STATE OF ALASKA
ALASKA OIL AND GAS CONSERVATION COMMISSION
333 West 7th Avenue, Suite 100
Anchorage, Alaska 99501

Re: THE APPLICATION OF MARATHON OIL COMPANY ("Marathon") for an order authorizing the underground storage of natural gas in the Sterling Gas Pool 6, Well KU 31-07X, of the Kenai Gas Field.	)	Storage Injection Order No. 7
	)	Kenai Gas Field
	)	Sterling Gas Pool 6
	)	Well KU 31-07X
	)	April 19, 2006

IT APPEARING THAT:

1. By application dated August 26, 2005 Marathon Oil Company ("Marathon") as operator of the Kenai Gas Field, requested a storage injection order from the Alaska Oil and Gas Conservation Commission ("Commission") authorizing the injection for underground storage of natural gas in Well KU 31-07X in the Sterling Gas Pool 6 of the Kenai Gas Field.

2. Notice of opportunity for public hearing was published in the Anchorage Daily News on September 8, 2005 in accordance with 20 AAC 25.540.

3. The Commission held a public hearing October 11, 2005 at 333 West 7th Avenue, Suite 100, Anchorage, Alaska 99501. No testimony other than from Marathon was offered; no protest or written comments were received in response to the public notice. The Commission requested that Marathon provide additional information in writing following the hearing.

4. In correspondence dated March 16, 2006 and received by the Commission on March 20, 2006, Marathon supplied the additional information that had been requested by the Commission at the October 11, 2005 hearing.

FINDINGS:

1. Operator:
   Marathon is the operator of the Kenai Gas Field. There are no other operators within one-quarter mile of the boundaries of the proposed storage reservoir.

2. Injection Strata:
   The Sterling Gas Pool 6 is defined within Conservation Order 510 as the accumulation of gas common to and correlative with the 5,250 to 5,520 feet measured depth interval in Well KU 21-6. The Sterling Gas Pool 6 occurs between 4,366 and 4,569 feet true vertical depth subsea ("TVDss") in proposed gas storage injector Well KU 31-07X.

3. Proposed Injection Well:
The surface location of KU 31-07X is 320 feet FSL, 1,325 feet FWL, Sec 6, T4N-R11W, Seward Meridian. At the top of the Sterling Gas Pool 6, the well location is 734 feet FNL, 3,160 feet FWL, Sec. 7, T4N, R11W.

4. Operators/Surface Owners Notification:
Marathon has provided an affidavit showing that the Operators and Surface Owners within one-quarter mile radius of the proposed storage injection well have been notified. Surface owners include the Alaska Department of Natural Resources and Salamatof Native Association, Inc. In addition, notice was mailed to owners of Sterling Gas Pool 6.

5. Description of Operation:
Marathon proposes to inject natural gas from the Kenai Gas Field and from the Cannery Loop Unit into the Sterling Gas Pool 6 of the Kenai Gas Field. Well KU 31-07X will alternate between injection and production, providing gas to meet peak rate requirements during seasonal high demand periods. The maximum reservoir pressure at which Sterling Pool 6 gas storage will operate is 300 psi. A typical injection cycle will consist of 6 billion standard cubic feet ("BSCF") of gas injected in the summer and then produced back in the winter, with the reservoir pressure fluctuating 35 psi through the cycle.

6. Pool Information:
The Kenai Gas Field is a large asymmetric anticline overlain by a series of nonmarine sandstone reservoirs in the Tyonek, Beluga and Sterling Formations. The Sterling Gas Pool 6 unconformably overlies the Upper Tyonek-Beluga Gas Pool and is conformably overlain by the Sterling 5.2 Gas Pool. Each of these gas pools has a unique gas-water contact and reservoir pressure. The Sterling Gas Pool 6 is composed of two thick fluvial sandstones, named the C-1 and C-2, composed of friable to unconsolidated sand to clayey sand, with minor interbedded siltstone and coal. The two sands are in pressure communication and have porosities that range from 4 to 16%, permeabilities that range from 400 to 1,000 millidarcies and original gas saturations of around 68%. Within Well KU 31-07X the C-1 interval occurs between 4,366 and 4,500 feet TVDss and the C-2 interval is between 4,530 and 4,569 feet TVDss.

