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

Re: THE APPLICATION OF CONOCOPHILLIPS ALASKA, INC. for an order for classification of a new oil pool and to prescribe pool rules for development of the Qannik Oil Pool within the Colville River Field, Colville River Unit, Arctic Slope, Alaska	))))))))	**Conservation Order No. 605** **Colville River Field** **Colville River Unit** **Qannik Oil Pool** **June 30, 2008**

IT APPEARING THAT:

1. By letter and application dated April 3, 2008, and received by the Alaska Oil and Gas Conservation Commission (Commission) that same day, ConocoPhillips Alaska, Inc. (CPAI), in its capacity as unit operator and on behalf of the working interest owners of the Colville River Unit (CRU), requests an order defining a new oil pool, the Qannik Oil Pool, within the CRU, and prescribing rules governing the development and operation of that pool. Also, CPAI is applying for an Area Injection Order (AIO) for the Qannik Oil Pool.
2. A notice of a public hearing was published in the ANCHORAGE DAILY NEWS, on the State of Alaska's Online Public Notice Web site, and on the Commission's Web site on April 9, 2008.
3. The Commission received no comments or requests for a public hearing.
4. The Commission held a public hearing on the pool rules and AIO applications on May 15, 2008.
5. The hearing record was held open until May 25, 2008, so that CPAI could provide the additional information for the area injection order application requested during the hearing.

FINDINGS:

1. Operator: CPAI is the operator of the leases in the Affected Area, which is defined below.
2. Development Area: The Affected Area lies in the Colville Delta area, within the CRU (see Figure 1, below). The Qannik Oil Pool initially will be developed from the CD2 Drill Site (CD2), which is located in Section 2, Township (T) 11N, Range (R) 04E, Umiat Meridian (UM).

3. Owners and Landowners: All lands within the Affected Area are leased and lie in or near the CRU. Two companies hold working interests in the proposed Qannik Oil Pool: ConocoPhillips (78%) and Anadarko Petroleum Company (22%). The landowners are the State of Alaska, Department of Natural Resources and the Arctic Slope Regional Corporation.

