

**DEPARTMENT OF NATURAL RESOURCES**  
**DIVISION OF OIL AND GAS**

550 WEST 7<sup>TH</sup> AVENUE, SUITE 800  
ANCHORAGE, ALASKA 99501-3560  
PHONE: (907) 269-8800  
FAX: (907) 269-8938

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

September 15, 2004

John P. Zager  
Cook Inlet Asset Manager  
Union Oil Company of California  
P.O. BOX 196247  
Anchorage, Alaska 99519-6247

RE: 2003 Unit Expansion Findings and Decision Amended  
Unit Exhibit B and Grayling Gas Sands Participating Area Schedule 2 Approved  
Trading Bay Unit Fortieth Plan of Development Approved

Dear John,

On June 25, 2003, the Division of Oil and Gas (the Division) approved an expansion of the Trading Bay Unit (TBU) and its Hemlock and Grayling Gas Sands Participating Areas in the *Findings and Decision of the Director, Division of Oil and Gas approving the First Expansion of the Trading Bay Unit, Expansion of the Hemlock Oil Pool Participating Area and Expansion of the Grayling Gas Sands Participating Area* (the Decision). The Decision also approved the proposed Thirty-ninth Plan of Development (39<sup>th</sup> POD) submitted by Union Oil Company of California (Unocal) the TBU Operator. On May 25, 2004, Unocal submitted the proposed Fortieth Plan of Development (40<sup>th</sup> POD) for approval.

In this decision, the Division: a) approves a surface acreage allocation methodology for the Grayling Gas Sands Participating Area (Grayling PA); b) approves the TBU Exhibit B and the Grayling PA Schedule 2 submitted on September 4, 2003; b) defines the approved Grayling PA; c) makes two minor corrections to the Decision (replacement pages enclosed); and d) approves the proposed 40<sup>th</sup> POD.

Allocation Methodology Approved

In the 2002 unit expansion application, Unocal proposed expanding the Grayling PA and requested approval of an alternate allocation methodology based on volume, pursuant to the Trading Bay Unit Operating Agreement; rather than on acreage, as prescribed in the Trading Bay Unit

***“Develop, Conserve, and Enhance Natural Resources for Present and Future Alaskans.”***

Agreement. Item number 5 on page 14 of the Decision approved the proposed 3,200-acre expansion of the Grayling PA as depicted on Schedule 1 and described in Schedule 2 dated December 31, 2002.

Shortly after issuing the Decision, the Division requested clarification of the proposed allocation methodology for the Grayling PA as represented on Schedule 2, which was based neither on surface acreage nor on volume, but was a division of production negotiated between the working interest owners in the Grayling PA, Unocal and Marathon Oil Company (Marathon). Unocal and Marathon agreed to align their interests across the Grayling PA and allocate production based on the surface acreage of each tract as a percentage of the total participating area; and the Division agreed to accept the aligned interests for royalty accounting purposes effective June 1, 2003, pending receipt of applications to cross-assign the lessees' working interest ownership in the Grayling PA.

On September 4, 2003, the Division received assignment applications, a revised tract allocation schedule for the Grayling PA (Schedule 2), and an updated TBU Exhibit B that reflected the new working interest ownership in the four leases in the Grayling PA. The Division approved Unocal and Marathon's cross-assignment of working interest ownership effective October 1, 2003. Unocal holds 48.8% and Marathon 51.2% working interest ownership in ADL 17594, ADL 18772, ADL 18729, and ADL 18730; Trading Bay Unit Tracts 3, 14, 10, and 11 respectively.

Unocal shall allocate all production from the Grayling PA (Account Code STHD) on the acreage-basis prescribed in Article 12 of the Trading Bay Unit Agreement. Item 5 on page 14 of the Decision is hereby amended, and I approve the TBU Exhibit B and the Grayling PA Schedule 2, effective October 1, 2003.

