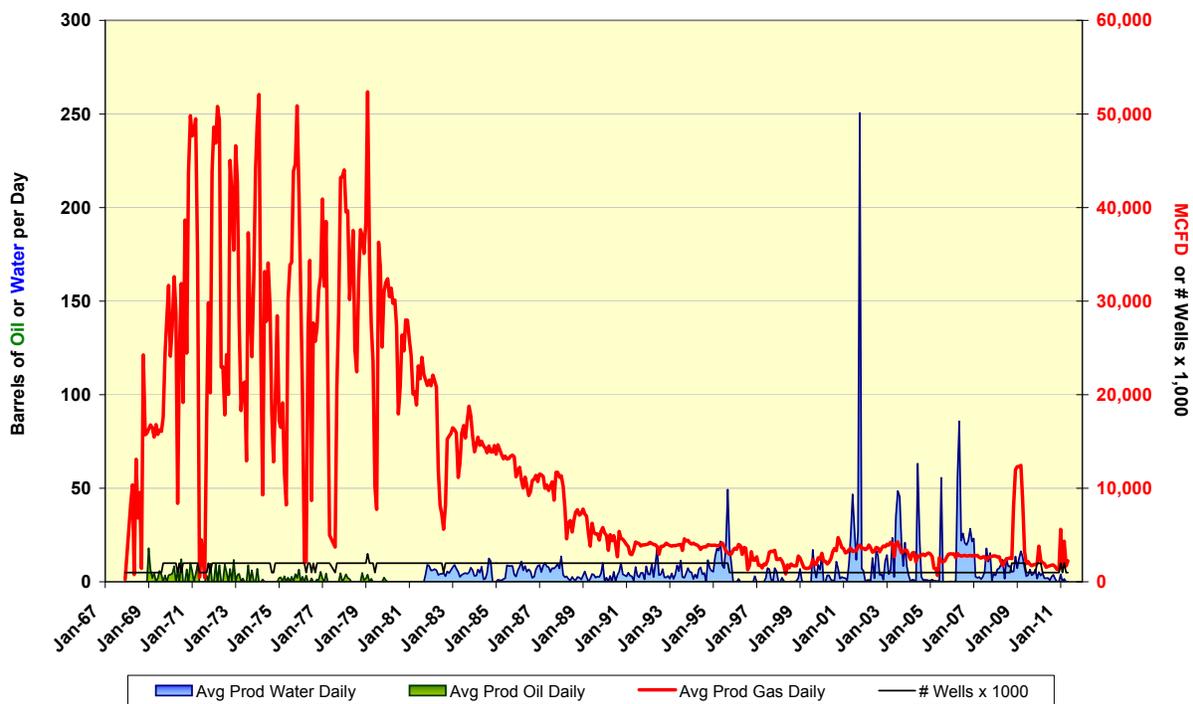


# Kenai Field, Tyonek Gas Pool 1

## Summary

Within the Kenai Gas Field, the Tyonek Gas Pool 1 is defined as the accumulation of gas common to and which correlates with the accumulation found in the interval 9155' to 9890' in the Kenai Deep Unit No. 1 well.<sup>1</sup> This pool was discovered on October 11, 1959 by the Kenai Deep Unit No. 1 well, and regular gas production began in March 1968 from Kenai Deep Unit No. 1. Production peaked at an average daily rate of 52,381,000 cubic feet per day in February 1979 from 3 production wells and then began to decline. During 2009, one additional new well, Kenai Deep Unit No. 9, was drilled, briefly increasing production. During April and May of 2011, only the Kenai Deep Unit No. 1 well produced gas from this pool, averaging 1,985,000 cubic feet per day. Prior to 1980, 8994 barrels of oil were reportedly produced from this pool by the Kenai Deep Unit No. 1 and No. 4 wells.<sup>2</sup>