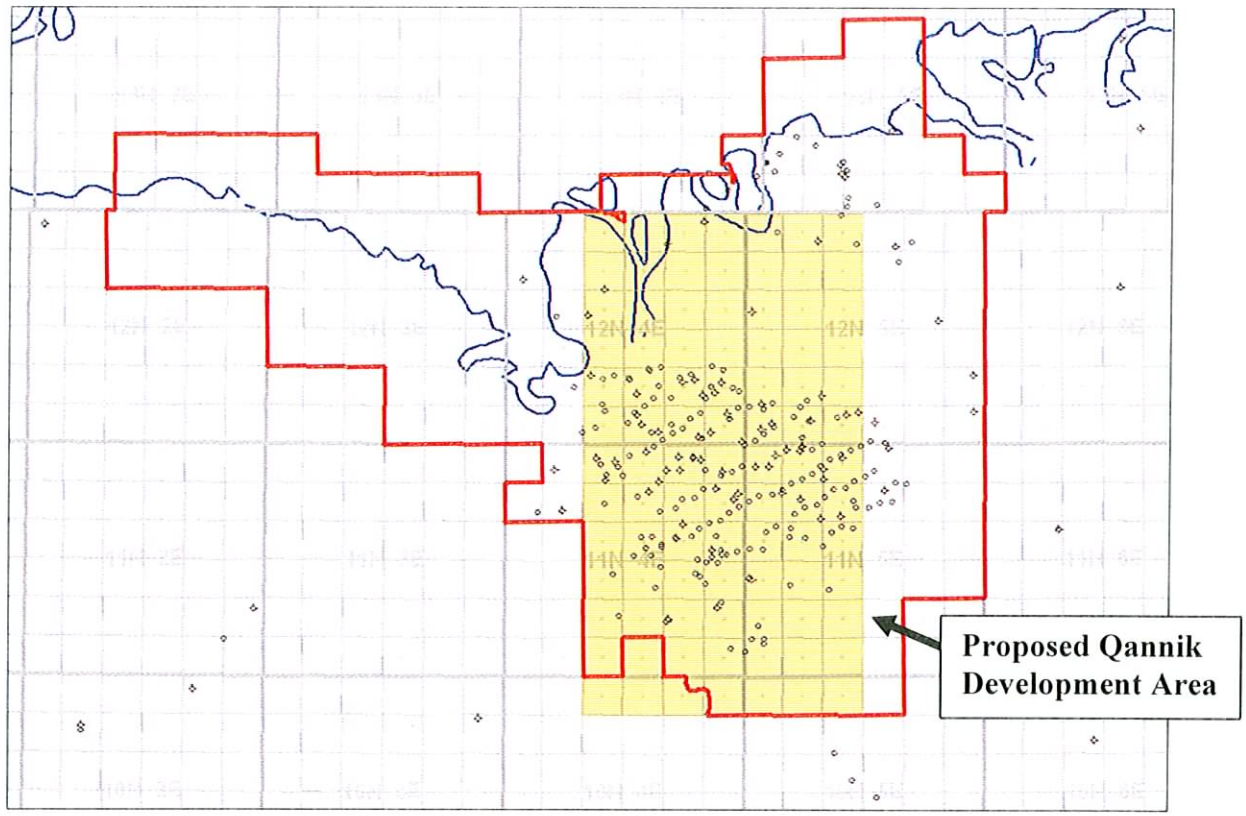

Figure 1. Proposed Affected Area for Qannik Oil Pool[1]
(highlighted with yellow)

4. Exploration and Delineation History: CPAI drilled the Nanuk No. 1 discovery well in Section 19 of T11N, R5E, Umiat Meridian ("UM") in 1996. To date, approximately 130 wells have penetrated the Qannik reservoir. Two overlapping, three-dimensional seismic surveys and well data have been used to determine the geologic structure and reservoir distribution of the Qannik Oil Pool. Production test data, conventional and sidewall core data, well log data, Repeat Formation Tester data and Modular Formation Dynamics Tester data have been used to establish the reservoir and fluid properties of the proposed Qannik Oil Pool.

5. Pool Identification: The proposed Qannik Oil Pool is the accumulation of hydrocarbons common to, and correlating with, the interval between the measured depths of 6,086' and

[1] This map is for illustration purposes only. Refer to the legal description for the precise representation of the proposed Qannik Oil Pool.

6,249' on the Electromagnetic Wave Resistivity (EWR) log recorded in well CRU CD2-11 (see Figure 2, below).

