

North Slope Development Outlook

*Senate Finance Committee,
April 25, 2017*



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**Alaska Department of Natural Resources,
Division of Oil and Gas**



North Slope Oil and Gas Activity

State of Alaska, Department of Natural Resources, Division of Oil and Gas, as of April 2017

Division of Oil and Gas
North Slope Areawide lease sale held December 2016 received 402 bids on 384 tracts with winning bids totaling \$16,900,490.

Bureau of Land Management
Offered 145 tracts of land at December 2016 NPRA oil and gas lease sale. Sixty-seven tracts received bids generating \$18.8 million.

Hilcorp Alaska
EIS process underway for Liberty development from artificial gravel island.

Alaska Legislature
Alaska House and Senate passed resolution to encourage US Congress to approve environmentally responsible oil and gas exploration, development, and production in ANWR.

U.S. Senate
ANWR Bill S. 49

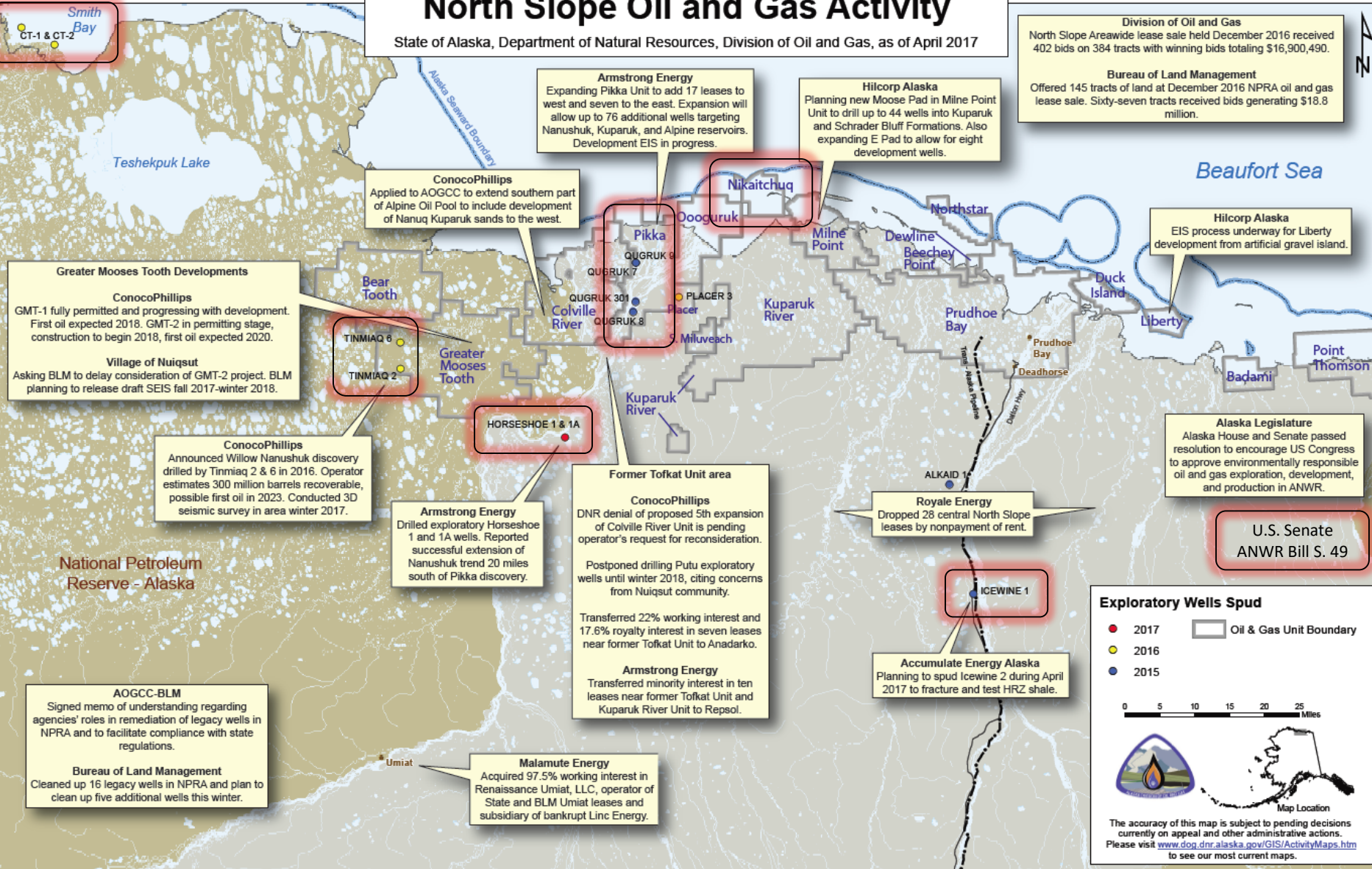
Exploratory Wells Spud

- 2017
- 2016
- 2015
- Oil & Gas Unit Boundary

0 5 10 15 20 25 Miles



The accuracy of this map is subject to pending decisions currently on appeal and other administrative actions. Please visit www.dog.dnr.alaska.gov/GIS/ActivityMaps.htm to see our most current maps.



Greater Mooses Tooth Developments
ConocoPhillips
GMT-1 fully permitted and progressing with development. First oil expected 2018. GMT-2 in permitting stage, construction to begin 2018, first oil expected 2020.
Village of Nuiqsut
