



New Arctic Rig Technologies For
Extreme Drilling Environments
J. Husband

Our Arctic Vision



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Become the preferred contractor for leading edge arctic rig technology, best in class drilling, safety, and environmental performance, and a new generation of highly competent personnel



- **Liberty Field ultra-Extreme Reach**
 - Shore based versus offshore development
 - Purpose built rig for 39k ft departure, 43,500 ft md
 - Summer 2009 mobilization
- **Prudhoe Bay fleet upgrade**
 - Purpose built drilling rigs to increase wells drilled per year.
 - Arctic Alaska Drilling Units (AADU)
 - Performance contract to reduce days/well
 - Summer mobilization 2010

Challenges and strategy



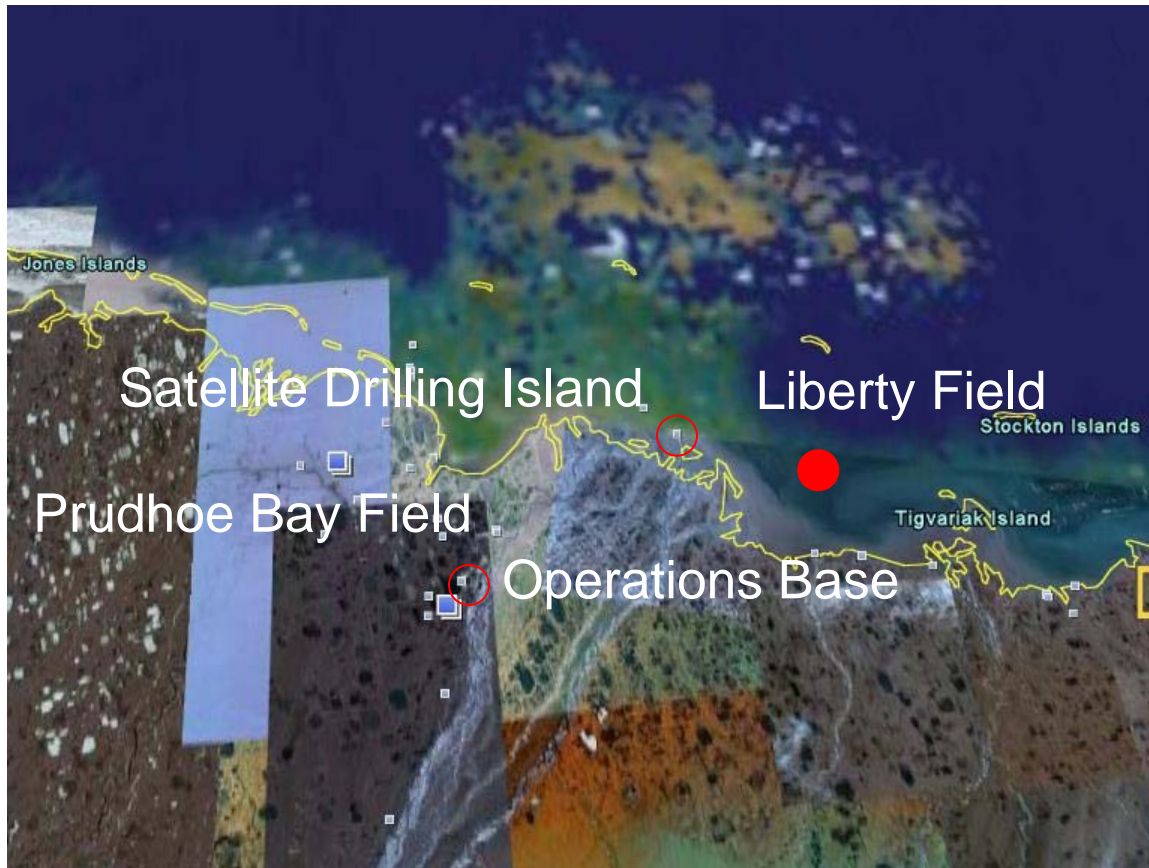
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- Unique design
 - Liberty “ultra-extreme” reach, set back, and hydraulic capacity
 - Prudhoe Bay fast moves, low road loading, offline activity
- Staffing
 - Arctic personnel from international projects
 - Local workforce development
 - New hires from UAA, military, other industries
- Integrated Projects (Sakhalin, Liberty, Prudhoe Bay)
 - Fabrication, organization, and mobilization continuity
 - Common equipment, training, spares, and Dead Horse facility

