Alaska LNG

Fueling Alaska's Future ™

June 2016

AKLNG – Legislative Update

29Jun2016

Alaska LNG – Project Overview

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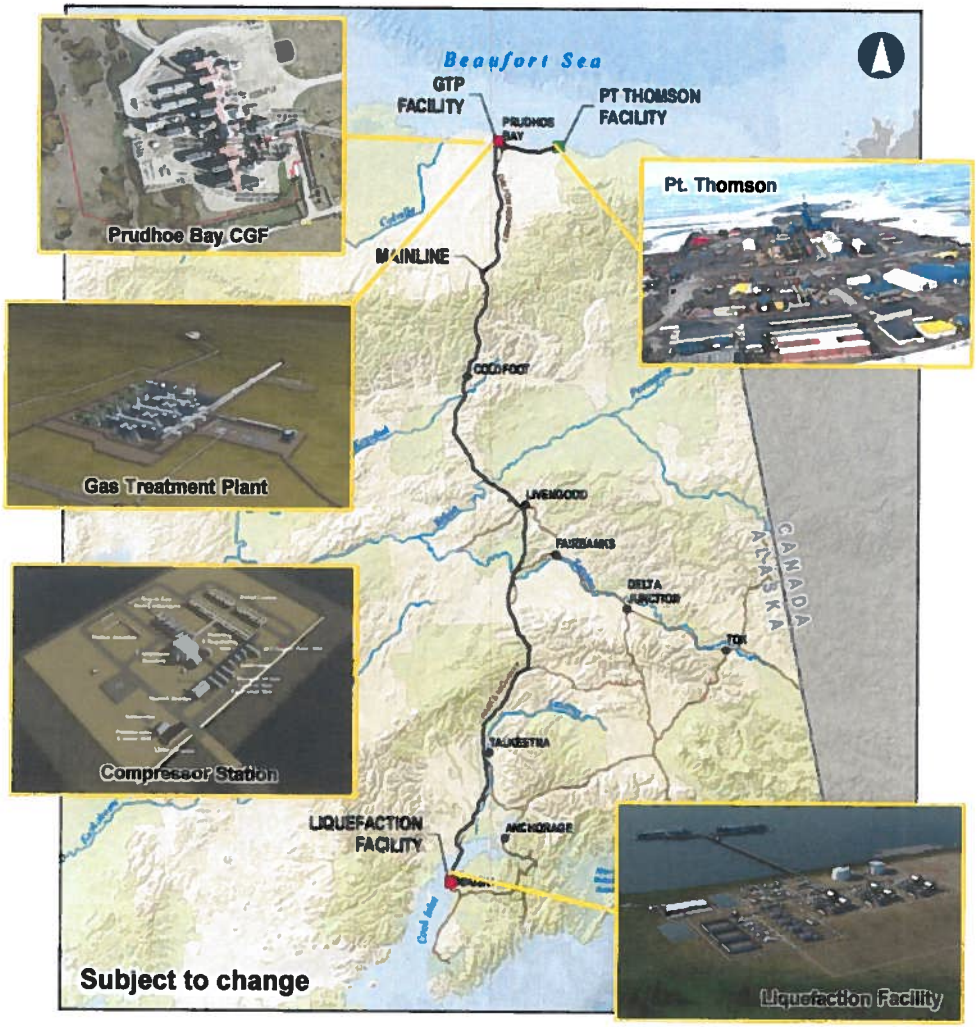
An integrated liquefied natural gas export project providing access to gas for Alaskans



Source Fields

Point Thomson: Deliver natural gas to GTP

Prudhoe Bay: Deliver natural gas to GTP, receive CO_2 / impurities for further handling

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Gas Treatment Plant (GTP): Clean, dehydrate, chill and compress 3.3 BCFD of natural gas and deliver to pipeline

Gas Pipeline: Transport 3.3 BCFD of natural gas over 800 miles to Nikiski, with ~5 offtake points for in-state gas delivery

