Senior Mine Design Project

David Allan Coal Company
Hasben Mine Project
Justin Bushneck & Kris Lilly

Selected slides from Oral Presentation
Area Mining History

- The Hasben Mine Project Property is Surrounded by 5 Inactive Mines in The Pittsburgh Seam
  - Gateway Mine
  - Mather Mine
  - Robena Mine
  - Nemacolin Mine
  - Crucible Mine
- 1 Operating Mine RAG America’s Emerald Mine
### Reserves and Quality

<table>
<thead>
<tr>
<th>ASH</th>
<th>MAXIMUM %</th>
<th>AVERAGE %</th>
<th>MINIMUM %</th>
<th>STANDARD DEVIATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.08</td>
<td>10.03</td>
<td>8.19</td>
<td>0.58</td>
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<tr>
<td>C-ASH</td>
<td>8.67</td>
<td>7.68</td>
<td>6.22</td>
<td>0.36</td>
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<tr>
<td>SUL</td>
<td>5.67</td>
<td>2.12</td>
<td>1.08</td>
<td>0.37</td>
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<td>C-SUL</td>
<td>2.36</td>
<td>1.56</td>
<td>1.00</td>
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<tr>
<td>YLD</td>
<td>96.87</td>
<td>93.35</td>
<td>87.24</td>
<td>0.96</td>
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<table>
<thead>
<tr>
<th>THK (Ft)</th>
<th>MAXIMUM</th>
<th>AVERAGE</th>
<th>MINIMUM</th>
<th>STANDARD DEVIATION</th>
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<tbody>
<tr>
<td>8.12</td>
<td>6.68</td>
<td>5.3</td>
<td>1.92</td>
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<tr>
<td>BTU</td>
<td>13,910</td>
<td>13,596</td>
<td>12,989</td>
<td>113</td>
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<tr>
<td>C-BTU</td>
<td>14,395</td>
<td>14,119</td>
<td>13,937</td>
<td>68</td>
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</table>

<table>
<thead>
<tr>
<th>Coal</th>
<th>In Place Reserves</th>
<th>10 yr. Clean Recoverable Tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acres</td>
<td>12,452</td>
<td>4,260</td>
</tr>
<tr>
<td>Total Tons</td>
<td>157,352,594</td>
<td>17,640,464</td>
</tr>
<tr>
<td>Measured &amp; Indicated Tons</td>
<td>116,308,486</td>
<td>3,660</td>
</tr>
<tr>
<td>Inferred Tons</td>
<td>41,044,107</td>
<td>3,660</td>
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</tbody>
</table>
Reserves and Quality (Sulfur)
Reserve Classification

- **Measured & Indicated**
  - Acreage: 9,204 Acres
  - Total Acreage: 9,204 Acres
  - Acreage: 3,660 (10 yr)

- **Inferred**
  - Acreage: 3,258 Acres
  - Acreage: 600 (10 yr)

- **Average Influence / Drillhole:** 134 Acres
Mine Plan

- Room and Pillar Operation
- 1.6 Million Tons Annually
- River Transportation
- Panels
  - 3,500 to 4,500 Feet Long
  - 10 Entries.
  - 35 to 45 Blocks Long
- Entries
  - 18 Feet Wide
  - Full Seam Mining Height
  - 100’ X 100’ Center to Center
# Coal Production by Year

<table>
<thead>
<tr>
<th>Date</th>
<th>Raw Coal (tons)</th>
<th>Clean Coal (tons)</th>
<th>Revenue @ $30/ton</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>802,142</td>
<td>609,628</td>
<td>$18,288,828</td>
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<tr>
<td>2006</td>
<td>1,030,924</td>
<td>783,502</td>
<td>$23,505,063</td>
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<td>2007</td>
<td>1,864,665</td>
<td>1,417,146</td>
<td>$42,514,369</td>
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<tr>
<td>2008</td>
<td>2,009,278</td>
<td>1,527,051</td>
<td>$45,811,527</td>
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<tr>
<td>2009</td>
<td>2,118,994</td>
<td>1,610,436</td>
<td>$48,313,065</td>
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<tr>
<td>2010</td>
<td>2,115,931</td>
<td>1,608,107</td>
<td>$48,243,215</td>
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<tr>
<td>2011</td>
<td>2,222,801</td>
<td>1,689,329</td>
<td>$50,679,856</td>
</tr>
<tr>
<td>2012</td>
<td>2,134,505</td>
<td>1,622,224</td>
<td>$48,666,714</td>
</tr>
<tr>
<td>2013</td>
<td>2,189,929</td>
<td>1,664,346</td>
<td>$49,930,390</td>
</tr>
<tr>
<td>2014</td>
<td>2,205,016</td>
<td>1,675,812</td>
<td>$50,274,369</td>
</tr>
<tr>
<td>2015</td>
<td>2,282,635</td>
<td>1,734,803</td>
<td>$52,044,083</td>
</tr>
<tr>
<td>2016</td>
<td>2,234,317</td>
<td>1,698,081</td>
<td>$50,942,430</td>
</tr>
<tr>
<td></td>
<td>23,211,136</td>
<td>17,640,464</td>
<td></td>
</tr>
</tbody>
</table>
Ground Control

