



DUNCAN CREEK GOLDDUSTERS LTD.

**SEISMIC REFRACTION AND REFLECTION
SURVEYS ON DUNCAN AND KEYSTONE
CREEKS, MAYO AREA, YUKON TERRITORY**

M.A. Power M.Sc. P. Geo.

Placer claims and leases

P2173, P2665

PL 9774, 9773, 9772, 9781, 9759, 9859

Location: 63° 48' N ^{135° 30' W} ~~13° 30' W~~
NTS: 105 M 13/14
Mining District: Mayo, YT
Date: December 23, 1996

120169

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and is recommended allowable
representation work in the amount
of \$ 6000.00.

W. B. Lang
for Chief Geologist, Exploration and
Geological Services Division, Northern
Development Program for Commissioner of

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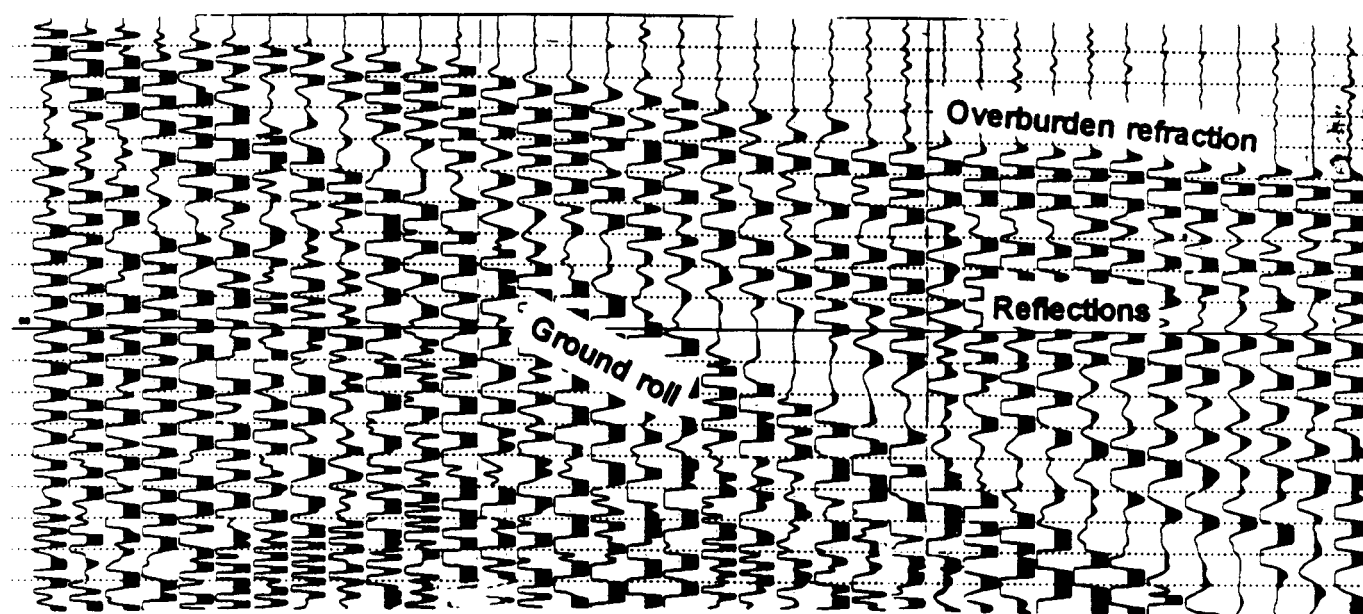


Figure 6. Walkaway seismic survey. Geophones spaced at 1 m intervals. Shot point is 1 m to the left of the geophone array. Refracted and reflected arrivals together with ground roll / blast wave are indicated on the record.

SUMMARY

Seismic refraction surveys were performed on placer leases and claims owned by Duncan Creek Goldbusters Ltd. on Keystone Creek, Duncan Creek and on its tributaries from August 5-12, 1996. Bedrock was identified at mineable depths (less than 40 m) on most of the survey lines. On 40 Pup Creek, the basal refractor may be either bedrock or permafrost. On Keystone Creek, an apparent bedrock refractor was identified at a depth of approximately 20 m. Surveys on several first and second tier placer leases above the main mining operation on Duncan Creek located shallow permafrost and no bedrock refractions were identified. Results of the seismic surveys should be tested by drilling or excavation where possible.

1.0 INTRODUCTION

This report describes seismic refraction surveys performed on placer claims and leases owned by Duncan Creek Goldusters Ltd. on Duncan Creek, Keystone Creek and 40 Pup Creek in the Mayo Mining District, Yukon. The survey was conducted from August 5 to 12, 1996 in order to determine the depth to bedrock and to map the bedrock topography before conducting further testing.

2.0 LOCATION, ACCESS AND PROPERTY DESCRIPTION

The Duncan Creek Placer Property owned by Duncan Creek Goldusters Ltd. is located on the lower end of Duncan Creek, above its confluence with the Mayo River in the central Yukon Territory (Figure 1). The property is 40 km from Mayo along the Duncan Creek Road and the Silver Trail.

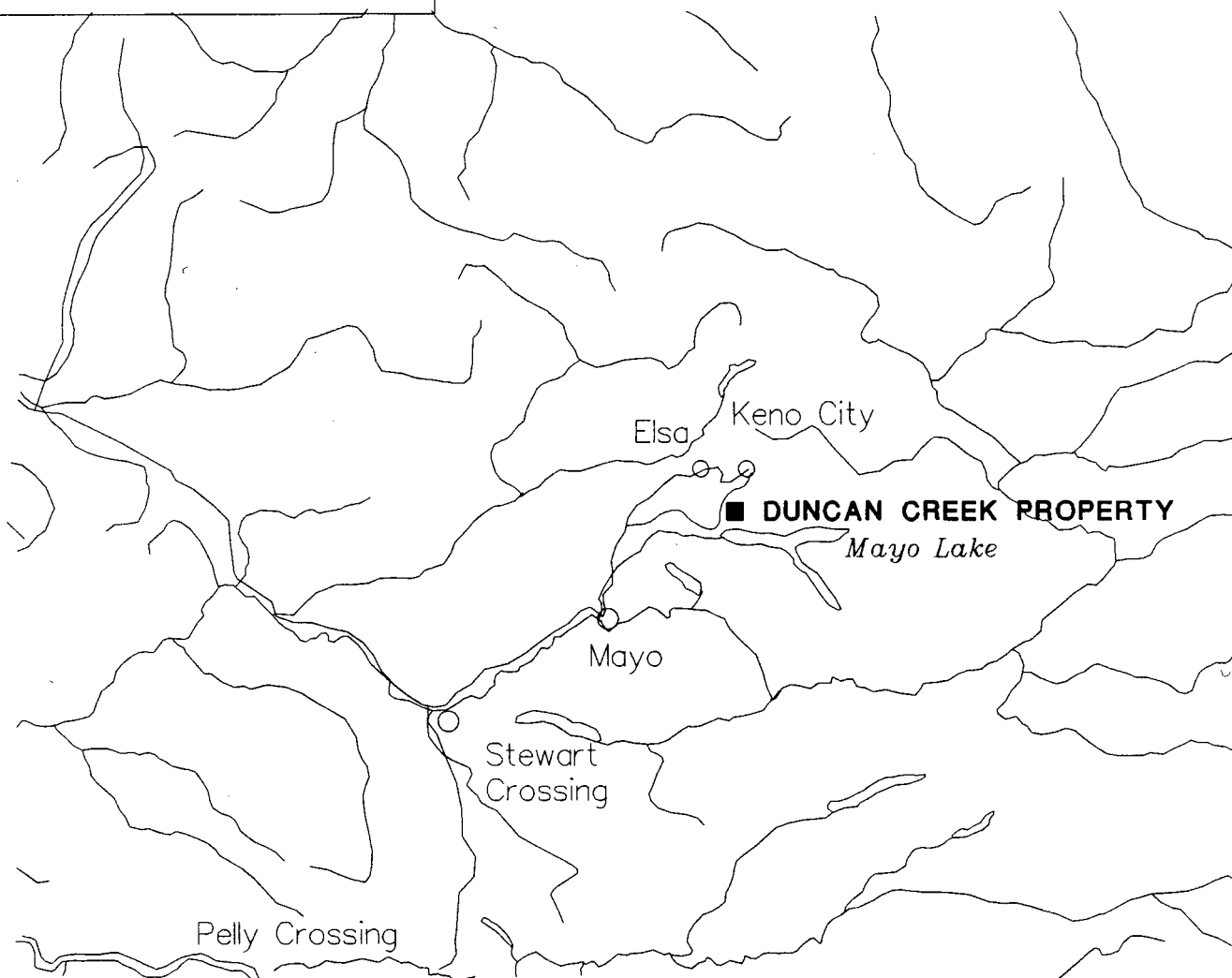
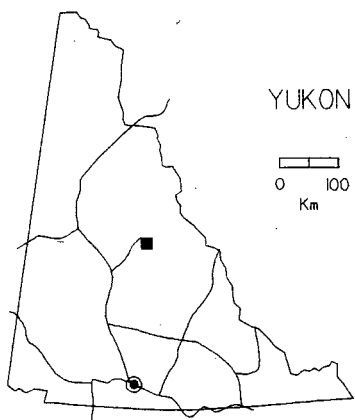
The geophysical survey was performed on the following placer leases and claims:

SITE NAME	PLACER CLAIMS OR LEASES
Lower Duncan Claims	P2665 / P2173
Lower Duncan Creek Lease	PL9759
Lower Duncan First Tier Lease	PL9772
Lower Duncan Second Tier Lease	PL9773
Unnamed Creek Lease	PL9781
Second Lower Duncan Creek Lease	PL9837
Keystone Creek Lease	PL9859
40 Pup Lease	PL9774

The properties on Duncan Creek and seismic line locations are shown in Figure 2.

