

Bakken Well Factory and the Importance of Local Roads

February 2023



- **Introduction to Hess**
- **Bakken Development – Overview of Below Surface Operations**
- **Surface Activity and Road Usage Summary for New Well Development**
 - **Construction Activity**
 - **Rig Moves and Drilling Operations**
 - **Frac Moves and Frac Operations**
- **How Do We Minimize Our Impact to Roads?**

2023 Operations at a Glance



2023 Net Production

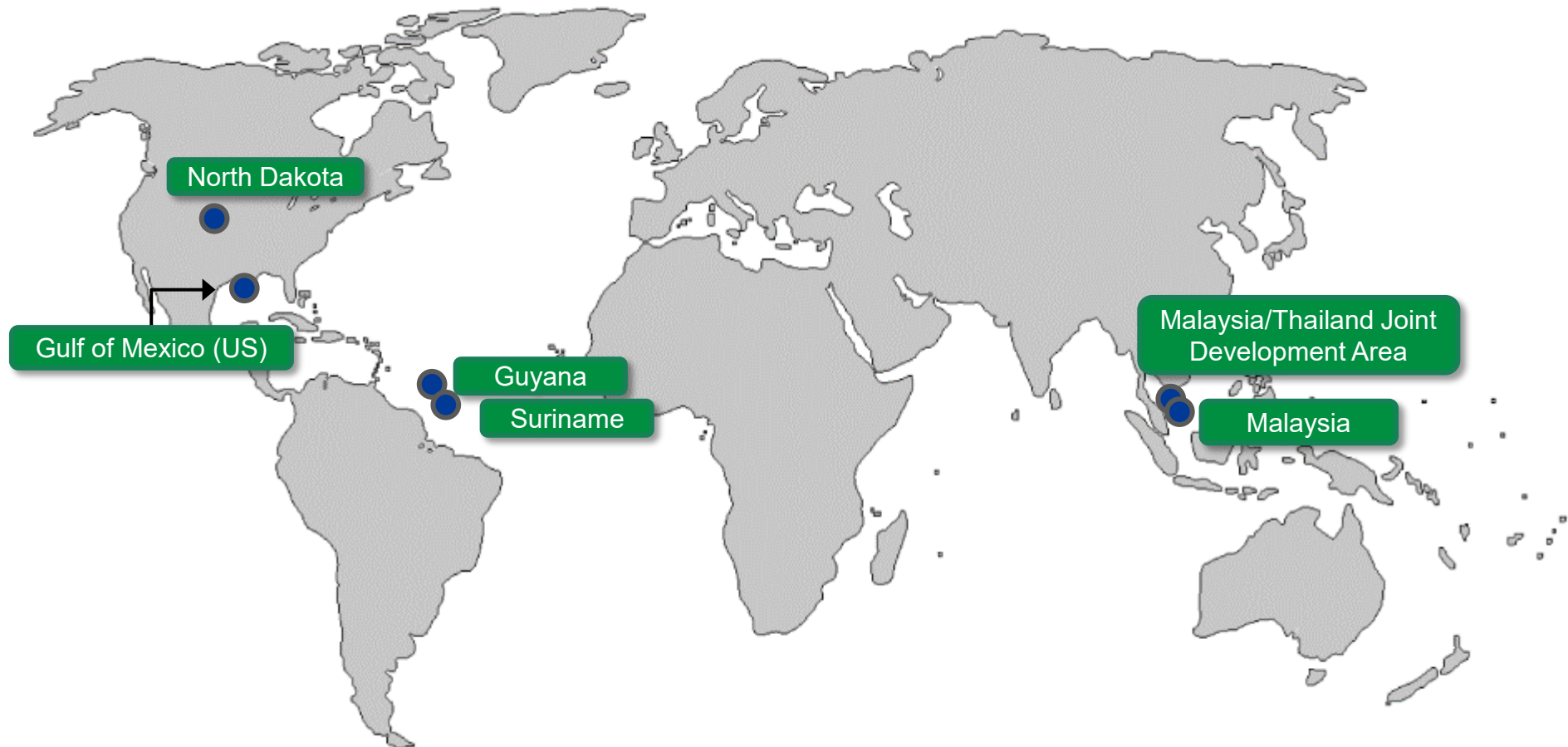
**355,000 to 365,000 barrels
of oil equivalent per day**