#### Grayling Gas Sands PA Defined

The Grayling PA produces Tyonek Formation gas from the Grayling Gas Sands accumulation in the McArthur River Field. In 1986, the Alaska Oil and Gas Conservation Commission (AOGCC) established the McArthur River Middle Kenai Gas Pool (Middle Kenai Gas Pool)<sup>1</sup> and DNR approved the formation of the Grayling PA. The aerial extent of the Grayling PA was limited to the area within the Middle Kenai Gas Pool with wells that contributed to production. Initially, AOGCC's definition of the Middle Kenai Gas Pool referenced markers in the G-2 well. Knowledge of the vertical and aerial extent of these Tyonek formation sands grew as new wells were drilled and completed and other wells were converted from injectors or oil producers to produce gas.

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<sup>1</sup> Conservation Order 80 (December 30, 1969) established the McArthur River Middle Kenai Gas Pool. Conservation Order 228 (April 17, 1987) amended C.O. 80 to accommodate gas production from the new Steelhead Platform.

On April 2, 1990, the AOGCC approved an expansion of the Middle Kenai Gas Pool that included a greater aerial extent as well as additional producing sands. The expanded Middle Kenai Gas Pool definition referenced the K-2 well:

The McArthur River Middle Kenai Gas Pool is defined as the accumulation of gas occurring within an interval that is stratigraphically equivalent to the interval in Trading Bay Unit State K-2 between the measured depths of 1,780 feet and 10,128 feet.

The Decision approved an expansion of the aerial extent of the Grayling PA to include all of the acreage contributing to the production of gas in paying quantities from the Grayling Gas Sands accumulation, consistent with the expanded Middle Kenai Gas Pool area that the AOGCC approved in 1991. However, the Decision did not specify the vertical limits of the Grayling PA.

The Decision is hereby amended to include a vertical definition of the Grayling PA that is consistent with the AOGCC's definition of the Middle Kenai Gas Pool:

The Grayling PA is vertically limited to the accumulation of gas occurring within an interval that is stratigraphically equivalent to the interval in Trading Bay Unit State K-2 between the measured depths of 1,780 feet and 10,128 feet.

Currently, all production allocated to the Grayling PA is attributed to the Middle Kenai Gas Pool. If, however, Unocal produces gas from the Middle Kenai Gas Pool from an area outside of the defined Grayling PA, either horizontally or vertically, the unit operator must apply to expand the Grayling PA consistent with State regulation.<sup>2</sup>

#### Proposed Plan of Development Approved

On May 25, 2004, the Division received the proposed 40<sup>th</sup> POD. The 40<sup>th</sup> POD includes a review of activities performed during the 39<sup>th</sup> POD, which included work overs, coiled tubing installation, a side-track, and gas compressor modifications. The 40<sup>th</sup> POD also describes planned development activities for all four participating areas in the TBU during the next plan year. Unocal plans to continue oil and gas recovery optimization by evaluating facility work, performing remedial well work, using existing injection and production completions, and may convert idle oil wells on the Grayling and Dolly Varden platforms to gas producers. Unocal currently has no plan to evaluate the Jurassic Undefined Oil Pool. Marine discharge permitting and onshore soil remediation work is also underway by TBU working interest owners.

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<sup>2</sup> 11 AAC 83.351 PARTICIPATING AREA. (c) A participating area must be expanded to include acreage reasonably estimated through use of geological, geophysical, or engineering data to be capable of producing or contributing to the production of hydrocarbons in paying quantities, ...”

The Division considered the criteria in 11 AAC 83.303 and finds the 40<sup>th</sup> POD protects the public interest. I approve the proposed 40<sup>th</sup> POD for the period August 27, 2004 through August 26, 2005. Under 11 AAC 83.343, the Forty-first Plan of Development for the TBU (41<sup>st</sup> POD) is due by Monday, May 30, 2005, 90 days before the 40<sup>th</sup> POD expires. The 41<sup>st</sup> POD shall include an updated list of all wells producing from the Grayling Gas Sands accumulation and the x-y-z coordinates of all intervals perforating the Grayling Gas Sands.