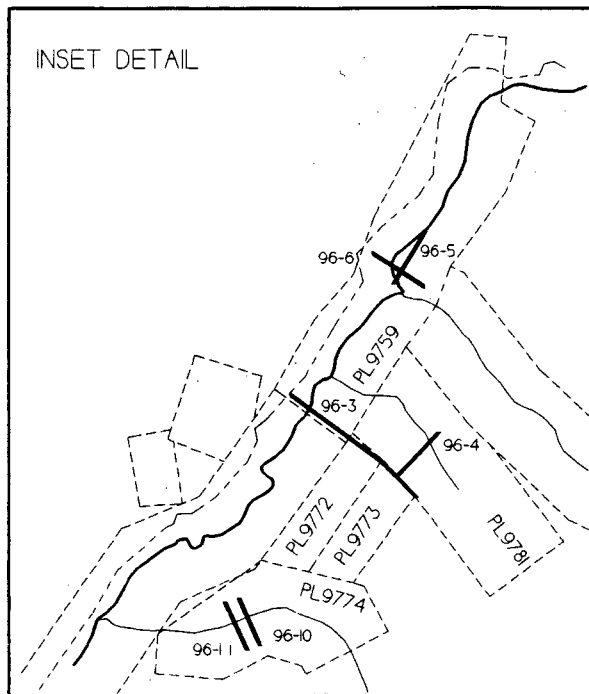
3.0 GEOLOGY

The Duncan Creek Property is underlain by PreCambrian rocks of the Hyland Group (Roots and Murphy 1992) (Figure 3). On Van Cleaves Hill, west of the property, and in the creek bed on the property, grey weathering fine to coarse grain quartzite and phyllite are found in outcrop. Rocks north of the property are cut by north to northeast verging shallow-dipping thrust faults which in turn are cut by steeply-dipping to vertical

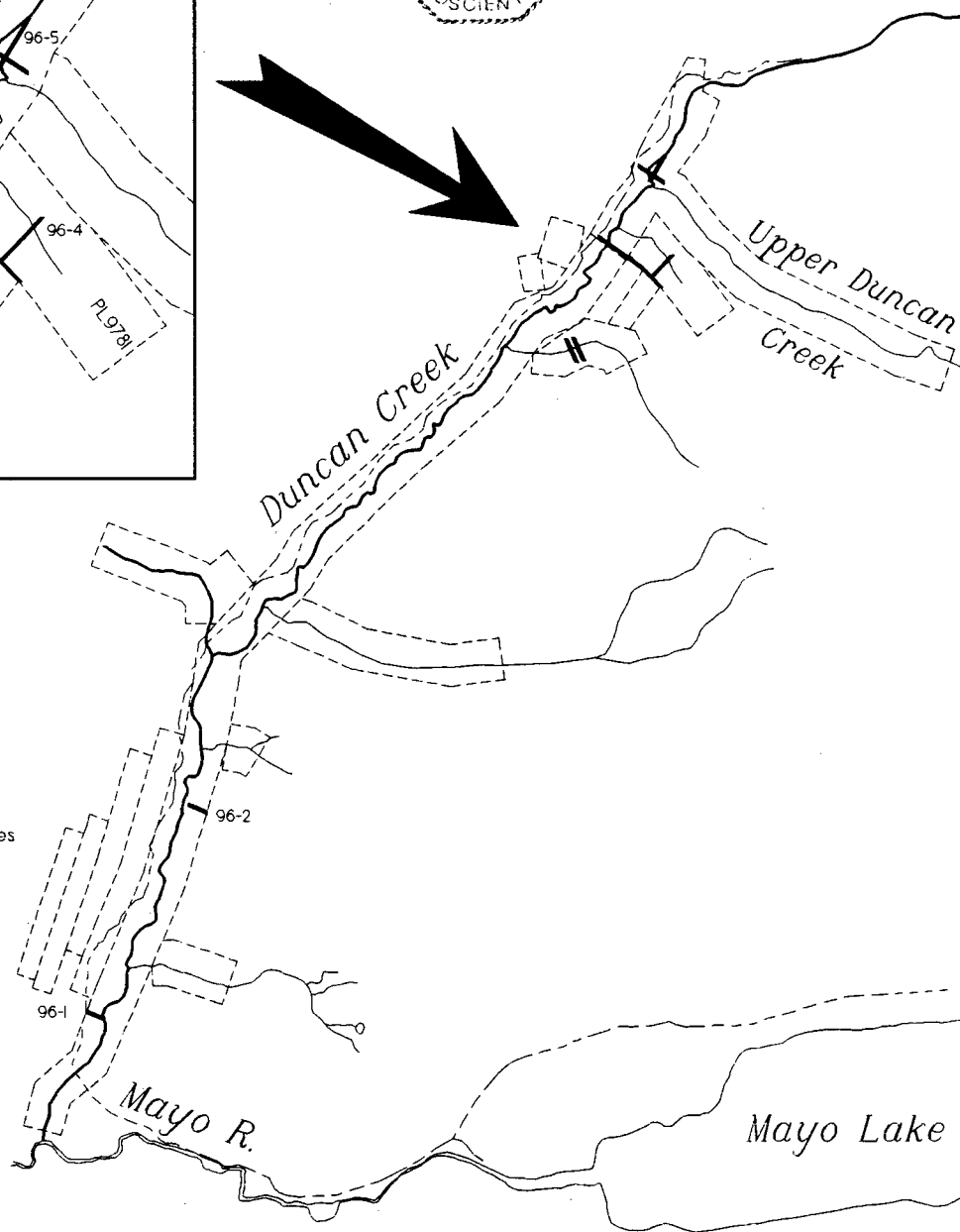


0 50
Kilometres

DUNCAN CREEK GOLDDUSTERS LTD.	DUNCAN CREEK PROPERTY	
LOCATION AND ACCESS	MINING DISTRICT: MAYO	
	NTS: 105 M 14	SCALE: 1:1,440,000
AMEROK GEOSCIENCES LTD.	DRAWN BY: M.P.	
	DATE: 23DEC96	FIGURE: 1



- 96-6 Refraction seismic survey lines
- PL9774 Placer claim or lease boundaries
- Access roads



DUNCAN CREEK GOLDDUSTERS LTD.	DUNCAN CREEK PROPERTY	
REFRACTION SEISMIC SURVEYS LINE LOCATIONS	MINING DISTRICT: MAYO, YT	
	NTS: 105MI4	SCALE: 1:800
AMEROK GEOSCIENCES LTD.	DRAWN BY: M.P.	
	DATE: 22DEC96	FIGURE: 2

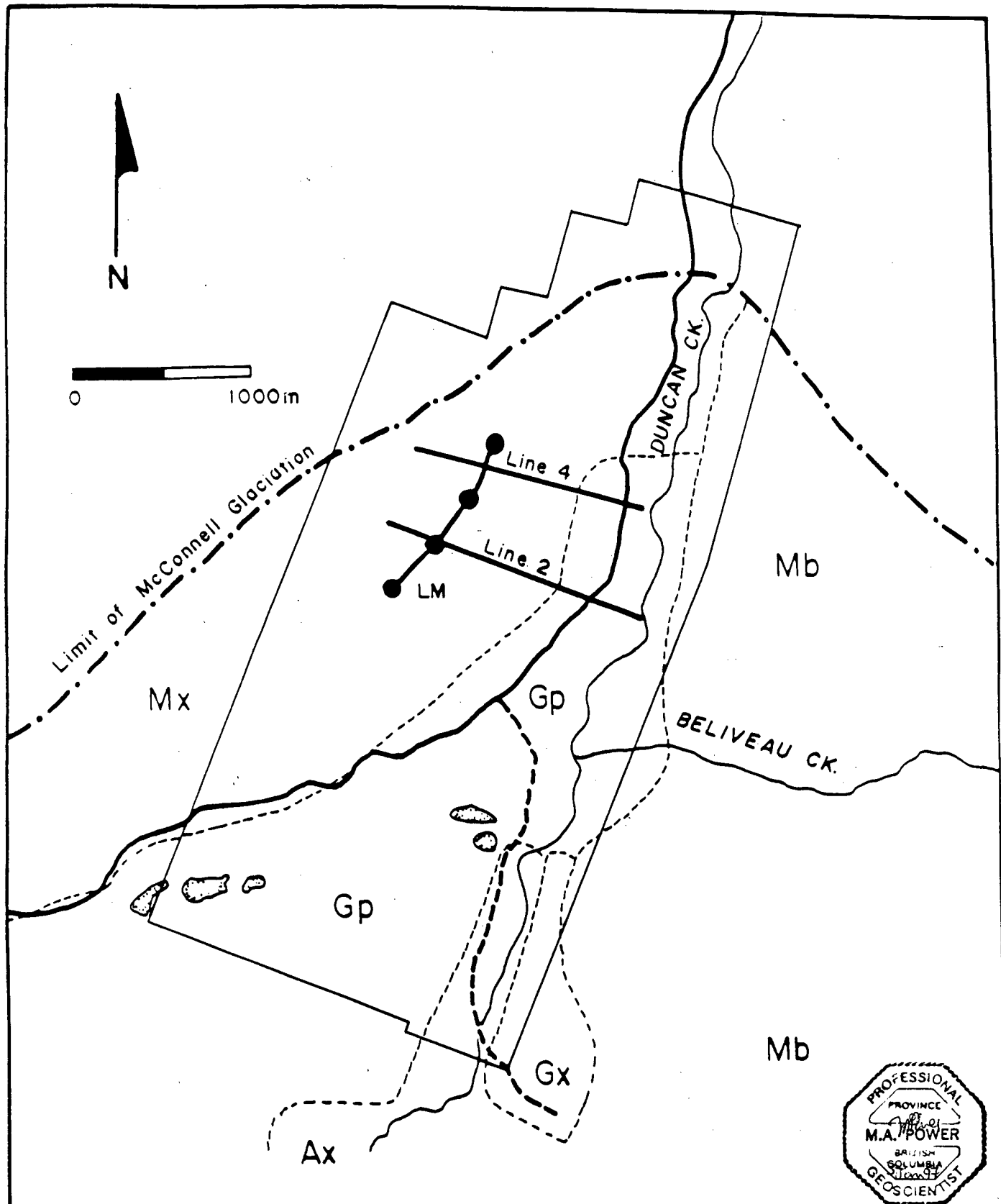


Figure 3. Surficial geology in the vicinity of the Duncan Creek Property after Hughes (1982). Mx - complex moraine. Mb - blanket moraine. Gp - glaciofluvial plain. Gx - glaciofluvial complex. Ax - recent alluvial complex. LM - lateral moraine.

northeast-trending strike slip faults of minor displacement and complementary northwest-trending offset faults. These structures host the silver-lead-zinc deposits in the Elsa / Keno area. Outcrop is scarce near the placer property and no structures are mapped on it.