2023 CAPEX

~\$3.7 billion

YE 2022 Proved Reserves

**1.26 billion barrels
of oil equivalent**



Hess Leading Acreage Position in the Bakken

Growing production while being a role model for our community



- **Long history in basin; focus on core acreage with stable existing production and substantial future drilling inventory**

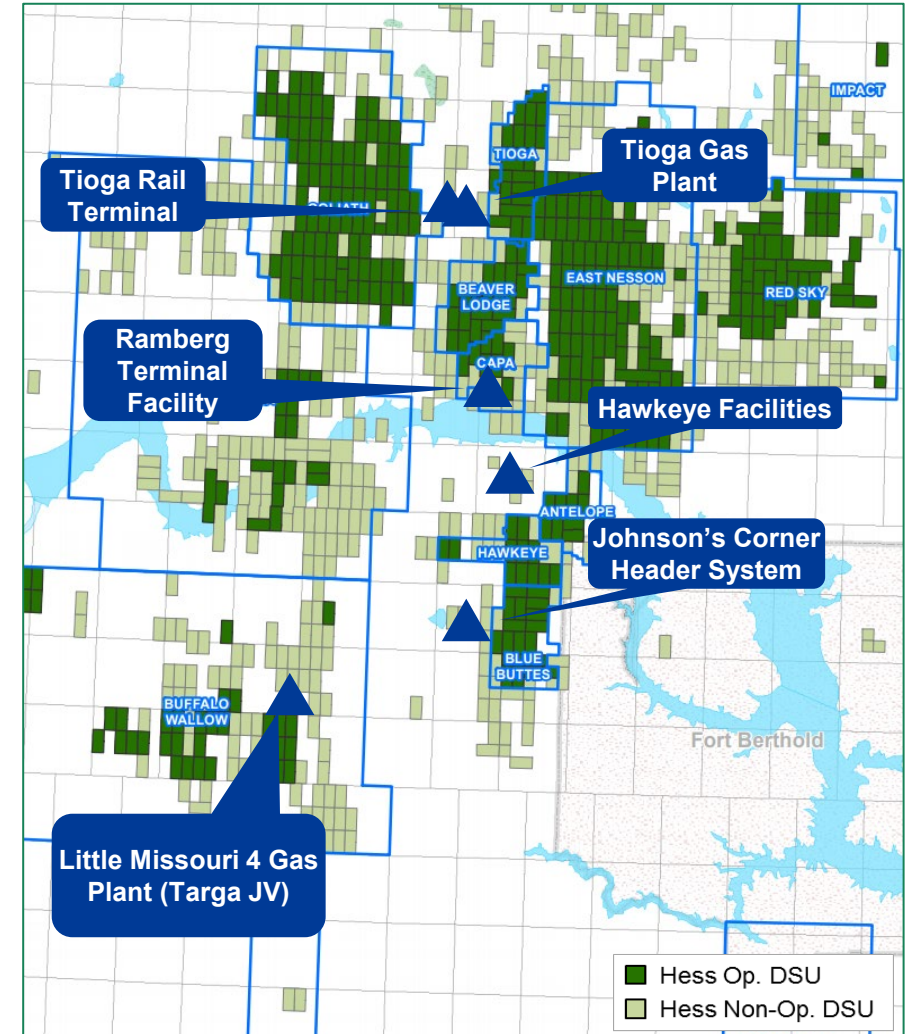
- Drilled first well in 1951; ~\$8 billion invested in last 5 years
- Operating in ~460,000 net acres;
- ~1,600 Hess operated wells / support; ~1,500 non-op wells
- ~1,800 future Hess locations, 60+ rig years at \$60 WTI
- ~80% of recoverable resources yet to produce

- **Increasing activity to grow production**

- 4th rig added July '22; expect to maintain program
- 4 rigs grows net production to 200 MBOEPD
- Planning to spend ~\$1.1 billion in 2023; ~110 new wells online

- **Sustainable practices create value for all stakeholders**

- Environmental risks can be addressed while still providing safe, affordable and reliable energy
- Actively working to reduce our operational GHG emissions focusing on reducing flaring and improving total gas capture
- Committed to eliminating routine flaring by year-end 2025