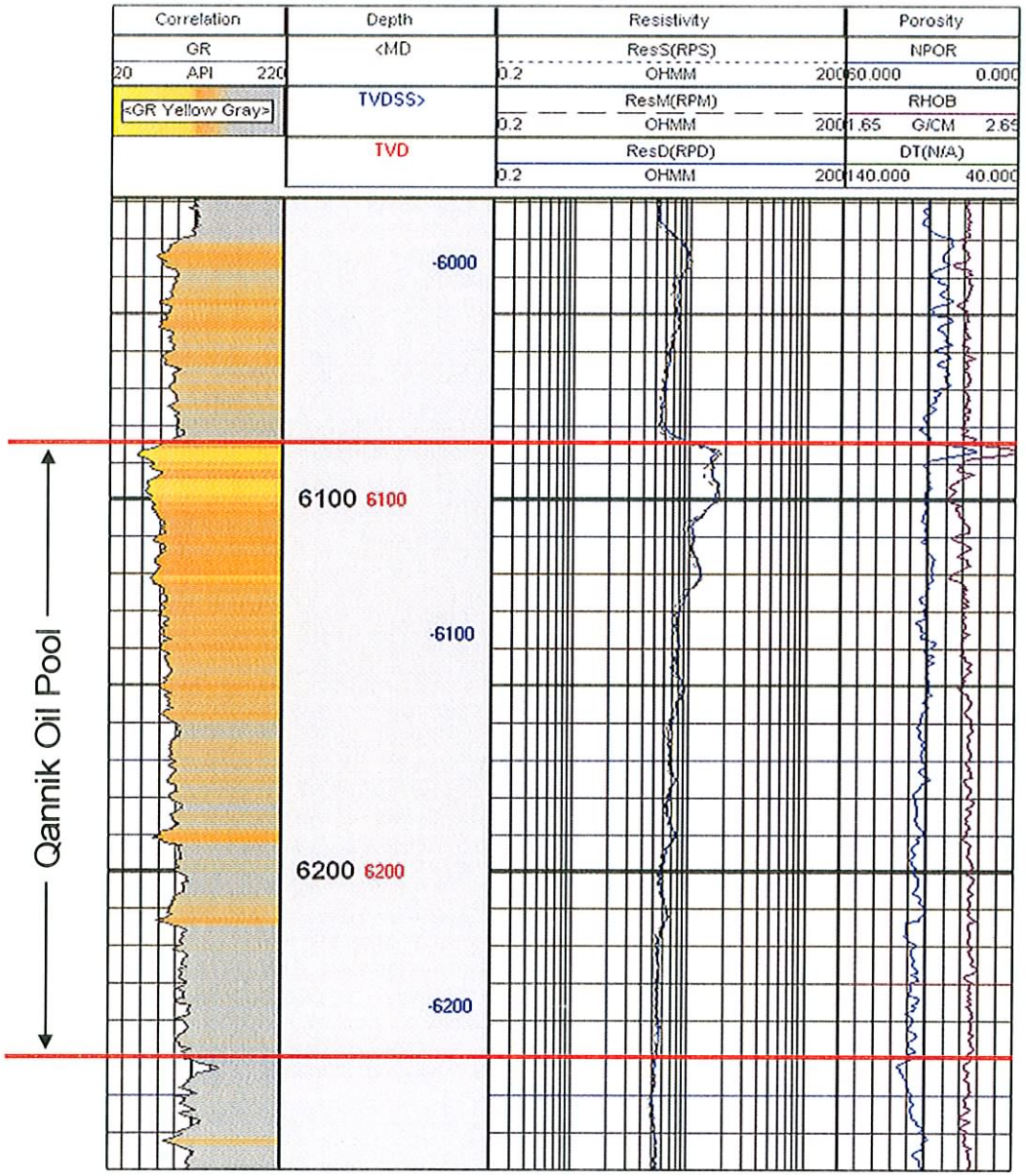

Figure 2. CRU CD2-11 – Type Well Log for Qannik Oil Pool [2]

[2] Figure 2 is for illustration purposes only. Refer to the Electromagnetic Wave Resistivity (EWR) well log measurements recorded in well CRU CD2-11 for the precise representation of the proposed Qannik Oil Pool.

4. Geology:

a. Stratigraphy: The Qannik Oil Pool encompasses late Cretaceous-aged sediments deposited as top-set beds in a shallow, north-trending, eastward-migrating marine shelf environment that is the age-equivalent to the Nanushuk Group of the central Arctic Slope. The Qannik sediments consist of very fine-to fine-grained sandstone deposited as thin, elongate deposits that extend at least 12 miles north-to-south, along depositional strike, and about 6 miles west-to-east, along depositional dip.

Within the CRU, the Qannik sandstone is very fine-grained and lithic-rich. Net pay is up to 22 feet thick, and averages 10 to 15 feet. Porosity is 20 to 25 percent, and permeability ranges from 10 to 50 millidarcies.

b. Structure: Within the proposed development area, the Qannik reservoir sandstone occurs in a north-south, very low-relief syncline. No seismically mapable faults are present.

c. Trap Configuration: Well log and seismic information indicate that the Qannik accumulation is a stratigraphic trap. The Qannik sandstone is truncated to the west and shales out to the east. A gas-oil contact exists at about -4,000 feet true vertical depth subsea (TVDSS). An oil-water contact has not been observed in the proposed development area.

d. Confining Intervals: The Qannik Oil Pool is overlain and underlain by thick accumulations of marine shale and siltstone that are assigned to the Torok Formation and laterally continuous throughout the proposed development area.