Asking BLM to delay consideration of GMT-2 project. BLM planning to release draft SEIS fall 2017-winter 2018.

ConocoPhillips
Announced Willow Nanushuk discovery drilled by Tinmiaq 2 & 6 in 2016. Operator estimates 300 million barrels recoverable, possible first oil in 2023. Conducted 3D seismic survey in area winter 2017.

Armstrong Energy
Drilled exploratory Horseshoe 1 and 1A wells. Reported successful extension of Nanushuk trend 20 miles south of Pikka discovery.

AOGCC-BLM
Signed memo of understanding regarding agencies' roles in remediation of legacy wells in NPRA and to facilitate compliance with state regulations.

Bureau of Land Management
Cleaned up 16 legacy wells in NPRA and plan to clean up five additional wells this winter.

Malamute Energy
Acquired 97.5% working interest in Renaissance Umiat, LLC, operator of State and BLM Umiat leases and subsidiary of bankrupt Linc Energy.

Former Tofkat Unit area
ConocoPhillips
DNR denial of proposed 5th expansion of Colville River Unit is pending operator's request for reconsideration.

Postponed drilling Putu exploratory wells until winter 2018, citing concerns from Nuiqsut community.

Transferred 22% working interest and 17.6% royalty interest in seven leases near former Tofkat Unit to Anadarko.

Armstrong Energy
Transferred minority interest in ten leases near former Tofkat Unit and Kuparuk River Unit to Repsol.

Armstrong Energy
Expanding Pikka Unit to add 17 leases to west and seven to the east. Expansion will allow up to 76 additional wells targeting Nanushuk, Kuparuk, and Alpine reservoirs. Development EIS in progress.