Overview of How We Develop the Bakken

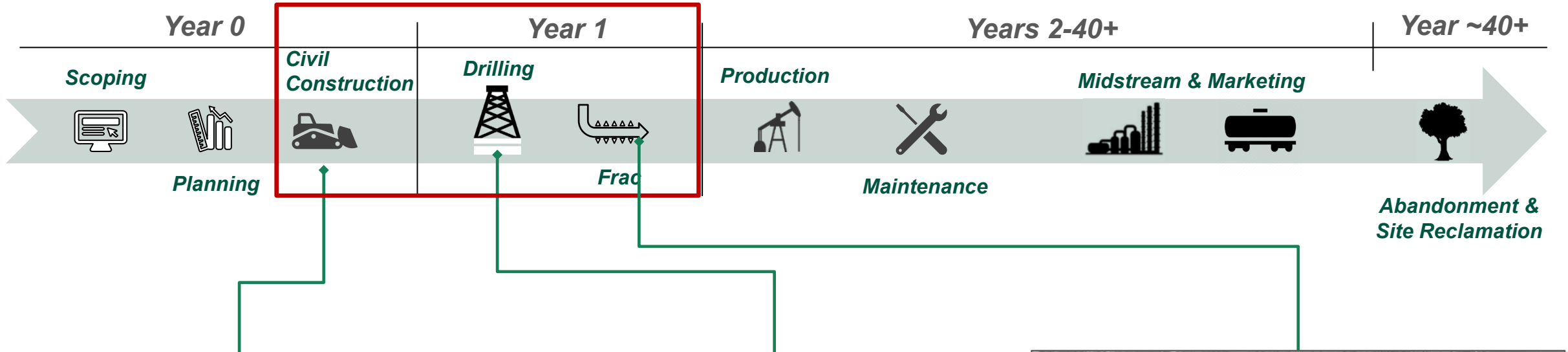
Drilling to wells online and how it connects below the surface



API (Energy From Shale). (2023, January 18th), Hydraulic Fracturing [Video]. [Hydraulic Fracturing - YouTube](#)

Bakken Asset Well Factory

Life cycle of well extends to 40+ years



Well Pad & Facility Construction



What does it take to Plan and Build a Pad and Facility for New Bakken Well

- **6 months to complete surface well planning**
 - Survey (topographic and environmental), design, land agreements, permits
 - Longer for wells that require federal permits
 - Up to 2 years ahead of planned drilling date
- **30 days for pad construction**
 - Earthwork, underground flowlines, surfacing
- **20 days for new facility construction**
 - Facility build
 - *Excludes pipeline scope



Activity	Approximate Impact
Civil Construction Loads	120 loads (5 permitted)
Facility Construction Loads	20 loads (5 permitted)
Heaviest Load	100,000 lbs.
Count of people on site	5 - 25

Drilling Operations and Moves



What does it take to drill a Bakken Well?

- **12.5 days per well (was 30 days in 2012)**
 - Average duration per well includes rig up, drilling wells, rig walks, rig down
- **7 days for drilling the vertical and curve**
- **5 days for drilling horizontal**
- **.5 days to walk from well to well**
 - Rig “walks” 33’ from well to well
- **5 days for rig move from site to site**



Surfaced Pad/Ready for Drilling



Drilling Rig

Activity	Approximate Impact
Move in rig	95 loads (40 permitted)
Total weight of equipment	1,844,000 lbs. (Rig)
Heaviest Load	93,000 lbs.
# of trucks during operations per well (casing, cement, cuttings, fuel)	45/well
# of trucks for rig move	25
Count of people on site	20-50

Completions Operations and Moves

What does it take complete a Bakken well?



- Completions includes Frac, Coil Tubing, Flowback
- 3.5 days per well for a frac
 - Pumping water and proppant downhole
- 2 days per well for coil tubing
 - “Cleaning out” well
- 10 days per well for Flowback
 - Initial production of the well

Activity	Approximate Impact
Move in frac equipment	76 (36 permitted)
Total weight of equipment	4,700,000 lbs (Frac Equipment)
Heaviest Load	98,500 lbs
# of trucks during operations	28/well
# of people on location during operations	74
# of sand trucks	245/well
# number trucks required if water is not piped into location	2220/well



Process from Start to Well Producing

Timelapse of how it all comes together...



Mitigating the Impacts to the Roads Where we Operate



What does Hess do from planning to execution to minimize our impact?

