Lithoprobe Reprocessing Report

Prepared for:

NALCOR Oil and Gas
Department of Natural Resources, Government of Newfoundland and Labrador

Prepared by:

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VP Geophysics
Triumph Atlantic

Wednesday, 27 July, 11

Lithoprobe Reprocessing Report

Premise

This is a PEEP funded project designed to explore the benefits of reprocessing four Lithoprobe lines, LE-1, LE-2, LE-3 and LE-4 to modern day industry standards. These four Vibroseis lines were acquired on the west coast of the island in 1989. They are located in a potential petroleum region of the west coast of the island and were selected of the 13 that exist from the original survey. Triumph Atlantic reprocessed the data using our advanced software tools and programs to yield a new and improved seismic product to evaluate for oil and gas potential. The ultimate goal was to gain new insight and perhaps a different seismic solution than was originally rendered this would provide a new perspective and better understanding of the complex geology known to exist in this region. The reprocessed data we have generated was work intensive and time consuming to complete. It required considerable time to pick first break arrival times and select the optimal CDP line through the very significant CDP scatter evident on these lines.

We closely examined all the important properties and aspects of the seismic data and formulated what we believe to be the optimal processing sequence for the data. We hope that the products we have put forth will be of value for hydrocarbon exploration but any improvement would be a judgement call that a qualified Geophysical interpreter could make. The type of rock evidenced on the west coast is a very high-speed igneous rock (approx 5000m/s); the original survey was designed for deep crustal events and recorded 20 seconds of data. The maximum potential for oil would be contained in the first 4 seconds of data; therefore the 20 second record length was cut back to 6 seconds for Seg-Y and 4 seconds for display TIFFs. Although we hoped for better results from our Multi-focus processing “Tri-F” to increase stack resolution, the data did not benefit from this process due to the fundamental problems with the acquisition parameters. The final processed results contained on this flash drive are self-explanatory. Our processing decisions and selected processing flow was contrary to our normal procedure but the unique nature of this data required us to change our approach to get acceptable results.

The Data

The data is some of the toughest seismic data we have ever processed. The data was not acquired properly, mainly due to the lack of any line being straight; this is crucial for the proper distribution of offsets for a given CDP location while being vital for consistency and continuity within the seismic events. The signal was non-existent on the raw field records for the most part; the destructive ringing effect of the Vibroseis source was evidenced throughout the entire survey. The fact that the survey was performed on highways, destructive noise from traffic and power lines would likely destroy the weaker signal from the reflections of interest. To create any usable product what so ever was

challenging, we did our upmost best to create a usable product by testing many different approaches to achieve the best possible result. The CDP scatter plots included in the quality control section shows huge amounts of this destructive scatter resulting from the curved portions of the road from which the lines were acquired. This fundamentally flawed the recording spread, it is the biggest reason why the Multi-Focus could not extract any signal and was essentially ineffective on this data. The data's fold would drop so dramatically that the neighbouring depth points did not contain enough useful signal information for the program to work with. We have included the results of the multi-focus stack we ran on the data, we were disappointed with the results of the MF program as it did little to improve the data and had some questionable effects on the data. Base on these questionable results of the MFS, a decision was made to migrate the conventional structure stack with FxDecon instead. Two distinctively different ways of migrating the data were selected, Kirchhoff and Finite Difference. This appeared to be the key to imaging the data with any success. The two different migrations offered two unique migration solutions, even though they look similar in some respects, they differ in some very subtle and meaningful ways that could be of exploration interest. The conventional structure stack with an FxDecon filter applied was migrated through both migration algorithms and output to final Seg-Y files; they are named accordingly on the flash drive. The decision not use our traditional approach of migrating percentages of final stacking velocity was based on the fact that the macro velocity field could not be determined with the accuracy necessary to warrant the procedure. Migrating with the various percentages of velocity showed no appreciable difference from the 100% migration version. The additional migrations in this case were of no value and therefore have not been included as final products in this project.

The Deliverables

The quality control products we have provided on this drive are unique to the geophysical processing industry. Triumph Atlantic's one of a kind **"Processing Report**" details the complete processing history of each line. The information contained in these reports is invaluable and designed to QC all the important processing steps from start to finish. The imagery contained in the reports is designed to be very detailed, informative and practical; they will serve to provide a more informed interpretation of the data. The intensive graphs and QC imagery in these reports reveals the smallest details of the processing but most importantly, the net effect of these user-selected parameters has had on the data. It provides anyone with a complete and thorough way of checking the processing for errors and problems. The stacks provided on Seg-Y are the unfiltered structure stack and filtered versions of the "Tri-F" MFS stack and the two different migrations. The gathers provided were as requested, with all pre-processing applied. Essentially these gathers are an unstacked final structure stack. We have also included a Seg-Y viewer program in the root directory that will allow for quick inspection of the Seg-Y products generated here. The TIFF images provided were selected from the best version of both the structure and migrated stacks for each line. The 4 second displays of

the “tif” files are of high resolution and can be printed to large paper scale without issue.

