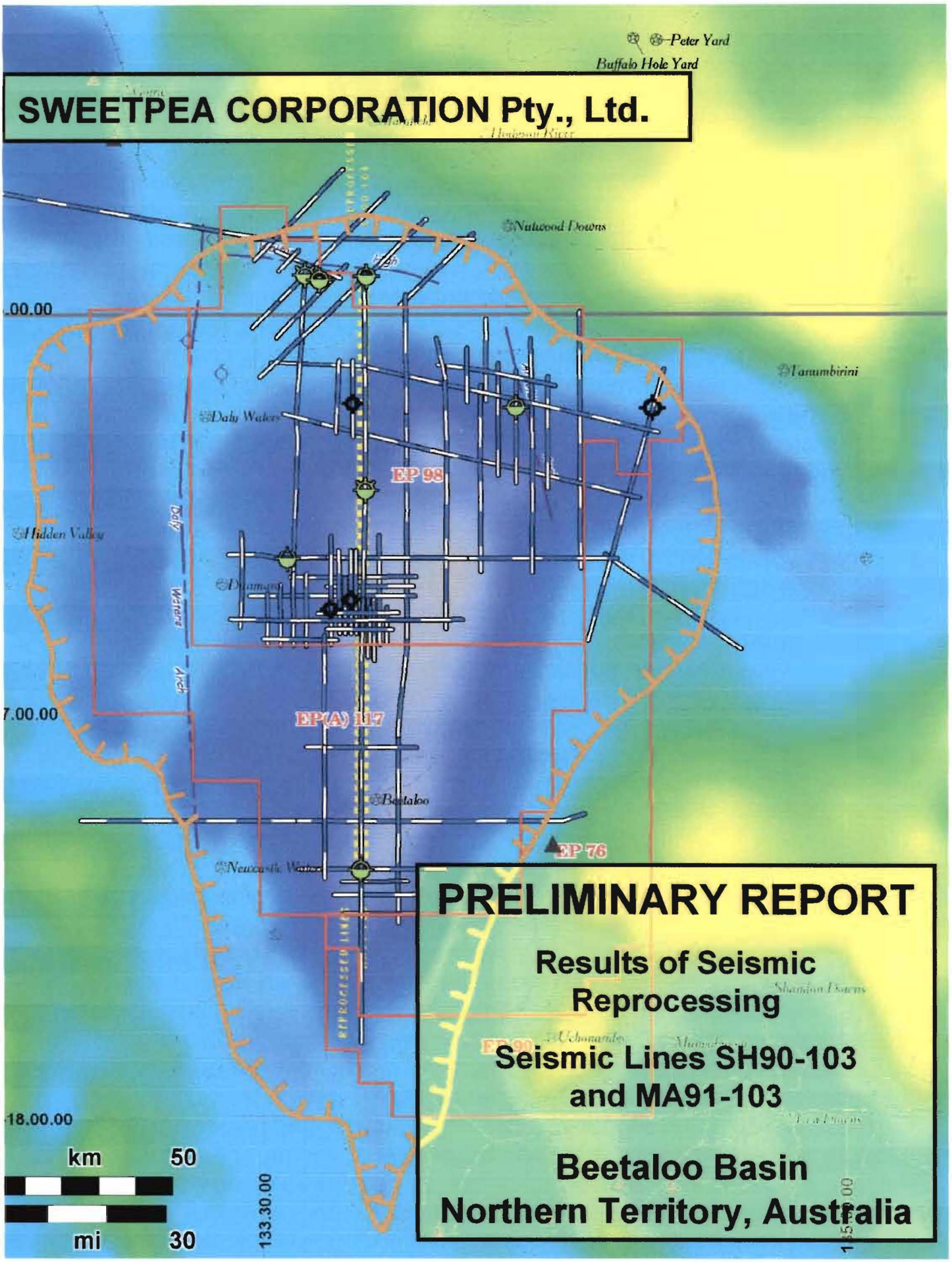

ONSHORE

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PRELIMINARY REPORT

Results of Seismic Reprocessing

Seismic Lines SH90-103 and MA91-103

Beetaloo Basin,
Northern Territory, Australia

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Cover Illustration: Seismic control being used in the interpretation of the Beetaloo Basin with gravity data showing the general outline of the Basin. Blue color indicates relatively low gravity values and yellow indicates relatively high gravity values. Well control is shown and those wells with shows are highlighted with green. Seismic lines MA91-103 (northern part) and SH90-103 are highlighted in yellow.

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INTRODUCTION

Sweetpea Corporation has acquired original data for two seismic lines, SH90-103 and MA91-103, highlighted in yellow on Figure 1, for reprocessing. The lines cross 3 permits, EP 98, EP (A) 117, and EP 76. These seismic lines tie several key wells (including the Elliott #1, Mason #1, Jamison #1, Chanin #1, and Altree #2) and, together, create a seismic cross section through the entire Beetaloo Basin from north to south. The reprocessed lines will provide a reliable basin framework both structurally and stratigraphically.

