William N. Poundstone
Lecture

“ A Global Effort to Unleash Siberian Energy “

James W. Boyd - WVU BSEM 1968
President - John T. Boyd Company
<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1949</td>
<td>BSEM West Virginia University</td>
</tr>
<tr>
<td>1949</td>
<td>Begins career at Consol as a timberman</td>
</tr>
<tr>
<td>1965</td>
<td>Named Executive Vice President at Consol</td>
</tr>
<tr>
<td></td>
<td>Served on Visiting Committee of the College of Mineral and Energy Resources</td>
</tr>
<tr>
<td></td>
<td>Holder of 34 U.S. Patents</td>
</tr>
</tbody>
</table>
Raymond E. Salvati

1922 Graduate of West Virginia University

1949 Elected President of Island Creek Coal Company

Twice served as President of Board of Governors West Virginia University
Thomas Garges, Jr.

President & Chief Executive Officer
Pittston Coal Company

President & Chief Executive Officer
Rochester and Pittsburgh Coal Company (10 years)

Senior Vice President
Sun Coal Company (2 years)

President
Pyxis Resources, Inc. (Pittston) (2 years)

Executive Vice President and Group Vice President
Pittston Coal Group (3 years)

President
Koch Raven Coal Company (Koch Industries) (2 years)

Vice President
Koch Carbon, Inc. (Koch Industries) (6 years)

Manager of Mines
Jewell Ridge Coal Corp. (Pittston Coal Group) (5 years)

General Superintendent and Chief Engineer
Union Carbide Corp. (4 years)

Sales Engineer
Jeffrey Manufacturing (5 years)
U.S. Coal Production

Productivity
Productivity

Longwall Mining
Elga Coal Project
Timeline

1991  BHP investigates Elga deposit
   - Ownership problematic
   - Uncertainty of Railway
   - Royalty and taxes not as yet determined

1998  Prefeasibility Study
   - The project is not financially viable
   - Large up-front capital required (railroad and powerline)
   - Long development time
Surface Mine Feasibility Study

- Coal reserve assessment
- Detailed mining plan
- Alternative mining methods
- Coal preparation
- Site infrastructure layout
- Transportation overview
- Operating costs
- Market review
- Analysis of risk factors
# Elga Coal Deposit

## Licensed Area Reserves

Recoverable Run-of-Mine Tonnes (millions)

<table>
<thead>
<tr>
<th></th>
<th>Oxidized</th>
<th>Semi-Oxidized</th>
<th>Unoxidized</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coking</td>
<td>-</td>
<td>-</td>
<td>558</td>
<td>558</td>
</tr>
<tr>
<td>Thermal</td>
<td>151</td>
<td>352</td>
<td>1,112</td>
<td>1,615</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>151</strong></td>
<td><strong>352</strong></td>
<td><strong>1,670</strong></td>
<td><strong>2,173</strong></td>
</tr>
</tbody>
</table>

**Elga Coal Deposit**
Mining Plan

• Larger Sized Equipment
• Truck / Shovel Method
• 24 million annual product (30 million ROM) tonnes - Base case
  – alternative annual production at 40 million ROM tonnes
### Proposed Coal Quality

#### Expected Export Thermal Coal Quality

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ash (adb-%)</td>
<td>14.0</td>
</tr>
<tr>
<td>Volatile Matter (adb-%)</td>
<td>33.0</td>
</tr>
<tr>
<td>Calorific Value (adb-Kcal/kg)</td>
<td>7,200 (~ 13,000 Btu/lb)</td>
</tr>
<tr>
<td>Sulfur (adb-%)</td>
<td>0.20</td>
</tr>
<tr>
<td>Nitrogen (adb-%)</td>
<td>0.90</td>
</tr>
</tbody>
</table>

#### Expected Export Coking Coal Quality

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ash (adb-%)</td>
<td>9.0</td>
</tr>
<tr>
<td>Volatile Matter (adb-%)</td>
<td>32.7</td>
</tr>
<tr>
<td>Sulfur (adb-%)</td>
<td>0.20</td>
</tr>
<tr>
<td>FSI</td>
<td>8</td>
</tr>
</tbody>
</table>
## Required Capital

### Capital Costs US$ Millions

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mine Equipment</td>
<td>1,367</td>
</tr>
<tr>
<td>Mine Infrastructure</td>
<td>75</td>
</tr>
<tr>
<td>Coal Preparation Plants</td>
<td>134</td>
</tr>
<tr>
<td>Freight, Handling, Power</td>
<td>139</td>
</tr>
<tr>
<td>Site Infrastructure</td>
<td>166</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,881</strong></td>
</tr>
</tbody>
</table>

Initial Capital at $581 million
Pacific Rim Imports

Taiwan, South Korea, Japan

Imported Tonnes 1982-2000 (millions)

- Thermal
- Coking
Amendments to Feasibility Study

- Contract development
- Review of tax regime
- Strategic partner identification
- Data room organization
- Moscow and site visits
- Equity/debt finance
- Advisor to Elgaugol
- Web-site development
These slides are edited version of power point presentation by Mr. James W. Boyd for MinE Dept webpages.
For full version of the presentation, contact J. T. Boyd Company at (412) 562-1953.