Liquefaction Facility: Create, store, and load up to 20 million tons of LNG per year (15-20 LNG cargos per month)

Alaska LNG – Status

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Safety, Health and Environment Report:

- Strong safety culture and performance – no recordable incidents in 2016

Executive Summary:

- Spent $455M on Pre-FEED through May 2016 ($107M spent on Concept)
- Initial design scope 91% complete, updated to reflect optimization work
- Finalizing integrated project design, confirmed 95% production efficiency
- Completed pipeline design analysis, confirmed 42" design basis

2016 Outlook – Complete Pre-FEED and progress EIS:

- Progressing field work to support Resource Report Draft 2
- Continue optimizing design to reduce project cost of supply
- Complete Joint Venture Agreement (JVA) Deliverables, including cost and schedule estimates

Key Messages:

- Alaska LNG is an integrated LNG project – *plants plus pipeline*
- Focus on lowest cost of supply to compete in a global market
- Alignment, Risk and Cost reduction (ARC) remain key to success

LNG Plant and Marine Terminal Update

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Base case design established, progressing Optimization work

Progressing key LNG deliverables

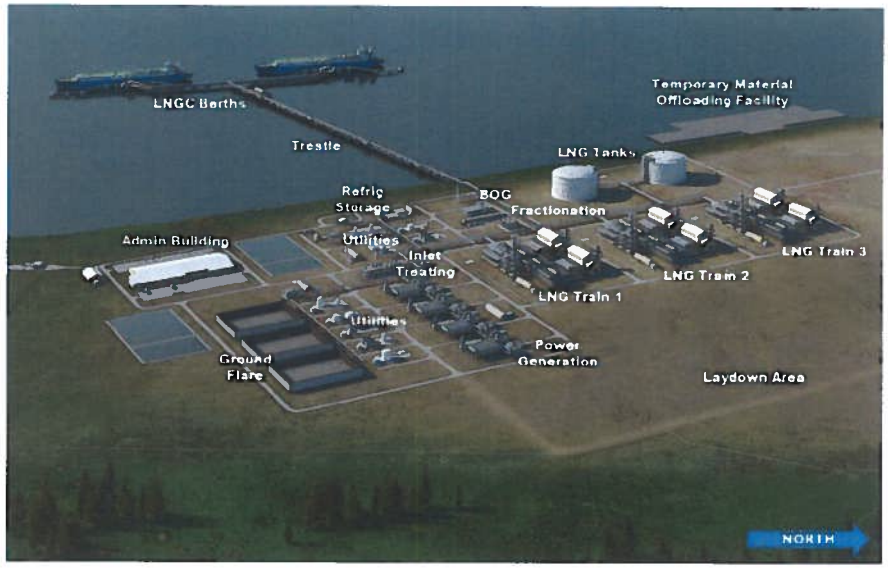
- Completed contractor cost estimate and schedule for review
- Developed updated LNG plot plan reflecting optimization work
- Received tank design deliverables

Continuing to improve marine terminal design / operations

- Finished marine transportation modeling, MOF location study
- Eliminated need for service vessel facility / ice mitigation structure