We have two main objectives in reprocessing the 177.535 km of data represented by these two lines. First, using current processing techniques, we can determine the improvement that can be achieved in data quality with reprocessing. Our ability to manipulate seismic data has improved considerably since these data were acquired. If significant improvement can be made in these two lines, this will provide a cost effective next step in exploration of the Basin. The second objective is to give us a quality regional line to assist in the interpretation of the 2300 km of additional seismic data currently in our possession.

Near-surface features, especially basalts of the Antrim Plateau Volcanics, affect data quality. We have used well, gravity, and aeromagnetic data to map the extent of volcanic rocks. Potentially, karsting in the Tindall Limestone could also cause degradation in the quality of the seismic data.

CONCLUSIONS TO DATE

1. Seismic data quality can be considerably improved with current reprocessing techniques.
2. Understanding near-surface conditions will improve future seismic acquisition and processing by reducing the noise problem seen in the current data.
3. In future seismic acquisition, higher frequencies should be recorded to improve resolution of the stratigraphy.
4. The improvement in data quality is assisting with the interpretation of those seismic lines that have not been reprocessed.
5. The improvement in data quality is assisting in structural interpretation and refinement of the timing of various structural events in the Beetaloo Basin.
6. The improvement in data quality will assist in exploration for potentially large stratigraphic traps in the Beetaloo Basin.

RESULTS OF REPROCESSING

Pulsonix, Inc., Denver, CO USA, has been chosen after a bidding process and analysis of expertise to reprocess these two seismic lines. Line SH90-103 (shotpoints 1-6670) and Line MA91-103 (shotpoints 2000-5100) were selected for reprocessing.

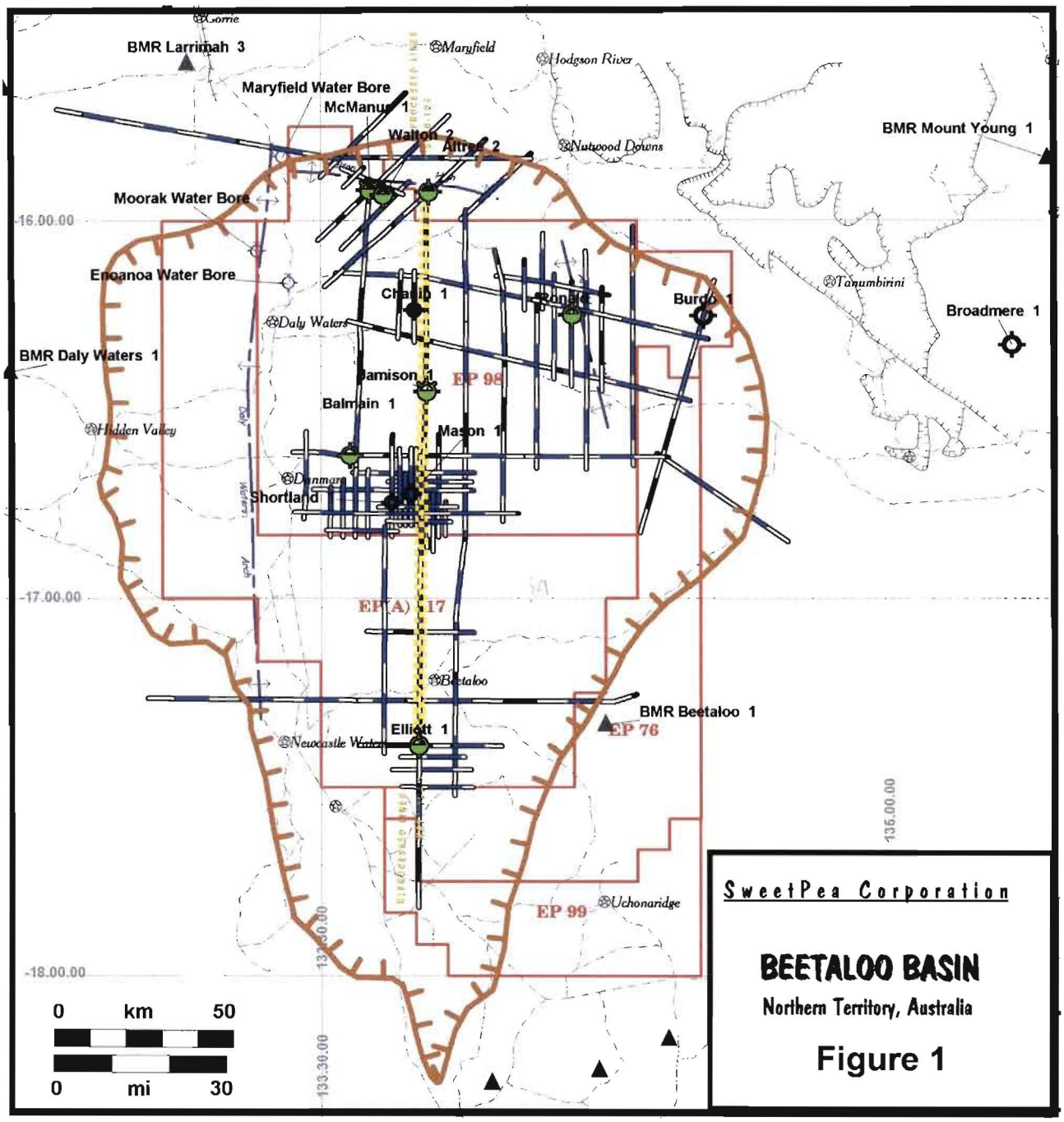
Initial work indicated that we would see significant improvement in the data. A low signal-noise ratio and undulating reflections that do not represent the geology of the subsurface are indications of automatic picking of the first energy arrivals on individual shotpoint records. Hand-picking of these first arrivals was not done in the original processing of these data probably because it is time-consuming and therefore very costly. Pulsonix has completed hand-picking first arrival times on more than 5000 records. The age of the rocks (±1400 million years) does not affect processing but the sediments in the Roper Group, as well as the Cambrian units, have very high velocities. The final results of reprocessing will be somewhat affected by the lack of higher frequencies in the data since these higher frequencies were not recorded during the original acquisition. Stratigraphic detail is degraded by the lack of higher frequencies.