#### 2003 Expansion Decision Corrected

Finally, the Division corrects two typographical errors in the Decision. First, the second to last paragraph on page 11 of the Decision is amended as follows (added text is underlined, deleted text is stricken):

DNR issued all of the Trading Bay Unit leases on lease form DL-1 (Revised April 1961). The Division believes that it is appropriate to revise the Trading Bay Unit lease agreements by deleting Paragraph 10 to eliminate the Minimum Royalty provision. This amendment applies to all ~~ten~~ eleven of the Trading Bay Unit leases: ADL 17579, ADL 175974, ADL 17602, ADL 18716, ADL 18729, ADL 18730, ADL 18731, ADL 18758, ADL 18772, ADL 18777, and ADL 21068. The Working Interest Owners will submit rental payments at the beginning of the lease year rather than calculating whether a minimum royalty is due at the end of the year. Paragraph 9 of the lease agreements provides that "any rental paid for any one lease year shall be credited on any royalty for that year." Therefore, this amendment to the lease agreements is not financially detrimental to the Working Interest Owners.

Second, item number 6 on page 15 is amended to read as follows:

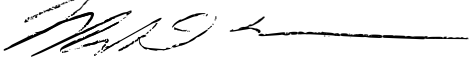
The Division approves Schedule 1, a map; and Schedule 2, tract participation schedule for the Middle Kenai PA and West Foreland PA received December 31, 2003~~2~~, effective June 1, 2003.

Please contact Brian Havelock at 269-8807, if you have any questions regarding this decision.

A person affected by this decision may appeal it, in accordance with 11 AAC 02. Any appeal must be received within 20 calendar days after the date of "issuance" of this decision, as defined in 11 AAC 02.040 (c) and (d), and may be mailed or delivered to Thomas E. Irwin Commissioner, Department of Natural Resources, 550 W. 7th Avenue, Suite 1400, Anchorage, Alaska 99501; faxed to 1-907-269-8918; or sent by electronic mail to [dnr\\_appeals@dnr.state.ak.us](mailto:dnr_appeals@dnr.state.ak.us). This decision takes effect immediately. If no appeal is filed by the appeal deadline, this decision becomes a final administrative order and decision of the department on the 31st day after issuance. An eligible person must first appeal this decision in accordance with 11 AAC 02 before appealing this decision to Superior Court. A copy of 11 AAC 02 may be obtained from any regional information office of the Department of Natural Resources.

John P. Zager, Cook Inlet Asset Manager  
TBU 40<sup>th</sup> POD Approved & Expansion Decision Amended  
September 15, 2004  
Page 5

Sincerely,

A handwritten signature in black ink, appearing to read 'M. Myers', followed by a horizontal line extending to the right.

Mark D. Myers  
Director

Enclosure

Trading Bay Unit Exhibits B and Grayling Gas Sands PA Schedule 2  
TBU\_Expansion\_Decision\_Replacement pages.pdf  
TBU\_Expansion Areas\_060503.jpg

cc: Judy Stanek, Unocal  
Brock Riddle, Marathon  
Jim Cowan, Resource Evaluation  
Jim Stouffer, Royalty Accounting  
Pirtle Bates, Lease Administration

**EXHIBIT "B"**  
**TRADING BAY UNIT EXPANSION**  
 Effective January 1, 2002



<u>Tract Number</u>	<u>Legal Description</u>	<u>Acreage</u>	<u>Lease Number</u>	<u>Royalty Owner Percentage</u>	<u>Overriding Royalty Interest Owners</u>	<u>Formation</u>	<u>Working Interest Owners</u>	<u>Working Interest Percentage</u>
<b>2</b>	T8N, R13W, SM, AK Section 04: All Section 09: W1/2 Section 16: NW1/4 Section 17: All Section 20: N1/2, SW1/4	2,240.00	ADL-17579	State of Alaska 12.5%	None	All Depth excluding the Grayling Gas Sands Formation	Union Oil Company of California Forest Oil Corporation	53.20% 46.80%
						Grayling Gas Sands Formation	Union Oil Company of California	100.00%
<b>3</b>	T9N, R13W, SM, AK Section 16: All Section 17: S1/2, NE1/4 Section 20: All Section 21: All Section 29: All Section 30: All Section 31: All Section 32: All	4,956.00	ADL-17594	State of Alaska 12.5%	None	All Depth excluding the Grayling Gas Sands Formation	Union Oil Company of California Forest Oil Corporation	53.20% 46.80%
						Grayling Gas Sands PA	Union Oil Company of California Marathon Oil Company	50.00% 50.00%
						Grayling Gas Sands Formation outside the PA	Union Oil Company of California Forest Oil Corporation	50.00% 50.00%
<b>6</b>	T8N, R14W, SM, AK Section 01: E1/2 Section 12: E1/2	640.00	ADL-17602	State of Alaska 12.5%	None	All Depth excluding the Grayling Gas Sands Formation	Union Oil Company of California Forest Oil Corporation	53.20% 46.80%
						Grayling Gas Sands Formation	Union Oil Company of California	100%
<b>9</b>	T8N, R13W, S.M. Sec 19: N/2, SE/4	462.50	ADL-18716	State of Alaska 12.5%	Lloyd Powers 2.250%	All Depth excluding the Grayling Gas Sands Formation	Union Oil Company of California Forest Oil Corporation	53.20% 46.80%
					Raymond M. Thompson .375% Frank L. Shogrin .375%			