Production began in the Sterling Gas Pool 6 in July 1960. Peak gas production was achieved in 1982 at 82 million standard cubic feet per day ("MMSCFD"). The average gas production rate in 2005 was 15 MMSCFD from 11 producers. As of January 1, 2006 total production from Sterling Gas Pool 6 was about 523 BSCF. Material balance and model studies show an original gas in place of 563 BSCF.

Original reservoir pressure reported during pool rules testimony (Conservation Order 82) was 2,138 psi at a datum of 4,565 feet TVDss. Current reservoir pressure is less than 200 psi. Reservoir pressures are higher than 200 psi within strata lying both above and below the Sterling Gas Pool 6.

Proposed storage Well KU 31-07X was originally completed as a gas producer in the Sterling Gas Pool 6 in both the C-1 and C-2 sands. Well 31-07X has produced 3.2 BSCF gas and approximately 2,500 barrels water since it was brought on production in March 2001. Peak gas production rate of 10 MMSCFD was achieved in November 2005.

7. Well Logs:
The logs of existing wells in the area are on file with the Commission.

8. Mechanical Integrity and Well Design of Injection Wells:
Well KU 31-07X was constructed in accordance with the requirements of 20 AAC 25.030. A cement bond log and cement calculations were used to determine isolation of the Sterling Gas Pool 6 in Well KU 31-07X. The Commission witnessed a passing mechanical integrity test on April 29, 2005.

The Commission considered imposing rules regulating sustained casing pressures for Kenai Field development wells in 2004. A review of well records, pressures in existing wells, and other relevant information led the Commission to exclude all Kenai Field pools from sustained casing pressure requirements. Low reservoir pressures and over-designed well construction capable of withstanding the full range of reasonably anticipated well pressures were the basis for the Commission's decision.

Supplemental information provided by Marathon included a summary of an Emergency Action Plan maintained for all operations at the Kenai Gas Field. Included are contingency planning for operational incidents, personnel training, and drills. Marathon notes that there are no additional operating hazards represented by the proposed gas storage operations. The proposed gas storage project will require no additional pads, roads, pipelines or production/compression equipment.

9. Type of Fluid / Source:
Dry natural gas from the Kenai Gas Field and from the Cannery Loop Unit is planned for storage injection.

10. Fluid Compatibility with Formation:
Marathon provided gas analysis representative of native gas originating from the Sterling Formation and will inject only gas that is compatible with Sterling Gas Pool 6.

11. Injection Rates and Pressures, Fracture Information:
Injection rates will vary dependent upon gas supply/demand and the Sterling Gas Pool 6 reservoir pressure. Marathon requested the Commission preserve flexibility of storage and withdrawal operations by establishing a maximum reservoir pressure of 300 psi in lieu of maximum injection and withdrawal rates.

A maximum allowable reservoir pressure of 300 psi is nearly 2,500 psi below the fracture pressure for the Sterling Gas Pool 6, as determined by leak off tests and modeling.

12. Underground Sources of Drinking Water:
All aquifers below 1,300 TVD feet have been exempted by the EPA under 40 CFR 147.102(b)(1)(iii).

13. Mechanical Condition of Adjacent Wells:
Marathon supplied a report on the mechanical condition of each well that penetrates the Sterling Gas Pool 6 dated March 16, 2006. The Commission received the report on March 20, 2006. Marathon found no evidence of pressure communication between Sterling Gas Pool 6 and other strata, but cement bond logs do not exist for all Sterling Gas Pool 6 penetrations. Marathon has been unable to provide well records (cement bond log, cement top verification), for some wells, that are typically used to determine isolation of the injection zone in all wells penetrating the confining layer.