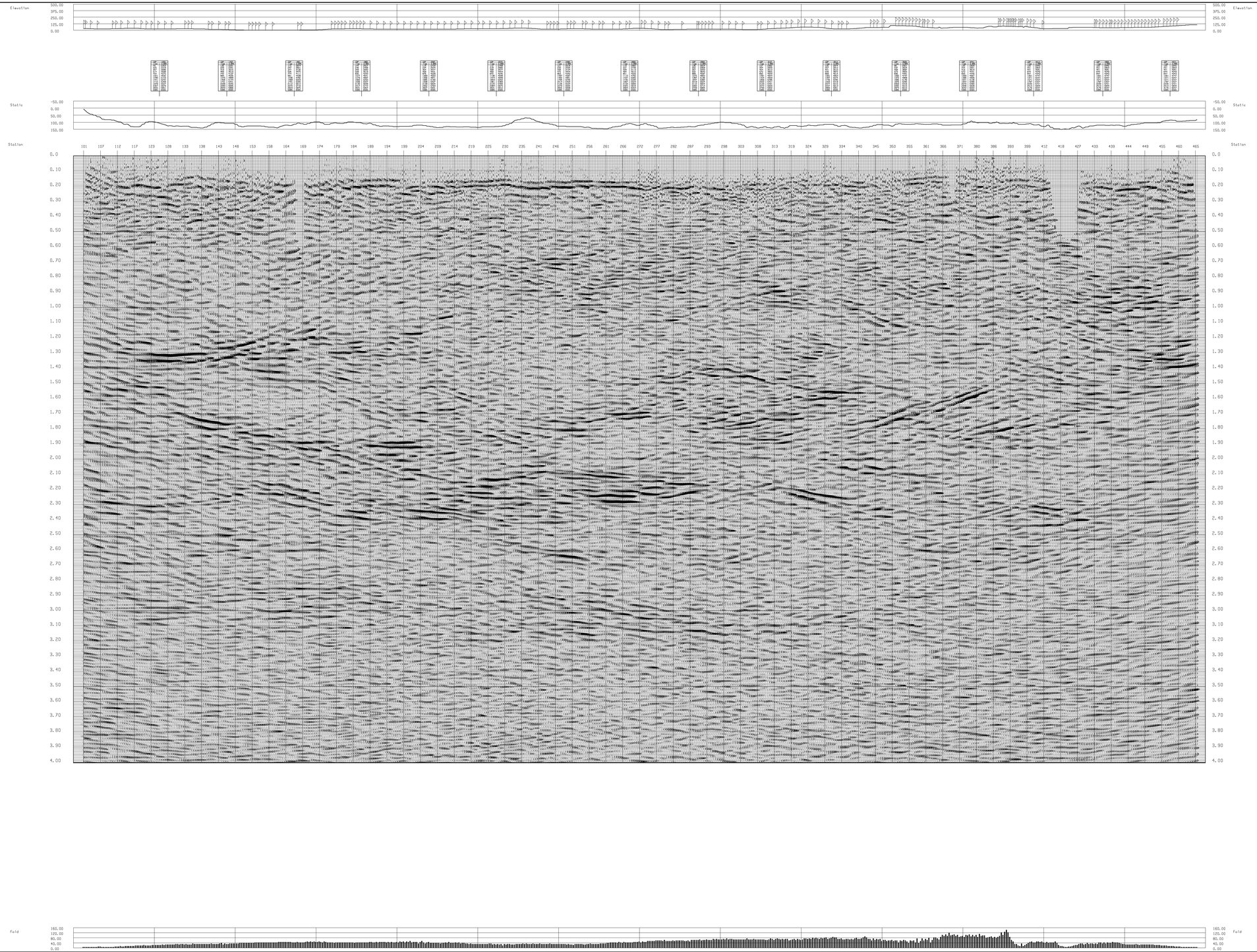
Conclusion

In our opinion the project was successful. We were able to generate improved processing results from data that differed significantly from the original product.

Our results showed distinctively different structural images in many areas contained in this 48 km segment of the Lithoprobe survey. There were interesting seismic features imaged in this data that were not present in the original processing. We also discovered the limitations of multi-focus stacking on data with very limited signal to noise ratio. The MF program is not designed to work provide enhancements in all data sets. There are times that the results produced have questionable improvements. The conventional processing performed on the data showed significant improvement.

We would welcome the opportunity to meet with you to discuss the data results. We believe that the presence of possible oil bearing anomalies, combined with similar geological structures found elsewhere in Newfoundland lend itself to further examination of the success of the project and the potential for future exploration development. We encourage your comments and look forward to your response.

Trevor B. LeDrew, BSc
VP Geophysics
Triumph Atlantic



Triumph Atlantic GEPCM

LINE:	LE-1
GEOKEY:	
REFNO:	
NTS:	12-G-1
AREA:	LITHOPROBE EAST
PROVINCE:	NEWFOUNDLAND
LOCATION:	TWP RGE
SHOT POINTS:	101 471
DIRECTION:	W <-------> E

MIGRATED
F-X FILTER
STRUCTURE
NOISE ATTENUATED

NORMAL POLARITY

ACQUISITION PARAMETERS

SHOT BY: CAPILANO GEOPHYSICAL LTD. PTY: N/A
N/A 1989

SHOT FOR: LITHOPROBE

SPREAD: 3150 - 200 * 200 - 9150 METERS
SOURCE INTERVAL: 100 METERS
RECEIVER INTERVAL: 50 METERS

SOURCE: (VIBROSEIS)
MAKE : CFS S
NUMBER OF VIBRATORS : N/A OVER 40 METERS
NUMBER OF SWEEPS / VP : 8
VIB SEPARATION : N/A METERS
VIB ARRAY LENGTH : 40 METERS
MOVE UP : N/A METERS
TOTAL ARRAY LENGTH : 40 METERS
SWEEP LENGTH : 14.000 SEC
UNCORRELATED REC LENGTH : 46.000 SEC
SWEEP FREQUENCY : 8-56 HZ

RECEIVERS: TYPE MARK L-28 14 HZ
12 GEOPHONES INLINE OVER 50 METERS

INSTRUMENTS: DFS-V TRACES: 240
TAPE FORMAT: SEGB
GAIN MODE: IFP
FIELD FILTER: N/A - N/A HZ NOTCH: N/A
SAMPLE RATE: 0.004 SEC
RECORD LENGTH: 32.000 SEC

PROCESSING PARAMETERS

DEMULTIPLEX/REFORMAT

GAIN RECOVERY: ATEBT B =0.4 SR. 4 MS

CROOKED LINE GEOMETRY: CDP BIN: 25 M SMOOTH: 10 STN
OFFSET LIMIT: 500 M

DECONVOLUTION
SURFACE CONSISTENT: MINIMUM PHASE (SHOT+RECV ONLY)
OPERATOR LENGTH: 80MS PRE-WHITENING : 10%
DESIGN WINDOW: 400 - 3200 MS AT 0 M OFFSET
2200 - 3400 MS AT 9000 M OFFSET

ENVELOPE EQUALIZATION

STRUCTURE STATICS: ELEVATION WEATHERING AND DRIFT
DATUM: 400 M
WEATHERING VELOCITY: 610 M/SEC
REPLACEMENT VELOCITY: 4500 M/SEC

VELOCITY ANALYSIS: SEMBLANCE EVERY 40 CDPS

STATICS: SURFACE CONSISTENT STATICS
CORRELATION WINDOW: 500-3000 MS
MAXIMUM SHIFT: +/- 24 MS

VELOCITY ANALYSIS: SEMBLANCE EVERY 40 CDPS

MUTE DIST. (M): 400 600 3000 9000
TIME (MS): 0 500 1500 3200

STATICS: CDP TRIM STATICS
CORRELATION WINDOW: 400-5000 MS
MAXIMUM SHIFT: +/- 10 MS

NOISE ATTENUATION: TYPE: BF NOISE
FREQUENCY: 0-60 HZ
THRESHOLD / ATTEN.: 1600 / 300
NSMASH: 5 CDPS
MEDIAN LENGTH: 31 TRACES