<u>Tract Number</u>	<u>Legal Description</u>	<u>Acreage</u>	<u>Lease Number</u>	<u>Royalty Owner Percentage</u>	<u>Overriding Royalty Interest Owners</u>	<u>Formation</u>	<u>Working Interest Owners</u>	<u>Working Interest Percentage</u>
10	T8N, R13W, S.M. AK Sec 5: All Sec 6: All Sec 7: All Sec 8: All Sec 18: All	3,085.00	ADL-18729	State of Alaska 12.5%	None	All Depth excluding the Grayling Gas Sands Formation	Union Oil Company of California Forest Oil Corporation	53.20% 46.80%
						Grayling Gas Sands PA	Union Oil Company of California Marathon Oil Company	50.00% 50.00%
						Grayling Gas Sands Formation outside the PA	Union Oil Company of California Forest Oil Corporation	50.00% 50.00%
11	T9N, R13W, S.M. Sec 26: W1/2 Sec 27: All Sec 28: All Sec 33: All Sec 34: All	2,880.00	ADL-18730	State of Alaska 12.5%	None	All Depth excluding the Grayling Gas Sands Formation	Union Oil Company of California Forest Oil Corporation	53.20% 46.80%
						Grayling Gas Sands PA	Union Oil Company of California Marathon Oil Company	50.00% 50.00%
						Grayling Gas Sands Formation outside the PA	Union Oil Company of California Forest Oil Corporation	50.00% 50.00%
12	T9N, R13W, SM, AK Section 08: S1/2SE1/4, NE1/4SE1/4 Section 09: SE1/4SE1/4, W1/2SW1/4 Section 10: SW1/4NE1/4, SE1/4NW1/4, SW1/4, W1/2SE1/4	560.00	ADL-18731	State of Alaska 12.5%	None	All Depth excluding the Grayling Gas Sands Formation	Union Oil Company of California Forest Oil Corporation	53.20% 46.80%
						Grayling Gas Sands Formation	Union Oil Company of California Forest Oil Corporation	50.00% 50.00%
13	T9N, R14W, S.M. Sec 25: E1/2 Sec 36: NE1/4	480.00	ADL-18758	State of Alaska 12.5%	None	All Depth excluding the Grayling Gas Sands Formation	Union Oil Company of California Forest Oil Corporation	53.2% 46.80
						Grayling Gas Sands Formation	Union Oil Company of California	100.00%

<u>Tract Number</u>	<u>Legal Description</u>	<u>Acreage</u>	<u>Lease Number</u>	<u>Royalty Owner Percentage</u>	<u>Overriding Royalty Interest Owners</u>	<u>Formation</u>	<u>Working Interest Owners</u>	<u>Working Interest Percentage</u>
14	T9N, R13W, S.M. Sec 15: All Sec 22: All Sec 23: W1/2	1,600.00	ADL-18772	State of Alaska 12.5%	None	All Depth excluding the Grayling Gas Sands Formation	Union Oil Company of California Forest Oil Corporation	53.20% 46.80%
						Grayling Gas Sands PA	Marathon Oil Company	100%
						Grayling Gas Sands Formation outside the PA	Union Oil Company of California	100%
17	T9N, R13W, S.M. Sec 18: SE1/4 Sec 19: All	796.00	ADL-18777	State of Alaska 12.5%	None	All Depth excluding the Grayling Gas Sands Formation	Union Oil Company of California Forest Oil Corporation	53.20% 46.80%
						Grayling Gas Sands Formation	Union Oil Company of California Forest Oil Corporation	50.00% 50.00%
18	T9N, R14W, S.M. Sec 24: SE1/4	160.00	ADL-21068	State of Alaska 12.5%	None	All Depth excluding the Grayling Gas Sands Formation	Union Oil Company of California Forest Oil Corporation	53.20% 46.80%
						Grayling Gas Sands Formation	Union Oil Company of California	100%
<b>State Land:</b>		<b>17,859.50</b>	Acres					