6. Reservoir Fluid Properties: Qannik reservoir fluid samples recovered from the Nanuk No. 2 and Nanuq No. 5 exploratory wells and the CD2-11 and CD2-404 service wells measured between 27° and 32° API gravity, with viscosity of about 2.0 centipoise at 1,850 psig and 89° F. The solution gas-oil ratio (GOR) measured 404 standard cubic feet per stock tank barrel, and the bubble point pressure is about 1,850 psig. At the datum depth of 4,000' TVDSS the Qannik reservoir pressure is about 1,850 psi and the reservoir temperature is about 89° F.

7. In-Place and Recoverable Oil Volumes and Production Rates:

Hydrocarbon Volume	Nine-Well Development (MMSTB)	Eighteen-Well Development (MMSTB)
Original Oil in Place (OOIP)	79	127
Primary Recovery with Gas Cap Expansion (Primary) (15% of OOIP)	12	19
Primary + Waterflood (a total of 22% of OOIP)	17	28

The annualized peak production rate for the Qannik Oil Pool is expected to be between about 3,000 and 6,000 barrels of oil per day (BOPD). The expected maximum and average waterflood injection rates are 12,000 barrels of water per day (BWPD) and 5,000 BWPD, respectively. Production from the Qannik Oil Pool and other CRU pools will be commingled on the surface prior to processing and custody transfer.

8. Reservoir Development Drilling Plan: The Qannik Oil Pool will be developed initially with nine horizontal wells: the CD2-404 well and eight new wells. The producer-to-injector ratio will be about 2:1. The production and injection wells will range in length from 6,000' to 9,000' within the reservoir, and will be parallel to one another. Three central, north-trending injection wells will be arranged end-to-end and flanked on both sides by outboard production wells; this alternating arrangement will form a line-drive flood pattern. Individual wells will be spaced about 2,700' to 3,400' apart. The wells will be oriented to maximize use of the expansion drive and minimize gas influx from the gas cap, which lies to the east. Extra producers and injectors may be added at a later date based on net oil pay and reservoir performance.

9. Reservoir Management: CPAI proposes to develop this oil pool as a water-injection enhanced oil recovery project, supplemented by expansion of the gas cap. Water injection is planned to begin during the third quarter of 2008. Production and injection will be balanced to maintain reservoir pressure at or near the original measured pressure.

10. Reservoir Surveillance Plans: CPAI proposes to meet bottomhole pressure survey requirements by conducting stabilized, static pressure measurements at bottomhole or extrapolating from surface pressure fall-off measurements, pressure buildup measurements, multi-rate test results, drill-stem test results, formation test results, or other appropriate pressure transient or static test results.

    CPAI proposes to meet the annual bottomhole pressure measurement requirement by conducting bottomhole pressure surveys as needed; pressures will be referenced to a datum of 4,050' TVDSS. CPAI proposes to report the data and results from the pressure survey(s) annually.

11. Wellbore Construction: CPAI proposes that the surface casing of wells drilled in the Qannik Oil Pool be set at approximately 2,400' TVDSS and cemented to surface. Intermediate casing will be set and cemented with the shoe in the target formation. Leak-off or formation integrity tests will be conducted, and significant hydrocarbon zones in the boreholes outside of the reservoir intervals will be protected in conformance with Commission regulations.

    The proposed Qannik Oil Pool will be developed using horizontal wells with a 3-1/2-inch liner that is slotted across sandstone intervals and blank across shale intervals. Production will be conveyed to the surface using a packer and 3-1/2-inch tubing. Injectors may be equipped with 4-1/2-inch tubing and liner.

    CPAI proposes that all production wells within the Qannik Oil Pool be equipped with a fail-safe automatic surface safety valve (SSV) and a surface-controlled sub-surface safety valve (SCSSSV). CPAI proposes that all injection wells be equipped with (i) a

double check valve arrangement or (ii) a single check valve combined with a SSV, and that a SCSSSV be considered as a single check valve.

12. Waivers: CPAI requests that the Commission grant the following waivers:

    a. Directional Wellbore Plans: CPAI proposes to provide a plan view well plat, vertical section diagram, close approach data and description of the proposed directional program in lieu of meeting the requirements of 20 AAC 25.050(b).

    b. Well Spacing: CPAI proposes to eliminate the wellbore spacing restrictions of 20 AAC 25.055 to accommodate horizontal, line-drive wells and maximize ultimate recovery.

    c. Gas-Oil Ratio Limits: CPAI seeks an exemption from the GOR limits of 20 AAC 25.240(a) in accordance with the provisions of 20 AAC 25.240(b).