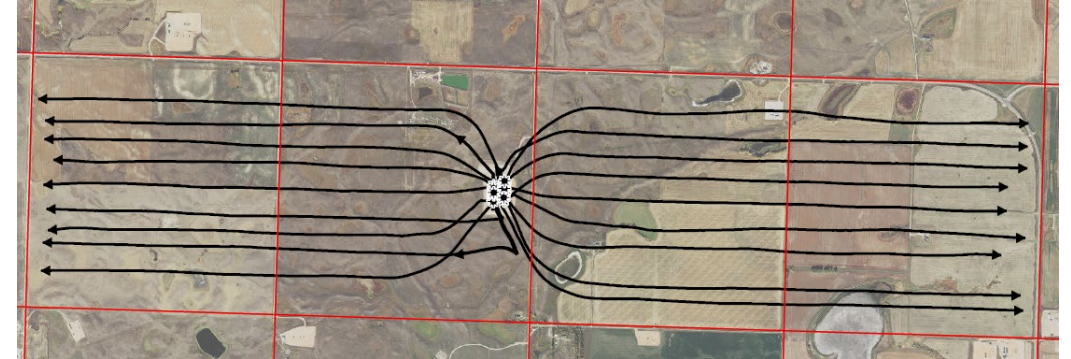
▪ Upfront planning

- Development plans
 - Well planning
 - Multi-batch pads
 - Extended laterals
 - Utilizing existing infrastructure (including roadways)
 - Constructed/Improved roughly 4 miles of public roadway in 2021 and 2022
- Development schedules
 - Rig move and frac timing
 - Planning around county road projects

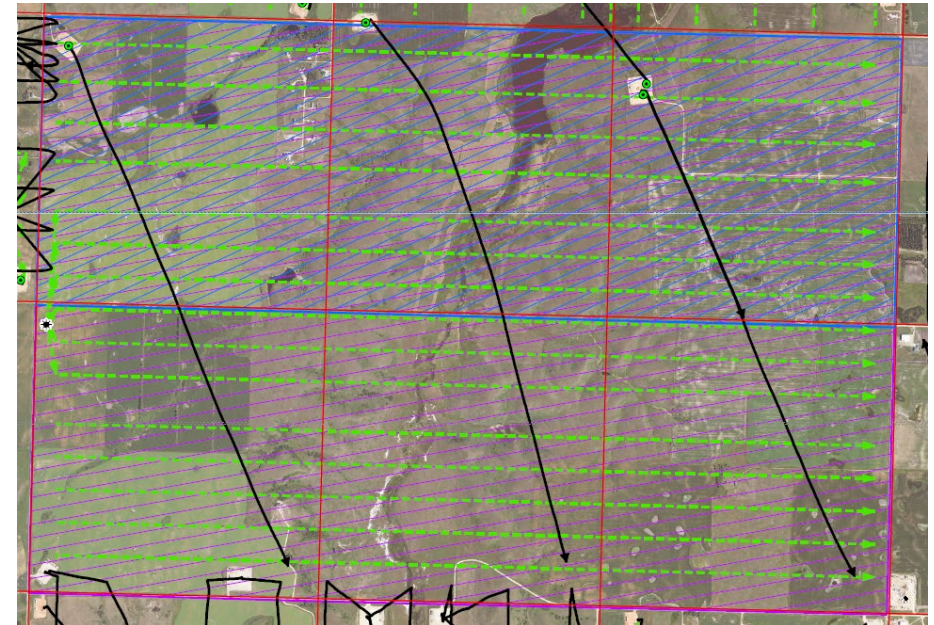
▪ Operational changes

- Water handling during completions
- X-rigs
 - More divisible than other rigs
 - Moving rigs from generator power to line power
- Production volumes from truck to pipelines

Example of multi-well batch pads



Example of extended lateral development



- **Extensive process to develop a Bakken well**

- **There is efficient traffic associated with Bakken well development**
 - **Pad/Facility Construction, Drilling and Completions**

- **Things we do to help reduce our impact on roadways**
 - **Planning**
 - **Operational improvements**



Typical Well Pad Facility Layout



Typical Layout

1. Flare
2. Separation Vessel/Skid
3. Production Tanks (oil and produced water)
4. Pipeline Tie-Ins
5. Producing Wells
6. Site Containment ditch and Controlled Stormwater Discharge

Typical Frac Layout



Typical Layout

1. Crane & Wireline Operations
2. Well Heads
3. Horsepower Units & Missile
4. Data Van
5. Sand Delivery
6. Above Ground Water Tanks
7. Safety Trailer & PIC Quarters



Typical Layout

1. Drill Floor
2. Mud Pits/ Tanks
3. Generators and Mud Pumps
4. Drilling Fluid Storage Tanks
5. Safety Trailer and Crew Quarters
6. Tubular Handling Equipment
7. Solids Control Area