



3900 C Street, Ste. 1000 | Anchorage, Alaska 99503

January 31, 2019

Ms. Chantal Walsh, Director
Alaska Department of Natural Resources
Division of Oil and Gas
550 W. 7th Avenue, Suite 1100
Anchorage, AK 99501

RECEIVED

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DIVISION OF
OIL AND GAS

Subject: Placer Unit 3rd POD Update

Dear Ms. Walsh,

As per the conditional approval of the Placer Unit 3rd Plan of Development, attached is the Progress Report as of January 31, 2019.

The progress report is submitted as a public document, but there are figures included in the Appendix that we request to be held confidential.

If you have any questions or require additional information, please contact me at (907) 339-6014 or timmm@asrc.com.

Sincerely,

A handwritten signature in black ink that reads 'Teresa Imm'.

Teresa Imm - President
ASRC Exploration, LLC

cc: Mr. Ken Diemer, Alaska Department of Natural Resources

Enclosures: Progress Report (Sept. 2018- January 2019)
Appendix of Confidential Information

Placer Unit POD Progress Report for the period of September 9, 2018 to January 30, 2019

The proposed operations for the Placer Unit for the 3rd POD for the period September 9, 2018 through January 31, 2019 are detailed as follows:

Re-entering Placer #3 well:

AEX submitted its amended 3rd POD on August 17th which was conditionally approved by the Department of Natural Resources (DNR) on September 7, 2018. As part of its conditional approval, AEX is submitting the following update to re-enter the Placer #3 well (henceforth referred to as “the well”) this winter.

AEX had originally stated in the amended 3rd POD to re-enter the well for the purpose of testing the bottom-hole pressure response. Additionally, AEX will perform a 20 day extended flow test to acquire data to better estimate the Kuparuk “C” (Kup C) sands reservoir boundaries, which will assist in field development plans. In 2016, AEX performed a well test with an initial flow and shut-in period for 2 days followed by a 5-day flow period and a 5-day shut-in period. Pressure Transient Analysis from this test showed that previously anticipated faults and reservoir boundary were not observed during the test. For sanction of the field development it is necessary for AEX to perform a longer drawdown test to estimate the reservoir boundaries. AEX has been working diligently to have all the required permits, service contractors and operating agreements ready and in-place prior to the testing. These efforts are highlighted below:

Well Testing

Currently AEX plans to conduct a long term well test. It is planned for the test to occur starting no later than March 24th to complete the test before the end of the ice road season.

The test design is as follows:

Stage 1: Flow Well to Cleanup, produce back completion fluid. Estimated time 24 hours.

Stage 2: Shut-in for 12-24 hours to acquire a static bottom-hole pressure response

Stage 3: Flow test well at 600 BOPD for 18-20 days

Stage 4: Shut-in well for 5 days for pressure build-up analysis.

To allow for future reservoir pressure monitoring, upon suspension, AEX will move the PXN plug currently set at 5,981' MD to 2,111' MD, allowing the downhole pressure gauges to be in communication with the reservoir. Figure 1 shows a proposed wellbore schematic for suspended Placer #3 well after the extended test program.

Procedure

The procedure of the testing operation is as follows:

1. Build Ice Road spur and Ice Pad from milepost 11.9 (preferred alternative) of the Oil Search Northern Ice Road (Figure 2, see Appendix).
2. Move equipment to Placer #3 location
 - Hot oil Truck
 - Slickline Unit
 - FMC lubricator for Back Pressure Valve removal.
3. Install and Pressure Test Surface equipment to 3,500psi for 10 minutes with Hot Oil Truck
4. Check for pressure build-up before pulling BPV. Monitor Annulus pressure during this operation.
5. Hook up Schlumberger pressure recorder to I-wire.
6. RIH with Slickline and pull PXN Prong from Plug at 5,891' MD and POOH.
7. RIH and Pull PXN Plug at 5,891' MD
8. Observe static pressure from GLM until pressure reaches stabilized pressure
9. Conduct 23 day Well Test
10. Bullhead in 10.8 ppg kill weight brine and freeze protect the tubing with diesel to 1,300'.
11. RIH and set PNX Plug in XN at 2,111' MD
12. RIH and set PNX prong in plug at 2,111' MD
13. Test Tubing to 3,500 psi for 30 minutes.
14. Install BPV in tubing hanger and test to 3,500 psi for 30 minutes.
15. Rig down and move out.
16. Wrap tree with black plastic liner and reinstall well placard.