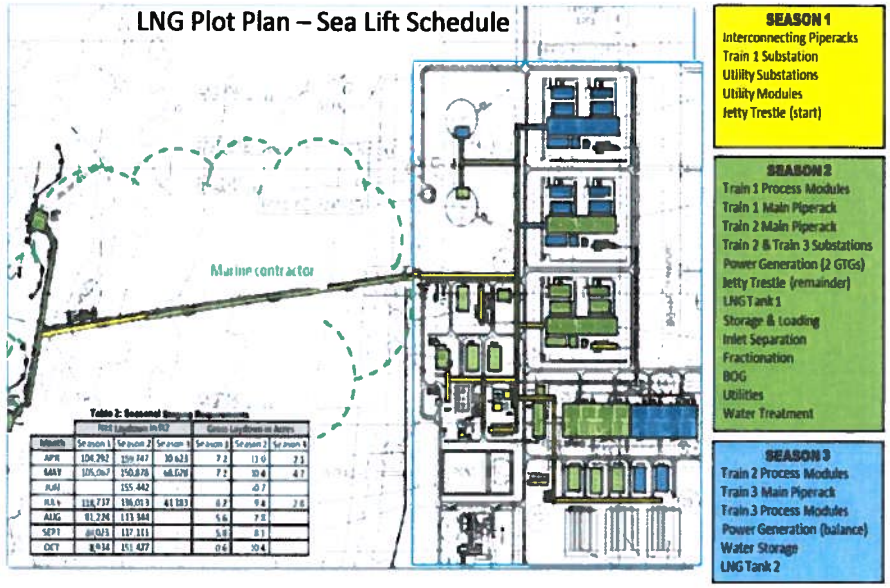
Focused 2016 activity in support of Resource Reports

- Soil characterization and measurement for dredging / disposal
- 50 onshore boreholes / 9 km seafloor mapping / 51 offshore vibracores / 62 grab samples



Optimization Savings

- ✓ Technical qualification of gas turbine drivers - reduced kit
- ✓ Use of current limiters to eliminate electrical equipment
- ✓ Modularization improvements – revised layout, density
- ✓ Reduced material offloading facility size
- ✓ Evaluated alternative ice management options
- ✓ Optimized LNG storage capacity / design
- ✓ Evaluated LNG tank technology – reduced cost, schedule
- ✓ Completed layout / equipment improvements



Pipeline Update

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Initial design scope complete, advancing Optimization work

Comprehensive pipeline sizing study confirmed 42" system

- Completed cost / schedule impacts of 48" pipeline
- 42" lowers cost of supply / execution risk
- 42" system includes expansion capacity

Pipeline materials design and full scale testing complete

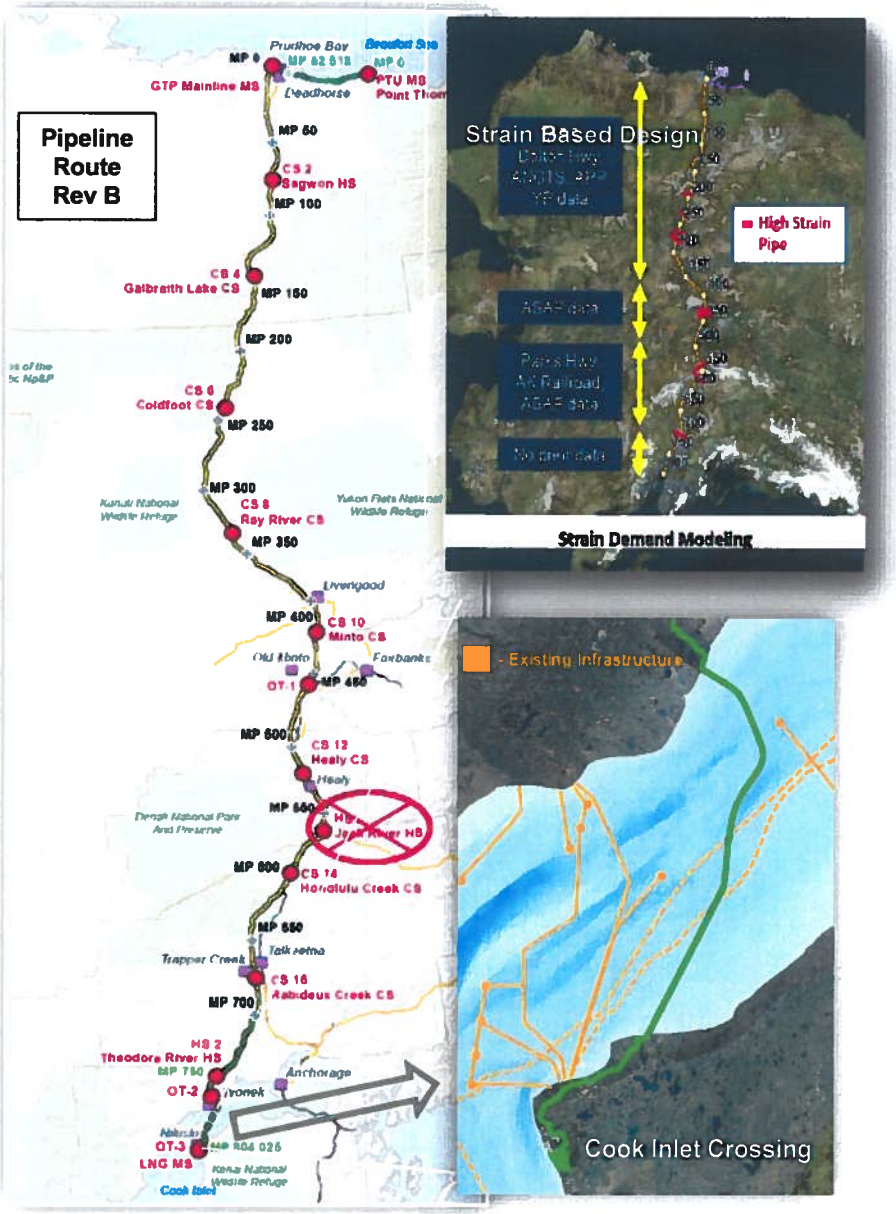
- Issued compressive and tensile strain testing results
- Completed strain based design optimization, ~300 mi reduction