13. Sustained Casing Pressure Rules: CPAI proposes to operate Qannik Oil Pool wells in compliance with previous Commission orders addressing sustained casing pressures for active wells. Similar rules are appropriate for this development.

14. Allowable Gas Off Take: By administrative actions dated February 13, 2007, an allowable gas off take of 1 MMCFPD was approved for the Colville River Field. Rule 3 of CO 443A-003 requires that any new pools identified in the Colville River Field be subject to the same limitation.

CONCLUSIONS:

1. Pool Rules for the development of the Qannik Oil Pool within the Colville River Field in the Colville River Unit are appropriate.

2. The Qannik Oil Pool is hydraulically isolated from all other oil pools.

3. Monitoring reservoir performance will ensure proper management of the pool. Annual reports and technical review meetings will keep the Commission apprised of reservoir performance and ensure that future development plans promote greater ultimate recovery and prevent the waste of resources.

4. Proper annular pressure management is necessary to prevent the failure of well integrity and uncontrolled release of fluids or pressure, and to minimize threats to human safety and the environment.

5. Filing the proposed submittals, rather than those required by 20 AAC 25.050(b), will, as required by 20 AAC 25.050(h), at least equally ensure "accurate surveying of the wellbore to prevent well intersection, to comply with spacing requirements, and to ensure protection of correlative rights."

6. Eliminating spacing restrictions on wellbores interior to the Affected Area, which is defined below, will increase the operator's flexibility in placing wells as the pool is developed, and it will not affect recovery from the reservoir, promote waste, jeopardize correlative rights, or result in an increased risk of fluid movement into freshwater.

Correlative rights will be protected by requiring a 500-foot set back from external property lines where the owners and landowners are not the same on both sides of the line.

7. A gas-oil ratio limitation waiver is appropriate under 20 AAC 25.240(b)(1) because the Qannik Oil Pool will be developed as an enhanced recovery project.

8. Surface-controlled subsurface safety valves are appropriate for all producing wells that will flow hydrocarbons to the surface. Requests for the approval of alternate types of subsurface safety valves should be addressed through the administrative action rule (*i.e.*, Rule 10 (below)).

NOW, THEREFORE, IT IS ORDERED:

The development and operation of the Qannik Oil Pool is subject to the following rules and the statewide requirements under 20 AAC 25 to the extent not superseded by these rules:

Affected Area:

Umiat Meridian

Township, Range	Sections
T10N, R04E	1 – 4
T10N, R05E	4 – 6
T11N, R04E	1 – 4; 9 – 16; 21 – 28; 33 – 36
T11N, R05E	4 – 9; 16 – 21; 28 – 33
T12N, R04E	1 – 4; 9 – 16; 21 – 28; 33 – 36
T12N, R05E	4 – 9; 16 – 21; 28 – 33

Rule 1 Field and Pool Name

The field is the Colville River Field. Hydrocarbons underlying the Affected Area and within the interval of the Torok Formation identified in Rule 2 (below) constitute the oil pool named the Qannik Oil Pool.

Rule 2 Pool Definition

The Qannik Oil Pool is the accumulation of hydrocarbons common to, and correlating with, the interval between the measured depths of 6,086' and 6,249' on the EWR log recorded in well CRU CD2-11.

Rule 3 Well Spacing

There shall be no restrictions as to well spacing except that no pay shall be opened in a well within 500' of an external property line where the owners and landowners are not the same on both sides of the line.

Rule 4 Drilling Waivers

All permits to drill deviated wells within the Qannik Oil Pool shall include a plat with a plan view, vertical section, close approach data and a directional program description in lieu of the requirements of 20 AAC 25.050(b).

Rule 5 Automatic Shut-in Equipment

a. All production wells must be equipped with a fail-safe automatic SSV and a SCSSSV.

b. Injection wells, including water injection service wells, must be equipped with (i) a double check valve arrangement or (ii) a single check valve and a SSV. A subsurface-controlled injection valve or SCSSSV satisfies the requirement of a single check valve.

c. Safety valve systems must be maintained in good working order at all times and must be tested at six-month intervals or on a schedule prescribed by the Commission.