STACK: FOLD - 12000 %

F-X NOISE REDUCTION: PREDICTION OPERATOR LEN: 5 TRACES
DESIGN WINDOW: 20 TRACES
WINDOW LENGTH: 200 MS

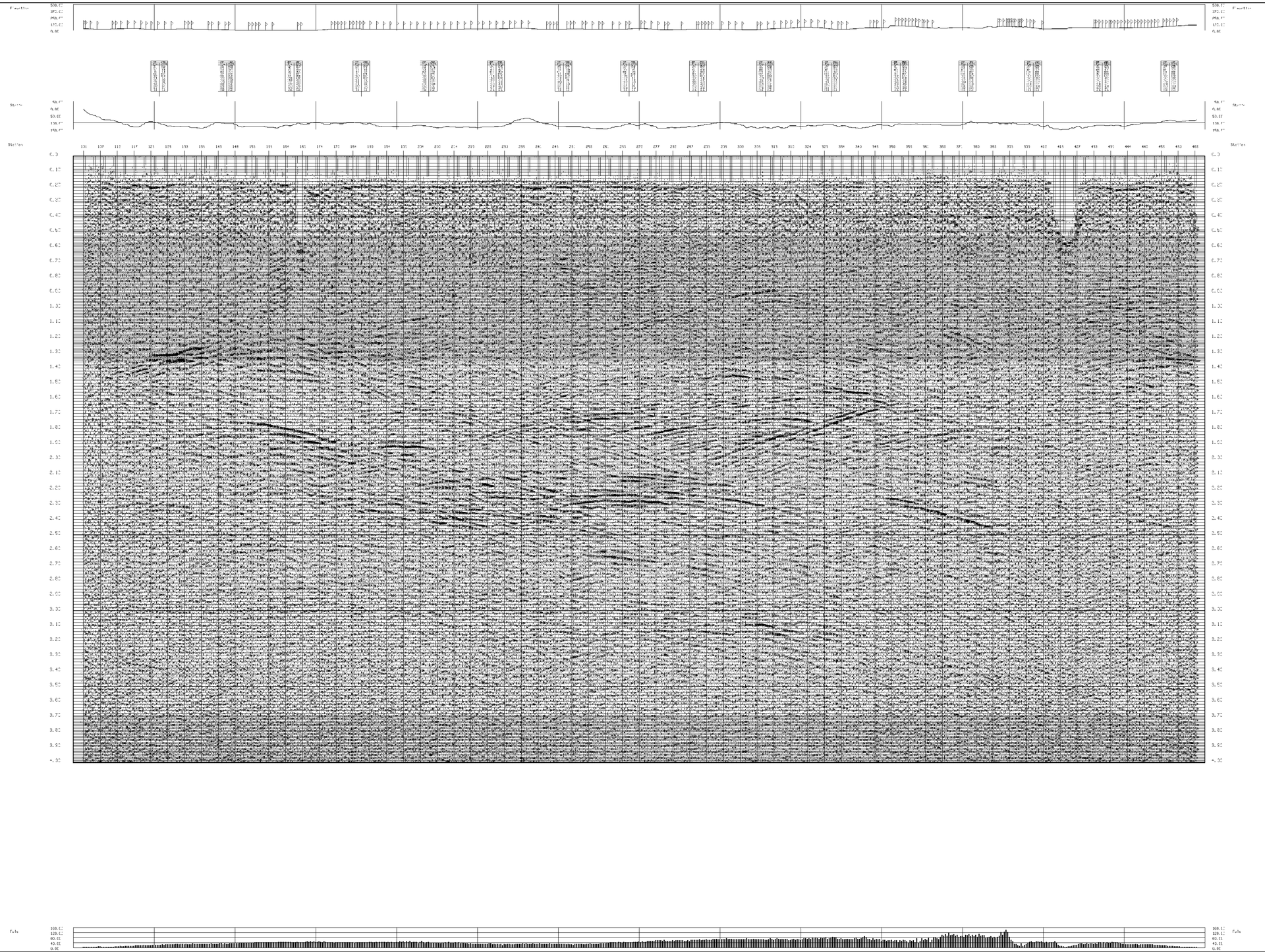
MIGRATION: 100 % STACKING VELOCITY

FILTER: 10/15-50/60 HZ

EQUALIZATION WINDOW: 800-4000 MS

Display Parameters - F:\LITH11\LE1crk\FMIGFX.TVM -

Traces/Inch === 24.00
Inches/Second === 3.75
Polarity === Normal



Triumph GEOPCM Atlantic

LINE:	LE-1
GEOKEY:	
REFNO:	
NTS:	12-G-1
AREA:	LITHOPROBE EAST
PROVINCE:	NEWFOUNDLAND
LOCATION:	TWP RGE
SHOT POINTS:	101 471
DIRECTION:	W <-------> E

STRUCTURE STACK

NORMAL POLARITY

ACQUISITION PARAMETERS

SHOT BY: CAPELAND GEOPHYSICAL LTD. PTY: N/A
N/A 1989

SHOT FOR: LITHOPROBE

SPREAD: 3150 - 200 * 200 - 3150 METERS
SOURCE INTERVAL: 100 METERS
RECEIVER INTERVAL: 50 METERS

SOURCE: (VIBROSEIS)
MAKE : CFS S
NUMBER OF VIBRATORS : N/A OVER 40 METERS
NUMBER OF SWEEPS / VP : 8
VIB SEPARATION : N/A METERS
VIB AHEAD (MAX) : 40 METERS
MOVE UP : N/A METERS
TOTAL ARRAY LENGTH : 40 METERS
SWEEP LENGTH : 14.000 SEC
UNCORRELATED REC LENGTH : 48.000 SEC
SWEEP FREQUENCY : 8-56 HZ

RECEIVER: TYPE MARK L-20 14 HZ
12 GEOPHONES INLINE OVER 50 METERS

INSTRUMENT: IBM-V IMAGES 240
TAPE FORMAT: SEGB
DATA MODE: IEEE
FIELD FILTER: N/A - N/A HZ NOTCH: N/A
SAMPLE RATE: 0.004 SEC
RECORD LENGTH: 30.000 SEC

PROCESSING PARAMETERS

DEMULTIPLEX/REFORMAT

GAIN RECOVERY: AGC 8 WIN 4 SH. 4 MS

CROOKED LINE GEOMETRY: CDP BIN: 25 M SMOOTH: 10 STN
OFFSET LIMIT: 500 M

DECONVOLUTION
SURFACE CONSISTENT MINIMUM PHASE (SHOT+RECV ONLY)
OPERATOR LENGTH 80MS PRE-WHITENING 0.10%
DESIGN WINDOW 400 - 3000 MS AT 0 M OFFSET
2000 - 3400 MS AT 8000 M OFFSET

ENVELOPE EQUALIZATION

STRUCTURE STATICS ELEVATION WEATHERING AND DRIFT
DATUM 400 M
WEATHERING VELOCITY 610 M/SEC
REPLACEMENT VELOCITY 4500 M/SEC

VELOCITY ANALYSIS SEMBLANCE EVERY 40 CDPS

STATICS SURFACE CONSISTENT STATICS
CORRELATION WINDOW 500-3000 MS
MAXIMUM SHIFT +/- 24 MS

VELOCITY ANALYSIS SEMBLANCE EVERY 40 CDPS

MUTE DIST. (M) 400 600 3000 3000
TIME (MS) 0 500 1500 3200

STATICS CDP TRIM STATICS
CORRELATION WINDOW 400 3000 MS
MAXIMUM SHIFT +/- 10 MS

GRID BALANCE STATIC SHIFTS 0 MS

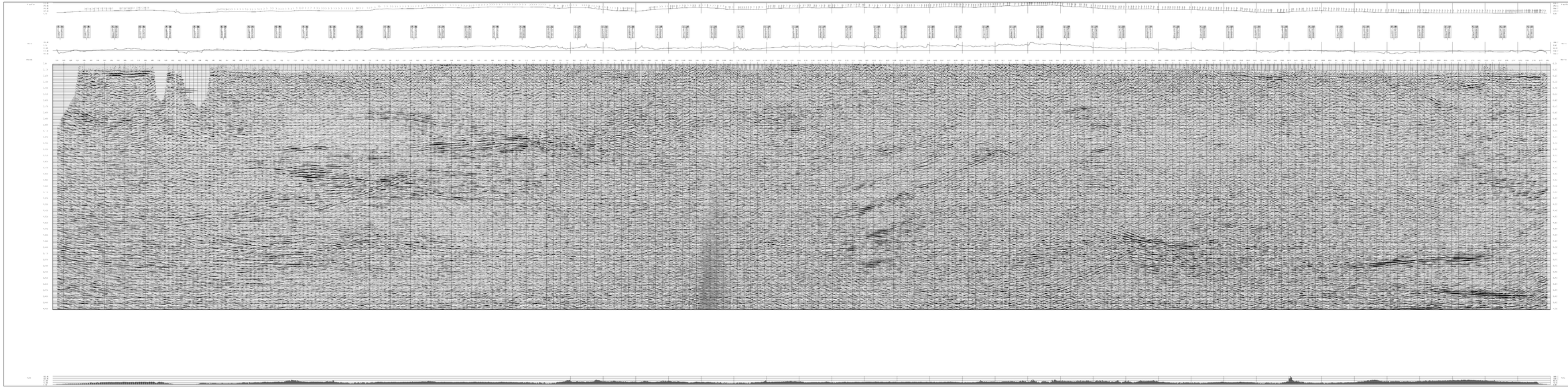
STACK FOLD - 12000 %

FILTER 10/15-50/60 HZ

EQUALIZATION WINDOW 800-4300 MS

Display Parameters F:\LITH\LE1\PSTR.TXP

Traces/Inch 24.00
Inches/Second 3.75
Polarity Normal



Triumph Seismic Services

LINE: LE-E
SEQUENCE:
METHOD:
MTA: 2D-Q-LV2D-H-4
AREA: LIVINGSTONE EAST
PROJECTED: NGP3DVALUES
LOCATION: TWP RGE
SHOT POINTS: 400 1700
DIRECTION: W <----> E

