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DIVISION OF
OIL AND GAS

Rebecca Kruse, Unit Manager
State of Alaska, Department of Natural Resources
Division of Oil & Gas - Units Section
550 West Seventh Avenue, Suite 1100
Anchorage, Alaska 99501-3560

Subject: CINGSA 2018 Plan of Development

Dear Ms. Kruse:

In accordance with Paragraph 11 of Gas Storage Lease ADL 391627, granted by the State of Alaska to Cook Inlet Natural Gas Storage Alaska, LLC (CINGSA), we respectfully submit the enclosed 2018 Plan of Development.

We are available to meet with you regarding this submittal at your convenience. Please contact me at 907-334-7751 to schedule a meeting or to address any questions.

Sincerely,

A handwritten signature in black ink, appearing to be "Travis Renk".

Travis Renk
Senior Pipelines Manager
Cook Inlet Natural Gas Storage Alaska, LLC

Enclosure: 2018 Plan of Development



2018 Plan of Development

Cook Inlet Natural Gas Storage Alaska, LLC

Gas Storage Lease ADL 391627
Cannery Loop Unit, Sterling C Pool

Kenai, Alaska

January 24, 2018

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1.0 INTRODUCTION

2017 was the fifth calendar year of operation of CINGSA's natural gas storage facility. In the last year, CINGSA has operated pursuant to the 2017 Plan of Development, approved by the Division of Oil & Gas.

In 2017, CINGSA provided critical deliverability to its firm and interruptible customers, pursuant to Firm and Interruptible Storage Service Agreements and pursuant to tariffed rates that are subject to regulation by the Regulatory Commission of Alaska. In 2018, CINGSA anticipates meeting its customers' storage needs, as it did in prior years, by fulfilling its contractual commitments.

This 2018 Plan of Development is prepared for submission to the Alaska Department of Natural Resources, Division of Oil & Gas, as required under Paragraph 11 of CINGSA Gas Storage Lease ADL 391627.

Paragraph 11 requires that CINGSA include the following items in its POD:

- (1) The estimated size in surface acreage or shape;
- (2) Total capacity and working capacity of the Gas Storage Formation;
- (3) Design and schedule for drilling of storage injection and withdrawal wells;
- (4) Any other engineering, geological, or operational data that may be requested by the Division of Oil and Gas;
- (5) Maps and statements describing the following: (i) long-range activities for the leased area; (ii) plans for expansion or contraction of this lease; (iii) details of proposed operations for at least one year following submission of the plan; (iv) the sequence and schedule of the operations (injection and withdrawal volumes) to be conducted on or in the lease area, including the date operations are proposed to begin and their proposed duration;
- (6) An annual Storage Lease Production and Injection Report, summarizing the monthly production/injection, including cumulative production/injection, number of wells, wells days, average daily production/injection, and net injection, from inception to date, as reported to the Alaska Oil and Gas Conservation Commission (AOGCC); and
- (7) An electronic operator report as specified in State of Alaska Oil and Gas Royalty Reporting Instructions (11 AAC 04).

These requirements are addressed below.

2.0 GAS STORAGE DEVELOPMENT

CINGSA converted the nearly depleted Sterling C1 and C2 sands (Sterling C Gas Pool) of the Cannery Loop Unit into an underground gas storage reservoir and facility. Figure 1 is a regional map showing the location of the Cannery Loop Field relative to other fields in the Cook Inlet area. From its initial discovery until active production was shut-in in 2012, the Sterling C Gas Pool produced approximately 23 billion cubic feet (Bcf) of gas and approximately 4,000 barrels of produced water from one slanted well. The reservoir was estimated to have originally contained 26.5 Bcf of gas in place with no evidence of pressure support from an active aquifer. The reservoir discovery pressure was 2,200 pounds per square inch (psi).