Rule 6 Common Production Facilities and Surface Commingling

a. Production from the Qannik Oil Pool and other CRU pools may be commingled in surface facilities prior to custody transfer.

b. Production shall be allocated to wells within the Qannik Oil Pool in accordance with the procedures described in Section 6.0 of CPAI's application, dated April 3, 2008.

c. Each producing well must be tested a minimum of twice per month.

d. The Commission may require more frequent or longer testing if the allocation quality deteriorates.

e. The operator shall submit a monthly report and electronic file(s) containing daily allocation data and daily test data for agency surveillance and evaluation.

f. The operator shall provide the Commission an annual well test and allocation review report in conjunction with the annual reservoir surveillance report required under Rule 9 (below).

Rule 7 Reservoir Pressure Monitoring

a. A bottom-hole pressure survey shall be taken on each well prior to initial production or injection.

b. The operator shall obtain the pressure surveys needed to manage the hydrocarbon recovery processes that are subject to the annual plan outlined in Rule 9 (below).

c. The reservoir pressure datum will be 4,000' TVDSS.

d. Pressure surveys may consist of stabilized static pressure measurements at bottomhole or be extrapolated from surface measurements (single phase fluid conditions), pressure fall-off measurements, pressure buildup measurements, multi-rate test results, drill-stem test results,

open-hole formation test results or other appropriate technical pressure transient or static test results.

e. A Reservoir Pressure Report, Form 10-412, shall be utilized for all surveys; all relevant data shall be attached to the report. The data submitted shall include, but are not limited to, rate, pressure, depth, fluid gradient, temperature, and all other well conditions necessary for a complete analysis of each survey.

f. The results and data from any special reservoir pressure monitoring tests or surveys shall be submitted in accordance with paragraph (e) of this rule.

Rule 8 Gas-Oil Ratio Exemption

Wells producing from the Qannik Oil Pool are exempt from the GOR limits of 20 AAC 25.240(a) as long as 20 AAC 25.240(b)(1) applies.

Rule 9 Annual Reservoir Review

An annual reservoir surveillance report must be filed by April 1st of each year. The report must include future development plans, reservoir depletion plans, and surveillance information for the prior calendar year, including:

1. the voidage balance, by month, of produced and injected fluids and the cumulative status for each producing interval;
2. a reservoir pressure map at datum and a summary and analysis of the reservoir pressure surveys within the pool;
3. the results and, where appropriate, an analysis of any production and injection log surveys, tracer surveys, observation well surveys, and any other special monitoring;
4. a review of pool production allocation factors and issues over the prior year;
5. a review of the progress of the enhanced recovery project; and
6. a reservoir management summary, including the results of any reservoir simulation studies.

Rule 10 Annular Pressures

a. At the time of installation or replacement, the operator shall conduct and document a pressure test of tubulars and completion equipment in each development well that is sufficient to demonstrate that planned well operations will not result in failure of well integrity, uncontrolled release of fluid or pressure, or threat to human safety.

b. The operator shall monitor each development well daily to check for sustained pressure, except if prevented by extreme weather conditions, emergency situations, or similar unavoidable circumstances. Monitoring results shall be made available for Commission inspection.

c. The operator shall notify the Commission within three working days after the operator identifies a development well as having (i) sustained inner annulus pressure that exceeds 2,000 psig for all development wells, or (ii) sustained outer annulus pressure that exceeds 1,000 psig.

d. The Commission may require the operator to submit in an Application for Sundry Approvals (Form 10-403) a proposal for corrective action or increased surveillance for any development well having sustained pressure that exceeds a limit set out in paragraph (c) of this rule. The Commission may approve the operator's proposal or may require other corrective action or surveillance. The Commission may require that corrective action be verified by mechanical integrity testing or other Commission-approved diagnostic tests. The operator shall give the Commission sufficient notice of the testing schedule to allow the Commission to witness the tests.