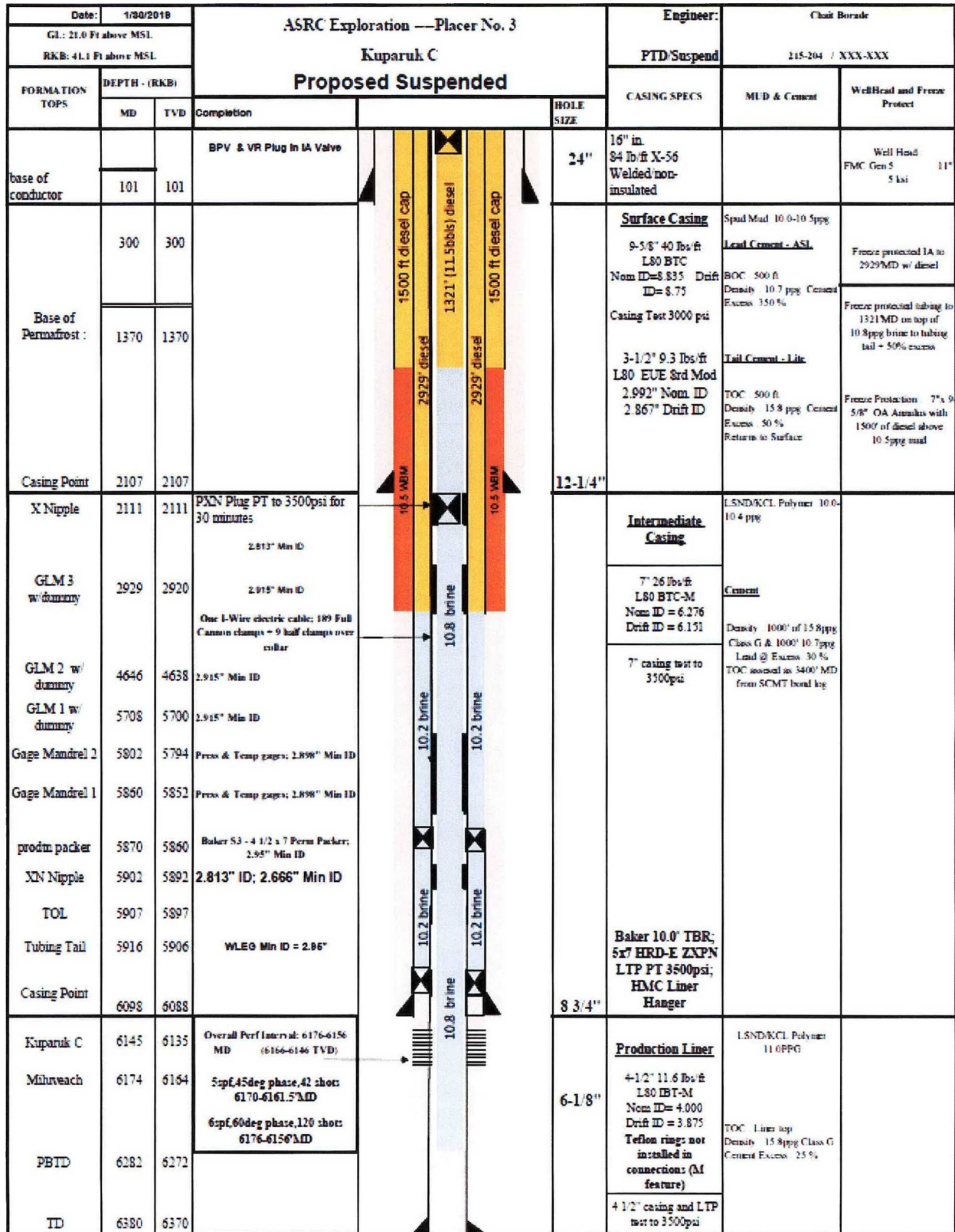
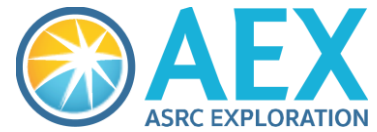


Figure 1. Proposed Suspended Well Bore Schematic after long term production test.