The surficial geology of the lower end of Duncan Creek is dominated by glacial landforms and deposits and has been mapped by Hughes (1982). The overall U-shaped profile of the creek valley and the smoothing and plucking of bedrock outcrops below 4500 feet in the valley appear to predate the dominant effects of the McConnell glaciation and may be evidence of the Reid Glaciation in the area. During the McConnell Glaciation, a lobe of a large glacier in the Mayo River valley appears to have pushed up Duncan Creek as far as the north end of the Duncan Creek Property, leaving a blanket of glacial till and what appears to be a lateral moraine (**LM** in Figure 3). Hughes mapped extensive blankets and complex deposits of pebble through boulder till in the area (**Mb** and **Mx** in Figure 3). It is doubtful that older deposits lie beneath the glacial till given that the ice movement was parallel to the drainage. Duncan Creek re-established a channel on the east side of the valley following the retreat of the ice, depositing a sequence of glaciofluvial deposits (**Gp** and **Gx** in Figure 3). At the base of the sequence in the present mine workings, 7 to 10 m of massive to crudely stratified, poorly sorted gravel lie on weathered bedrock (Taylor 1990). This is overlain by gravel with interbedded laminated sand layers and 8 to 12 m of predominantly sand and silt. These sediments are thought to be derived from the glacial till and, in the area of the mine workings, they completely replace glacial deposits.

There are significant differences between flow regimes in the current stream and in the older postglacial stream. The post glacial stream formed a large deltaic lobe and the glaciofluvial sediments in section display bedforms associated with braided stream environments (Taylor 1990). The recent stream is confined to a single high gradient channel within the older alluvial plain. In some areas the recent stream has cut into bedrock while in others it has not yet cut down to the basal gravel unit. At the lower end of Duncan Creek, it has deposited a complex bed of alluvium (Unit **Ax** in Figure 3). The overall gradient of the recent stream is significantly steeper than the older drainage; near its confluence with the Mayo River, the present channel is 100 to 200 feet lower than the older glacial channel deposits. The recent stream is also cutting back upstream, dissecting the older alluvial plain and forming a steep-sided channel which now extends to near the limit of the McConnell Glaciation. This change in gradient between the older and recent drainage suggests that the area is currently undergoing uplift, perhaps caused by postglacial isostatic rebound.

Placer gold is mined from the lowermost gravels in the glaciofluvial sediments (Units **Gp** and **Gx**) where exposed in the recent channel of Duncan Creek. This is

interesting in that these gravels are derived from glacial deposits and not from degradation of nearby bedrock (Taylor 1990). Normally, glacial processes tend to disrupt and disperse placer deposits. Sims (1982) points out, however, that under conditions where terminal ice positions remain relatively constant, rich bedrock or placers can be moved to the terminus, reworked and reconcentrated. In the Westland District of New Zealand, economic placers occur in kame and esker complexes and at Valdez Creek in Alaska, rich placer ground is found in deep glacial outwash channels.

Sims states that placer gold in glacial deposits is generally fine, rounded or flattened and fairly evenly dispersed. The placer gold found in Duncan Creek fits this description (F. Taylor, 1992, personal communication). The ultimate bedrock source of the placer gold in Duncan Creek is probably upstream in silver-lead-zinc veins on Galena Hill and arsenopyrite-gold veins near Mount Hinton.

4.0 SEISMIC THEORY

Seismic methods employ an energy source to generate acoustic waves in the earth and record reflected and refracted seismic waves with long period microphones known as geophones. For ease of operation, the geophones and shots are commonly laid out along a single cut line and the shot is spaced some distance from the geophones.

Seismic wave theory is well described in such standard texts as Telford *et. al.* (1990) and is briefly summarized below. An energy source such as explosives, a sledge hammer or dropped weight is used to generate mechanical waves which radiate away from the shot or impact point. Compressional (**P**) and transverse (**S**) seismic waves generated by the source reflect and refract at the boundary between media with different seismic wave velocities (Figure 4(a)). Different earth materials have characteristic seismic velocities (Table I). The angle of emergence for a reflected wave equals the angle of incidence while the angle of refraction is governed by Snell's Law:

$$\frac{\sin\theta_i}{v_i} = \frac{\sin\theta_r}{v_r} \quad (1)$$

where v_i and v_r are the seismic wave velocities in the incident (overlying) and refracting (underlying) medium. If the velocity of the underlying layer is faster than that of the overlying layer, the refracted wave will flatten with depth as the angle of refraction (θ_r) increases. In this case, at an angle described as the critical angle (θ_c), the emergent wave will be refracted to 90° and travel along the boundary between the two layers at the faster velocity of the lower medium:

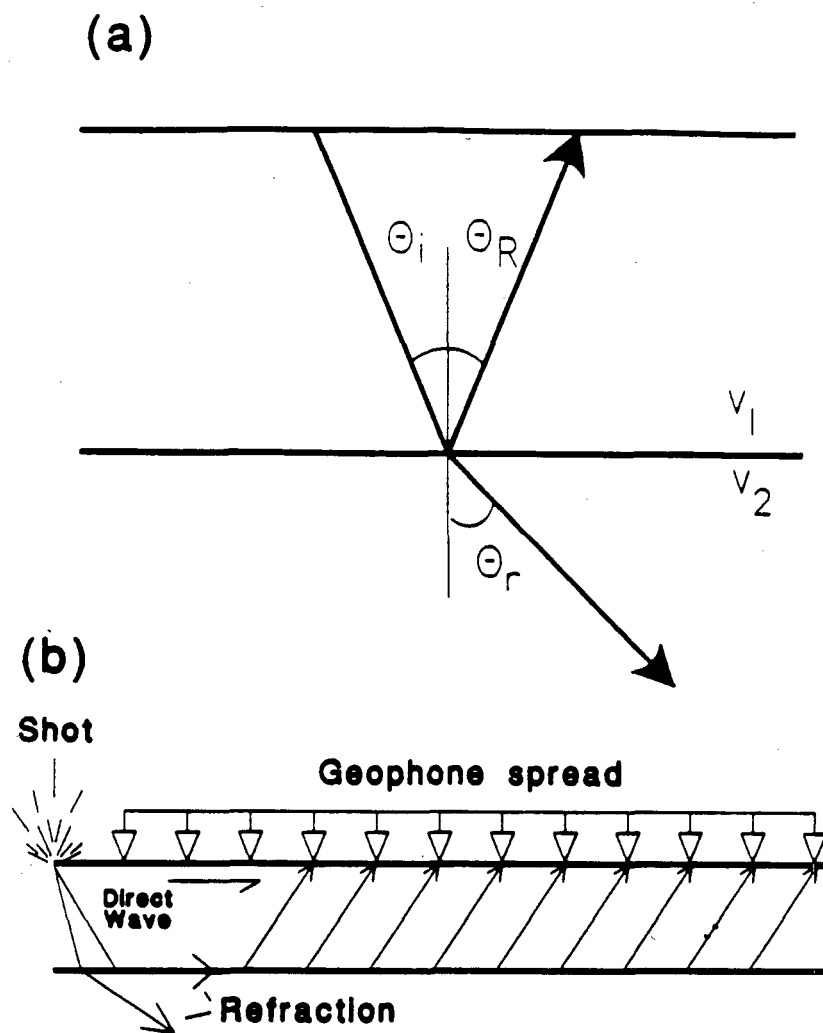


Figure 4. (a) Seismic reflection and refraction from a velocity boundary ($v_1 < v_2$) (b) At short separations, direct wave arrives before refraction. Past the crossover distance, the refracted wave arrives first.