CINGSA's storage lease is within the Sterling C Gas Pool. The Sterling C is vertically bounded at the top by the base of the B5 Coal formation and at the base by the top of the Upper Beluga formation. Hilcorp Alaska, LLC, as successor in interest to Marathon Alaska Production, LLC, retains working interest ownership of the deeper Beluga Gas and Upper Tyonek Gas Pools, both of which remain in active gas production, as well as any zones above the Sterling C.

Compressor station facilities are located east of the intersection of Beaver Loop Road and Bridge Access Road within T05N, R11W Section 4, Seward Meridian (SM), on property purchased by CINGSA. Well facilities are located between Boat Launch Road and Bridge Access Road within T05N, R11W Section 9, SM, on property owned by the State of Alaska and leased to CINGSA.

CINGSA commenced storage injections by free flow of gas on April 1, 2012. Injection using compression began on April 28, 2012. Initial withdrawal from the facility occurred on November 9, 2012.

2.1 Total Estimated Size in Surface Acreage or Shape

The CINGSA storage boundary includes an approximately quarter section (1/4 mile) "buffer zone" surrounding the periphery of the storage reservoir, consistent with requirements established by the AOGCC. The area within this storage boundary covers 1,272.5 acres and is composed of the tracts identified in Table 1.

Table 1. Area within the CINGSA storage boundary, Sterling C Gas Pool of the Cannery Loop Unit.

Township 5 North, Range 11 West, Seward Meridian		
Section	Aliquot Description	Area (acres)
4	SW ¼ SW ¼	40
4	W ½ SE ¼ SW ¼	20
4	S ¾ NW ¼ SW ¼	30
5	S ½ SE ¼	80
5	S ¾ NE ¼ SE ¼	30
5	S ½ NW ¼ SE ¼	20
5	S ½ NE ¼ NW ¼ SE ¼	5
5	E ½ SE ¼ SW ¼	20
5	SE ¼ NE ¼ SW ¼	10
7	E ½ E ½ SE ¼	40
8	E ½	320
8	SW ¼	160
8	S ½ NW ¼	80
8	E ½, NE ¼, NW ¼	20
8	SW ¼ NE ¼ NW ¼	10
8	SE ¼ NW ¼ NW ¼	10
9	W ¾ NW ¼	120
9	N ½ NW ¼ SW ¼	20
9	SW ¼ NW ¼ SW ¼	10
9	NW ¼ SW ¼ SW ¼	10
17	N ¾ W ½ NE ¼	60
17	N ¾ W ½ E ½ NE ¼	30
17	N ¾ E ½ NW ¼	60
17	NW ¼ NW ¼	40
17	NE ¼ SW ¼ NW ¼	10
17	N ½ NW ¼ SW ¼ NW ¼	5
18	NE ¼ NE ¼ NE ¼	10
18	NE ¼ SE ¼ NE ¼ NE ¼	2.5
Total		1,272.5

CINGSA acquired all of the property interests required in the Sterling C Gas Pool within these tracts for conversion to a gas storage pool.

2.2 Total Capacity and Working Capacity

Storage lease ADL 391627 has enabled CINGSA to develop and operate the storage reservoir under its contracted maximum total storage volume of 18 Bcf gas (11 Bcf of working and 7 Bcf of base). CINGSA's contracts allow it to inject approximately 68% of the reservoir's initial gas-in-place.

2.3 Design and Schedule for Drilling of Storage Injection and Withdrawal Wells

CINGSA optimized its storage design by drilling five injection/withdrawal service wells to align estimated reservoir deliverability with surface facility design performance capability. The wells were directionally drilled from the gravel pad to the west/southwest to target the gas storage reservoir.

CLU Storage 3 (CLU S-3) was the first well drilled. AOGCC Permit to Drill for CLU-S3 was issued on August 4, 2011. CLU-S3 was spudded on August 19, 2011 and suspended on September 22, 2011.

CLU Storage 4 (CLU S-4) was the second well drilled. The AOGCC Permit to Drill for CLU-S4 was issued on September 20, 2011. CLU S-4 was spudded on September 28, 2011 and suspended on October 24, 2011.