Continued coordination with federal pipeline regulator

- Finalizing pipeline documentation for FERC & PHMSA filings
- Field work on water crossings, compressor stations, FERC visits

Optimization Savings

- ✓ Right-of-way gravel quantity reduced
- ✓ Reworked access road specifications
- ✓ Eliminated heater station, optimized hydraulics
- ✓ Reduced length of sections requiring strain based design
- ✓ Continued routing cooperation / data sharing with ASAP
- ○ Optimizing construction of pipeline segments
- ○ Optimizing timing / order of compressor station construction



Gas Treatment Plant Update

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Completed base Pre-FEED deliverables

- Confirmed GTP site location / optimized layout

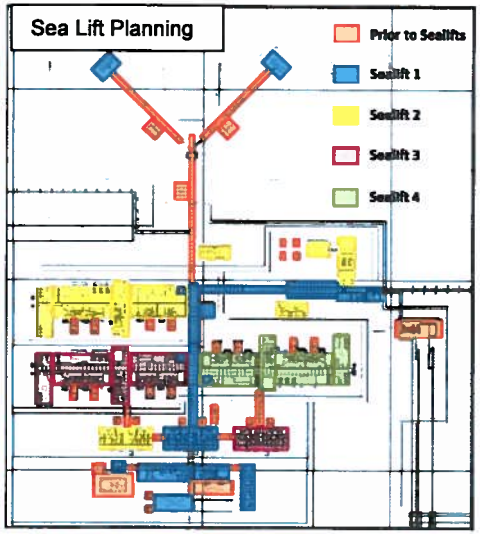
Progressing GTP optimization

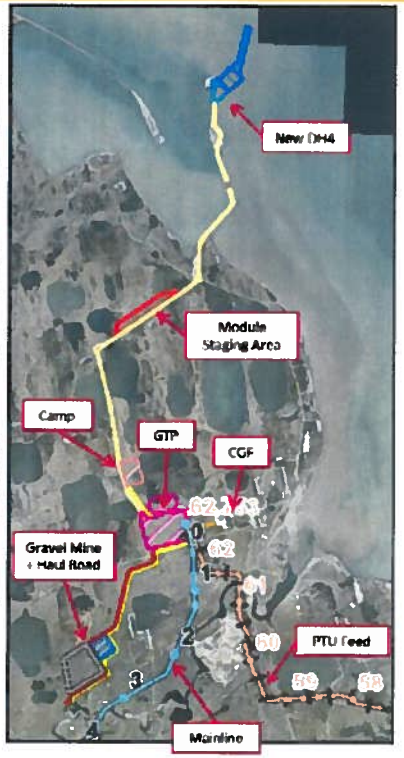
- Evaluating execution plans, sea lift schedules to reduce risk
- Working module weight / design to further reduce cost