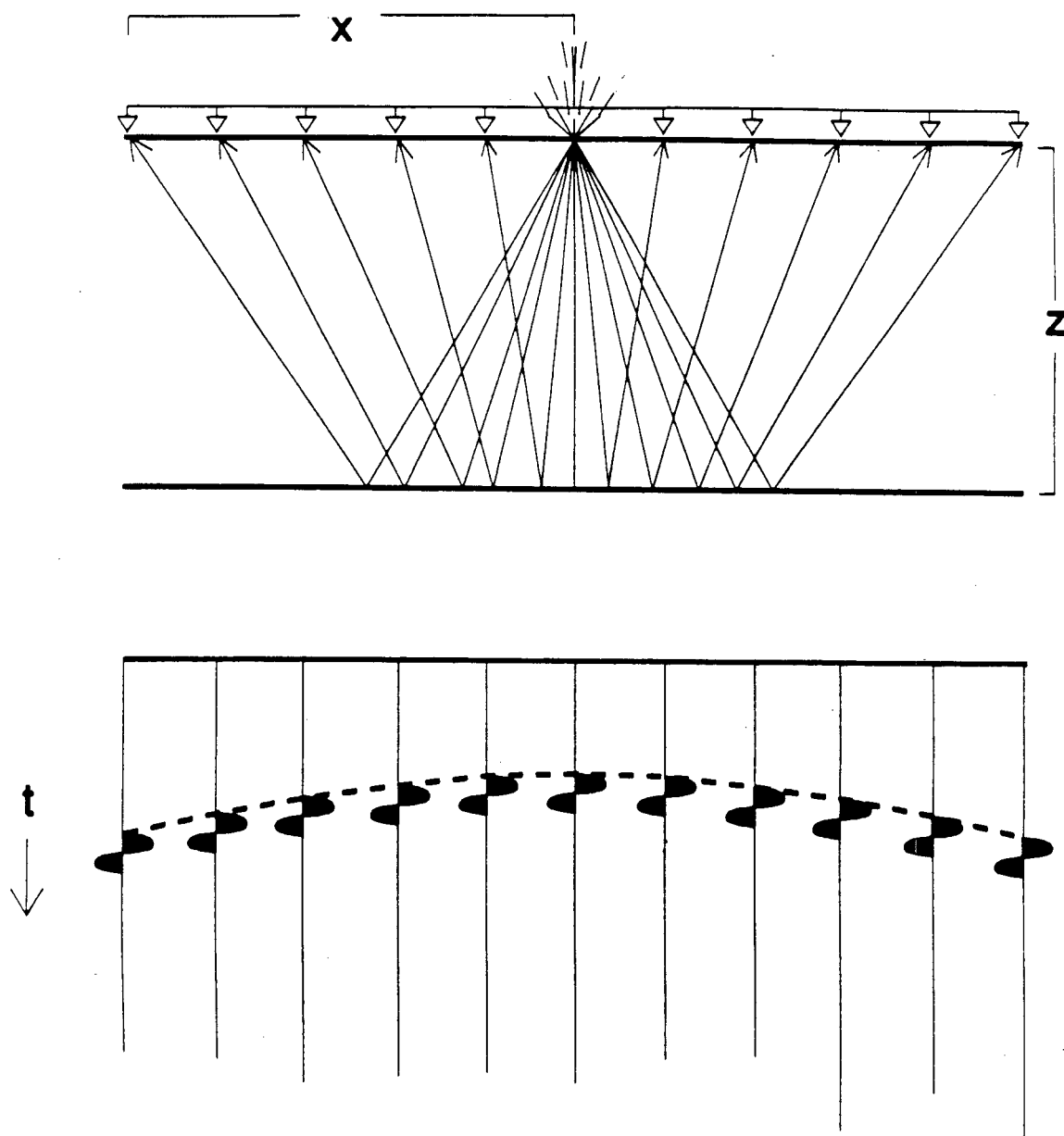


Figure 5. Reflection from a horizontal reflector. The hyperbolic pattern of arrivals is termed normal moveout.

$$\sin\theta_c = \frac{v_i}{v_r} \quad (2)$$

As it travels along the boundary, the refracted wave will radiate energy back into the overlying medium at the critical angle and this energy will return to the surface. Near the shot point, energy travelling directly through the overlying medium (direct wave) will arrive before any refracted waves. At a distance known as the cross-over distance, the refracted wave begins to arrive before the direct wave and all subsequent first arrivals are refracted arrivals (Figure 4(b)).

Seismic waves will reflect at the boundary between layers with different seismic velocities. The angle of reflection will equal the angle of incidence (Figure 4(a)) and the strength of the reflection is proportional to the velocity contrast. If the geophone and shot are coincident and the reflector is horizontal (normal incidence), the travel time (t) is given by:

$$t = 2 \frac{z}{v} \quad (3)$$

where z is the depth to the reflector and v is the velocity of the medium. This is illustrated in Figure 5. In the general case where the shot and geophone are separated by a distance x, the travel time equation becomes:

$$v^2 t^2 = x^2 + 4z^2 \quad (4)$$

This is the equation of a hyperbola with the curvature governed by z and v. Reflections on a shot record have a diagnostic hyperbolic shape referred to as Normal Moveout (NMO) and the apparent velocity which accounts for this shape is referred to as the normal moveout velocity or V_{NMO} .

Figure 6 is a shot record made with equally spaced geophones and a shot set off a single geophone spacing to the left of the geophone array. The geophone spacing is 1 m. The shot record shows reflected and refracted arrivals together with the ground roll. Ground roll is a chaotic series of relatively slow (~330 m/s) seismic waves generated by the energy source travelling along the low velocity layer at the earth's surface. Since this energy travels directly from the shot to the geophones, it is linear on the shot records. Generally, no reflections can be read during the passage of ground roll and seismic surveys are designed to ensure that the ground roll arrives before or after the reflections of interest. Refracted wave arrivals are also relatively linear and refractions from overburden and bedrock are visible as first arrivals in the shot record.

It is apparent that there is an optimum separation between the shot and geophone array in which reflections are visible before the arrival of ground roll. If the shot point is too close to the geophones, the ground roll will obscure the reflected arrivals. If the shot point is too far from the geophone array, most of the arriving energy will be refracted along the reflector rather than reflecting from it.

Table 1. Seismic Velocities of Rock and Overburden

Material	Velocity (m/s)
Air	330
Water	1400-1500
Ice	4000 ($\pm$)
Gravel - thawed	1800-2800
Gravel - frozen	4000 - 4600
Glacial till - frozen	3000 - 4300
Sand & silt - thawed	600 - 1500
Sand & silt - frozen	1500 -3000
Metamorphic and igneous rock	4000 - 6000
Shale and sandstones	2000 - 3500
Weathered granite	450 - 3200

Sources: Birch (1966)
Coates (1965)
Sims (1981)

4.1 Seismic Refraction Method

The seismic refraction method uses waves refracted along the boundary between two velocity layers to determine the depth to the layers. As noted above, refractions are only visible if the layer below is faster than the layer above and only at distances beyond the critical distance where seismic energy is refracted along the layer boundary. At a slightly greater separation, the cross-over distance (x_{cx}) the refracted wave becomes the first arrival. In the simple case (Figure 7(a)) where a seismic wave is refracted along a horizontal layer boundary, the cross-over distance will be:

$$x_{cx} = 2z \sqrt{\frac{v_2 + v_1}{v_2 - v_1}} \quad (5)$$

From this relation, the minimum separation between shot and geophone array required to detect refractions can be calculated. Using average velocities of around 1800 m/s for water saturated gravels and bedrock velocity of around 3500 m/s, the relation reduces to:

$$x_{cx} = 3.5z \quad (6)$$

If the velocity contrast is greater, the separation will be less and, conversely, a larger separation will be required if the velocity contrast is smaller. This relation can be used to estimate the shot-geophone separations required to determine map a refractor if some estimate of the depth is available.

Refraction surveys are conducted by laying out a spread of geophones on the ground and firing shots at fixed locations relative to the spread. At a minimum, a shot is fired at one end of the spread (single ended spread). Usually, shots are fired at either end and in the middle of the spread and in some cases, at distances equal to the spread length off either end of the spread. An example of the spread and shot pattern is shown in Figure 7(b). The critical data in refraction seismic surveys is the time of the first arrivals - the direct and refracted waves which arrive before the ground roll and reflections. This is usually plotted in time-distance (T-X) plots showing the geophone coordinates on the x-axis and the arrival times in milliseconds (or seconds) on the y-axis (Figure 7(c)).

There are several interpretation schemes available to interpret refraction data. Fitting the data to the simple case of planar dipping refractors is sometimes used to give very rough estimates of refractor geometry. Examples of T-X graphs for simple geometries are useful in gaining insight into the interpretation of refraction data. In the case of

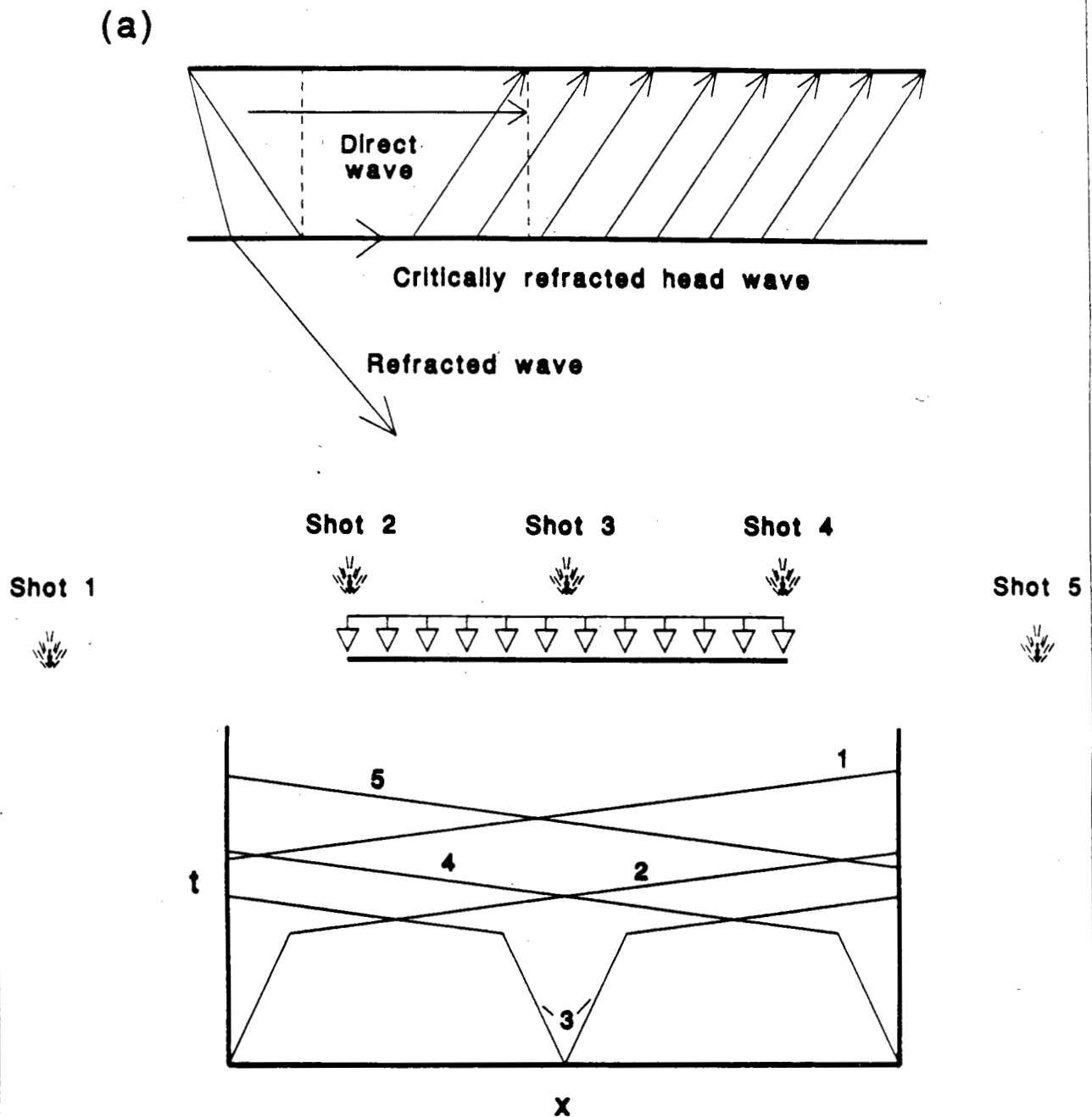


Figure 7. (a) Seismic refraction. Refractions are recorded at distances exceeding the critical distance and are the first arrivals at distances exceeding the cross over distance. (b) Shot pattern for a typical spread. (c) T-X diagram of first arrivals for the shots over a horizontal refractor.