AS CREATED
AS PLOTTED
AS PROCESSED
NOTES/ATTACHED

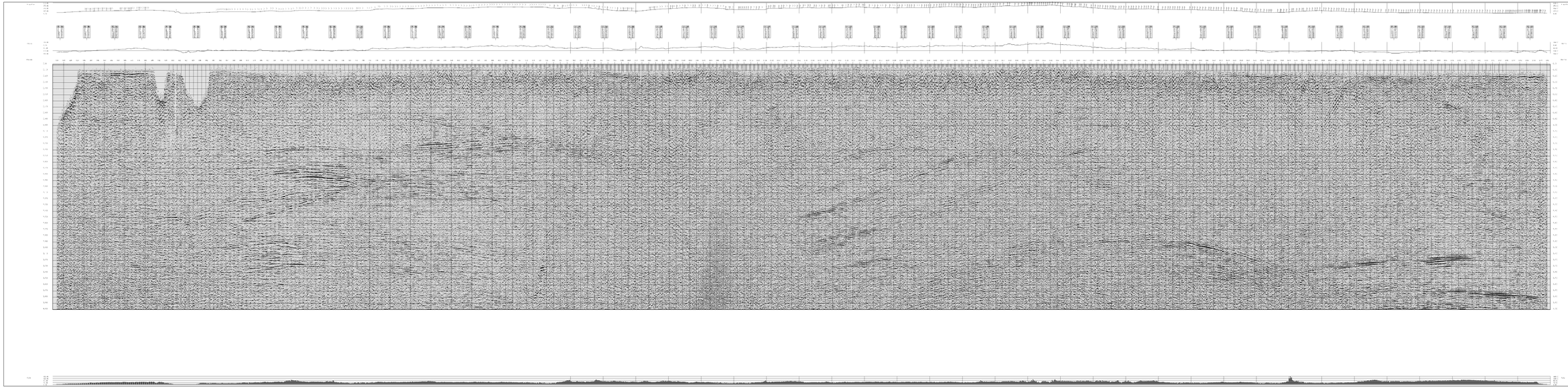
NORTHAL POLARITY

ACQUISITION PARAMETERS

SHOT ACQ: SCHLUMBERGER/GECO-PRAKLA LTD. FTG: N/A
SHOT LOC: LIVINGSTONE
SHOT TYPE: VIBROSEIS
SOURCE: PSUD VIBS, AS 2400 SERIES MEYERS
SOURCE INTERVAL: 50.0 METRES
RECEIVER INTERVAL: 50.0 METRES
NUMBER OF CHANNELS: 1 NUMBER OF RECEIVERS: 1 NUMBER OF RECEIVERS PER RECEIVING STATION: 1 NUMBER OF RECEIVING STATIONS: 1 NUMBER OF SHOTS: 1 NUMBER OF SHOTS PER SHOT POINT: 1 NUMBER OF SHOT POINTS: 1 NUMBER OF SHOT POINTS PER SHOT: 1 NUMBER OF SHOTS PER SHOT POINT: 1
RECEIVERS: FDG, MODEL SM-24, 10 HZ, 1 GEOPHONE PER GROUP, 1 GROUP PER STATION
SHOT/RECEIVER: 1 PRODUCT: PRODUCT CODE:
LOCATIONS: SHOT: N/A REC: N/A
SHOT DATE: N/A REC DATE: N/A
RECORD LENGTH: 10.0 SECONDS
SAMPLE RATE: 2.0 MILLISECONDS

PROCESSING PARAMETERS

DATA_FIT.DIS/REFORMAT
DATA RECEIVED: 4720 F 48.4 Mb Y Mb
CHECKED, LOG ORIENTED: 4720 F 48.4 Mb CHECKED IN DTPS
DATA_FIT.DIS/REFORMAT
RECORDS/FILE: 4720
RECORDS/FILE/DESCRIPTION: PROCESS PHASE LOGS/DATA ONLY
DATA FORMAT: SEGD 8058 BYTES/RECORD
DATA FORMAT DESCRIPTION: SEGD 8058 BYTES/RECORD
DATA: 1 GROUP 48 BYTES/GROUP
DATA_FIT.DIS/REFORMAT
DATA_FIT.DIS/REFORMAT
DATA_FIT.DIS/REFORMAT



Triumph

LINE: LE-E

SEGMENT:

METHOD:

MTA: 2D-D-LT2D-H-4

AREA: LIVEPOOL EAST

PROJECTED: NGP/DONLAND

LOCATION: TWP RGE

SHOT POINTS: 400 1700

DIRECTION: W <----> E

STRUCTURE STACK

NORMAL POLARITY

ACQUISITION PARAMETERS

SHOT BY: CANADIAN GEOPHYSICAL LTD. PTY. N/A
N/A N/A

SHOT DATE: 11/08/2000

SHOT TIME: 07 00 00 TO 23 00 00 DOUG MEYERS

SHOTS PER SAMPLING: 1 N/A

SHOTS PER SAMPLE: 1 N/A

SOURCE (LOCATION): MARKER
DISTANCE SOURCE/FIRST: 0 M
DISTANCE SOURCE/LAST: 0 M
SOURCE DEPTH (AVG): 0 M
SOURCE ARRAY (AVG): N/A
SOURCE ARRAY DESCRIPTION: N/A
SOURCE PRESSURE: N/A PSI
SOURCE PRESSURE DEVIATION: N/A PSI

RECEIVERS: 1 GEOPHONE PER STATION
1 GEOPHONE PER STATION IN MOTION

INSTRUMENTS: ATLAS TRACEVIEW 2000

FIELD FILTER: N/A

FIELD GAIN: N/A

SAMPLE RATE: 0.5 MS/ 2000 MS/ N/A

RECORD LENGTH: 2000 MS

PROCESSING PARAMETERS

SEGY_TO_ZGY/RETRIEVAL

DATA RETRIEVAL: XTRF - F-L-X - 3D - 0 - 0%

CREATING ZGY ARCHIVE: SEGY_TO_ZGY - CREATED 20 ZFS
ZGY_TO_ZGY - CREATED 20 ZFS

RECORDING ATTS:
RECORDING ATTENUATION: PROGRAM TYPE: LINEARPROG
RECORDING GAIN: PROGRAM NUMBER: 1
RECORDING FILTER: FREQ: 0 HERTZ TO 0 HZ, 0 DB/OCT
FREQ: 0 HERTZ TO 0 HZ, 0 DB/OCT

SHOT_AND_DEAD_TRACE:

STATIC/TIMEZERO: ELEVATION ADJUSTMENT AND DRIFT
STATIC/TIMEZERO: FIELD STATICS
STATIC/TIMEZERO: FIELD STATICS
STATIC/TIMEZERO: FIELD STATICS

