



## **TENTH PLAN OF DEVELOPMENT**

### **NIKAITCHUQ UNIT**

**October 1, 2017 – September 30, 2018**

**Eni US Operating Co. Inc., as Operator**

**Eni Petroleum US LLC 100% Working Interest Owner**

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## **NIKAITCHUQ UNIT – TENTH PLAN OF DEVELOPMENT**

This Tenth Plan of Development (POD) for the Nikaitchuq Unit is submitted by Eni US Operating Co. Inc. (Eni), as Operator, on behalf of its affiliate Eni Petroleum US LLC, the owner of 100% of the working interest in the Nikaitchuq Unit, to the Department of Natural Resources Division of Oil and Gas as required by Article 8 of the Nikaitchuq Unit Agreement and 11 AAC 83.343.

### **HISTORICAL ACTIVITIES**

The Nikaitchuq Unit comprises 11 state leases for a total of approximately 21,000 acres. Cumulative oil production from the Nikaitchuq Unit totals approximately over 34 million barrels through November 2016. The leases are unitized and developed jointly under the terms of the Nikaitchuq Unit agreement, between Eni and the State of Alaska.

For the 2013-2014 periods a multilateral campaign of well producers was executed from Oliktok Point Pad (OPP) location. In 2014, the west area development extension was sanctioned, which added 2 producer and 2 injector wells to the existing drilling plan from Spy Island drilling (SID) pad. In May 2015, drilling activities were suspended upon senior management directions from Eni's Milan Head Quarters due to the oil and gas economic downturn.

## 1. NINTH POD UPDATE (October1, 2016 – September 30, 2017)

The drilling activities during the Ninth POD were focused on maintaining the existing producing wells through workover activities. There have been no new wells added to the existing drilling inventory list since drilling activities were suspended in May 2015. Drilling activity from Eni's Spy Island Drillsite (SID) has been focused on the ongoing major rig upgrades to the existing Doyon rig 15 (Doyon Rig). Eni is scheduled to drill an ultra-extended reach exploration well from SID into federal waters (Harrison Bay Block 6423 Unit) by December, 2017 and the Doyon Rig is being improved for this drilling effort.

### 1.1 FACILITIES

Ongoing activities at the time of submitting the Tenth POD:

- Engineering and design work for a permanent chiller system to re-freeze permafrost under onshore well bays.
- Planned and conducted 96 hour facility shut-down scheduled in mid-June 2017 for critical maintenance items.
- Ongoing and routine Production and Operations maintenance and optimization.

### 1.2 RESERVOIR MANAGEMENT

Subsurface development of the Nikaitchuq Unit is ongoing with dedicated development wells within the Nikaitchuq Unit both for the approved Schrader Bluff participating (SBPA) area and outside the SBPA.

The Nikaitchuq development is based on the exploitation of the OA reservoirs. The development through May 2017 can be summarized in Table 1 as follows:

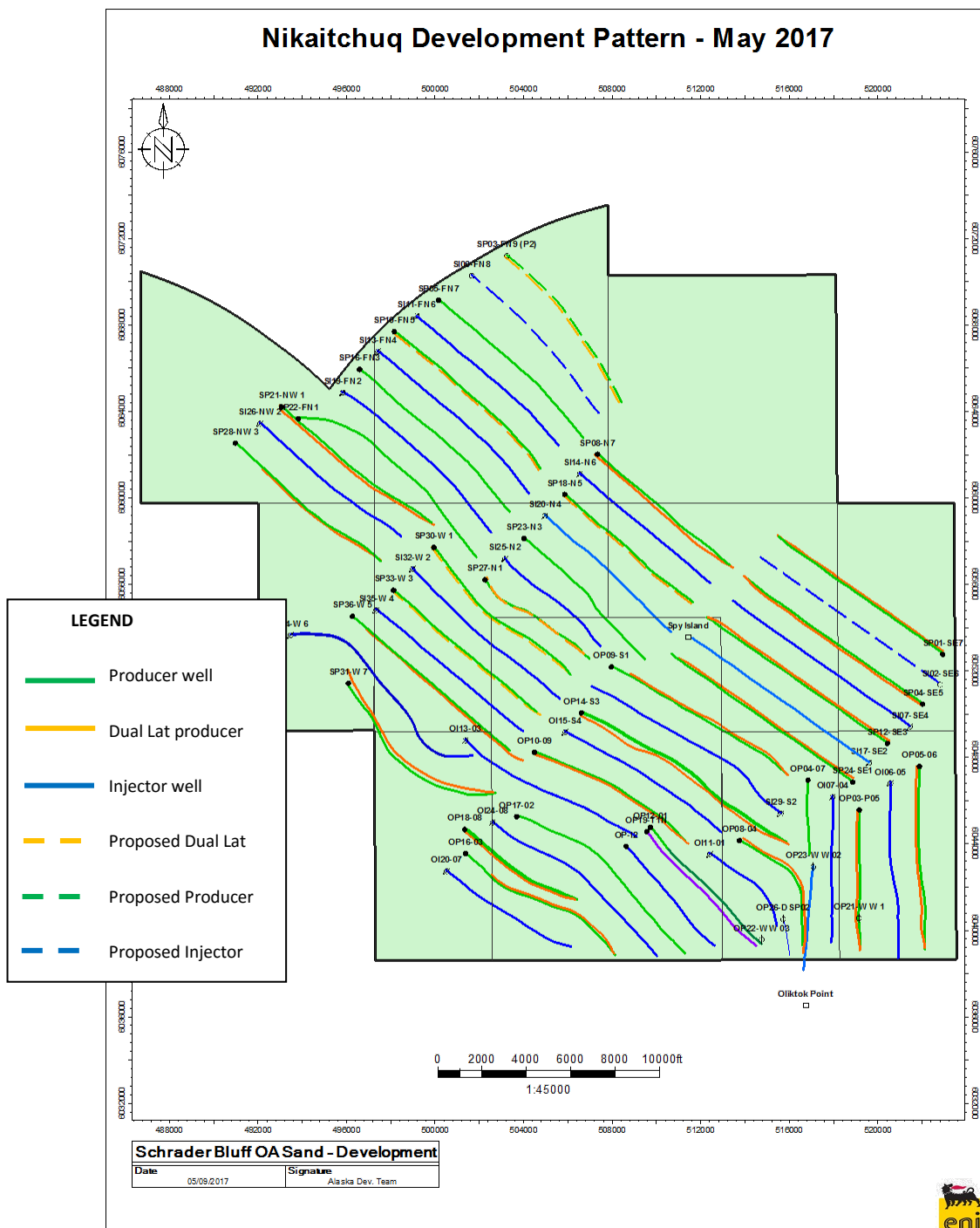
|           |              | Reauthorization II (2009) |       |       | Western Extension (2014) |     | East Extension (2015) |     | Activity up to date (May, 2017) |       |       | Dual Lateral Paths |      |
|-----------|--------------|---------------------------|-------|-------|--------------------------|-----|-----------------------|-----|---------------------------------|-------|-------|--------------------|------|
|           |              | OPP                       | SID   | Total | OPP                      | SID | OPP                   | SID | OPP                             | SID   | Total | OPP                | SID  |
| Well Type | Injector     | 8/8                       | 11/12 | 20    |                          | 2/2 |                       | 0/1 | 8/8                             | 13/15 | 21/23 |                    |      |
|           | Producer     | 11/11                     | 15/15 | 26    |                          | 2/2 |                       | 1/2 | 11/11                           | 18/19 | 29/30 | 8/8                | 9/19 |
|           | Disposal     | 1/1                       | 1/1   | 2     |                          |     |                       |     | 1/1                             | 1/1   | 2/2   |                    |      |
|           | Water Source | 3/3                       | 0     | 3     |                          |     |                       |     | 3/3                             | 0     | 3/3   |                    |      |
| Total     |              | 23/23                     | 27/28 | 51**  |                          | 4/4 |                       | 1/3 | 23/23                           | 32/35 | 55/58 | 8/8                | 9/19 |