Strong coordination with PBU, PTU on key interface activities

Provide support for regulatory submittals / complete field work

- Focused summer field work to support FERC requirements
- Progressing engineering environmental program at West Dock
- Confirm gravel and water requirements / source

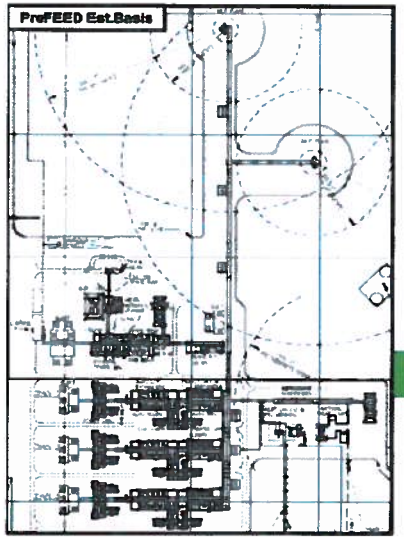


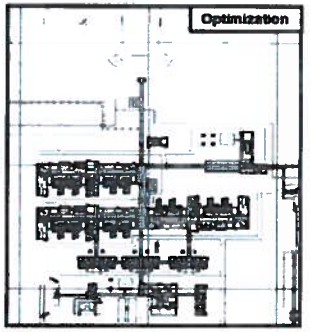


Reduced GTP Footprint
Results of Optimization Activities

Optimization Savings

- ✓ Reduced total module weight / layout optimization
- ✓ Electrical design - met required load with min equipment
- ✓ Machinery selection – highest reliability / lowest cost
- ✓ Reviewed plan utilities for optimization opportunities
- ✓ Optimized field erection scope to reduce cost / risk
- ✓ Streamlined project execution plan to identify lowest cost





Project Execution Status

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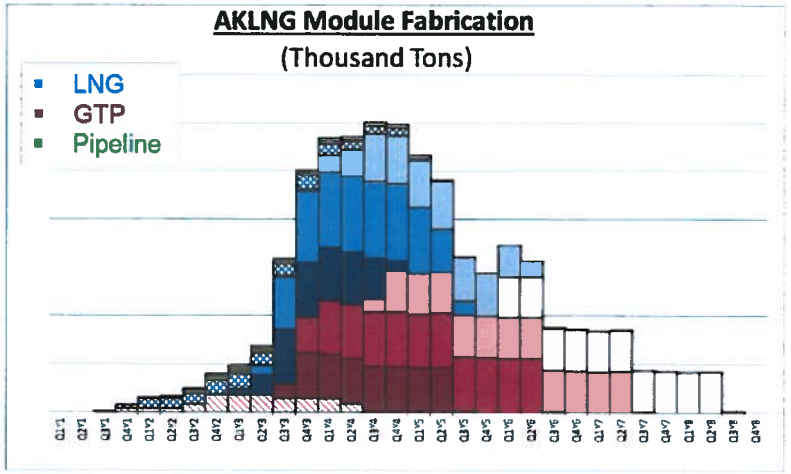
Increased execution certainty for labor, logistics and fabrication

- Modeled supply / demand – Identified key risks / strategies
- Provided consistent basis for execution, contracting, cost, schedule



Logistics:

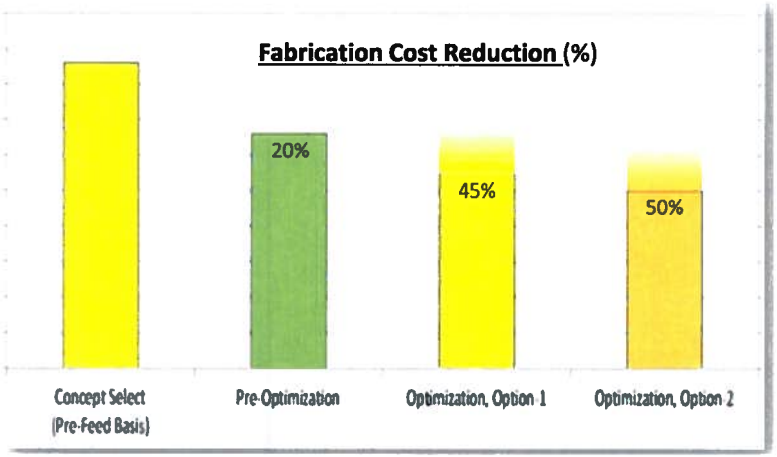
- Estimated volumes for key logistics demand including 225,000 truckloads, 40,000 railcar loads, 3,000,000 MT of ocean containers
- Completed modeling of market capabilities (supply/demand)
- Developed integrated strategies for people and material transport (marine, road, air, rail), fuel (supply, storage, distribution), and common infrastructure (roads, camps, etc).

Labor:

- Developed strategies to address key labor study findings on demand and supply / training (peak monthly labor level of 12,000 persons)
- Continuing coordination with AK Dept. of Labor

Fabrication:

- Modeled supply / demand to test viability of modularization program
- Finalizing strategy to manage 350,000 MT fabrication scope across qualified yards, including AK, as common basis for execution plan



Project Schedule

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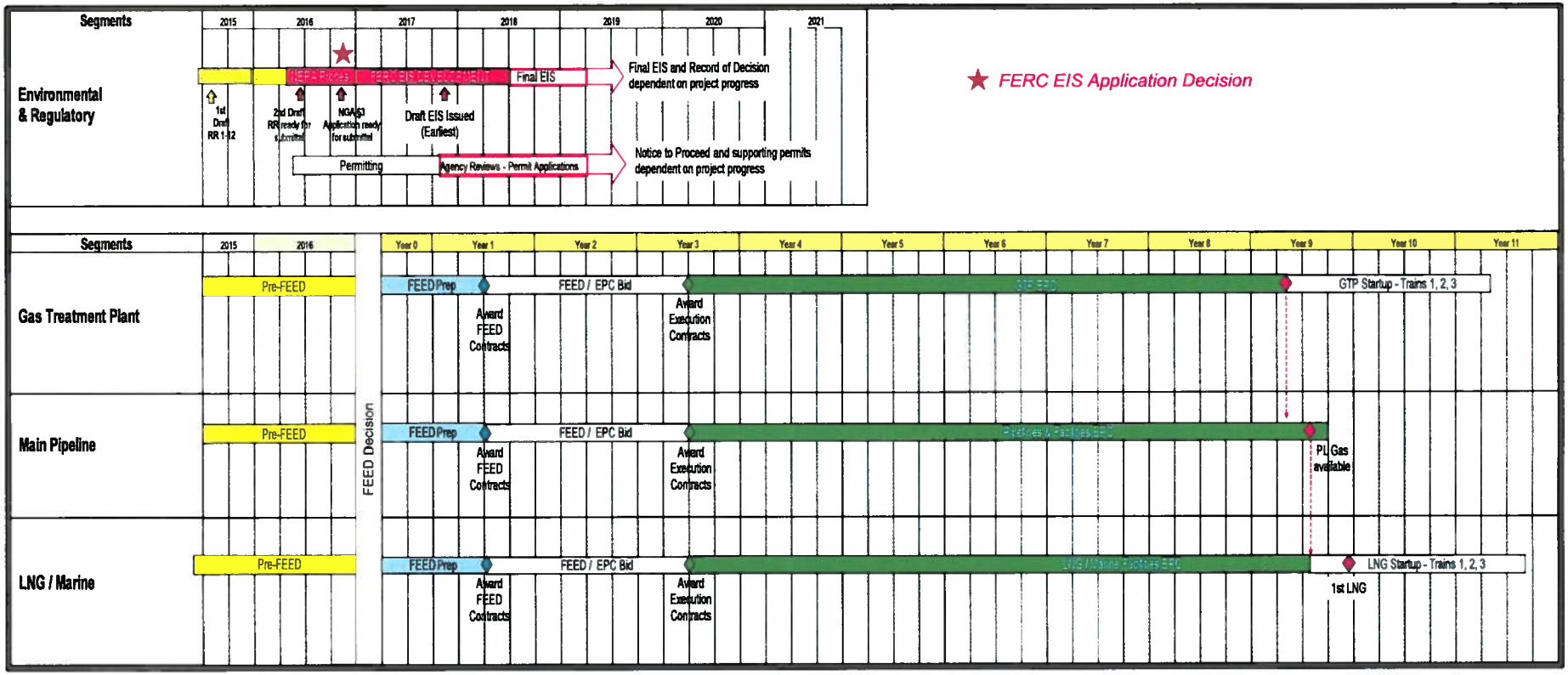