More than 40 years of production performance for Sterling Gas Pool 6 wells, at considerably higher pressures than proposed for storage, indicates the reservoir is confined and there is no movement of fluid behind casing.

14. Monitoring:
Marathon's Gas Storage Project Monitoring Program includes a supervisory controlled automatic data acquisition system to record flow rates and pressures on all active wells in the field. Data is monitored continuously at Marathon's Kenai Field office. Operations personnel visit all production pads daily to perform visual inspections and maintenance of wells and production equipment.

15. Public Comment:
A letter objecting to the project was sent to the Alaska Department of Natural Resources dated February 12, 2006 by Tim, Marilyn, Clint and Lindsay Keener. In addition to questions about the lease agreement, concerns were raised about ongoing disposal injection in the Kenai Gas Field. Geologic and engineering records, modeling, and well test performance data for the four existing waste injection wells operated by Marathon in the Kenai Gas Field indicate all fluids are confined to the intended injection formations. The Commission responded to the Keener's injection concerns by letter dated March 21, 2006.

CONCLUSIONS:

1. The Kenai Unit, Sterling Gas Pool 6, gas storage project meets the requirements of 20 AAC 25.252.

2. There are no concerns with compatibility between injected gas and the native gas in Sterling Gas Pool 6.

3. Construction records, casing and cementing records, a cement bond log and a witnessed mechanical integrity test on April 29, 2005 demonstrate the mechanical integrity of well KU 31-07X and demonstrate that fluids will not move behind casing beyond the gas storage zone.

4. The proposed injection operations will be conducted in permeable strata, which can reasonably be expected to accept injected fluids at pressures less than the fracture pressure of the confining strata.

5. The proposed injection of natural gas into the KU 31-07X well for the purpose of storage will not propagate fractures through the confining zones.

6. Surveillance of operating parameters for the storage and offset wells will provide continued assurance that stored gas will remain confined to the Sterling Gas Pool.

7. Limiting the reservoir pressure to 300 psi for natural gas storage in Sterling Gas Pool 6 eliminates the need for additional pressure monitoring beyond commitments made by Marathon.

8. The proposed injection of natural gas into the Sterling Gas Pool 6 for the purpose of storage will not cause waste, jeopardize correlative rights, endanger freshwater, or impair ultimate recovery.

NOW, THEREFORE, IT IS ORDERED that the following rules, in addition to statewide requirements under 20 AAC 25, apply to the underground storage of hydrocarbons by injection operations in the Sterling Gas Pool 6 within well KU 31-07X. The area described as follows is affected by this order:

Seward Meridian

T4N, R11W,	Section	4: W 1/2 SW 1/4, SW 1/4 NW 1/4
	Sections	5, 6, 7, and 8: All
	Section	9: W 1/2 NW 1/4, NW 1/4 SW 1/4
	Section	17: NE 1/4 NE 1/4,W 1/2 NE 1/4, NW 1/4, N ½ SW 1/4, SW 1/4 SW 1/4
	Section	18: All T4N, R12W
	Section	1: E 1/2, E 1/2 W 1/2
	Section	12: E 1/2, E 1/2 W 1/2

Section	13: NE 1/4, E 1/2 NW 1/4, N 1/2, SE ¼, T5N, R11W
Section	28: W 1/2 SW 1/4
Section	29: All
Section	30: E 1/2 NE 1/4, SW 1/4 NE 1/4, SE 1/4, SE 1/4 SW 1/4
Section	31: E 1/2, SW 1/4, E 1/2 NW 1/4
Section	32: All
Section	33: W 1/2 NW 1/4, SE 1/4 NW 1/4, and SW 1/4

RULE 1: STORAGE INJECTION
The Commission approves the injection for storage of natural gas in well KU 31-07X within the Sterling Gas Pool 6 interval from 4,366 to 4,569 feet TVDss.