**SCHEDULE 2  
GRAYING GAS SANDS PARTICIPATING AREA  
TRADING BAY UNIT  
Effective January 1, 2002**

**RECEIVED**  
DEC 31 2002  
DIVISION OF  
OIL AND GAS

<u>Tract Number</u>	<u>Legal Description</u>	<u>Acreage</u>	<u>Lease Number</u>	<u>Tract Percentage</u>	<u>Royalty Owner Percentage</u>	<u>Overriding Royalty Interest Owners</u>	<u>Working Interest Owners</u>	<u>Working Interest Percentage</u>
<b>3</b>	T9N, R13W, SM, AK Section 16: SE1/4 Section 20: SE1/4 Section 21: All Section 29: All Section 31: E1/2 Section 32: All	2,560.00	ADL-17594	39.26380%	State of Alaska 12.5%	None	Union Oil Company of California Marathon Oil Company	50.00% 50.00%
<b>10</b>	T8N, R13W, S.M. AK Section 5: All Section 6: All Section 7: NE1/4 Section 8: N1/2	1,720.00	ADL-18729	26.38037%	State of Alaska 12.5%	None	Union Oil Company of California Marathon Oil Company	50.00% 50.00%
<b>11</b>	T9N, R13W, S.M. Section 27: W1/2 Section 28: All Section 33: All Section 34: NW1/4	1,760.00	ADL-18730	26.99387%	State of Alaska 12.5%	None	Union Oil Company of California Marathon Oil Company	50.00% 50.00%
<b>14</b>	T9N, R13W, S.M. Sec 15: SW1/4 Sec 22: W1/2	480.00	ADL-18772	7.36196%	State of Alaska 12.5%	None	Marathon Oil Company	100%
Total Allocation:				<u>100.00000%</u>				

**State Land:** 6,520.00 Acres  
**Total acreage in Participating Area:** 6,520.00 Acres

Working Interest Ownership participation is based on the terms of the Unit Operating Agreement as follows:  
 Union Oil Company of California 48.80%  
 Marathon Oil Company 51.20%

On August 27, 1965, the Division certified the *Trading Bay #1A* well, located on oil and gas lease ADL 18731, to the north as capable of producing in paying quantities from the Kenai Group in the Trading Bay Field, which placed the lease on minimum royalty in accordance with Paragraph 10 of the lease agreement.

Minimum Royalty. Commencing with the lease year beginning on or after completion on said land of a well capable of producing oil or gas in paying quantities, Lessee shall pay Lessor, at the expiration of each lease year, in lieu of rental a minimum royalty equal to \$1.00 per acre, or fraction thereof then included in this lease, or the difference between the actual royalty paid on production during the year if less than \$1.00 per acre and the prescribed minimum royalty.

A portion of oil and gas lease ADL 18731 is included in the Trading Bay Unit and allocated production from the Hemlock PA. Notwithstanding Paragraph 10 of the lease, Article 18(g) of the Trading Bay Unit Agreement places the non-unitized acreage in ADL 18731 on rental status.

The entire lease shall continue in force and effect so long thereafter as production is allocated to a portion of said lease and so long as annual rentals are paid on the portion not within the participating area. The first rental payment is due and payable on the first day after the expiration of the above mentioned 90 day period with allowance for proration of rentals. Thereafter, annual rentals are due and payable on the anniversary date of the lease.

In addition, Paragraph 9 of the lease agreement provides that “any rental paid for any one lease year shall be credited on any royalty for that year.”