- Continued focus on optimizing integrated project schedule to reduce cost and execution risk
- Regulatory schedule has decisions points (resource reports, EIS application) requiring applicant support
- Integrated schedule provides estimated durations of key project phases to start-up
- Schedule serves as the basis for final JVA Deliverables

Regulatory / Field Work

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2016 Field Work

- Advancing work to de-risk project / meet FERC requirements
- Leveraging key learnings to improve performance / reduce cost
- Confirming pipeline routing and siting of project facilities
- Continued geotechnical / geophysical (G&G) site analysis

Continued focus on safety – successful contractor onboarding

Federal Environmental Regulatory Agency (FERC) filing

- Completing final reviews of second draft Resource Reports
- Capturing stakeholder input

Environmental Field Work Summary

Studies	2012-15	2016 Plan
Cultural Resource Survey (acres)	40,556	9,500
Phase 2 Archeology (sites)	24	59
Stream Fisheries Investigations (#)	176	0
Wetlands Verification (#)	507	107
Paleontology (acres)	556	110
Noise Monitoring (# sources)	19	0
Environmental Due Diligence (acres)	154	0
Stream Hydrology (#)	78	0

Stakeholder Engagement

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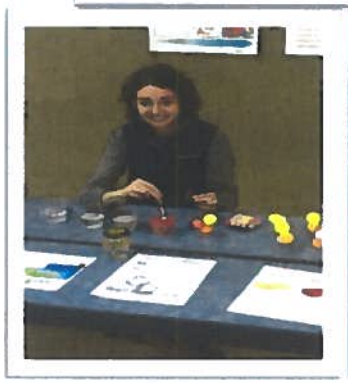
Key Activities in 2016:

- Village and tribal outreach ongoing
- Alaska Native regional and village corporation interaction / consultation
- Alaska business executive sessions in Fairbanks, Kenai, Juneau and Anchorage
- FERC agency workshop on NEPA process
- Community meetings supporting pipeline routing and field program
- Community meetings and personnel in Nikiski to support lead plant location
- Regulatory engagement meetings
- Traditional Knowledge, community health and subsistence field work nearing completion
- Cultural resource advisors engaged to support environmental studies



Summary

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Key Requirements for FEED Decision

- **Viable Technical Option**
- **Key Commercial Agreements**
- **Government support**
- **Permits / Land Use Underway**
- **Potential Commercial Viability**

Summary

- Project work progressing well; system design and execution planning work nearly complete
- Continuing to evaluate opportunities to reduce project cost of supply, increase competitiveness
- Regulatory and field work progressing to support completion of Draft 2 of the NEPA Pre-File Resource Reports
- Expect to complete Pre-FEED deliverables as planned in Pre-FEED Joint Venture Agreement (JVA)
- Alignment, Risk, and Cost (ARC) principles remains critical to AKLNG success