Permitting/Contracting/Agreements:

Permitting Status

AEX has applied for all applicable permits to access the Placer #3 well-site in order to conduct the extended well-test. The following matrix (Table 1) summarizes AEX's permit application and their status as of today. AEX has executed/currently working on agreements with adjacent operators, which will help progress this winter operation.

Table 1. Permit Status matrix for Placer #3 Extended Well Test

Regulatory Agency	Permit Name/Number	Description	Status	Estimated/ Actual Submission Date	Estimated / Actual Issue Date
ADNR - DOG	Plan of Operations Amendment	Approval to conduct O&G activities on lease/unit	Submitted	1/8/2019	2/8/2019
ADNR - DML&W	Land Use Permit LAS # 30527	Land Use Permit for ice road and ice pad on State Lands	Issued (Expires 11/8/2020)	N/A	11/8/2015
ADNR - OHA	SHPO Review	Cultural Resources Desktop Study provided to SHPO for a courtesy review	Complete	1/30/2019	3/2/2019
ADEC - SPAR	Oil Discharge Prevention and Contingency Plan	Approval for spill prevention and cleanup plan	Submitted Additional Information Required	1/18/2019	2/22/2019
ADEC - Air	MG-2 Air Quality Control Permit	Approval for well testing air emissions included Fuel Consumption Monitoring Plan	Application Complete waiting to submit		
ADEC - Wastewater	Stormwater Discharge Permit	Approval for discharge of stormwater from pad and secondary containment	Submitted	1/25/2019	2/24/2019
ADF&G	Fish Habitat Permit FH19-III-0029	Approval for Stream Crossings	Issued (expires 05/31/2019)	1/15/2019	1/24/2019
NSB Title 19	Development Permit	Authorization to construct Ice Road	Submitted	1/18/2019	2/18/2019
NSB Title 19	Development Permit	Authorization to construct Placer #3 Well Ice Pad	Submitted	1/18/2019	2/18/2019
US Fish and Wildlife Service	Letter of Authorization - Marine Mammal Incidental Take	Authorization for incidental take of Polar Bear during mobilization and operations	Pending Government furlough	?	?
NSB Form 500	IHLC/TLUI Cultural Clearance	Provide Cultural Resources Desktop Study summarizing the cultural resources survey completed for the project area.	Complete	1/30/2019	3/2/2019
NSB Form 600	Request for IHLC Resource Data	NSB provides cultural resource information for the project area.	Issued	12/27/2018	1/22/2019

Color Key
Permit or Authorization Issued
Application Submitted To Agency - In Review
Application In Process - Not Yet Submitted to Agency

Status of Operating Agreements

1. AEX has executed an amendment to the MOU with Brooks Range Petroleum Co. originally executed on May 7, 2017. This amendment allows AEX to process produced fluids from Placer #3 at the Mustang Development Project.

2. AEX originally discussed plans to share the ice-road with Oil Search Alaska (OSA) on December 16, 2018. AEX is currently working on finalizing the ice-road sharing agreement with OSA.

Status of Vendor Contracts

1. AEX has accepted a proposal and signed an MSA with Petroleum Testing Services for testing equipment and flaring.
2. AEX has accepted a proposal for tanks, manifolding and containment with Magtech.
3. Spill Response, Vac Trucks and ancillary services will be provided by ASRC Energy Services.