RULE 2: DEMONSTRATION OF MECHANICAL INTEGRITY
The mechanical integrity of Well KU 31-07X must be demonstrated before injection begins, and before returning the well to service following a workover affecting mechanical integrity. A Commission-witnessed mechanical integrity test must be performed after injection is commenced for the first time in the well, to be scheduled when injection conditions (temperature, pressure, rate, etc.) have stabilized. Subsequent tests must be performed at least once every four years thereafter. The Commission shall be notified at least 24 hours in advance of a test. Unless an alternate means is approved by the Commission, mechanical integrity must be demonstrated by a tubing/casing annulus pressure test using a surface pressure of 1,500 psi or 0.25 psi/ft multiplied by the vertical depth of the packer, whichever is greater. Stabilizing pressure that does not change more than 10 percent during a 30-minute period is required for a valid test. Results of all mechanical integrity tests must be provided to the Commission.

RULE 3: WELL INTEGRITY FAILURE AND CONFINEMENT
The operator shall maintain a continuous data acquisition system to record flow rates and pressures on all active wells in the field. Field personnel must perform daily visual inspections and maintenance of all active wells and production equipment. Whenever any pressure communication, leakage or lack of injection zone isolation is indicated by injection rates, operating pressure observations, tests, surveys, logs, or other evidence, the operator shall notify the Commission by the next business day and submit a plan of corrective action on a Form 10-403 for Commission approval. The operator shall immediately shut in the well if continued operation would be unsafe or would threaten contamination of freshwater, or if so directed by the Commission.

RULE 4: MAXIMUM RESERVOIR PRESSURE
The reservoir pressure for this project shall be limited to 300 psi.

RULE 5: PERFORMANCE REPORTING
The Operator shall report disposition of production and injection as required by 20 AAC 25.228, 20 AAC 25.230, and 20 AAC 25.235.

An annual report evaluating the performance of the storage injection operation must be provided to the Commission no later than March 15. The report shall include material balance calculations of the gas production and injection volumes and a summary of well performance data to provide assurance of continued reservoir confinement of the gas storage volumes. Additional data collection and analysis will be based on a review of the operating performance and could include temperature surveys, pressure surveys, and production logs.

RULE 6: OTHER CONDITIONS

a. It is a condition of this authorization that the operator complies with all applicable Commission regulations.

b. The Commission may suspend, revoke, or modify this authorization if injected fluids fail to be confined within the designated injection strata.

c. As provided in 20 AAC 25.252(j), if storage operations are not begun within 24 months after the date of this Order, the injection approval shall expire unless an application for extension has been approved by the Commission.

RULE 7: ADMINISTRATIVE ACTIONS

Unless notice and public hearing are otherwise required, the Commission may administratively waive or amend any rule stated above as long as the change does not promote waste or jeopardize correlative rights, is based on sound engineering and geoscience principles, and will not result in fluid movement outside of the authorized injection zone.

DONE at Anchorage, Alaska and dated April 19, 2006.

/ss/
John K. Norman, Chairman
Alaska Oil and Gas Conservation Commission

/ss/
Daniel T. Seamount, Jr., Commissioner
Alaska Oil and Gas Conservation Commission

AS 31.05.080 provides that within 20 days after receipt of written notice of the entry of an order, a person affected by it Month file with the Commission an application for rehearing. A request for rehearing must be received by 4:30 PM on the 23rd day following the date of the order, or next working day if a holiday or weekend, to be timely filed. The Commission shall grant or refuse the application in whole or in part within 10 days. The Commission can refuse an application by not acting on it within the 10-day period. An affected person has 30 days from the date the Commission refuses the application or mails (or otherwise distributes) an order upon rehearing, both being the final order of the Commission, to appeal the decision to Superior Court. Where a request for rehearing is denied by non-action of the Commission, the 30-day period for appeal to Superior Court runs from the date on which the request is deemed denied (i.e., 10th day after the application for rehearing was filed).