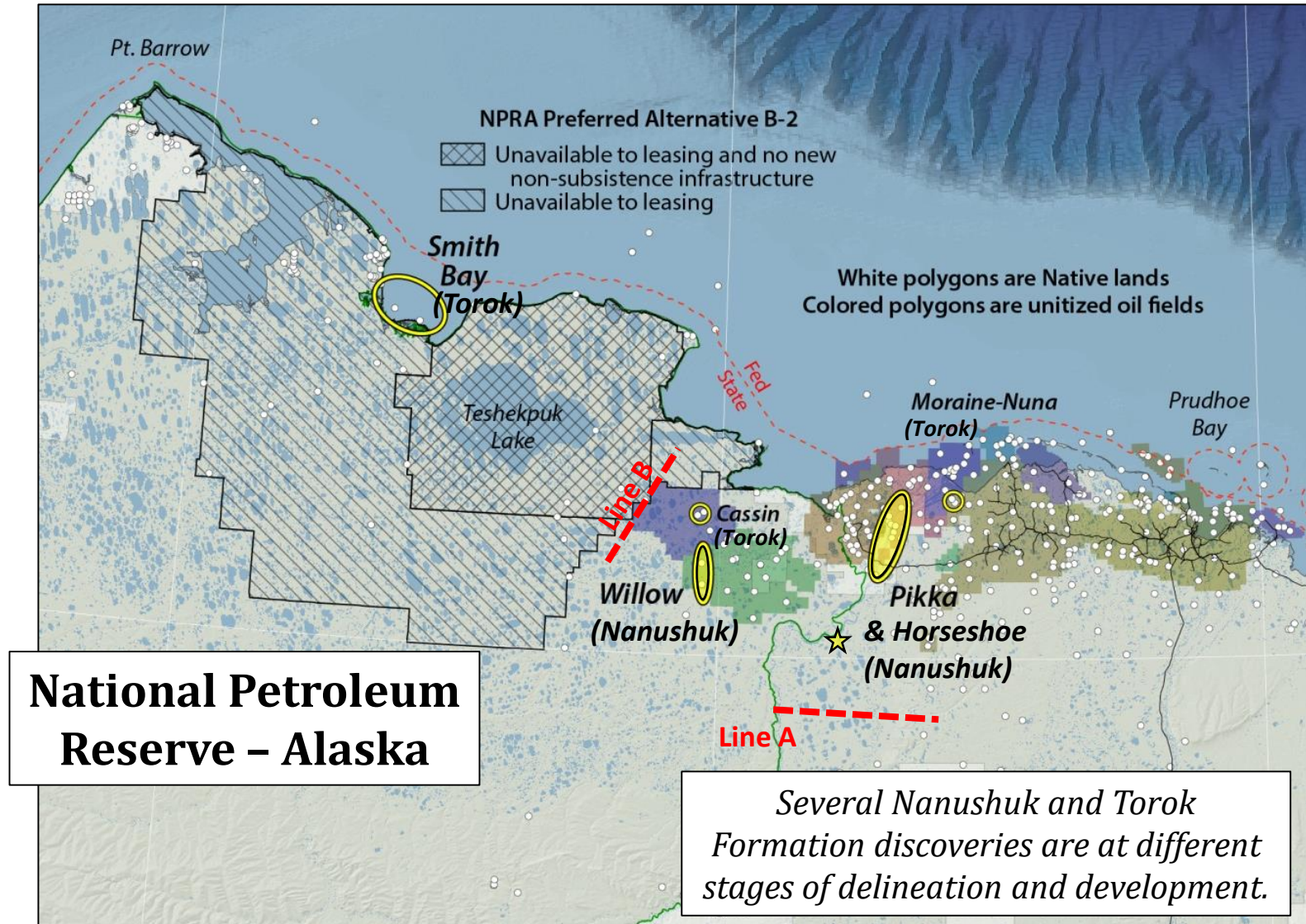
Hilcorp Alaska
Planning new Moose Pad in Milne Point Unit to drill up to 44 wells into Kuparuk and Schrader Bluff Formations. Also expanding E Pad to allow for eight development wells.

ConocoPhillips
Applied to AOGCC to extend southern part of Alpine Oil Pool to include development of Nanuq Kuparuk sands to the west.

Royale Energy
Dropped 28 central North Slope leases by nonpayment of rent.

Accumulate Energy Alaska
Planning to spud Icewine 2 during April 2017 to fracture and test HRZ shale.