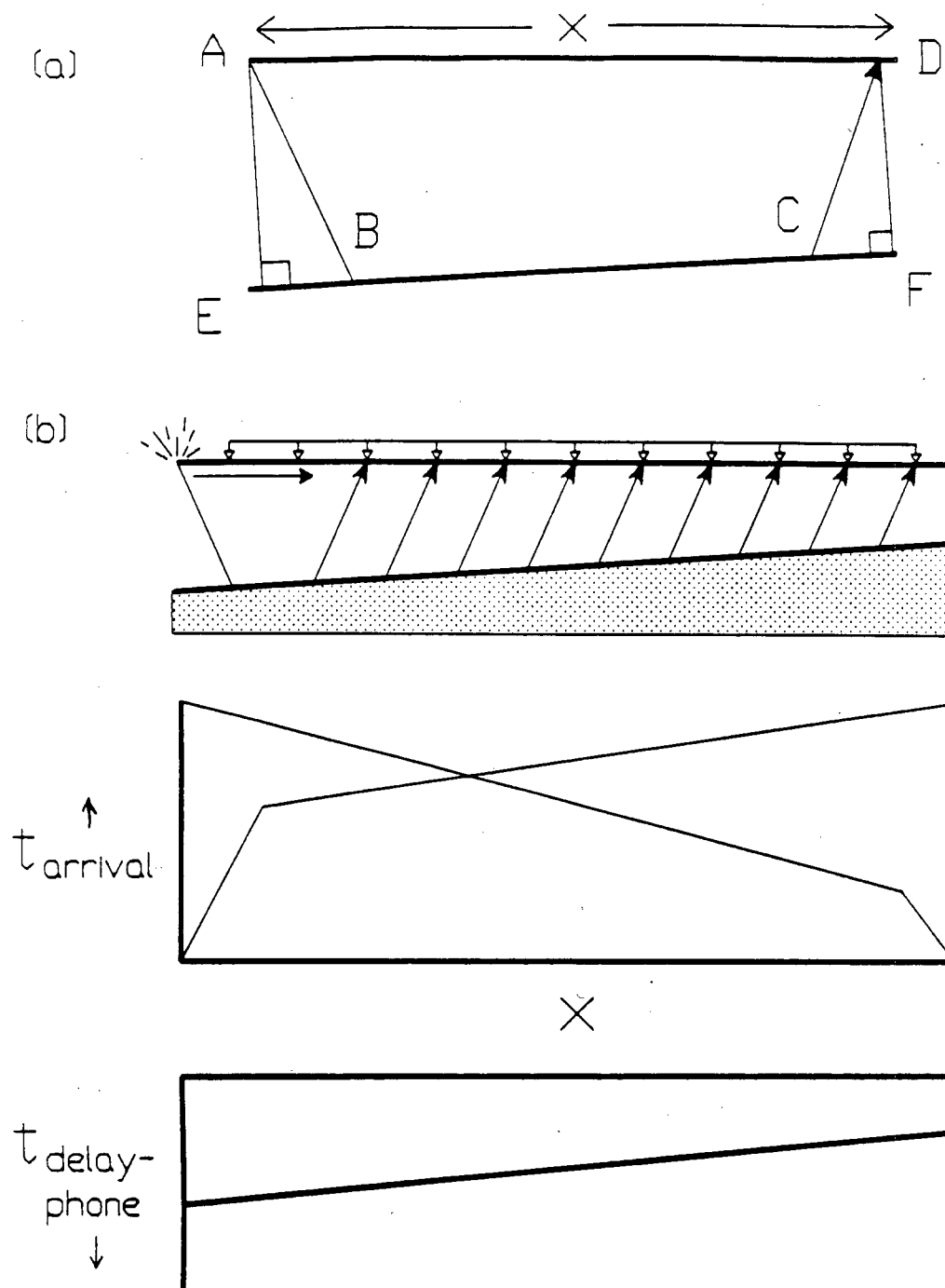


Figure 8. Delay time methods. (a) Delay time is the total arrival time over the path ABCE less the transit time along the refracted path EF. (b) Dipping refractor and T-X plot of first arrivals. The delay time at the geophone follows the dip of the refractor and depths can be calculated from the delay times.

horizontal refractors (eg. Figure 7(c)) the travel time curves for shots at either end of the spread are symmetric. The slope of the refracted arrival is $1/V_2$ where V_2 is the velocity of the refractor. When the refractor dips, this is no longer the case. The apparent refractor velocity on down-dip shot travel time curve is faster than the true refractor velocity and the corresponding velocity for the up-dip shot is slower than the true refractor velocity. The true velocity can be approximated by the average of the two. If there is a depression or rise in the refractor along the spread, the corresponding travel time curves will show a similar depression or rise.

Delay time methods were developed in order to gain a more detailed more picture of the refractor geometry beneath the geophone spread. Figure 8 illustrates the theory behind this method. The delay time is defined as the observed travel time (ie. the time required to travel from A to D along the refraction path) less the time it would take to travel along the refractor from a point beneath A to a point beneath D. Essentially the delay time is the time it takes for the energy to travel directly down to the refractor beneath the shot plus the time it takes to travel directly up from the refractor to the geophone. This is the total delay time and it can be broken down into delay times for the shot (t_{ds}) and the geophone (t_{dg}). It is the plot of geophone delay times which is most useful since this indicates the depth of the layer beneath the geophone and thus defines the detailed geometry of the reflector.

The data collected in this report were interpreted using an automated delay time interpretation program (SIP T2) developed by James Scott of the U.S. Bureau of Mines (Scott 1973). Working from the top down, the program determines the geometry of individual layers by:

1. Calculating delay times for the layer.
2. Determining the geometry of the layer.
3. Calculating the portion of the refracted arrival time from deeper layers due to the layer in question.
4. Removing the contribution of the layer in question to the refracted arrival time of deeper layers. (Layer stripping).

This process is repeated iteratively, layer by layer working from the top down until a complete model of the refractors is constructed. The program incorporates uneven topography and any offset of shot points to either side of the seismic line in calculating the solution. The inversion procedure can be performed so as to permit the program to calculate a best-fit velocity for each layer (unrestrained inversion) or, alternately, velocities may be fixed at certain values to override these calculations. The latter

option is useful when the program calculates unrealistic velocities on an isolated spread which do not reflect the regional pattern of seismic velocities.

5.0 EQUIPMENT AND PERSONNEL

The surveys were conducted by Mike Power P. Geo. and Jeff Boyce using an EG&G Geometrics Strataview 24 channel digital engineering seismograph, a 24 channel geophone spread and explosives as an energy source. All shots were initiated electrically using a Nimbus HVB-1 high voltage blasting box. Following the seismic surveys, the topography was surveyed in with a Nikon A-20 Total Station survey instrument (transit and electronic distance measuring device).

6.0 SURVEY PARAMETERS

The seismic surveys were conducted on 1.5 m wide lines cut across the width of the valley. Stations were marked along the lines as the survey progressed by flagging the locations of the geophones. On line 96-3, permanent survey markers were installed.

The refraction survey was conducted using a 120 m geophone spread with take-outs (geophone locations) every 5 m along the cables. Five shots were fired for each spread, excepting the first and last spreads on a line. These consisted of end-of-line shots, a mid-spread shot and two shots offset a half spread length (60 m) from either end of the spread. Seismocaps were used initially and EB caps were substituted when these ran out. A series of test shots were fired to determine the difference in initiation times between the seismocaps and the EB caps. The average discrepancy was 2.0 ms and is considered insignificant since this appears as a very slight static shift in the uppermost low velocity layer.

Following the seismic survey, geophone locations and elevations were surveyed to adjust the depths to refractors in order to produce a true picture of bedrock topography. Elevations along the survey line were corrected to an arbitrary datum near the lowest elevation of bedrock. Consequently, the elevations shown in the depth sections are relative and not tied to any surveyed datum.

7.0 RESULTS

The results of the refraction survey are collated in the following appendices:

Appendix D.	Refraction shot records
Appendix E.	Picked first arrivals
Appendix F.	T-X plots
Appendix G.	Inversion model listings
Appendix H.	Inversion model plots

The results from each survey area are discussed in turn below.

7.1 Line 96-1

Line 96-1 is located on Placer Claim P2665 below the main mining operation on Duncan Creek. The line extends east from the Mayo Lake Road down to the edge of the main channel of Duncan Creek. Two spreads covering a distance of approximately 240 m were shot at this location. The data quality is good to moderate. Some difficulty was encountered in getting strong signals at large separations due to low velocity material on the upper slopes of the line.