**Table 1.** Nikaitchuq Field Well count development summary through May 2017

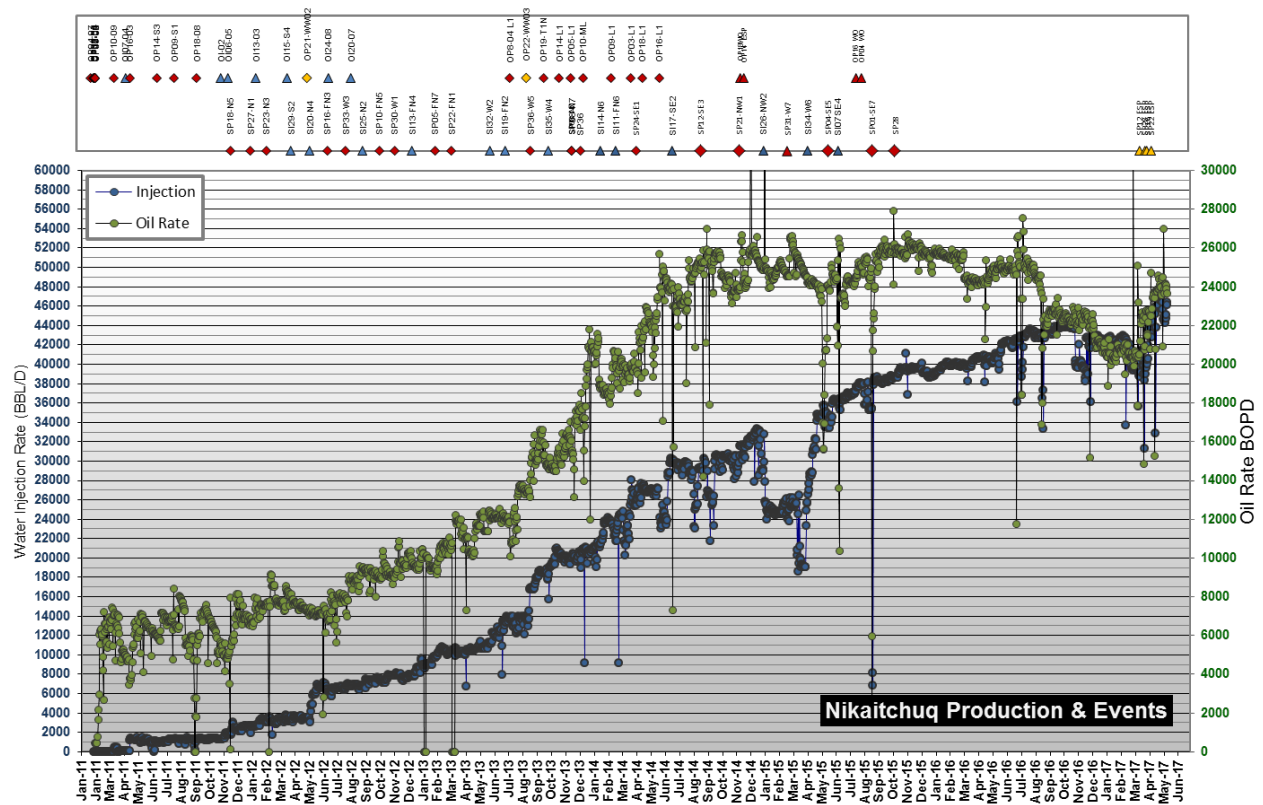
The Map on Figure 1 below gives an overview of what has been drilled through May 2017 and what wells have been proposed for future development activity.

The OA reservoir development will resume drilling with the addition of one producer (SP03-FN9), two injector wells (SI02-SE5, SI06-FN8) and four dual lateral producer wells (SP33-W3L1, SP30-W1L1, SP16-FN3L1 & SP27-N1L1) (See drilling schedule).

**Figure 1.** Proposed Nikaitchuq Unit development activity though May 2017.



Average daily oil production for the year 2016 was 23,854 bopd. Figure 2 below summarizes the water and oil production rates since the beginning of the project.



**Figure 2.** Summary of Historical production for Nikaitchuq Field through June 2017.

### 1.3 DRILLING

In October of 2012, the planned OA reservoir drilling from OPP was completed. In November 2012, continuous drilling began on SID and will continue with the Doyon Rig, when development drilling resumes. A sidetrack campaign was started in 2013 and continued into 2014 adding a second lateral to selected OPP producers. As part of the 2014 summer drilling program at OPP an N-Sand evaluation well was drilled. This is the first well drilled by Eni for the sole purpose of evaluating future N-Sand development.

A recap of wells drilled from startup through December, 2015 is in figure 3 below. In addition to the wells drilled, Eni Well Operations group conducted multiple well workovers from both OPP and SID locations.

|                                |              | Activity Planned Through<br>(December 2016) |           |           |
|--------------------------------|--------------|---|-----------|-----------|
|                                |              | OPP   | SID       | Total     |
| Well Type                      | Injector     | 8   | 13        | 21        |
|                                | Producer     | 11  | 18        | 29        |
|                                | Disposal     | 1   | 1         | 2         |
|                                | Water Source | 3   | 0         | 3         |
| <b>Total</b>                   |              | <b>23</b>                                   | <b>32</b> | <b>55</b> |
|                                |              |   |           |           |
| <b>Dual Lateral Well Paths</b> |              | <b>8</b>                                    | <b>9</b>  | <b>17</b> |