NORTH SLOPE BROOKIAN DISCOVERIES



BROOKIAN PLAY FAIRWAYS

- LINE A, STATE LANDS -

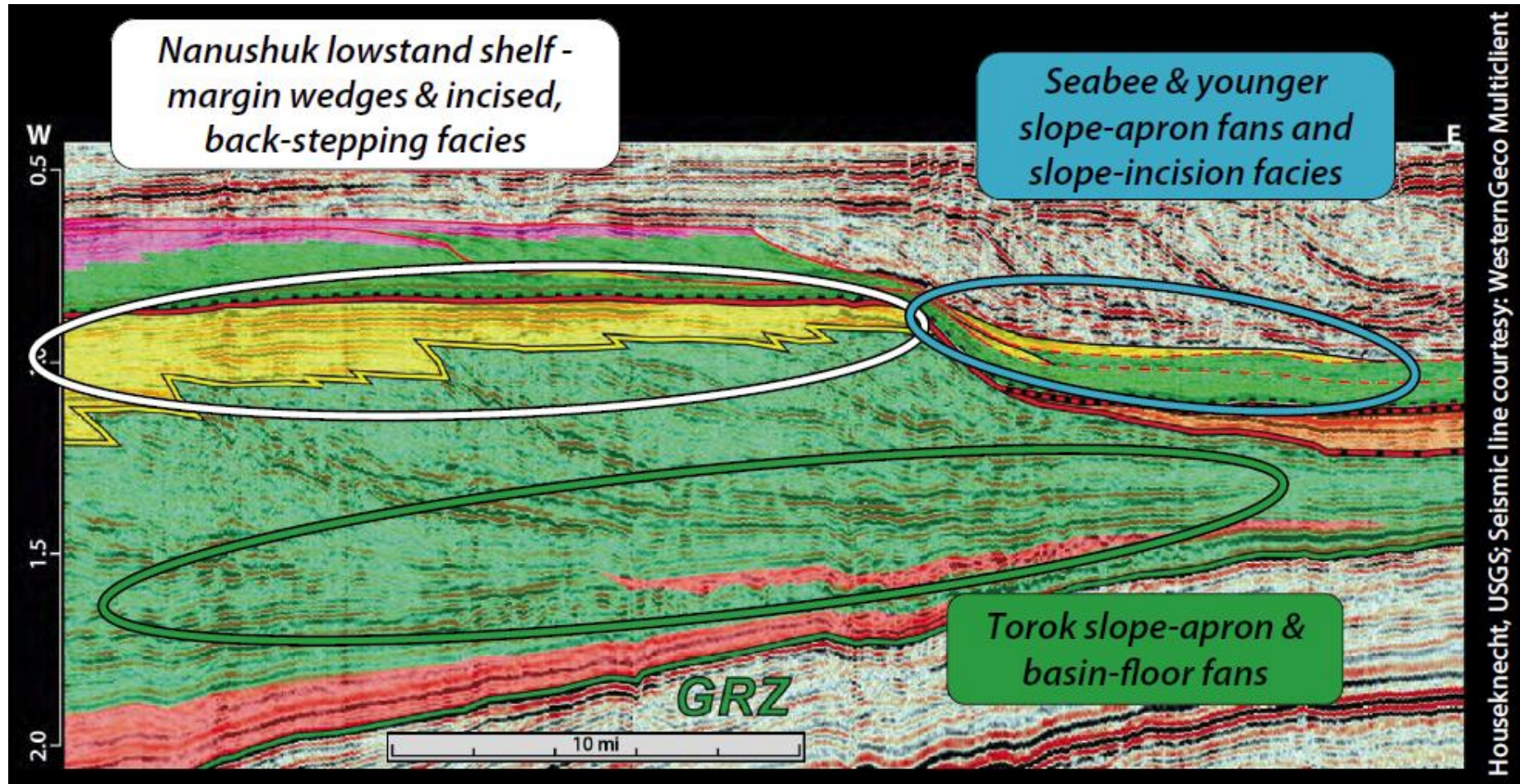
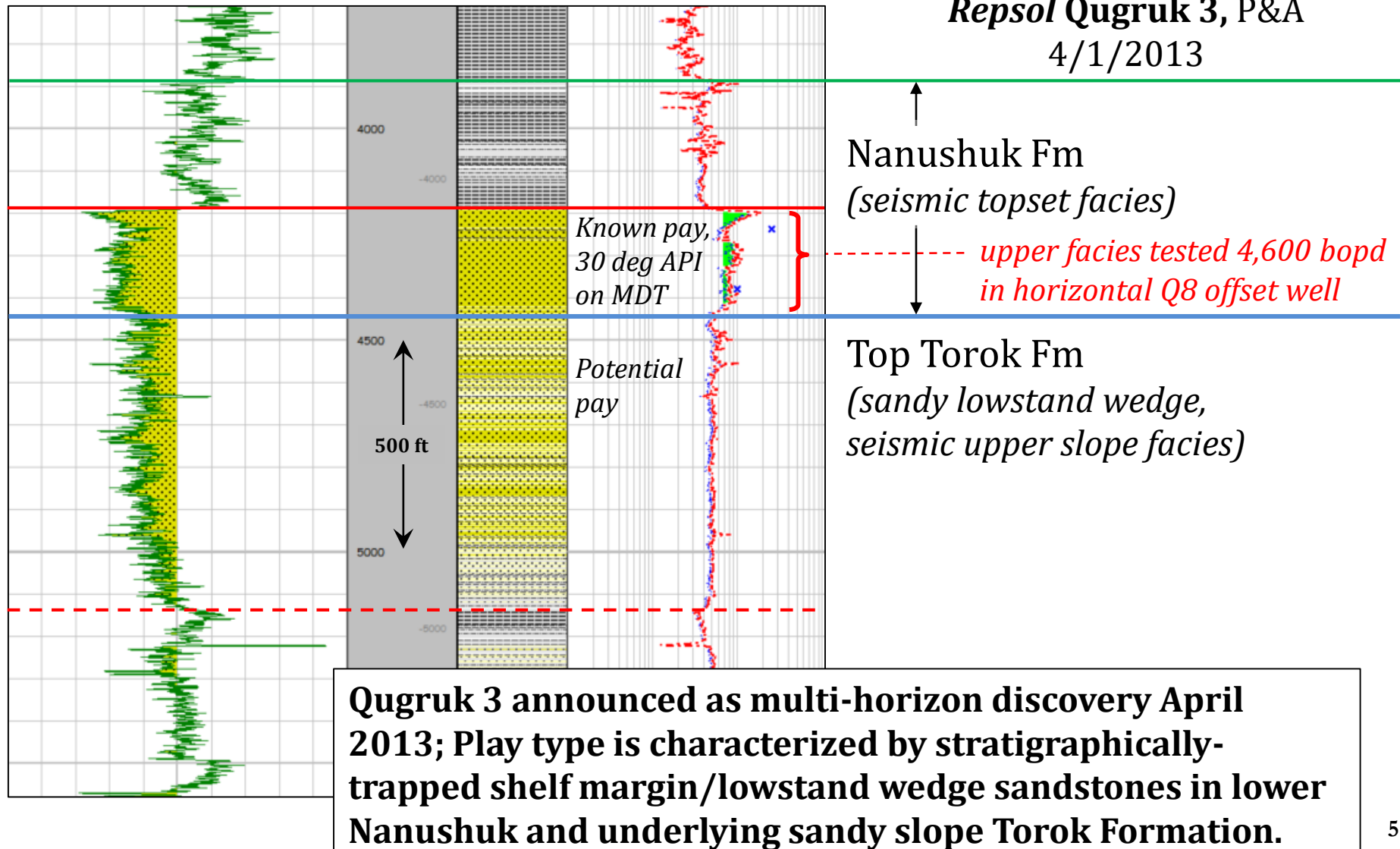