CLU Storage 2 (CLU S-2) was the third well drilled. The AOGCC Permit to Drill for CLU-S2 was received on October 21, 2011. CLU S-2 was spudded on October 30, 2011 and suspended on November 20, 2011.

CLU Storage 1 (CLU S-1) was the fourth well drilled. The AOGCC Permit to Drill was received on November 16, 2011. CLU S-1 was spudded on November 26, 2011 and suspended on December 16, 2011.

CLU Storage 5 (CLU S-5) was the fifth well drilled. The AOGCC Permit to Drill was received on December 20, 2011. CLU S-5 was spudded on December 22, 2011 and suspended on January 23, 2012. Upon completion of the final well, the Nabors 105 rig was demobilized.

Perforation and completion of all five wells began the last week in January 2012; all wells were completed by the third week of February 2012.

CINGSA commenced storage injections by free flow of gas on April 1, 2012. Injection with compression began on April 28, 2012. Initial injection capability was below expectations. The cause of this condition was determined to be near-wellbore completion damage. All five wells were subsequently re-perforated to correct this condition. The re-perforation work significantly improved injection/withdrawal capability, and after two storage cycles, performance on average is now consistent with design capability.

2.4 Other Engineering, Geological, or Operational Data Requested by the Division

None requested for 2017.

3.0 SUMMARY OF 2017 ACTIVITIES

Normal maintenance and operations for 2017 included the semi-annual shut-ins in April and October. Commercial power fluctuations have caused a few small operational upsets and as a result, CINGSA installed a natural gas fired generator on the well-pad for emergency use only.

3.1 Storage Operations

In 2017, CINGSA injected 5,403,856 Mcf of natural gas and withdrew 5,954,543 Mcf of natural gas. Injection and withdrawal are accomplished through the use of five (5) injection/withdrawal wells and two (2) 2,520 horsepower natural gas engine driven reciprocating compressors. The monthly injection and withdrawal amounts are shown in Table 2.

Table 2. 2017 monthly injections, withdrawals, compressor fuel/losses, and total gas in storage.

Month	Injections (Mcf)	Withdrawals (Mcf)	Compressor Fuel and Losses (Mcf)	Total Gas in Storage (Mcf) *
January	106,318	1,641,030	1,766	14,095,017
February	63,362	1,043,257	531	13,114,591
March	107,373	1,270,218	477	11,951,269
April	261,104	423,606	3,754	11,785,013
May	668,488	59,640	8,760	12,385,101
June	907,436	28,511	10,091	13,253,935
July	966,690	32,446	10,986	14,177,193
August	1,115,740	10,710	12,360	15,269,863
September	331,812	82,700	6,863	15,512,112
October	225,352	348,377	4,436	15,384,651
November	193,092	578,271	4,467	14,995,005
December	457,089	435,777	6,239	15,010,078

* The Total Gas in Storage includes customers' working gas and CINGSA's 7 Bcf of native and injected pad gas. It does not include the gas that CINGSA discovered in the Isolated Reservoir.

4.0 PROPOSED 2018 ACTIVITIES

4.1 Proposed Storage Operations in 2018

CINGSA does not anticipate any material changes in the operation of the storage facility in 2018. There are numerous small projects planned that primarily relate to the maintenance of the facility.

5.0 FUTURE EXPANSION PLANS

In 2017, CINGSA publically noticed an open season process, as contemplated within CINGSA's RCA approved tariff. CINGSA conducted a public open season meeting on November 13, 2017 and interested parties were required to file responses by December 1, 2017. CINGSA received four (4) open season responses. CINGSA will meet with interested parties in the first quarter of 2018 to discuss the viability and interest in potential future expansion plans, if any, for 2019 or beyond.

6.0 ANNUAL STORAGE LEASE PRODUCTION AND INJECTION REPORT

These reports, which are also provided to the AOGCC, are on file with the Division.

7.0 ELECTRONIC OPERATOR REPORT

Unless and until CINGSA begins production, no royalty reporting is necessary.

