Rock-eval pyrolysis data and interpretation for the Alaska Consolidated Oil Iniskin Unit Zappa No. 1 well.
RESULTS AND DISCUSSION:

TOC/ROCK EVAL

Analytical Data

Geochemical logs, tabulated TOC and Rock Eval data, and pyrograms are provided for each well (Appendices 1, 2 and 3). Geochemical data are expressed as:

- **TOC** = Total Organic Carbon, in weight percent
- **S1** = Thermal extract of mobile hydrocarbons, in mgHC/grock
- **S2** = Hydrocarbons generated from kerogen during pyrolysis, in mgHC/grock
- **S3** = CO₂ generated from kerogen during pyrolysis, in mgCO₂/grock
- **Tmax** = Temperature of peak generation during pyrolysis, in °C
- **PI** = Production Index = S₁/S₁ + S₂
- **HI** = Hydrogen Index = 100 x S₂/TOC
- **OI** = Oxygen Index = 100 x S₃/TOC

**Well LCI-Iniskin**

**Thermal Maturity**

The five samples analyzed show increasing Tmax with depth, from thermally immature at 2000-2050’ (Tmax 4320°C) to within the oil window at 10770-10800’ (Tmax 4430°C). Production Index (S₁/S₁ + S₂) also shows progressive increase with depth.

**Organic Richness and Quality**

TOC values for the five samples range from fair (0.50) for potential source rocks to good (1.62). All samples, however, show no current oil proneness, with low S₁, S₂ and Hydrogen Index (52-124). The two deepest submitted samples may be mature enough to have reduced their oil proneness by having generated and expelled hydrocarbons, but this is unlikely.
Well LCI Iniskin

TABLE I

Results of Total Organic Carbon Analysis and Rock-Eval Pyrolysis

<table>
<thead>
<tr>
<th>Sample Number</th>
<th>Depth (ft)</th>
<th>TOC (Wt.%)</th>
<th>S1 (mg/g)</th>
<th>S2 (mg/g)</th>
<th>S3 (mg/g)</th>
<th>Tmax (°C)</th>
<th>Production Index S1</th>
<th>Index S1+S2</th>
<th>Hydrogen Index 2H/TOC</th>
<th>Oxygen Index 2O/TOC</th>
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<tbody>
<tr>
<td>C399-003</td>
<td>2000-2050</td>
<td>0.50</td>
<td>&lt;0.10</td>
<td>&lt;0.10</td>
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<td>C399-010</td>
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<td>0.78</td>
<td>&lt;0.10</td>
<td>0.40</td>
<td>0.48</td>
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<td>61</td>
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<tr>
<td>C399-014</td>
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<td>1.62</td>
<td>0.28</td>
<td>2.00</td>
<td>0.59</td>
<td>439</td>
<td>0.12</td>
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<td>C399-018</td>
<td>9540-9570</td>
<td>0.93</td>
<td>0.30</td>
<td>0.83</td>
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<td>C399-021</td>
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*Unable to determine due to insufficient S2 yield, multiple peaks, etc.*
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<tr>
<th>DEPTH (ft)</th>
<th>AGE</th>
<th>FORMATION</th>
<th>LITHOLOGY</th>
<th>SOURCE BED POTENTIAL</th>
<th>MATURITY</th>
<th>HYDROCARBON INDICATIONS</th>
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<tbody>
<tr>
<td></td>
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<td>T.O.C. (wt, %)</td>
<td>S2 (mg/g)</td>
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</table>

- **HYDROCARBON INDICATIONS**
  - S1 = Free Hydrocarbons Present in Rock
  - S2 = Hydrocarbons from Kerogen Pyrolysis
  - S3 = CO2 from Kerogen Pyrolysis
  - S1 + S2 = Total Hydrocarbons
  - Hydrogen Index = S2/S1
SEP 24, 1988
TIME= 0309
ID= 93981
FID ATTENUATION= 32
TCD ATTENUATION= 32

TOC = 2.00
AT = 51.2
TMAX = 425 DEGREES C
S1= +2.191E-01 SUM= +9.388E+02
S2= +1.688E+01 SUM= +6.835E+04
S3= +9.492E-01 SUM= +9.628E+03
UNKNOWN

SEP 24, 1988
TIME= 0403
ID= 99903
FID ATTENUATION= 32
TCD ATTENUATION= 32

TOC = 0.50
AT = 120.2
TMAX = 437 DEGREES C
S1= -4.511E-02 SUM= +4.783E+02
S2= -1.120E-02 SUM= +6.138E+04
S3= -3.120E-01 SUM= +8.143E+03
UNKNOWN

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Modified

Van Krevelen

Diagram

Cuttings Samples
From Antonio Zappa
No.1, Iniskin Peninsula

Interpretation Plot by
Jake Hult (MMS)

1. 5,535'
    TOC = 0.78%
2. 9,490'
    TOC = 1.62%
3. 9,535'
    TOC = 0.93%
4. 10,785'
    TOC = 0.88%