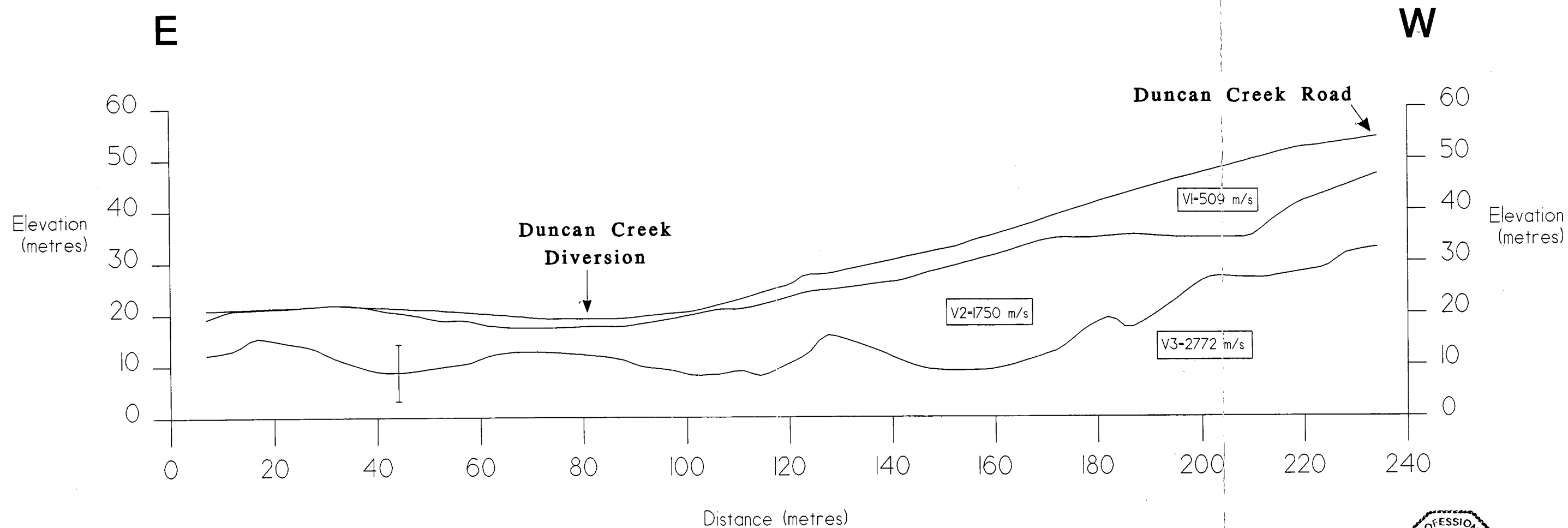
The data was inverted using best-fit velocities calculated by the inversion program. Three layers were used in the inversion. The upper layer ($V_1=509$ m/s) has a velocity consistent with that of thawed, non-water-saturated overburden. The middle layer ($V_2=1750$ m/s) has a velocity consistent with that of water-saturated overburden. The lower layer ($V_3=2772$ m/s) has a velocity which is consistent with that of frozen overburden or weathered bedrock. The spread in calculated depth points is in the order of ± 4 m; this indicates the apparent error in the depth of the third layer.

The data suggests that bedrock may be at a depth of approximately 20 to 25 m below surface in the area of the present Duncan Creek diversion channel.

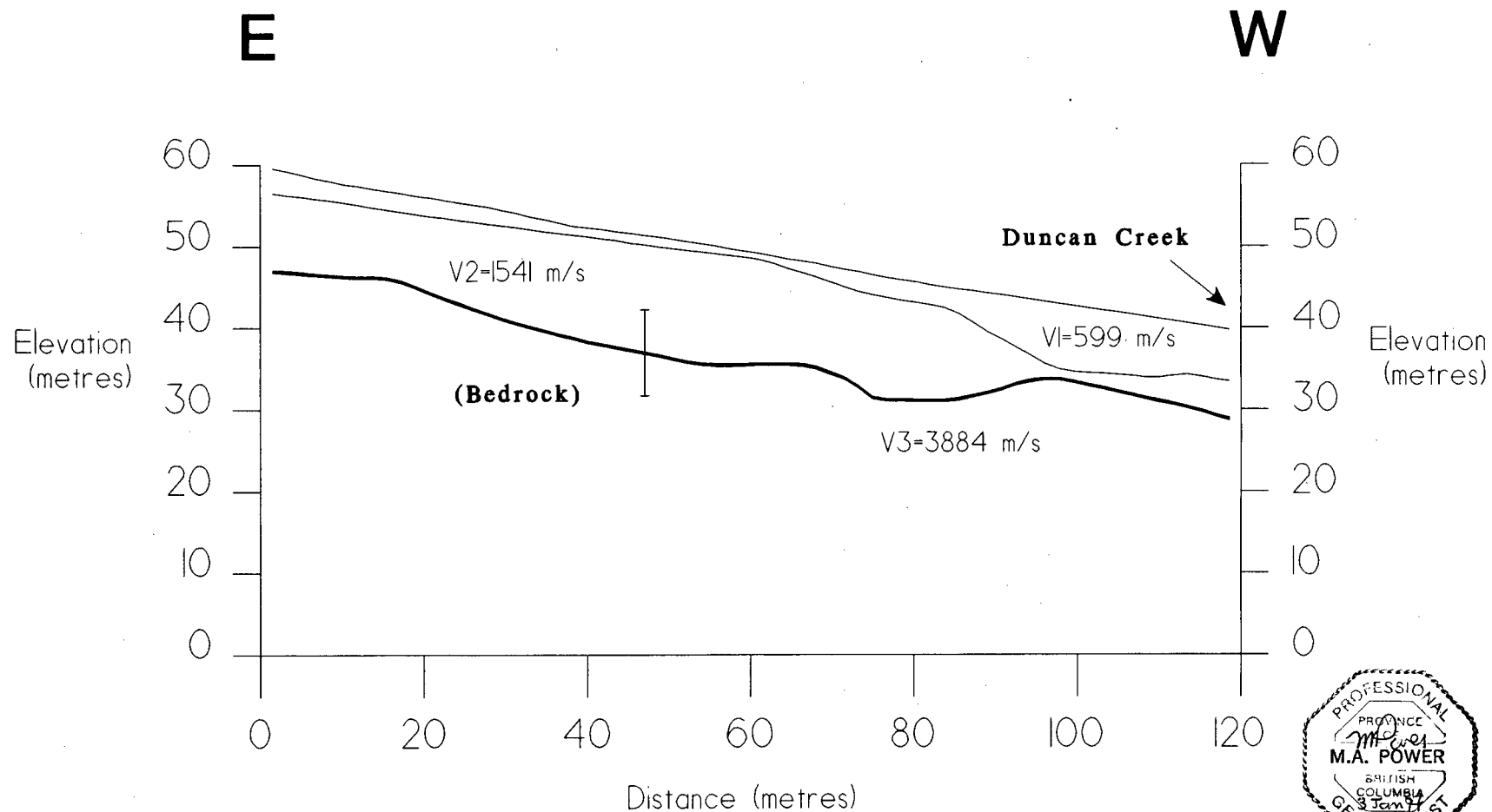
7.2 Line 96-2

Line 96-2 is located on Placer Claim P2173 above the main mining operation on Duncan Creek. The line extends east from Duncan Creek up the left limit along a cut line. One spread covering a distance of approximately 120 m was shot on this line. Signal quality is poor along this line due to noise generated by Duncan Creek. In particular, the section near Duncan Creek is not well defined by the survey.

The results of the survey along 96-2 are summarized in Figure 10. Elevations of the layers in this diagram are referenced to the same datum as that used in the 1995



DUNCAN CREEK GOLDDUSTERS LTD.	DUNCAN CREEK PROPERTY	
REFRACTION SEISMIC SURVEY LINE 96-1	MINING DISTRICT: MAYO, YT	
	NTS: 105M14	SCALE: 1:800
AMEROK GEOSCIENCES LTD.	DRAWN BY: M.P.	
	DATE: 22DEC96	FIGURE: 9



DUNCAN CREEK GOLDDUSTERS LTD.	DUNCAN CREEK PROPERTY	
REFRACTION SEISMIC SURVEY LINE 96-2	MINING DISTRICT: MAYO, YT	
	NTS: 105M14	SCALE: 1:800
AMEROK GEOSCIENCES LTD.	DRAWN BY: M.P.	
	DATE: 22DEC96	FIGURE: 10

seismic survey immediately to the west along this seismic line. The western end of the survey line is at the edge of the Duncan Creek diversion channel. The seismic data was inverted using best-fit velocities calculated by the inversion program. Three layers were used in the inversion. The upper layer ($V_1=599$ m/s) has a velocity consistent with that of thawed, non-water-saturated overburden. The middle layer ($V_2=1541$ m/s) has a velocity consistent with that of water-saturated overburden. The lower layer ($V_3=3884$ m/s) has a velocity which is in the range of bedrock seismic velocities. The spread in calculated depth points is approximately ± 4 m; this indicates the apparent error in the calculated depth of the third layer. The bedrock elevation at the west end of the survey line may be unreliable due to poor signals at the edge of Duncan Creek. The apparent bedrock elevation at this point (30 m) should be compared with the interpolated bedrock elevation at the end of the 1995 seismic line (15 m). This discrepancy may be due to the aforementioned signal problem and to the fact that the elevations at the east end of the 1995 line are interpolated. Furthermore, there is a gap of approximately 20 to 30 m between the two seismic line segments.

The data suggests that bedrock may be at a depth of approximately 10 to 15 m below surface along the survey line and, when considered with the results of previous work, suggest that bedrock is at a depth 10 to 30 m in this area of Duncan Creek.

7.3 Line 96-3

Line 96-3 is located on Placer Leases PL 9759, 9772 and 9773 (Figure 2). The western end of the line is at the edge of the Duncan Creek road on the right limit of Duncan Creek. To the east, the line cuts across Duncan Creek and continues across a wide upper bench. The eastern end of the line is just south of the north boundary of PL 9772 and 9773. The line was cut along its entire length and is marked with three survey monuments. P-1 is on the right limit of Duncan Creek below the Duncan Creek Road. P-2 is at the junction between lines 96-3 and 96-4. P-3 is at the bend in the seismic line along the third tier location line on the left limit of Duncan Creek (boundary between PL 9772 and 9773).

The results along this line are shown in Figure 11, looking south. A total of 7 spreads were shot covering a distance of approximately 850 m. The line was shot from west to east and the spreads are numbered accordingly. There is a gap of approximately 20 m between spreads at the channel of Duncan Creek. The data quality is very good on the east end of the survey line and moderate to good in the valley of Duncan Creek. The data was initially inverted in two batches grouping apparently similar spreads of seismic data. Batch 96-3-E (Spread 5 to 7) covered approximately 360 m on the east end of the survey line and batch 96-3-W (Spreads 1-4) covered the remaining section to the west. The picked arrivals listing for 96-3-E and 96-3-W

shows all the picks along the survey line. It should be noted that the SIP listings annotate the spreads from east to west; consequently 96-3-E spreads A through C correspond to spreads 7 to 5 as shot and spreads 96-3-W spreads A through D correspond to spreads 4 to 1 as shot. After numerous trial runs, it was determined that the batches in the vicinity of Duncan Creek would have to be further broken down to permit an accurate interpretation. Consequently, batch 96-3-W was broken into CREEK and CREEK-W sections covering spreads 2 and 1 as shot.