e. If the operator identifies sustained pressure in the inner annulus of a development well that exceeds 45% of the burst pressure rating of the well's production casing for inner annulus pressure, or sustained pressure in the outer annulus that exceeds 45% of the burst pressure rating of the well's surface casing for outer annulus pressure, the operator shall notify the Commission within three working days and take corrective action. Unless well conditions require the operator to take emergency corrective action before Commission approval can be obtained, the operator shall submit in an Application for Sundry Approvals (Form 10-403) a proposal for corrective action. The Commission may approve the operator's proposal or may require other corrective action. The Commission may also require that corrective action be verified by mechanical integrity testing or other Commission-approved diagnostic tests. The operator shall give the Commission sufficient notice of the testing schedule to allow the Commission to witness the tests.

f. Except as otherwise approved by the Commission under (d) or (e) of this rule, before a shut-in well is placed in service, any annulus pressure must be relieved to a sufficient degree (1) that the inner annulus pressure at operating temperature will be below 2,000 psig, and (2) that the outer annulus pressure at operating temperature will be below 1,000 psig. However, a well that is subject to (c) but not (e) of this rule may reach an annulus pressure at operating temperature that is described in the operator's notification to the Commission under (c) of this rule, unless the Commission prescribes a different limit.

g. For purposes of this rule,

    1. "inner annulus" means the space in a well between tubing and production casing;
    2. "outer annulus" means the space in a well between production casing and surface casing
    3. "sustained pressure" means pressure that (A) is measurable at the casing head of an annulus, (B) is not caused solely by temperature fluctuations, and (C) is not pressure that has been applied intentionally.

Rule 11 Allowable Gas Off Take (Source CO 443A.003 et al)

1. The cumulative gas off take rate from the CRF must not exceed 1 MMCFPD.

2. Natural gas may be severed from the CRF only to meet CPAI's contractual obligation to provide the Village of Nuiqsut with natural gas.

Rule 12 Administrative Action

Upon proper application, or its own motion, and unless notice and public hearing are otherwise required, the Commission may administratively waive the requirements of any rule stated herein or administratively amend this order 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 an increased risk of fluid movement into freshwater.

ENTERED at Anchorage, Alaska, and dated June 30, 2008.

Daniel T. Seamount, Jr., Chair
Alaska Oil and Gas Conservation Commission

John K. Norman, Commissioner
Alaska Oil and Gas Conservation Commission

Cathy P. Foerster, Commissioner
Alaska Oil and Gas Conservation Commission

RECONSIDERATION AND APPEAL NOTICE

As provided in AS 31.05.080(a), within **20** days after written notice of the entry of this order or decision, or such further time as the Commission grants for good cause shown, a person affected by it may file with the Commission an application for reconsideration of the matter determined by it. If the notice was mailed, then the period of time shall be **23** days. An application for reconsideration must set out the respect in which the order or decision is believed to be erroneous.

The Commission shall grant or refuse the application for reconsideration in whole or in part within 10 days after it is filed. Failure to act on it within 10-days is a denial of reconsideration. If the Commission denies reconsideration, upon denial, this order or decision and the denial of reconsideration are **FINAL** and may be appealed to superior court. The appeal **MUST** be filed within **33** days after the date on which the Commission mails, **OR 30** days if the Commission otherwise distributes, the order or decision denying reconsideration, **UNLESS** the denial is by inaction, in which case the appeal **MUST** be filed within **40** days after the date on which the application for reconsideration was filed.

If the Commission grants an application for reconsideration, this order or decision does not become final. Rather, the order or decision on reconsideration will be the **FINAL** order or decision of the Commission, and it may be appealed to superior court. That appeal **MUST** be filed within **33** days after the date on which the Commission mails, **OR 30** days if the Commission otherwise distributes, the order or decision on reconsideration. As provided in AS 31.05.080(b), "[t]he questions reviewed on appeal are limited to the questions presented to the Commission by the application for reconsideration."

In computing a period of time above, the date of the event or default after which the designated period begins to run is not included in the period; the last day of the period is included, unless it falls on a weekend or state holiday, in which event the period runs until 5:00 p.m. on the next day that does not fall on a weekend or state holiday.