Plate I shows three displays of a segment near the north end of Line SH90-103. The upper seismic line is in the style of the original black and white wiggle trace display of the data as recorded and provided to us. The second display is a color density display of the original data. Color displays provide better amplitude range than a black and white display and often assist the human eye in observing subtle differences that are not readily apparent on the black and white displays. As can be seen on the displays, the left half of the segment has very poor data quality and there are no usable data above 0.5 seconds.

At the bottom of the Panel, the current stage of reprocessing is shown as a color density display for the same line segment. This version of seismic Line SH90-103 is still a preliminary product although well along in the processing stream. As shown on the Panel, the line has had refraction statics applied (hand-picking first arrivals) followed by deconvolution, spectral balancing, two iterations of automatic statics, velocity, DMO, FX, and FK power. The line still needs to be migrated and have restacked DMO applied.

This segment is near the north end of the line where the reflectors are curving upward on the south side of the Walton Arch. It was chosen because this segment includes data that were fairly good on the original line and also areas with very poor data. The panel illustrates the improvement in both the good and bad data from the original processing. The shallow data (<0.5 seconds) are imaged much more clearly. The good data have been improved and the bad data are appreciably better imaged. These improvements are seen along the length of the seismic line.

Line MA91-103 is still early in its reprocessing but will be completed by December 8, 2004. Initial results show that we can expect similar improvement in this line.


BMR Larrimah 3
Maryfield
Hodgson River
Maryfield Water Bore
McManus 1
Walton 2
Altree 2
Nutwood Downs
BMR Mount Young 1
Moorak Water Bore
16.00.00
Tanumbirini
Broadmere 1
Enoanoa Water Bore
Daly Waters
BMR Daly Waters 1
Jamison 1
EP 98
Balmain 1
Mason 1
Hidden Valley
Shortland
17.00.00
EP(A) 117
Beetaloo
BMR Beetaloo 1
EP 76
Elliott 1
Newcastle Waters
135.00.00
EP 99
Uchonaridge
133.30.00
18.00.00
0 km 50
0 mi 30
SweetPea Corporation
BEETALOO BASIN
Northern Territory, Australia
Figure 1

SEISMIC INTERPRETATION

Concurrently with reprocessing, seismic interpretation of the existing 2300 km of data in our possession has proceeded. These interpretations will be refined based on the structural and stratigraphic details revealed as a result of the reprocessing.

Synthetics have been generated on the Burdo #1, Elliott #1, and Jamison #1 wells. These synthetics allowed us to tie the seismic reflections to specific stratigraphic horizons. Reflections within the Jamison Sandstone and the Moroak Sandstone have been correlated and structural maps on these horizons have been constructed. Isochron maps are also being constructed to assist in the interpretation of timing of various structural events within the Basin. Detailed well log cross sections have been restored to assist in seismic interpretation and refinement of timing of these structural events.

FUTURE WORK

The next step in evaluating seismic data in the Beetaloo Basin is to examine the characteristics of the rocks in the near surface to assist in noise reduction in reprocessing of existing data and development of the best acquisition parameters to guide future seismic work. One approach will be to determine any information that may be available from surface mapping that might indicate the presence of karsting and/or thicker deposits of unconsolidated material. A review of the records from shallow drilling will also be useful.

As a result of reprocessing, we are developing recommendations for acquisition parameters for future seismic programs in the Beetaloo Basin.