The State and the public’s primary interest in oil and gas leases is in the royalty and taxes received on production. Economic benefits to the State and local economy from oil and gas development are also relevant. The Division’s evaluation of the economic criteria in section 11 AAC 83.303(b)(5) supports approval of the Application.

##### 5. Other Relevant Factors to Protect the Public Interest

DNR issued all of the Trading Bay Unit leases on lease form DL-1 (Revised April 1961). The Division believes that it is appropriate to revise the Trading Bay Unit lease agreements by deleting Paragraph 10 to eliminate the Minimum Royalty provision. This amendment applies to all eleven of the Trading Bay Unit leases: ADL 17579, ADL 17594, ADL 17602, ADL 18716, ADL 18729, ADL 18730, ADL 18731, ADL 18758, ADL 18772, ADL 18777, and ADL 21068. The Working Interest Owners will submit rental payments at the beginning of the lease year rather than calculating whether a minimum royalty is due at the end of the year. Paragraph 9 of the lease agreements provides that “any rental paid for any one lease year shall be credited on any royalty for that year.” Therefore, this amendment to the lease agreements is not financially detrimental to the Working Interest Owners.

Deleting the Minimum Royalty provision in the leases will require adjustments to the Working Interest Owners’ accounting processes; however, the benefit to the State outweighs the initial

6. The Division approves Schedule 1, a map; and Schedule 2, tract participation schedule for the Middle Kenai PA and West Foreland PA received December 31, 2002, effective June 1, 2003.
7. The Division amends the Trading Bay Unit lease agreements by deleting Paragraph 10 and eliminating the Minimum Royalty provision, effective June 1, 2003, for all of the Trading Bay Unit leases. Annual rental at the rate of \$1.00 per acre or fraction of an acre will be due on the lease anniversary date each year. The first annual rental payment, prorated for the period from June 1, 2003 until the next anniversary date for each lease is due within 90 days of this decision. This amendment to the lease agreements will remain in effect after the Trading Bay Unit terminates or the leases contract out of the unit area.
8. Annual rental payments, at the rate of \$1.00 per acre or fraction thereof, will be due on the Trading Bay Unit leases anniversary dates each year as specified in Paragraph 9 of the lease agreements.
9. The proposed plan of development satisfies the requirements of 11 AAC 83.301 and protects the public interest. The Division approves the 39<sup>th</sup> POD for the period August 27, 2003 through August 26, 2004. Under 11 AAC 83.343, the Thirtieth Plan of Development for the Trading Bay Unit will be due in this office on or before May 28, 2004, 90 days before the 39th POD expires. All specific field operations require separate approval under 11 AAC 83.346, Unit Plan of Operations.

A person affected by this decision may appeal it, in accordance with 11 AAC 02. Any appeal must be received within 20 calendar days after the date of "issuance" of this decision, as defined in 11 AAC 02.040 (c) and (d), and may be mailed or delivered to Thomas Irwin, Commissioner, Department of Natural Resources, 550 W. 7th Avenue, Suite 1400, Anchorage, Alaska 99501; faxed to 1-907-269-8918; or sent by electronic mail to [dnr\\_appeals@dnr.state.ak.us](mailto:dnr_appeals@dnr.state.ak.us). This decision takes effect immediately. If no appeal is filed by the appeal deadline, this decision becomes a final administrative order and decision of the department on the 31<sup>st</sup> day after issuance. An eligible person must first appeal this decision in accordance with 11 AAC 02 before appealing this decision to Superior Court. A copy of 11 AAC 02 may be obtained from any regional information office of the Department of Natural Resources.

*Signed by Bonnie Robson for Mark Myers*

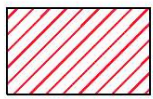
*6/25/03*

\_\_\_\_\_  
 Mark D. Myers  
 Division of Oil and Gas

\_\_\_\_\_  
 Date

cc: Thomas E. Irwin, Commissioner DNR  
 Dan Seamount, Commissioner AOGCC  
 Jeff Landry, Department of Law

# Trading Bay Unit Expansion June 2003



Unit & Hemlock PA Expansion Area



Grayling Gas Sands PA Expansion Area



Unit Boundary



Hemlock PA



Grayling Gas Sands PA