2018 Field Activity

AEX had performed field activity in late summer of 2018 in the anticipation of conducting 2018-2019 winter field work. AEX contractors were out on the field on 23rd of August, 2018. Following objectives were accomplished during this field operation:

1. Investigated Placer #1 & Placer #3 wellbores for thaw subsidence
2. Conducted aerial reconnaissance of previously identified pipeline/ice road route alternatives as well as potential crossing sites of the Miluveach River.
3. Surveyed areas around the Placer #1 & Placer #3 for building potential ice/gravel pads for future operations.
4. Data and information from this field operation was used and incorporated in identifying ice pad location and ice-road route for the 2018-2019 winter operation.

Reservoir Modeling Status:

AEX finalized the reprocessing and merging of WBA, Kookpuk and Tabasco North 3-D surveys. The new dataset was used to describe the Kup C reservoir in further detail. The following steps were taken to create a 3-D static model (Figure 3, see Appendix):

- Utilized post-stack and new pre-stack time migration data to define the reservoir container.
- Identified 3 facies distribution using the well data (Figure 4, see Appendix).
- Distributed the facies within the reservoir container and used core data to assign rock properties across the container.

Following the construction of a static model, a full field dynamic reservoir simulation model was generated targeting the entire Kup C accumulation. Figure 5 (see Appendix) shows a Porosity map of the Kup C from the dynamic model along with overlaid wellbores and a boundary of the Placer Unit.

- Steps taken to generate a 3-D Reservoir Model
 - Assigned a grid to the static 3-D model
 - Populated the model with fluid properties
 - Defined well locations and adopted EOR strategies

- Ran simulation model for a period of 20 years to estimate recoverable reserves from the Kup C in the Placer Unit as well as the entire Kup C accumulation.

Results from the simulation study will be used to investigate development alternatives, optimize well placement and run economic scenarios. AEX will further investigate if hydraulic fracturing will help access the full vertical potential of the Kup C.

Development Drilling Cost Study:

Based on the results from the dynamic model, AEX conducted a drilling plan study for the horizontal development wells to be drilled in the Placer Unit. Drilling design and performance for 7 wells drilled in the CRU Nanuq-Kuparuk development and 8 wells drilled from the KRU 2M and 2S pads were studied to determine typical casing design depths, rates of penetration and logging and casing times to determine costs for the planned development wells.

This study is the basis of the well design to be used to estimate the drilling and completion cost of production and injection wells for development of the Kuparuk reservoir in the Placer Unit. Results from the reservoir simulation model showed that 2 horizontal producers and 2 horizontal injectors will effectively develop the Kuparuk reserves in the Placer Unit. To optimize the project efficiency and mitigate environmental footprint, this study assumes that 3 wells will be drilled from a single pad located at Placer #1 surface location. The western injector will likely be drilled from the Placer #3 location. Figure 6, in the Appendix shows an X-Y Map view of the 3 Placer development wells to be drilled from the Placer #1 surface location. Figure 7 shows design basis of planned Placer Unit Development wells drilled from Placer #1 surface location and Figure 8 is the summary of the wells that were studied at CRU and KRU (see Appendix for Figures).

G&G Evaluation of Other Plays in the Placer Unit:

AEX is evaluating the oil shows from Nanushuk sandstones encountered in the Placer #1 and Placer #2 wells. Our seismic interpretation of the merged, reprocessed, 3D seismic data indicates that there is a major change in the basin architecture between the Nanushuk 3 development in the Pikka Unit and the Placer Unit. The sand development in Placer 1 and 2 wells is related to a backstepping transgressive system (Figure 9 see Appendix). This work is on-going and AEX will provide further details at a future date.

Appendix to Placer Unit 3rd POD Progress Report January 31, 2019

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Figure 2. Map of AEX Ice Road Spur Plan

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Figure 3. Grid Top view of the Kup C static model with well locations.

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Figure 4. Areal extent of Facies A, B and C

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Figure 5. Porosity map (Layer 5) of the Dynamic Model with overlaid wells & Placer Unit boundary

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Figure 6. X-Y Map view of Placer planned development wells drilled from Placer #1 surface location.

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Figure 7. Design basis of planned Placer Unit Development wells drilled from Placer #1 surface location.

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Figure 8. Summary of CRU and KRU wells studied to design Placer Development wells.

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Figure 9. Regional Topsets Seismic Cross Section

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