Oil & Gas Impact
More in the Future:

WELLS
- 10,022 wells currently producing
- 6,627 Bakken
- 1,000 more to secure leases
- 40,000 additional development wells
Work Multiplier

- Tanks and Pipeline terminals for Fluids (Produced water and Oil)
- Treatment Facilities for fluids and contaminated soils
- Gas Plants and Compressors
  - We flare a lot, but 70% is captured and used. Answers and Permits needed yesterday for everything!
- Rock/Sand/Gravel exploration-Asphalt Plants
  - Increased PM creation and generation via heavily used roads
- Electric Generation
  - New baseload requirements and peaking
  - New housing and commercial use is highly electric dependent for heat. New large generators all over for emergency use.
  - Each site needs a significant load
- Rail loading/loadout facilities
  - Oil takeaway/Frac Sand import
  - Pipe, fluids, anything and everything
  - ND ships out via rail-10 times what it used to
  - Now far more than pipelines takeaway
Inefficiencies/Associated headaches

- More sources on a site are increasingly regulated
  - Engines, flares, combustors, compressors, leaks, dehydrators, tanks, fugitives, flows, sizing, records, permitting to get out of regulations...
- Heavily scrutinized
  - News organizations worldwide
  - Complaints – People are becoming more unsatisfied with Govt.
  - FOIA requests
- Interference with other industries
  - Trucks everywhere
  - Gravel competition-oil/roads/construction
  - Railroad competition for space-grain elevators and Amtrak face large delays
- Travel and expenses have increased
  - Hotels are $170+ a night-if available
  - Road construction out west at record levels where you need to be, most gravel roads not designed for these loads
  - Vehicle costs go up due to remoteness and terrain
Staffing

• Turnover and retirements
  ▫ Training and Retention issues
• Seeking Additional Staff
  ▫ Budgets taking a hit from increased duties and expenses
• No specialized staff
  ▫ Take calls from consultants, operators, public
  ▫ Process Registrations
  ▫ Perform inspections
  ▫ Process Violations and settlement negotiations
  ▫ Finalize Agreements
# Reorganization of Division

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<th>Old P &amp; C</th>
<th>New P &amp; C</th>
<th>Radiation</th>
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<td>• New Source Permitting</td>
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TENORM (Technically Enhanced Naturally Occurring Radioactive Material)
Well pads are nothing like the “good old days”

Then - tens of BOPD

Now - Hundreds of BOPD per well
Future: NOW!

Bakken Development Plan

- Original dual-zone development plan
  - 8 wells per 1,280 acres ~ 4 MB, 4TF
  - 603,000 Boe EUR per well (avg. 24.5 stages/completion)
  - ECO-Pad® design: 2 wells south, 2 wells north

- Additional Three Forks potential
According to the Department of Mineral Resources, a typical Bakken well drilled in 2012 is expected to produce for 45 years, and will:

• Produce about 665,000 barrels of oil
• Generate over $23 million net profit
• Pay nearly $4.3 million in taxes
• Pay royalties of $8.2 million to mineral owners
• Pay salaries and wages of $2.1 million
• Pay operating expenses of $2.3 million
• Cost about $9 million to drill and complete