Project map



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Liberty Rig features / benefits



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Horizontal setback

Reduce pad footprint

Offline horizontal stand building

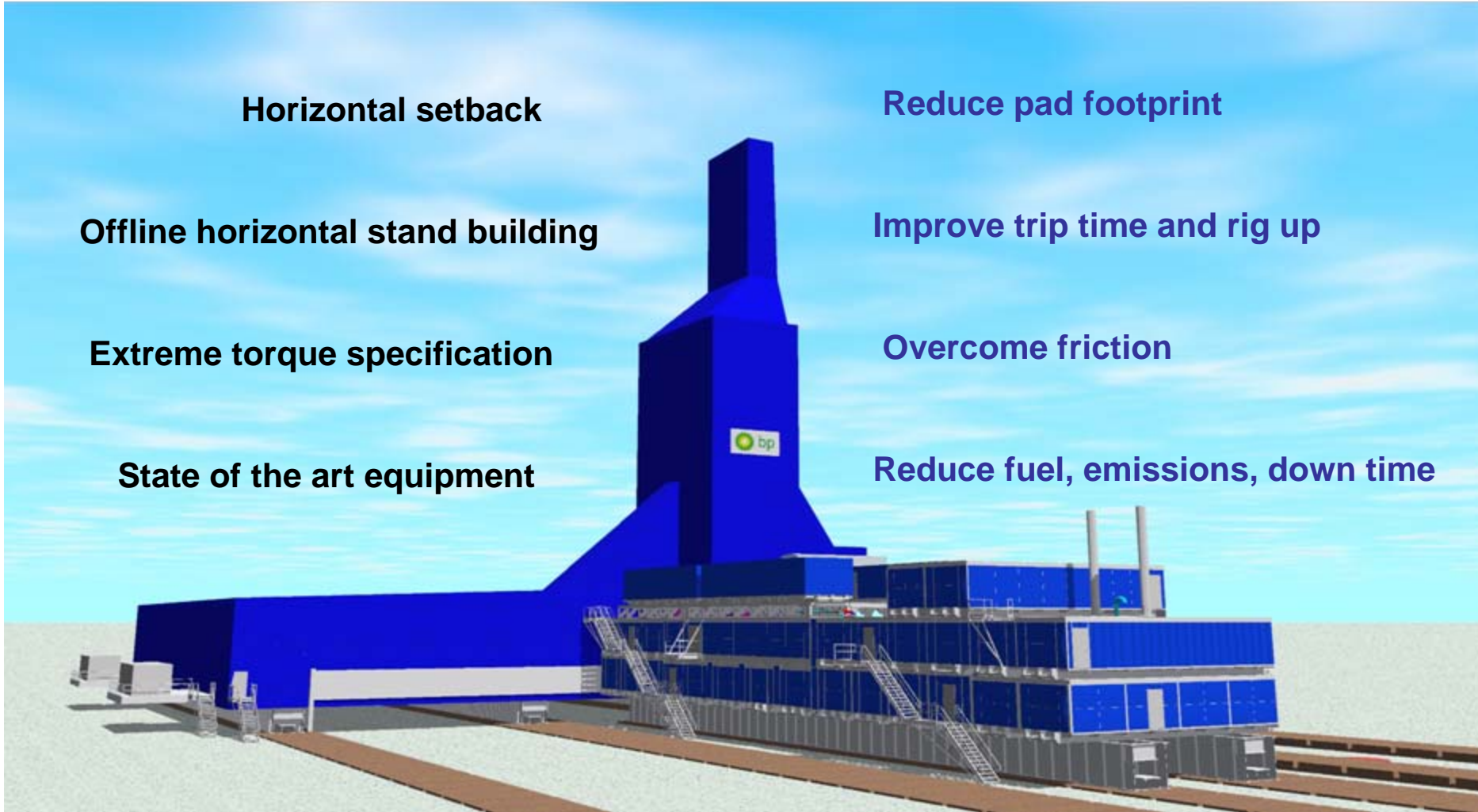
Improve trip time and rig up

Extreme torque specification

Overcome friction

State of the art equipment

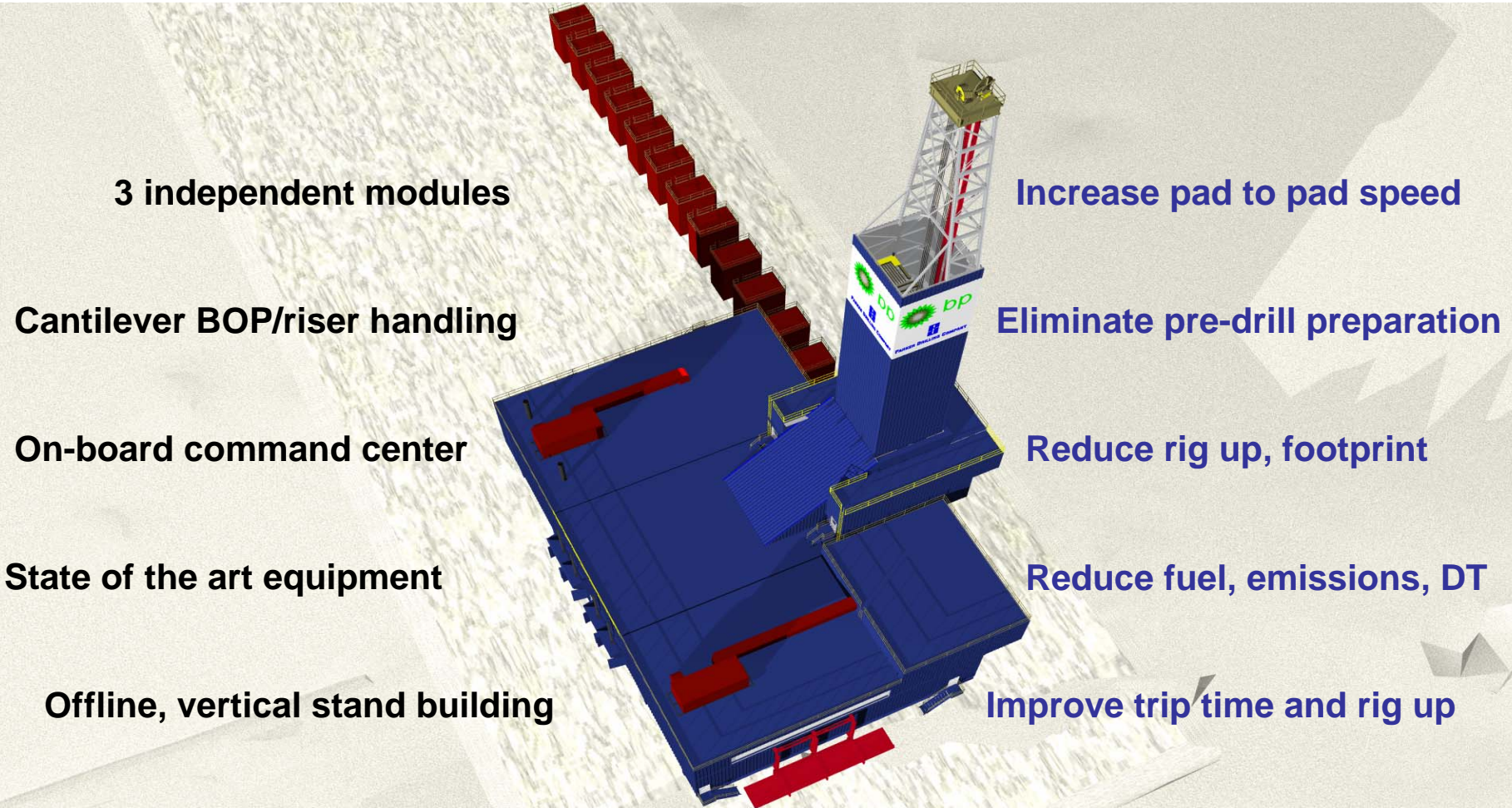
Reduce fuel, emissions, down time



AADU features / benefits



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3 independent modules

Cantilever BOP/riser handling

On-board command center

State of the art equipment

Offline, vertical stand building

Increase pad to pad speed

Eliminate pre-drill preparation

Reduce rig up, footprint

Reduce fuel, emissions, DT

Improve trip time and rig up

Arctic Center of Excellence



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- Alaska Business Unit operations support
- Liberty ERD and Prudhoe Bay drilling simulation
- Advanced well control simulation
- Instrumentation and controls simulation
- Rig specific equipment training
- North Slope training
- QHSE training and development
- Best practices and technical network