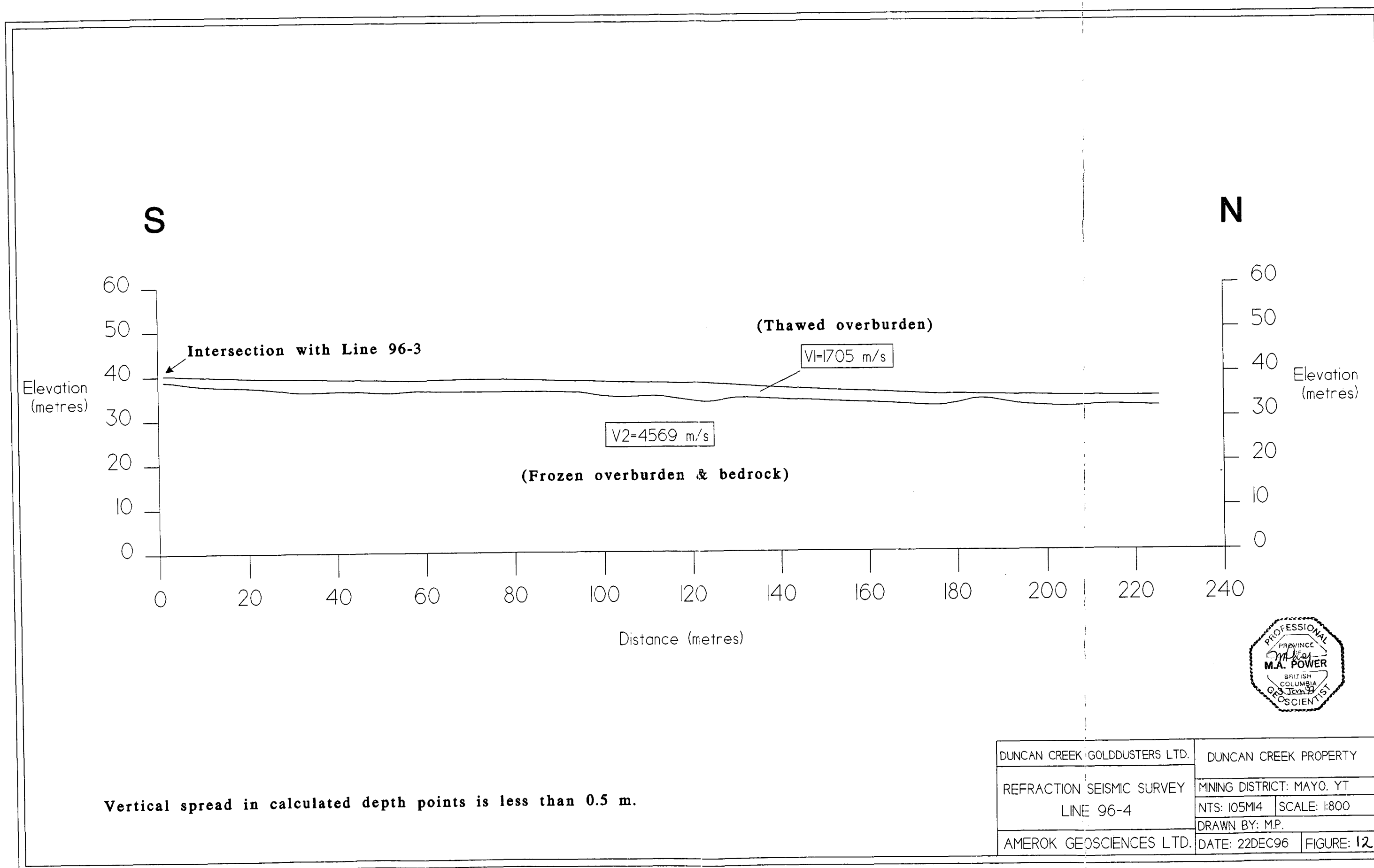
The first arrivals indicate that low velocity material with V_p in the range expected for non-water-saturated overburden occurs on the right limit and within the Duncan Creek valley. On the left limit of Duncan Creek, much higher velocities were encountered and permafrost and solifluction features are found along the slopes here. Velocities are variable across the Duncan Creek valley possibly reflecting different compositions of overburden or water table and water saturation levels. From east to west, the upper most velocity layer appears to change from dry overburden ($V_1 = 400$ to 600 m/s) to water-saturated overburden ($V_1 = 1400$ m/s) on the slopes of the left limit. On the right limit and within the Duncan Creek valley there is a second layer with a velocity in the range expected for water-saturated overburden (till or gravel) ($V_2 = 1550$ to 1900 m/s). This layer is not detectible on the left limit where it merges into a layer with a velocity of 3800 m/s. This velocity is in the range expected of both bedrock and permafrost; it appears to be permafrost based on the available field evidence. Beneath Duncan Creek and the left limit is a third layer with a seismic velocity of 5000 to 5400 m/s. This velocity was calculated from unweighted averages of first arrivals and provides a more satisfactory inversion than velocities calculated using the Hobson-Overton method. The velocity of the third layer is within the range expected of bedrock. The spread in calculated depth points is approximately ± 2.5 m; this indicates the apparent error in the calculated depth of the third layer.

The data suggests that bedrock may be at a depth of approximately 30 to 40 m below surface along the survey line in the centre of the Duncan Creek valley. Seismic reflection or ground radar surveys off the only means of profiling bedrock on the left limit of Duncan Creek at this location.

7.4 Line 96-4

Line 96-3 is located on Placer Lease PL 9781 (Figure 2). The line runs roughly north-south and the southern end of the line is at line 96-3 on the boundary between PL9781 and PL9773. The line crosses the inferred channel of a creek draining west into Duncan Creek.

The results along this line are shown in Figure 12, looking west. Two spreads were shot covering a distance of approximately 240 m. The line was shot from south to



north and shot records are numbered accordingly. Spreads A and B in the inversion batch 96-4.SIP correspond to spreads 1 and 2 respectively.

The first arrivals indicate that a thin low velocity layer ($V_1=1705$ m/s) with a seismic velocity in the range expected for water-saturated sediments overlies a shallow high velocity layer. The apparent seismic velocity of the lower layer ($V_2=4569$ m/s - unrestrained inversion velocity) is at the upper end of the velocity expected for permafrost and within the velocity range expected for bedrock. Permafrost features including thermokarst, bog and "drunken" black spruce trees are found along this survey line and the shallow high velocity layer appears to be permafrost. It appears that the seismic survey failed to detect bedrock along this survey line.

7.5 Lines 96-5 and 96-6

Lines 96-5 and 96-6 are located on PL9759 immediately north of the confluence of Lightning Creek and Upper Duncan Creek. Line 96-5 runs north-south along a trail and line 96-6 is roughly perpendicular to this line and crosses Lightning Creek. No topographic survey of the geophone and shot locations was performed on these lines but the topography is quite flat in this area and the results are unlikely to be seriously affected by this deficiency.

The results along this line are shown in Figures 13 and 14. These are annotated copies of the depth models calculated from the data along these lines. A three layer inversion with unrestrained velocity determinations was used to calculate these models. The first layer has a velocity of 330 to 900 m/s, indicating non-water-saturated overburden. The second layer has a velocity of 1720 to 2329 m/s suggesting it is composed of water-saturated, compacted sediments. The third layer has a velocity of 5035 to 8900 m/s of which the lower is the more plausible number. This velocity is in the range expected for bedrock. The quality of the data and inversions are not particularly high. Wind and water noise is present in the records and the results are consequently noisy. On both lines, the scatter in depth point calculations is approximately ± 5 m. At their common point of intersection, the calculated depth to bedrock on line 96-5 is approximately 30 m while the calculated depth to bedrock at the same point on line 96-6 is roughly 27 m. Given the scatter in the data, estimates of the bedrock topography near the ends of the lines are especially unreliable.

The results of the surveys indicate that bedrock occurs at a depth of roughly 30 m beneath the survey lines.

FILE 96-5A.SIP

LINE 96-5 NORTH - SOUTH ALONG DUNCAN CREEK

Figure 13. Line 96-5 depth model.