VELOCITY ANALYSIS: NONLINEAR CHECK AS COPY

STATIC/TIMEZERO: REFRACTION STATICS
STATIC/TIMEZERO: REFRACTION STATICS

VELOCITY ANALYSIS: NONLINEAR CHECK AS COPY

MUTE: FIELD: 0 TO 0 MS
CDP: 0 TO 0 MS
CDP: 0 TO 0 MS

MUTE: FIELD: 0 TO 0 MS
CDP: 0 TO 0 MS
CDP: 0 TO 0 MS

MUTE: FIELD: 0 TO 0 MS
CDP: 0 TO 0 MS
CDP: 0 TO 0 MS

MUTE: FIELD: 0 TO 0 MS
CDP: 0 TO 0 MS
CDP: 0 TO 0 MS

DECONVOLUTION: DEF-FREE DECONVOLUTION
DEF-FREE DECONVOLUTION

STACK: FIELD-1 CDP 0 #

FILTER: 2-5-50-60-70 Z

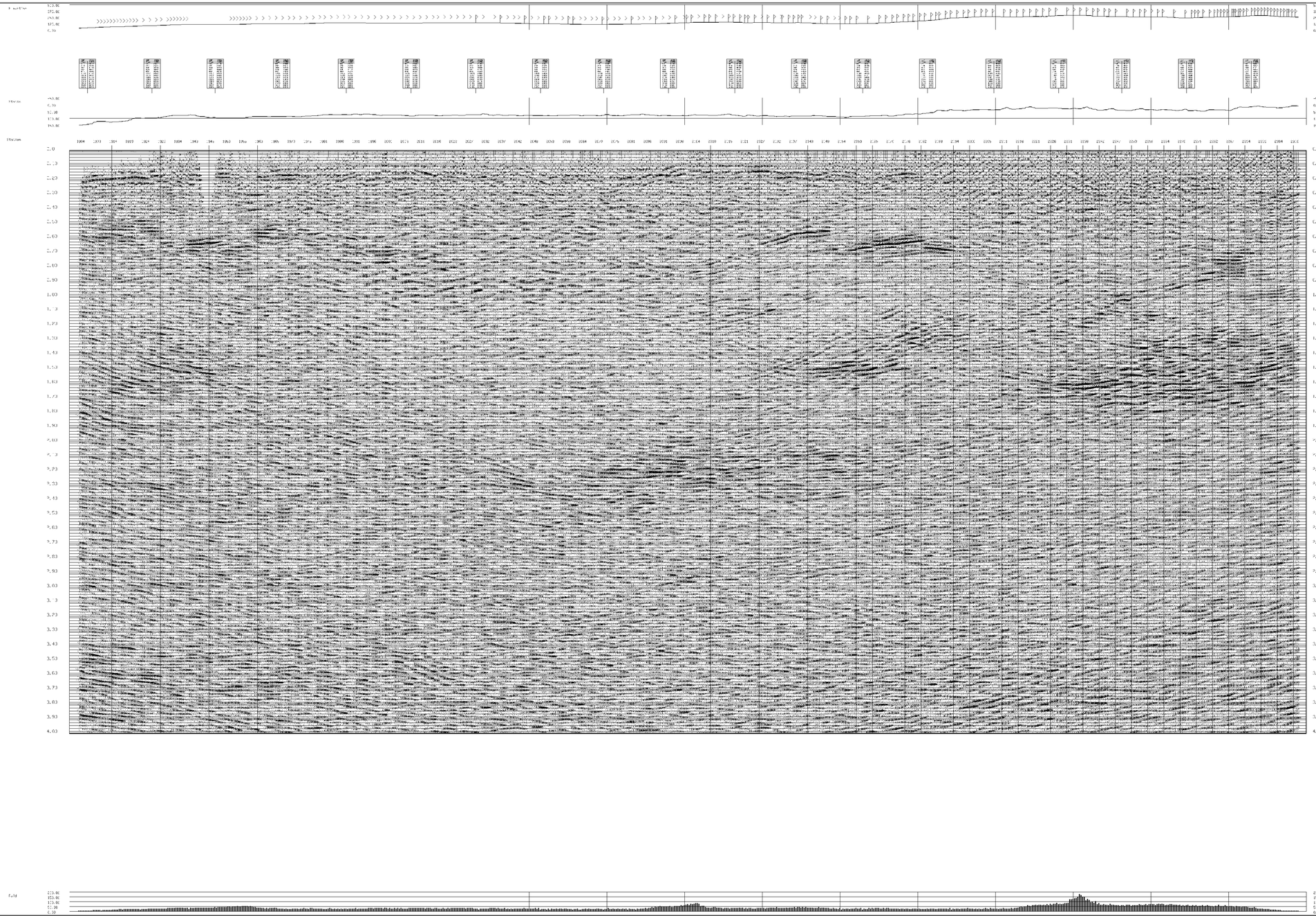
CDP4_CENTER_AVERAGE: 400-4200 MS

Processing Parameters: Tue 27 Nov 2001 Time: 10:19 AM

Version Used: 6.0

Processing Center: Calgary

Op Sys/Vers: Solaris



Triumph Atlantic GEOPOM

LINE: LE-3
GEOKEY:
REFNO:
NTS: 12-H-3
AREA: LITHOPROBE EAST
PROVINCE: NEWFOUNDLAND
LOCATION: TVP RGE
SHOT POINTS: 1987 2912
DIRECTION: W <------> E

MIGRATED
F-X FILTER
STRUCTURE
NOISE ATTENUATED

NORMAL POLARITY

ACQUISITION PARAMETERS

SHOT BY: CAPELAND GEOPHYSICAL LTD. PTY: N/A
N/A 1989

SHOT FOR: LITHOPROBE

SPREAD: 3150 200 * 200 915C METERS
SOURCE INTERVAL: 1.50 METERS
RECEIVER INTERVAL: 50 METERS

SEISMIC INFORMATION
MAKE : 10-56 h
NUMBER OF VIBRATORS : N/A OVER 40 METERS
NUMBER OF SWEEPS / VP : 8
VIB SEPARATION : N/A METERS
VIB ARRAY LENGTH : 40 METERS
MOVE UP : N/A METERS
TOTAL ARRAY LENGTH : 40 METERS
SWEEP LENGTH : 14.030 SEC
UNCORRELATED REC LENGTH : 46.030 SEC
SWEEP FREQUENCY : 8-56 HZ

RECEIVERS: TYPE MARK L-28 14 HZ
:2 GEOPHONES INLINE OVER 53 METERS

INSTRUMENTS: DFS-V TRACES 240
MANUFACTURER: SERCEL
GAIN MODE: FIX
FIELD FILTER: N/A - N/A HZ NOTCH: N/A
SAMPLE RATE: 0.004 SEC
RECORD LENGTH: 30.003 SEC

PROCESSING PARAMETERS

DEMULTIPLEX/REFORMAT

GAIN RECOVERY: ATEN: B =0.4 SR: 4 MS

CROOKED LINE GEOMETRY: CDP BIN: 25 M SMOOTH: 10 STN
OFFSET LIMIT: 500 M

DECONVOLUTION
SURFACE CONSISTENT MINIMUM PHASE (SHOT+RECV ONLY)
OPERATOR LENGTH: RMS PRE-WHITENING: .10%
DESIGN WINDOW: 430 - 5000 MS AT 0 M OFFSET
2200 - 3400 MS AT 9000 M OFFSET

ENVELOPE EQUALIZATION

STRUCTURE STATICS: ELEVATION WEATHERING AND DRIFT
DATUM: 450 M
WEATHERING VELOCITY: 610 M/SEC
REPLACEMENT VELOCITY: 4500 M/SEC