- 100’ X 100’ Center to Center Pillars
  - 82’ X 82’ Block Size
  - SF
    - Development Loading 3.52
    - One Side & Active Gob 1.99
    - Active Gob 2.03

- 100’ Barrier Pillars Between Panels

- 120’ Barrier Pillars Between Properties
Roof Bolting

- Spacing
  - 3 Feet From Rib
  - 4 Feet Between Bolts

- Bolt Types
  - #6 Rebar Grade 60
  - 8’ Long
  - 8” X 8” Plates
  - Fully Grouted Resin

- Additional Support Will Be Installed if Needed
Ventilation

- Projected Seam Gas Content: 100 ft$^3$/t to 300 ft$^3$/t
- At 300 ft$^3$/t of Methane, 30,000 cfm is Needed in the Last Open Crosscut to Keep Methane Below 1%
- Four Sections Require 240,000 to 320,000 cfm
- Face Ventilation Types:
  - Main & Submain: Twin Split
  - Production Panel: Single Split
- Joy Axivane Mine Fan, Model M120-79-710
  - 8” of Water Gage @ 300,000 cfm
Underground Transportation

- Track Haulage for Men & Supplies
- Track Ends at Mouth of Panels
  - Men will Ride to Section on Super Xcited Mantrip
    - Foremen & Mechanic Will Use Xcited Supercar on Section
  - Supplies Will be Taken from The Track to The Section By The Powell Scoops
- Return Headings Will Be Traveled By The Stinger
Equipment Selection

- **Underground (Per Section)**
  - Dash Three Continuous Miner
  - HDDR Fletcher Bolter
  - 10SC Shuttle Cars
  - Powell Scoop
    - Bucket Duster
  - Cogar Feeder
  - Power Center
  - Johnson Industries
    - Xcited Supercar
    - Super Xcited Mantrip
    - Stinger Mantrip
  - Brookville Track Mantrips

- **Surface**
  - Bucket Loader
  - Track Dozer
  - Dump Truck
  - Crane
  - Grader
  - Cinder Truck
  - Skid steer
  - Forklift
  - Bucket Truck
  - Utility Truck
  - Pickups
  - Excavator
Haulage

- Mains & Submains
  - 48” Belt
  - 1000 Tons Max Belt Potential
  - Operating at 600 Ft. Per Minute
  - Max 700 Ft. Per Minute

- Panels
  - 36” Belt
  - 600 Tons Max Belt Potential
  - 650 Ft. Per Minute
Electrical Power

- **Incoming Distribution Power**
  - 138,000 VAC

- **Substation**
  - 25,000 KVA @ 12,470 VAC

- **Surface and Underground Are Separate Power Systems from the same Substation**

- **All Sections Have Same Power Center**
  - 12,470 VAC Primary
  - 995, 480, 240, 120 VAC Secondary
  - 300 VDC Rectified Secondary
Water Control

- Water Inflow Sources
  - Surrounding Mines
  - Coal & Rock Strata
  - Mining Machinery
  - Personnel Errors

- Sump Type & Location
  - Main Sumps Bottom of Return Shaft
  - Submain Sumps, Each Belt Drive or 5,000 Ft. Intervals
  - Production Sumps, 2,500 Ft. from Beginning of Panel
### Processing Plant

- **1000 Ton Per Hour**
- **4 Circuits**
  - Coarse
  - Medium
  - Fine
  - Ultra Fine
- **Plant Total Recovery 76%**