**Figure 3.** Nikaitchuq Wells drilled through December 2016

In the first quarter of 2013, Eni's Well Operations team drilled and completed the first multilateral well consisting of a slotted liner main bore with multiple open hole drainage legs (laterals) exiting from it. These open hole laterals have no mechanical support or hydraulic isolation and depend on natural borehole stability. This SP22-FN1 well was successfully drilled to 22,923 ft. MD at 3,408 ft. TVD. The interval from 12,122 to TD was drilled with an 8 ¾" rotary steerable BHA assembly and completed with a 5 ½" liner which was set at 21,929 ft. MD. The total length of the 5 1/2" liner was 9,996 ft. A four (4) sidetrack multilateral totaling 16,467 ft. was successfully drilled in one (1) run with an average ROP of 157 ft. /hr. The lateral lengths ranged between 1,600 and 2,000 ft. each.

In mid-2013 a side-track campaign was started to add an additional lateral drainage to selected wells from the OPP location. A total of eight (8) laterals were added to OPP in the OA sand and completed with slotted liners. These laterals were placed with alternating undulations through the OA1 and OA3 sand layers as compared to the original laterals.

In Q3 2013, a second lateral was drilled on all producer wells on SID from that point forward. There have been a total of five (5) producers now drilled as dual laterals at the SID location. A schematic is included below (Figure 4) as an example of the SID dual lateral wells.

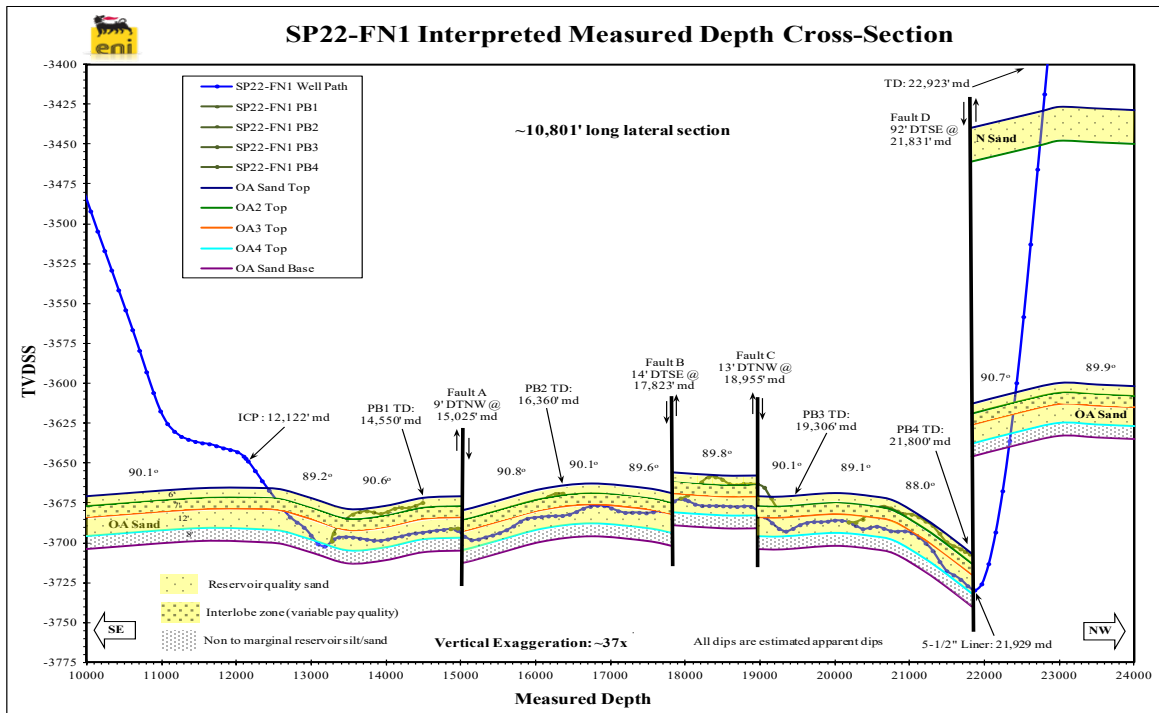
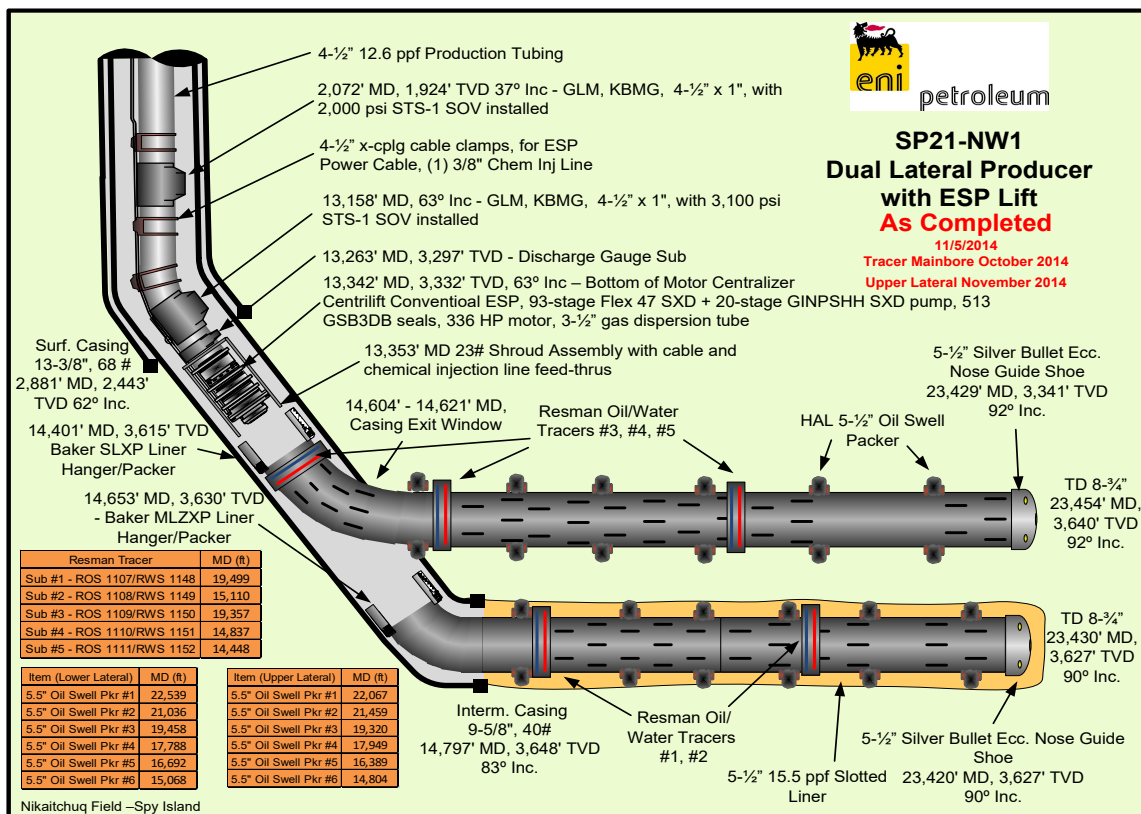


