

**Basic Evaluation Methodologies
Deep Lease and Deep Lease Extension
San Juan Basin
San Juan County, New Mexico
Based on Estimates as of January 1, 2002**

Scope and Objective of Study

- 1-Estimate the proved, probable and possible gas reserves in the Fruitland Coal and Pictured Cliffs
- 2-Estimate original gas in place in the Fruitland Coal and Pictured Cliffs
- 2-Determine level of saturation of Fruitland coal
- 3-Asses commerciality of drilling program

Fruitland Coal Analysis Process

- 1-Prepare geologic maps of major S8 and S9 coals including structure and isopachs
- 2-NSAI interpreted logs for 176 wells in area for tops and net pays; cutoff of approximately 1.7 g/cc used.
- 3-Obtained results of 42 core sample tests acquired by BHP in S8 and S9 coals
- 4-Ash content, moisture content and specific gravity estimated for each 160 acre tract based on core sample results
- 5-Estimated bulk coal volume for each 160 acre tract
- 6-Obtain results of 18 desorption tests run by BHP on core well samples
- 7-Based on this information, estimate gas content across Deep Lease and Deep Lease Extension
- 8-Using available isotherm data, estimated degree of undersaturation of coal
- 9-Estimate pressures in each 160 acre tract
- 10-Estimate original gas in place for each 160 acre tract
- 11-Determine theoretical gas reserves to 10 psi abandonment pressure
- 12-Project proved developed producing reserves based on decline curve extrapolation
- 13-Assign proved, probable and possible undeveloped reserves for undrilled offsets based on SPE/WPC definitions

Pictured Cliffs (PC) Analysis Process

- 1-Prepare geologic maps of major PC including structure and isopachs
- 2-Estimate current pressures in each 160 acre tract
- 3-Estimate current gas in place for each 160 acre tract
- 4-Determine theoretical gas reserves to 25 psi abandonment pressure
- 5-Project proved developed producing reserves based on decline curve extrapolation
- 6-Assign proved, probable and possible undeveloped reserves for undrilled offsets based on SPE/WPC definitions
- 7-Add PC reserves to coal completion wells as behind pipe reserves with minimal additional investment