<table>
<thead>
<tr>
<th>Circuit</th>
<th>Significant Size</th>
<th>Distribution in Plant</th>
<th>Size</th>
<th>Plant Capacity Raw (TPH)</th>
<th>Clean Coal Product (TPH)</th>
<th>Refuse (TPH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coarse</td>
<td>-2 inch +1/4 inch</td>
<td>68.60%</td>
<td>684</td>
<td>488</td>
<td>196</td>
<td></td>
</tr>
<tr>
<td>Intermediate</td>
<td>-1/4 inch +28 μm</td>
<td>21.61%</td>
<td>215</td>
<td>192</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>Fine</td>
<td>-28 μm +200 μm</td>
<td>5.14%</td>
<td>51</td>
<td>44</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Ultra Fine</td>
<td>-200 μm +0 μm</td>
<td>4.65%</td>
<td>46</td>
<td>43</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td><strong>100.00%</strong></td>
<td><strong>997</strong></td>
<td><strong>766</strong></td>
<td><strong>231</strong></td>
<td></td>
</tr>
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*(Dry Basis, Undiluted, 1.55 Float)*
Preparation Plant Flow Sheet

David Allan Coal Company

Project Name: Haschen Mine

Drawing Name: Processing Plant Flow Sheet

Drawn By: Justin Bushneck

Checked By: Kris Lilly

Date: 4-21-04

[Diagram showing flow sheet with various processes and equipment such as feeders, cyclones, screens, pumps, and conveyor belts.]

<table>
<thead>
<tr>
<th>Size Distribution</th>
<th>Raw (TPH)</th>
<th>Product (TPH)</th>
<th>Refuse (TPH)</th>
</tr>
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<tbody>
<tr>
<td>-2 inch +1/4 inch</td>
<td>684</td>
<td>488</td>
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(Dry Basis, Undiluted, 1.55 Float)

Totals

127 TPH - Refuse Disposal Area

192 TPH - Raw (TPH)

243 TPH - Product (TPH)

227 TPH - Refuse (TPH)

313 TPH - Circuit Distribution Raw

346 TPH - Size Distribution

357 TPH - Significant Size Distribution in Plant

511 TPH - Size Plant Capacity

549 TPH - Clean Coal

571 TPH - Refuse

593 TPH - Ultra Fine

654 TPH - Intermediate

707 TPH - Fine

724 TPH - Coarse
Surface Facilities

- **Main Portal**
  - Life of Mine Portal
  - Main Load out & Preparation Plant
  - Water Treatment Facility
  - Main Supply Drop
  - Mine Office
  - Warehouse
  - Mine Shop
  - Bathhouse
  - Guardhouse
  - Substation
  - Mine Fan

- **Satellite Portal**
  - Water Treatment Facility
  - Mine Office
  - Bathhouse
  - Substation
  - Mine Fan

- **Refuse Pile**
  - 25 Acres
    - 50 Ft. High
  - Capacity
    - 2,200,000 Tons Refuse
  - Plans to Purchase
    - Additional 55 Acres
Project Schedule

- 2002
  - Land Acquisition in June
  - Review Acquired Mining Data
- 2003
  - Exploration, Reserve Study, Mine Planning
- 2004
  - Financial Approval, Plant & Surface Design & Construction
- 2005
  - January 2, 2005 Production Begins
Marketing

- Possible Sales Locations
  - Ft. Martin
  - Hatfield's Ferry
  - Future Longview

- Expected Realization $30 Per Ton
Operating & Capital Cost

- Capital
  - Total Over 10 Years
    - $107,279,800
  - Capital to Full Production
    - $101,482,816

- Expense
  - Supplies
    - Roof Control
    - Underground Ventilation Control
    - Maintenance Items
    - Utility Items
    - Belting
    - Track
  - Personnel
  - Rebuilt Equipment
Economics

- **Assumptions:**
  - Coal Market Price $30/Ton FOB Barge
  - NPV Discounted at 5%
  - Coal Reserve Bought in 2002
  - Production Begins 2005
  - Full Production in 2008

- NPV @ 5% is negative
- IRR 3% in Ten Years
- IRR 5% in Thirty Years
Recommendations

A More Thorough Investigation, or Higher Realization of Product