced water

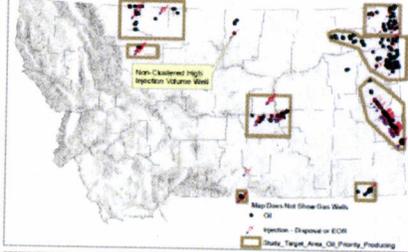


Impact timing for Montana



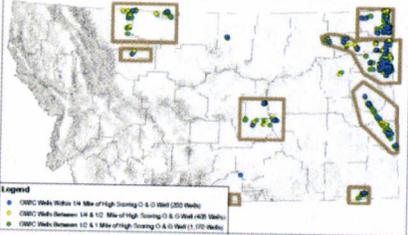
DEQ Baseline Monitoring

Map 1 - Highest Scoring OG Wells

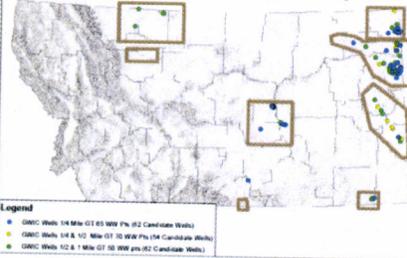


DEQ GW WQ Sampling For Potential Impacts From O & G Production
Draft Site Selection Results
May 01, 2013

Map 2 - GWIC Wells in Proximity to Highest Scoring OG Wells



Map 3 - High Scoring GWIC Wells in Proximity to Highest Scoring OG Wells



Water thoughts

- Bottom of Fresh Water 1,500'
- Dakota/Lakota - Injection Zone 5,000'
- Bakken - Three Forks 10,000 feet

O&G Water Cycle

- Fresh water for drill mud 500,000 gallons
- Fresh water for frack 2-3,000,000 gallons (100,000 gal/stage)
- Fresh water is enough to irrigate 4-5 acres of Kentucky Blue grass
- Flow back and produced Mt wells in 2012 = 1/2" in Canyon ferry
- Mt+ND wells in 2012 = 7" in Canyon Ferry