Figure 4. SID Dual Lateral well Schematic.





During 2014, the OPP producer sidetrack campaign finished up in May with the last four laterals being drilled in Q1 and Q2. Multiple rig workovers were also performed at the OPP location mainly consisting of ESP change outs. The development drilling continued at the Spy Island location with dual lateral producers and single lateral injectors. During Q3 the West Extension Project started on SID and one dual lateral producer and one single lateral injector were completed by the end of the year. Three rig workovers for ESP change outs were performed on SID as well as a rig work over on the Class I disposal well in 2014.

During 2015, the West Extension Project was completed with one more dual lateral producer and one more single lateral injector. The development drilling continued at SID with two dual lateral producers and one single lateral injector. During Q3 the East Extension Project started with the completion of one dual lateral producer. In Q4 drilling operations stopped at SID and the Doyon Rig was put in cold stack.

Rig activity from the end of 2015 until now was comprised of workovers for production maintenance. Rig upgrades for the Doyon Rig have been initiated in Q2 2017 to prepare for an exploration well planned for a December 2017 spud date.

## **2. TENTH POD PROPOSED OPERATIONS (October 1, 2017 – September 30, 2018)**

### **2.1 FACILITIES**

During the period of the Tenth POD, Eni will perform regular maintenance and general mechanical inspection of piping integrity and other safety systems. Eni has no planned upgrades at OPP and SID. Beginning in July 2017, and lasting 120 days, Eni will begin an inspection of the Process Operating Facilities' Train 1 process vessels. Primary vessels will be inspected and if any repair work is identified it will be completed. Eni plans to take a 36 to 72 hour shut down in June 2018 for routine maintenance.