Image from David Houseknecht, USGS; courtesy GeoExpro and Western-Geco Multiclient

PIKKA DISCOVERY - NANUSHUK FM

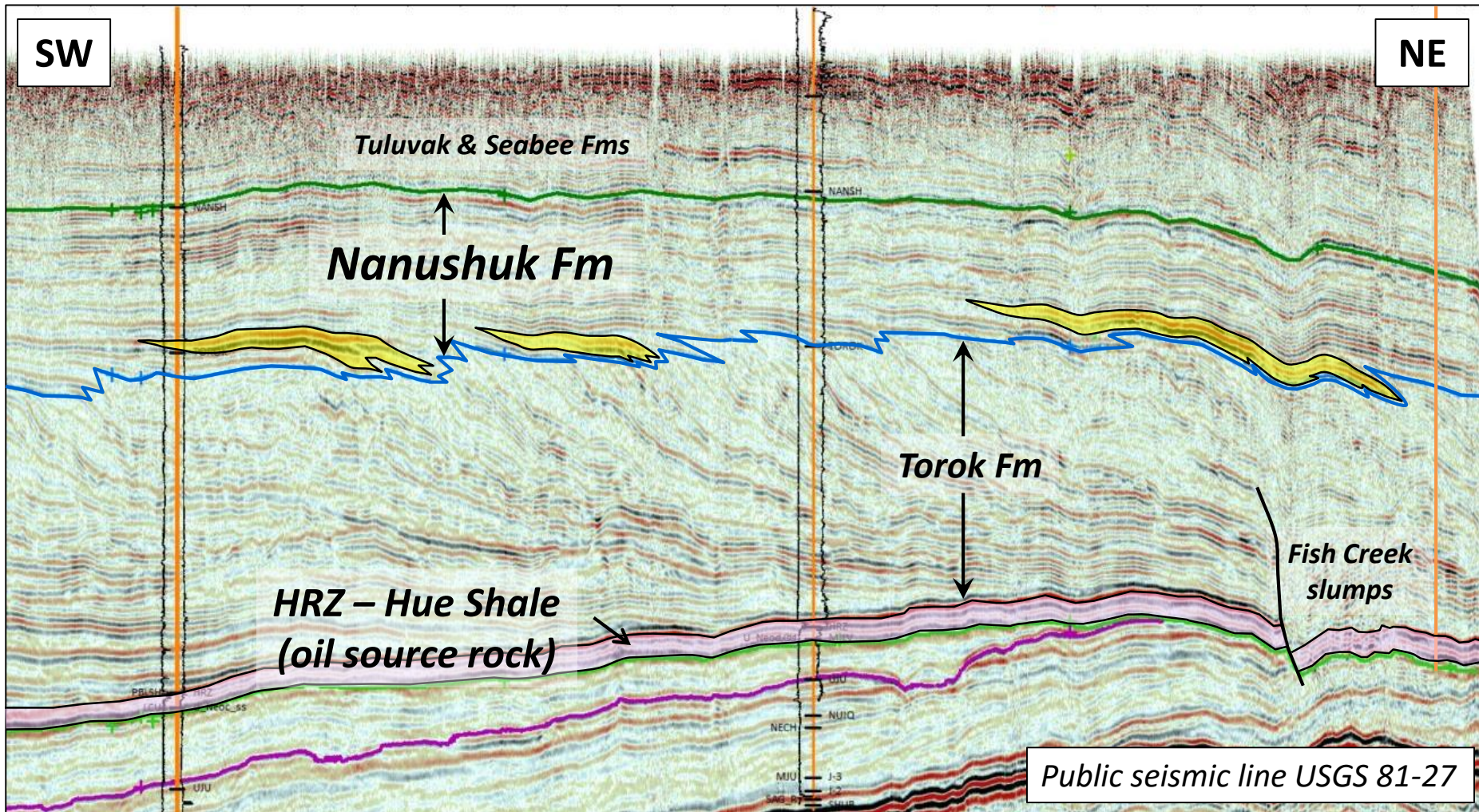


BASAL NANUSHUK SEISMIC ANOMALIES - LINE B, NORTHEAST NPRA -

Inigok 1

North Inigok 1

North Kalikpik 1



FIRST OIL ESTIMATED IN 2018-2021

- PROJECTS IN BLUE HAVE BEEN POSTPONED -

Project	Reservoir Formation	Peak Rate Est, BOPD (From Public Sources)
Add'l CD5 wells, Colville River Unit	Alpine sands, Kuparuk Fm	n/a
Greater Mooses Tooth 1	Alpine sands (Lookout)	30,000
Greater Mooses Tooth 2	Alpine sands (Spark-Rendezvous)	25,000 – 30,000
Nuna Project, Oooguruk Unit (postponed)	Torok Fm (same horizon as Moraine)	20,000 – 25,000
Nuiqsut Expansion, Oooguruk Unit (postponed)	Nuiqsut sand	n/a
Mustang Project, S Miluveach Unit (postponed)	Kuparuk Fm	12,000 – 15,000
Add'l wells, Nikaitchuq Unit (postponed)	Schrader Bluff Fm	n/a
Moose Pad, Milne Point Unit	Schrader Bluff Fm	10,000
Moraine Project, Kuparuk Unit	Torok Fm (same horizon as Nuna)	n/a
1H NEWS, Kuparuk Unit (postponed)	Schrader Bluff Fm (West Sak sands)	8,000

FIRST OIL POTENTIALLY 2022 OR LATER

- SOME PROJECTS MAY NOT OCCUR -

Project	Reservoir Formation	Peak Rate Est, BOPD (From Public Sources)
Fiord West Project	Kuparuk Fm and Nechelik sand	n/a
Placer Project	Kuparuk Fm	n/a
Pikka Nanushuk Project	Nanushuk Fm & Alpine sands	Up to 120,000
Tofkat Kuparuk C Project	Kuparuk Fm	n/a
Willow Project	Nanushuk Fm	40,000 – 100,000
Liberty Project	Kekiktuk Fm	60,000
PTU Major Gas Sales Project	Thomson sands	Up to 70,000
Smith Bay Project	Torok Fm	Up to 200,000 (?)
Ugnu	Prince Creek Fm (Ugnu sands)	n/a