VELOCITY ANALYSIS: SEMBLANCE EVERY 40 CDPS

STATICS: SURFACE CONSISTENT STATICS
CORRELATION WINDOW: 530-1500 MS
MAXIMUM SHIFT: +/- 24 MS

VELOCITY ANALYSIS: SEMBLANCE EVERY 40 CDPS

MUTE DIST. (M): 400 600 3000 3000
TIME (MS): 0 400 1400 3000

STATICS: CDP TRIM STATICS
CORRELATION WINDOW: 430 5300 MS
MAXIMUM SHIFT: +/- .3 MS

NOISE ATTENUATION: TYPE: BF NOISE
HARDWARE: 0-80 HZ
THRESHOLD / ATTEN. : 600 / 200
NOMASK: 5 CDPS
MEDIAN LENGTH: 31 TRACES

STACK: 3000 % (1800 %)

F-X NOISE REDUCTION: PREDICTION OPERATOR LEN: 5 TRACES
DESIGN WINDOW: 20 TRACES
WINDOW LENGTH: 230 MS

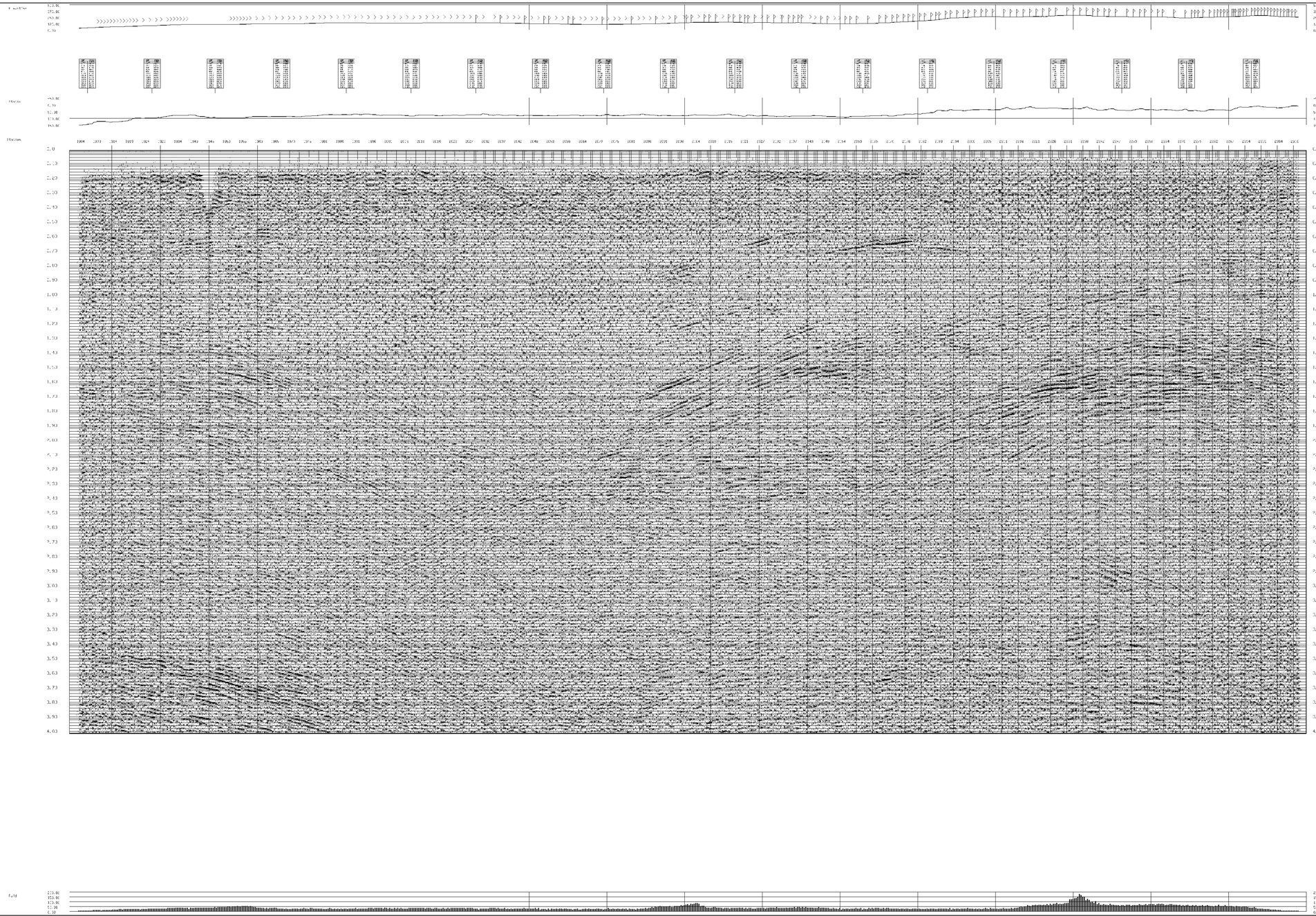
MIGRATION: 100 % STACKING VELOCITY

FILTER: 3/15-50/80 HZ

EQUALIZATION WINDOW: 830-4200 MS

Display Parameters: H:\1791\LE3or\FK1GFX.TPI

Tracks/Inch: 24.00
Traces/Second: 3.75
Polarity: Normal



Triumph GEOPCM Atlantic

LINE: LE-3

GEOKEY:

REFNO:

NTS: 12-H-3

AREA: LITHOPROBE EAST

PROVINCE: NEWFOUNDLAND

LOCATION: TVP RGE

SHOT POINTS: 1987 2912

DIRECTION: W <-------> E

STRUCTURE STACK

NORMAL POLARITY

ACQUISITION PARAMETERS

SHOT BY: CAPILANO GEOPHYSICAL LTD. PTY: N/A
N/A 1989

SHOT FOR: LITHOPROBE

SPREAD: 3150 200 * 200 315C METERS
SOURCE INTERVAL: 100 METERS
RECEIVER INTERVAL: 50 METERS

SOURCE: (VIBROSEIS)
MAKE : CFS 5
NUMBER OF VIBRATORS : N/A OVER 40 METERS
NUMBER OF SWEPS / VP : 8
VIB SEPARATION : N/A METERS
VIB ARRAY LENGTH : 40 METERS
MOVE UP : N/A METERS
TOTAL ARRAY LENGTH : 40 METERS
SWEEP LENGTH : 14.000 SEC
UNCORRELATED REC LENGTH : 46.000 SEC
SWEEP FREQUENCY : 8-56 HZ

RECEIVERS:
TYPE MAX(L-28 14 HZ
12 GEOPHONES INLINE OVER 50 METERS

INSTRUMENTS: DFS-V TRACES: 240
MAKE: SERCEL
GAIN MODE: FIX
FIELD FILTER: N/A - N/A HZ NOTCH: N/A
SAMPLE RATE: 0.004 SEC
RECORD LENGTH: 30.000 SEC

PROCESSING PARAMETERS

DEMULTIPLEX/REFORMAT

GAIN RECOVERY: ATEN: B -0.4 SR: 4 MS

CROSSED LINE GEOMETRY: CDP BIN: 25 M SMOOTH: 10 STN
OFFSET LIMIT: 500 M

DECONVOLUTION
SURFACE CONSISTENT MINIMUM PHASE (SHOT+RECV ONLY)
OPERATOR LENGTH: RMS PRE-WHITENING: 10%
DESIGN WINDOW: 400 - 3000 MS AT 0 M OFFSET
2200 - 3400 MS AT 8000 M OFFSET

ENVELOPE EQUALIZATION

STRUCTURE STATICS: ELEVATION WEATHERING AND DRIFT
DATUM: 400 M
WEATHERING VELOCITY: 610 M/SEC
REPLACEMENT VELOCITY: 4500 M/SEC