### **2.2 RESERVOIR MANAGEMENT**

As previously mentioned, drilling activities were temporarily suspended and will resume after drilling and testing activities of the Nikaitchuq North Exploration project is underway and upon Eni's management instructions. After drilling activities start up again, the objective is to achieve the development pattern proposed in Figure 1 above.

### **2.3 DRILLING**

Eni currently has no plans for development drilling at the Oliktok Point location during the period of the Tenth POD. Exploration drilling will take place from SID starting in December 2017. Depending on the results and scope of the exploration work, Nikaitchuq development drilling may continue afterward during the latter part of 2018. During this time, ESP workovers will be performed on an "as needed" basis and as the rig schedules allow.

The Nabors 245 was released and demob from Oliktok Point in early 2017. A newly constructed Nordic Calista Rig #4 is expected to arrive in the fall of 2017. This rig will be used for workover activity on OPP and eventually on SID after drilling is completed in the future.

As part of the plan going forward, the drilling work was suspended in Q4 2015. Eni plans to commence exploration drilling in December 2017 at SiD using the Doyon Rig. The Doyon Rig is currently undergoing major upgrades to support the exploration drilling (Nikaitchuq North Exploration Project). Pending the results and scope of exploration work, the remaining development drilling work could begin in the latter part of 2018.

At this time, the remaining Nikaitchuq development drilling consists of converting eight (8) existing SID single lateral production wells to multilaterals and also three (3) new wells. It is anticipated that this drilling campaign could begin in July 2018.

Permitting and technical planning for the Nikaitchuq North Exploration campaign is currently ongoing with drilling from December 2017 through Q1 2018

Shown below is the tentative schedule planned for the 2017 and 2018 scope of work.

|   | 2017           |       |               |             |      |                |                                    |     |     |     |                             |                             | 2018           |                |     |     |                             |      |      |                |         |         |     |     |  |  |
|---|----------------|-------|---------------|-------------|------|----------------|------------------------------------|-----|-----|-----|-----------------------------|-----------------------------|----------------|----------------|-----|-----|-----------------------------|------|------|----------------|---------|---------|-----|-----|--|--|
|   | Q1             |       |               | Q2          |      |                | Q3                                 |     |     | Q4  |                             |                             | Q1             |                |     | Q2  |                             |      | Q3   |                |         | Q4      |     |     |  |  |
|   | Jan            | Feb   | Mar           | Apr         | May  | Jun            | Jul                                | Aug | Sep | Oct | Nov                         | Dec                         | Jan            | Feb            | Mar | Apr | May                         | Jun  | Jul  | Aug            | Sep     | Oct     | Nov | Dec |  |  |
| Spy Island<br>Land Rig<br>Doyon 1S          | Rig Cold Stack | RigUp | SP12<br>28 16 | SP<br>28 16 | SP22 | Rig Cold Stack | Rig modification and commissioning |     |     |     | Nikaitchuq North Activities | Nikaitchuq north Activities |                |                |     |     | SP22 L1                     | SP02 | SI06 | SI02           | SP20 L1 | SP16 L1 |     |     |  |  |
| OPP<br>Land Workover Rig<br>Nordic Callista |                |       |               |             |      |                |                                    |     |     |     |                             |                             | Rig Cold Stack | Rig Cold Stack |     |     | Workover / Pump Replacement |      |      | Rig Cold Stack |         |         |     |     |  |  |

- The Doyon Rig 15 will undergo modifications with exploration drilling commencing in December 2017.
- Remaining Nikaitchuq development to begin Q3 2018 on SID
- Nordic Calista Rig #4 scheduled to arrive on OPP Q4 2017
- No new drilling activities are currently planned from OPP
- Rig workovers will continue as needed on both SID and OPP

### **3. PLAN OF EXPLORATION FOR LANDS NOT WITHIN A PARTICIPATING AREA**

Eni will continue to focus its efforts and resources on the Nikaitchuq North Exploration well that will be drilled from SID into federal waters (Harrison Bay Block 6423 Unit) north of the Nikaitchuq Unit boundary.

During the Ninth POD, Eni participated in the State of Alaska's fall Beaufort Sea Areawide 2016W Lease Sale. Eni was the successful bidder of two tracts (ADL 393175) located between the Nikaitchuq Unit northern boundary line and the Harrison Bay Block 6423 Unit southern boundary line. This lease will provide Eni with some protection acreage, should there be any future development opportunities involving the Nikaitchuq North Exploration Project.