

**ALASKA FEDERAL OFFSHORE**  
**Descriptions of Geologic Plays**  
*1995 National Resource Assessment*  
U.S. Minerals Management Service

**NORTON BASIN ASSESSMENT PROVINCE**  
*(Susan M. Banet)*

**Play 1 (UANO0101<sup>1</sup>). Upper Tertiary Basin Fill Play :** This play includes all of the late Oligocene and younger clastic sediments deposited in two subbasins of Norton Basin. St. Lawrence subbasin lies on the west and is separated by Yukon horst from Stuart subbasin on the east. During this time, transitional to outer neritic environments prevailed, with deeper water occurring to the west over the St. Lawrence subbasin. All sediments in this play are thermally immature. Potential hydrocarbon sources for the play occur in older sediments in both subbasins. The potential trapping mechanisms are anticlines, faults, and stratigraphic traps.

**Play 2 (UANO0201). Mid-Tertiary East Subbasin Fill Play :** This play includes Eocene through early Oligocene clastic sediments deposited in the Stuart subbasin (east part of Norton basin). Delta plain to marginal marine sands are the most likely reservoir rocks. The Eocene and lower Oligocene rocks are thermally mature. The most likely hydrocarbon traps are faulted anticlines and onlap against basement.

**Play 3 (UANO0301). Mid-Tertiary West Subbasin Fill Play :** This play encompasses the Eocene to middle Oligocene clastic sediments deposited in the St. Lawrence subbasin (west part of Norton basin). The most likely reservoir rocks are shelf sands and turbidites, except along the Yukon Horst and the basin margin, where alluvial fan and deltaic deposits may occur. The potential traps are primarily faulted anticlines and stratigraphic onlap against basement. The Eocene rocks are thermally mature but contain low amounts of type III kerogen.

**Play 4 (UANO0401). Lower Tertiary Subbasin Fill Play :** This play includes all the deep clastic sediments in both St. Lawrence and Stuart subbasins and ranging in age from possibly Paleocene to early Eocene. These deep rocks, which range in depth from approximately 12,000 to 23,000 feet, are predominately alluvial fan and delta plain deposits. Great burial depths adversely

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<sup>1</sup>The "UA" Code is the "Unique Assessment Identifier" for each play, and is the principal guide to GRASP data files.

affect reservoir porosities, permeabilities, and reservoir yield factors. The thermal maturity of these rocks ranges from the middle of the oil-generation window to over-mature.

**Play 5 (Not Quantified). Basement Play :** This play encompasses all of the Paleozoic to Mesozoic, slightly metamorphosed sedimentary and igneous rocks that underlie the Tertiary basin fill. The potential for reservoir is dependent upon fracture porosity and permeability developing along faults or folds in the basement and/or upon the presence of secondary porosity. Postulated source rock are Paleozoic carbonates and shales and thermally mature Eocene sediments. Because of the highly speculative nature of this play, no resource numbers were calculated.

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**OIL AND GAS ENDOWMENTS OF NORTON BASIN PLAYS**  
*Risked, Undiscovered, Conventionally Recoverable Oil and Gas*

PLAY NO.	PLAY NAME (UAI * CODE)	OIL (BBO)			GAS (TCFG)		
		F95	MEAN	F05	F95	MEAN	F05
1.	Upper Tertiary Basin Fill (UANO0101)	0.000	0.014	0.056	0.000	0.745	2.848
2.	Mid Tertiary East Subbasin Fill (UANO0201)	0.000	0.005	0.026	0.000	0.306	1.533
3.	Mid Tertiary West Subbasin Fill (UANO0301)	0.000	0.028	0.105	0.000	1.617	5.680
4.	Lower Tertiary Subbasin Fill (UANO0401)	0.000	0.0007	0.004	0.000	0.040	0.231
	<b>FASPAG AGGREGATION</b>	<b>0.000</b>	<b>0.047</b>	<b>0.150</b>	<b>0.000</b>	<b>2.708</b>	<b>8.742</b>

\* *Unique Assessment Identifier, code unique to play.*

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