

February 13, 1986

Mr. Jim Montalbetti  
Technical Program Chairman  
Canadian Society of Exploration Geophysicists  
1986 National Convention

Dear Jim:

Thank you for your letter dated November 28, 1985.

Attached is an abstract for consideration for presentation at the CSEG convention this May. Also included is the author's questionnaire and a biography in the specified format.

If you have questions or need further information, please contact me or let Ian Elliott in our Calgary office know.

Thank you for your consideration.

Regards,

H. Roice Nelson, Jr.  
LANDMARK GRAPHICS CORPORATION

## Real-Time Contouring and Interactive Seismic Interpretation

H. Roice Nelson, Jr. and Dr. H. A. Hildebrand  
Landmark Graphics Corporation

Real-time contouring and mapping capabilities demonstrate a new benchmark in interactive seismic interpretation techniques. This paper demonstrates how implementing the fastest possible algorithms for interactively contouring horizon data improves the quality control of seismic interpretations.

Examples presented illustrate the variety of data input sources that can be used, how contour maps can be interactively edited, and the different display options for the contour results. Initial control points can be taken from a 2D or a 3D horizon files. For example, with sufficient well control, well tops can be loaded into a horizon file, a triangulized surface fit to these control points and put back in the horizon file. After converting to time, the well derived time-horizon (2D) or time-surface (3D) can be used as a guide horizon for the seismic interpretation.

Fitting a triangulized surface and contours to an initial interpretation immediately shows areas that do not make geologic sense. Line tie busts are highlighted as bulls-eyes (2D). Sparse picks on every Nth line (3D) can be used to build an initial surface estimate, which can be converged with the automatic picking option. Contour map display examples will include how the user can specify windows on the screen, the data assigned to these windows, dynamic rotation of perspective views, and colors for highlighting seismic lines or contours (time or depth).

## BIOGRAPHY

**H. Roice Nelson, Jr.**, B.Sc. (1974, Utah) M.B.A. (1980, S.M.U.); Senior Vice-President Technology Transfer, Landmark Graphics Corporation, 1011 Hwy. 6 South, Suite 120, Houston, Texas 77077; Landmark Graphics Canada, Ltd., 101 6th Avenue S.W., Suite 1220, Calgary, Alta, Canada T2P 3P4.

Mr. Nelson was formerly General Manager of the Allied Geophysical Laboratories and a Senior Research Scientist at the Seismic Acoustics Laboratory at the University of Houston. He spent six years as a practicing geophysicist and seismic interpreter for Mobil Exploration and Producing Services, Inc. and for Amoco Production Company.

**Dr. H. A. Hildebrand**, Ph.D. (1976, Illinois); Senior Vice President, Applications, Landmark Graphics Corporation, 1011 Hwy. 6 South, Suite 120, Houston, Texas 77077.

For several years, Dr. Hildebrand served as scientist at EXXON Production Research Company (EPRC) where he developed advanced algorithms for seismic data processing. After EXXON, Dr. Hildebrand co-founded Cyberan Geophysical Corporation and consulted in geophysics. His last accomplishment in Cyberan was the development of the Microseis workstation for Seiscom Delta United.