VELOCITY ANALYSIS: SEMBLANCE EVERY 40 CDPS

STATICS: SURFACE CONSISTENT STATICS
CORRELATION WINDOW: 500-1500 MS
MAXIMUM SHIFT: +/- 24 MS

VELOCITY ANALYSIS: SEMBLANCE EVERY 40 CDPS

MUTE DIST. (M.): 400 800 3000 3000
TIME (MS): 0 400 1400 3000

STATICS: CDP TRIM STATICS
CORRELATION WINDOW: 400 5200 MS
MAXIMUM SHIFT: +/- 13 MS

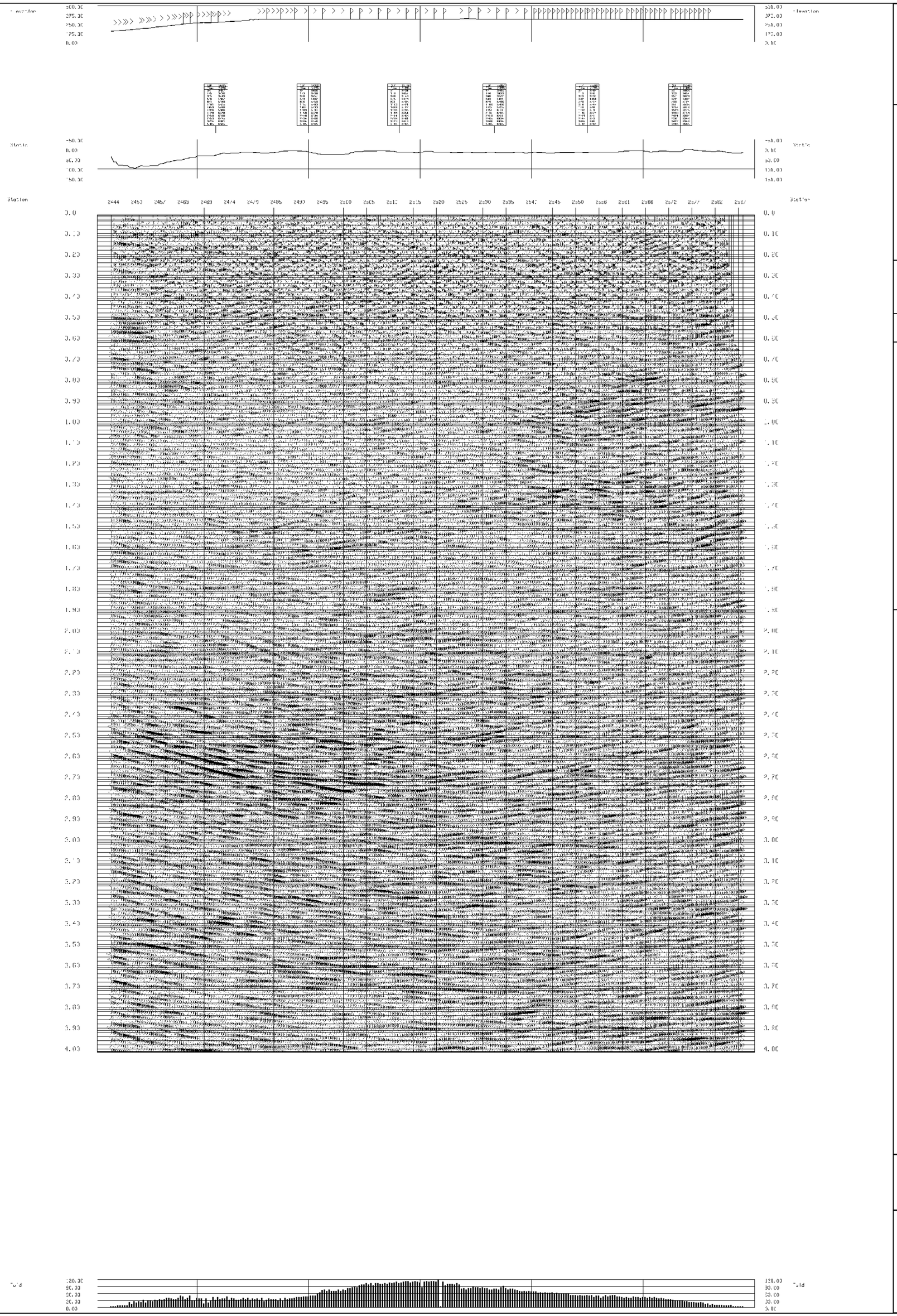
STACK: FOLD = 12000 %

FILTER: 12/15-50/60 HZ

EQUALIZATION WINDOW: 800-4000 MS

Display Pseudonym: "L:\TRIL\LE3or\PS"A.TVP

Trace/Inch: 24.00
Trace/Second: 3.75
Polarity: Normal



Triumph Atlantic GEPCM

LINE: LE-4
GEOKEY:
REFNO:
NTS: 12-H-3
AREA: LITHOPROBE EAST
PROVINCE: NEWFOUNDLAND
LOCATION: TWP RGE
SHOT POINTS: 2443 2598
DIRECTION: W <-------> E

MIGRATED
F-X FILTER
STRUCTURE
NOISE ATTENUATED

NORMAL POLARITY

ACQUISITION PARAMETERS

SHOT BY: CAPELANO GEOPHYSICAL LTD. PTY: N/A
N/A 1989

SHOT FOR: LITHOPROBE

SPREAD: 3150 200 • 200 9150 METERS
SOURCE INTERVAL: 100 METERS
RECEIVER INTERVAL: 50 METERS

SOURCE: [VIBROS-IST]
MAKE : CFS 5
NUMBER OF VIBRATORS : N/A OVER 40 METERS
NUMBER OF SWEEPS / VP : 8
VIB SEPARATION : N/A METERS
VIB ARRAY LENGTH : 40 METERS
MOVE UP : N/A METERS
TOTAL ARRAY LENGTH : 40 METERS
SWEEP LENGTH : 14.000 SEC
UNCORRELATED REC LENGTH : 46.000 SEC
SWEEP FREQUENCY : 8-56 HZ

RECEIVERS: TYPE MARK L-28 14 HZ
12 GEOPHONES INLINE OVER 50 METERS

INSTRUMENTS: DFS-V TRACES: 240
TAPE FORMAT: SEGB
GAIN MODE: IFP
FIELD FILTER: N/A - N/A HZ NOTCH: N/A
SAMPLE RATE: 0.004 SEC
RECORD LENGTH: 92.000 SEC

PROCESSING PARAMETERS

DEMULTIPLEX/REFORMAT

GAIN RECOVERY ATEBT B -0.4 SR. 4 MS

CROOKED LINE GEOMETRY CDP BIN: 25 M SMOOTH: 10 STN
OFFSET LIMIT: 500 M

DECONVOLUTION
SURFACE CONSISTENT MINIMUM PHASE (SHOT+RECV ONLY)
OPERATOR LENGTH 80MS PRE-WHITENING .10%
DESIGN WINDOW 400 - 3200 MS AT 0 M OFFSET
2200 - 3400 MS AT 9000 M OFFSET

ENVELOPE EQUALIZATION

STRUCTURE STATICS ELEVATION WEATHERING AND DRIFT
DATUM 400 M
WEATHERING VELOCITY 610 M/SEC
REPLACEMENT VELOCITY 4500 M/SEC