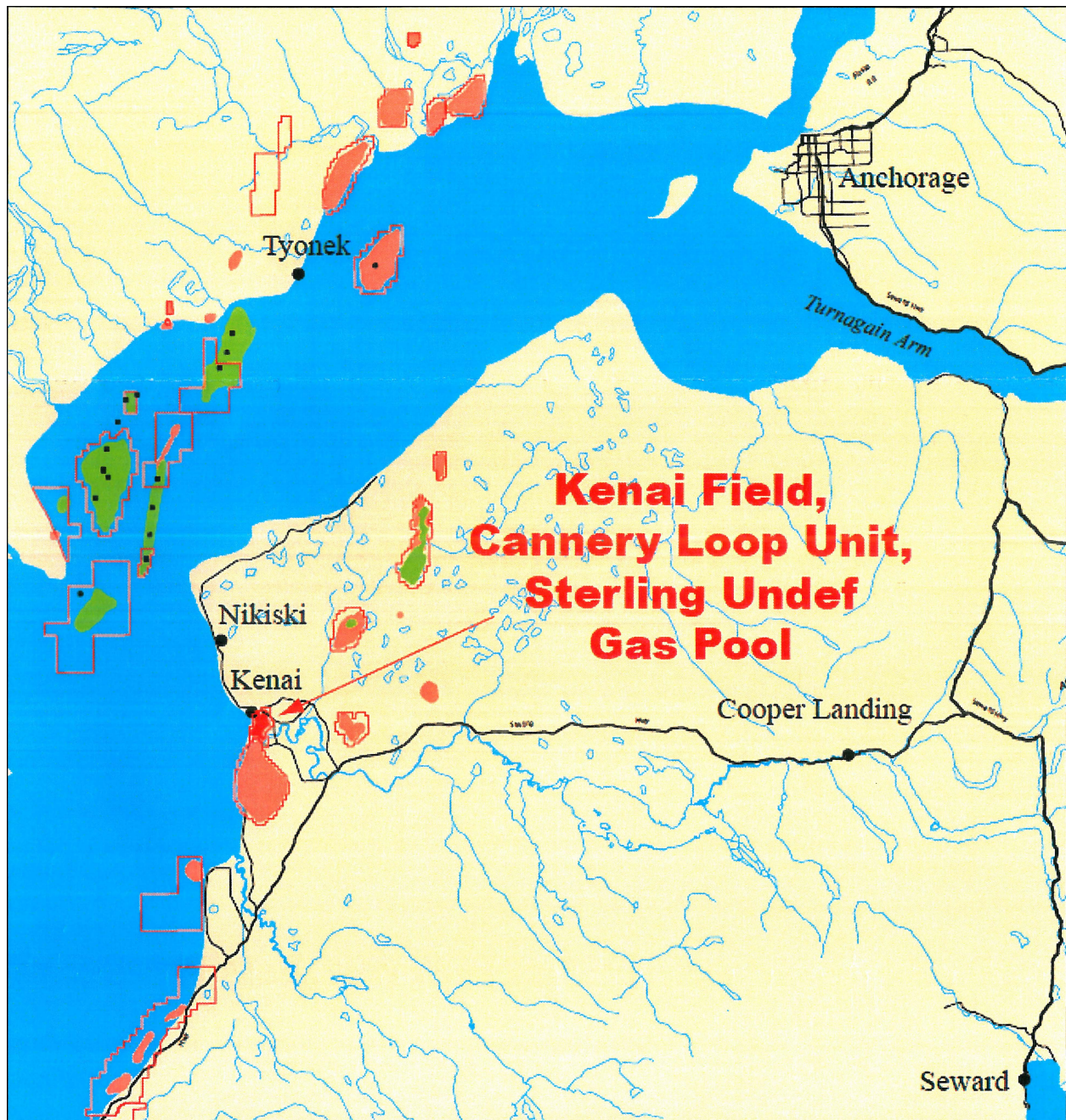


Figure 1. Vicinity map, Cook Inlet Natural Gas Storage gas storage lease area.