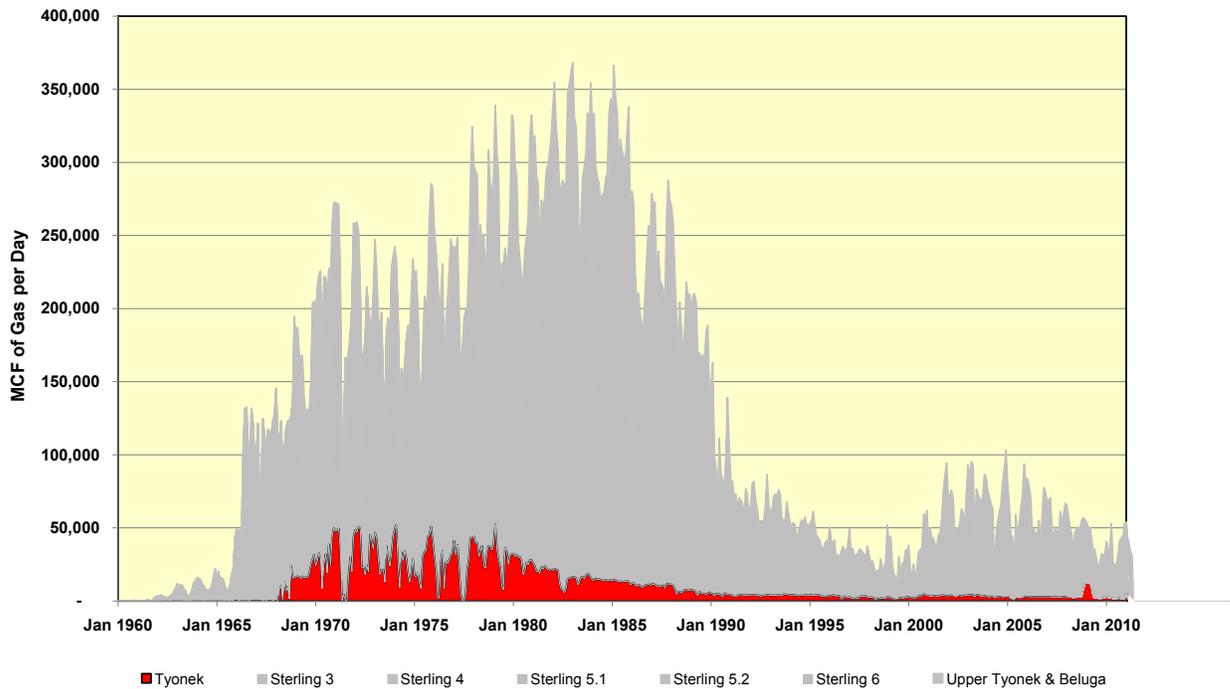
### Kenai Field, Tyonek Gas Pool 1 Average Daily Production Rates



## Geology

The Kenai Gas Field structure consists of an asymmetric anticline that trends north-south that lies about 5 miles south of the City of Kenai. The axis of this anticline is parallel with, and about 1 mile east of, the eastern coastline of the Cook Inlet.<sup>3,4</sup> No structure

## Kenai Field, Tyonek Gas Pool 1 Relative Contribution to Average Daily Production Rate for Entire Kenai Field



map is available to the Commission for this pool, but the shallowest perforated interval in the Tyonek Gas Pool lies 8760 feet below sea level in the Kenai Deep Unit No. 1 well.<sup>5</sup>

In the Kenai-Cannery Loop area, the Miocene-aged<sup>6</sup> Tyonek Formation comprises thick (up to 40 feet or more) sandstones and conglomeratic sandstones of good reservoir quality that were deposited by larger, meandering streams within a poorly drained alluvial plain.<sup>7</sup> These sandstones are well consolidated, quartz-rich, feldspathic litharenites and sub-litharenites.<sup>8,9</sup> Although these sandstones contain clay and calcite cement, their effective porosities range up to 12 percent and permeabilities may exceed 50 millidarcies. Coal beds are also present, especially in the deeper portions of the pool,<sup>10</sup> where they may reach more than 20 feet in thickness.<sup>11</sup>

SFD  
July 20, 2011

<sup>1</sup> Alaska Oil and Gas Conservation Commission, 1969, Conservation Order No. 82: Pool Rules for Kenai Gas Field, Sterling Gas Pools 3, 4, 5.1, 5.2, 6 and Tyonek Gas Pool 1

<sup>2</sup> Alaska Oil and Gas Conservation Commission, 2011, Well and Production Database

<sup>3</sup> Alaska Oil and Gas Conservation Commission, 1969, Conservation Order No. 82, cited above, Exhibit I, Structure Contour Map, Top Upper Kenai Gas Pool 4

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<sup>4</sup> Brimberry, D.L., Gardner, P.S., McCullough, M.L., and Trudell, S.E., 2003, Kenai Field, the Kenai Peninsula's Largest Gas Field: in Swenson, R.F., ed. 2002 Geology & Hydrocarbon Systems of the Cook Inlet Basin, AK: Field Trip Guide Book, p. 20-25

<sup>5</sup> Alaska Oil and Gas Conservation Commission, 2011, Well History File 167-045

<sup>6</sup> Brimberry, D.L., 2003, cited above

<sup>7</sup> Hite, D.M., 1976, Some Sedimentary Aspects of the Kenai Group, Cook Inlet, Alaska, in Miller, T.P., ed., Recent and Ancient Sedimentary Environments in Alaska, Alaska Geological Society Symposium, Proceedings, p.11-122

<sup>8</sup> Brimberry, D.L., 2003, cited above

<sup>9</sup> Helmold, K., and others, 2011, Reservoir Potential of Tertiary and Mesozoic Sandstones, Cook Inlet, Alaska, in 2011 Western Region Meeting, SPE and Pacific Section AAPG, Anchorage, Alaska, Program with Abstracts, p.61-62

<sup>10</sup> Brimberry, D.L., 2003, cited above

<sup>11</sup> Alaska Oil and Gas Conservation Commission, well log records for Kenai Deep Unit No. 6, coal interval from -9350' to -9373' TVDSS