VELOCITY ANALYSIS SEMBLANCE EVERY 40 CDPS

STATICS SURFACE CONSISTENT STATICS
CORRELATION WINDOW 1000-3000 MS
MAXIMUM SHIFT +/- 24 MS

VELOCITY ANALYSIS SEMBLANCE EVERY 40 CDPS

MUTE DIST. (M) 100 600 3000 9000
TIME (MS) 0 600 1600 3000

STATICS CDP TRIM STATICS
CORRELATION WINDOW 400 5000 MS
MAXIMUM SHIFT +/- 10 MS

NOISE ATTENUATION TYPE: BF NOISE
FREQUENCY: 0-60 HZ
THRESHOLD / ATTEN. 1600 / 300
NSMASH 5 CDPS
MEDIAN LENGTH 31 TRACES

STACK FOLD = 12000 %

F-X NOISE REDUCTION PREDICTION OPERATOR LEN: 5 TRACES
DESIGN WINDOW: 20 TRACES
WINDOW LENGTH: 200 MS

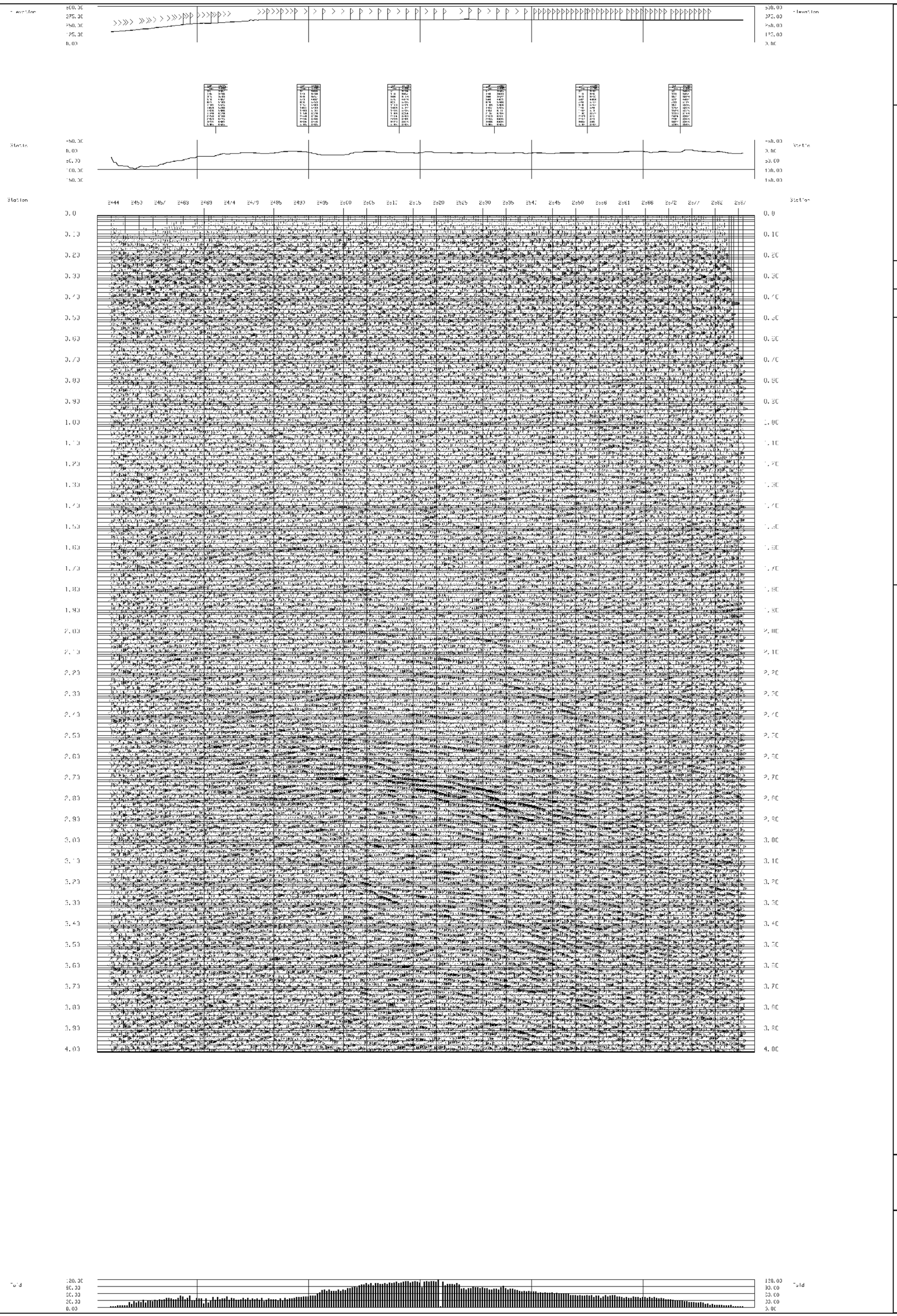
MIGRATION 100 % STACKING VELOCITY

FILTER 10/15-50/60 HZ

EQUALIZATION WINDOW 800-4000 MS

Display Parameters F:_TH11_E4ck\FMIGFX.TXT

Traces/Inch 24.00
Inches/Second 3.75
Polarity Normal



Triumph Atlantic GEPCM

LINE: LE-4

GEOKEY:

REFNO:

NTS: 12-H-3

AREA: LITHOPROBE EAST

PROVINCE: NEWFOUNDLAND

LOCATION: TWP RGE

SHOT POINTS: 2443 2598

DIRECTION: W <-------> E

STRUCTURE STACK

NORMAL POLARITY

ACQUISITION PARAMETERS

SHOT BY: CAPELANO GEOPHYSICAL LTD. PTY: N/A
N/A 1989

SHOT FOR: LITHOPROBE

SPREAD: 3150 200 * 200 9150 METERS
SOURCE INTERVAL: 100 METERS
RECEIVER INTERVAL: 50 METERS

SOURCE: (VIBROSEIS)

MAKE	: CFS 5	
NUMBER OF VIBRATORS	: N/A OVER 40 METERS	
NUMBER OF SWEEPS / VP	: 8	
VIB SEPARATION	: N/A	METERS
VIB ARRAY LENGTH	: 40	METERS
MOVE UP	: N/A	METERS
TOTAL ARRAY LENGTH	: 40	METERS
SWEEP LENGTH	: 14.000	SEC
UNCORRELATED REC LENGTH	: 46.000	SEC
SWEEP FREQUENCY	: 8-56	HZ

RECEIVERS: TYPE MARK L-28 14 HZ
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OFFSET LIMIT: 500 M

DECONVOLUTION
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OPERATOR LENGTH 80MS PRE-WHITENING .10%
DESIGN WINDOW 400 - 3200 MS AT 0 M OFFSET
2200 - 3400 MS AT 9000 M OFFSET

ENVELOPE EQUALIZATION

STRUCTURE STATICS ELEVATION WEATHERING AND DRIFT
DATUM 400 M
WEATHERING VELOCITY 610 M/SEC
REPLACEMENT VELOCITY 1500 M/SEC

VELOCITY ANALYSIS SEMBLANCE EVERY 40 CDPS

STATICS SURFACE CONSISTENT STATICS
CORRELATION WINDOW 1000-3000 MS
MAXIMUM SHIFT +/- 24 MS

VELOCITY ANALYSIS SEMBLANCE EVERY 40 CDPS

MUTE DIST. (M) 400 600 3000 9000
TIME (MS) 0 600 1600 3000

STATICS CDP TRIM STATICS
CORRELATION WINDOW 400 5000 MS
MAXIMUM SHIFT +/- 10 MS

STACK FOLD = 12000 %

FILTER 10/15-50/60 HZ

EQUALIZATION WINDOW 800-4000 MS

Display Parameters F:_TH11_E4ck\F5TR.TVM

Traces/Inch 24.00
Inches/Second 3.75
Polarity Normal