SPREAD A

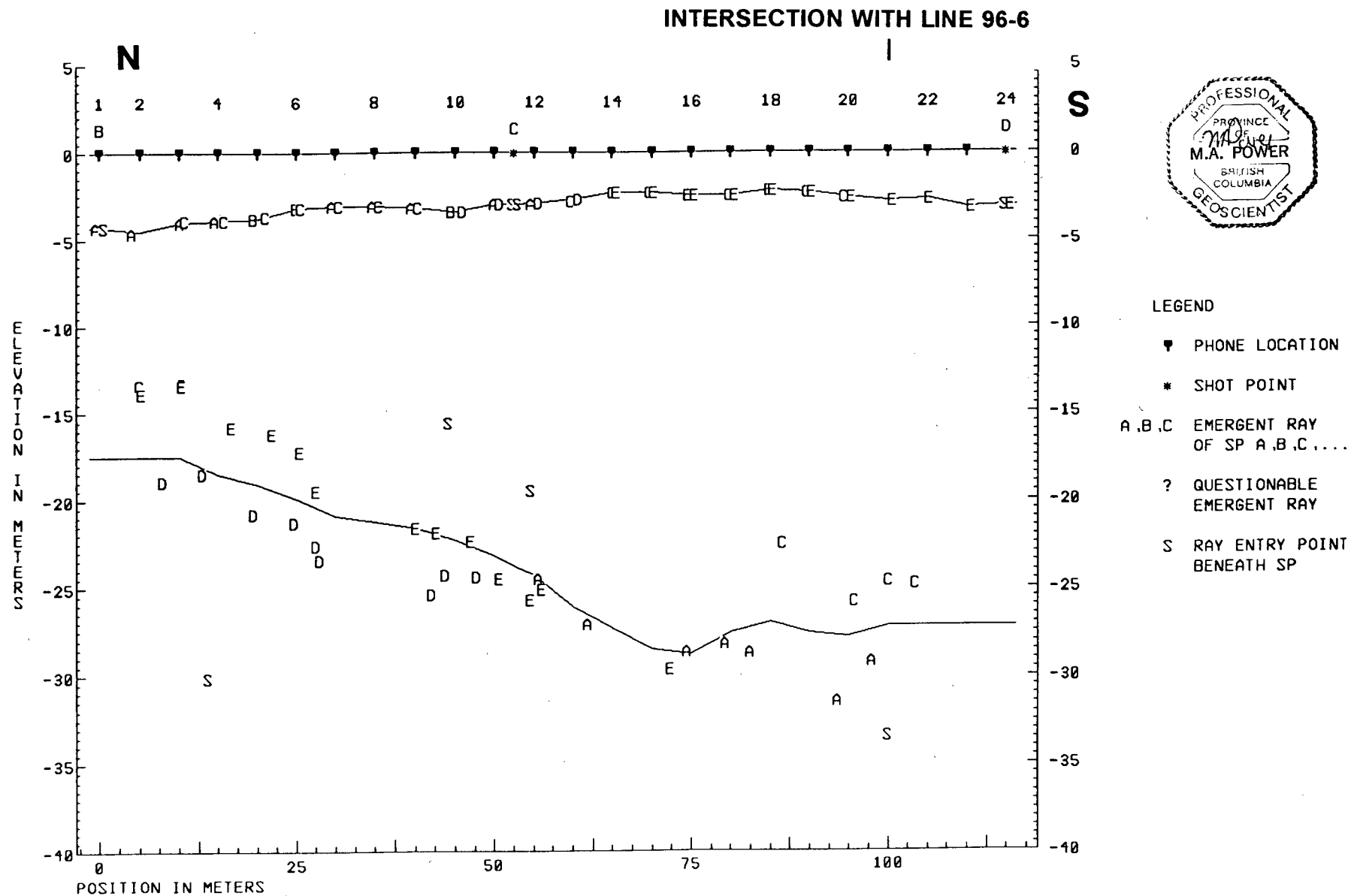
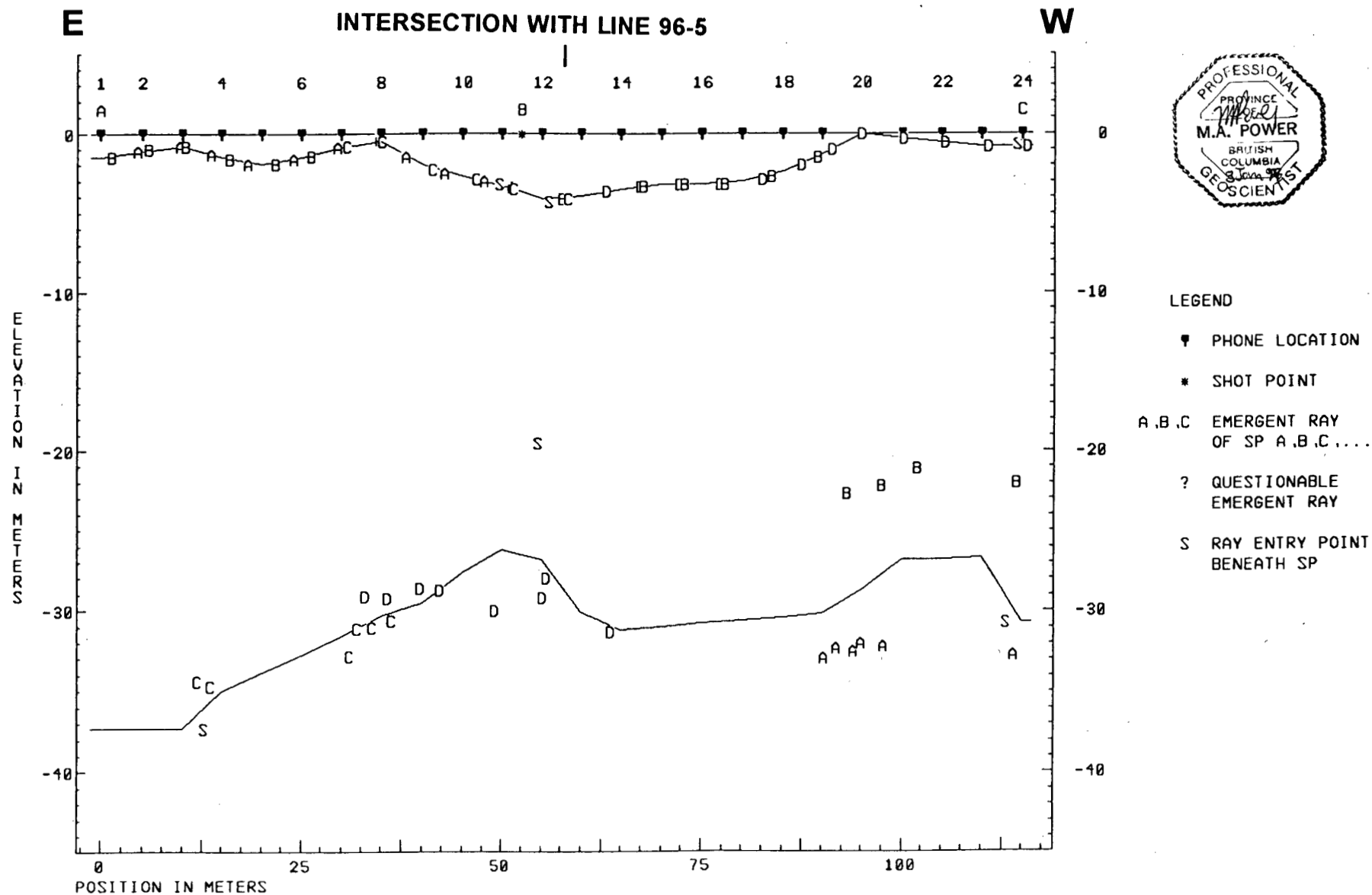


Figure 14. Line 96-6 depth model.

FILE 96-6.SIP
LINE 96-6 EAST-WEST ACROSS DUNCAN CREEK

SPREAD A



7.5 Keystone Creek

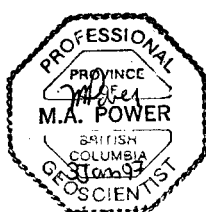
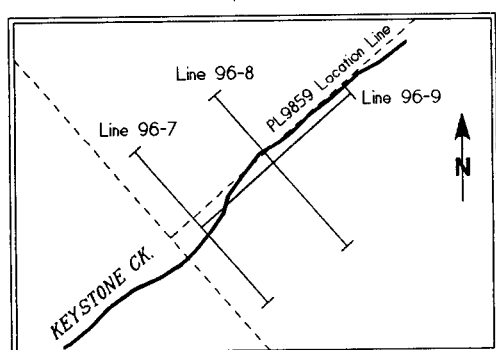
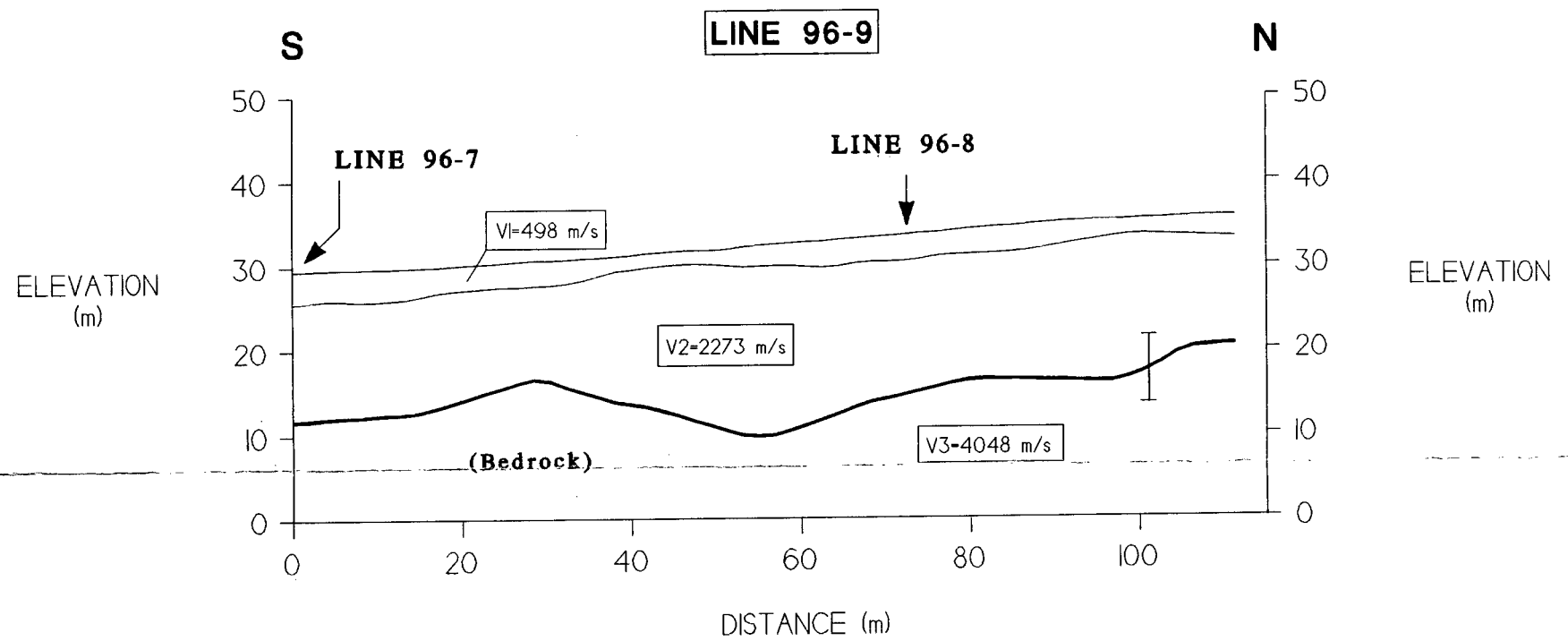
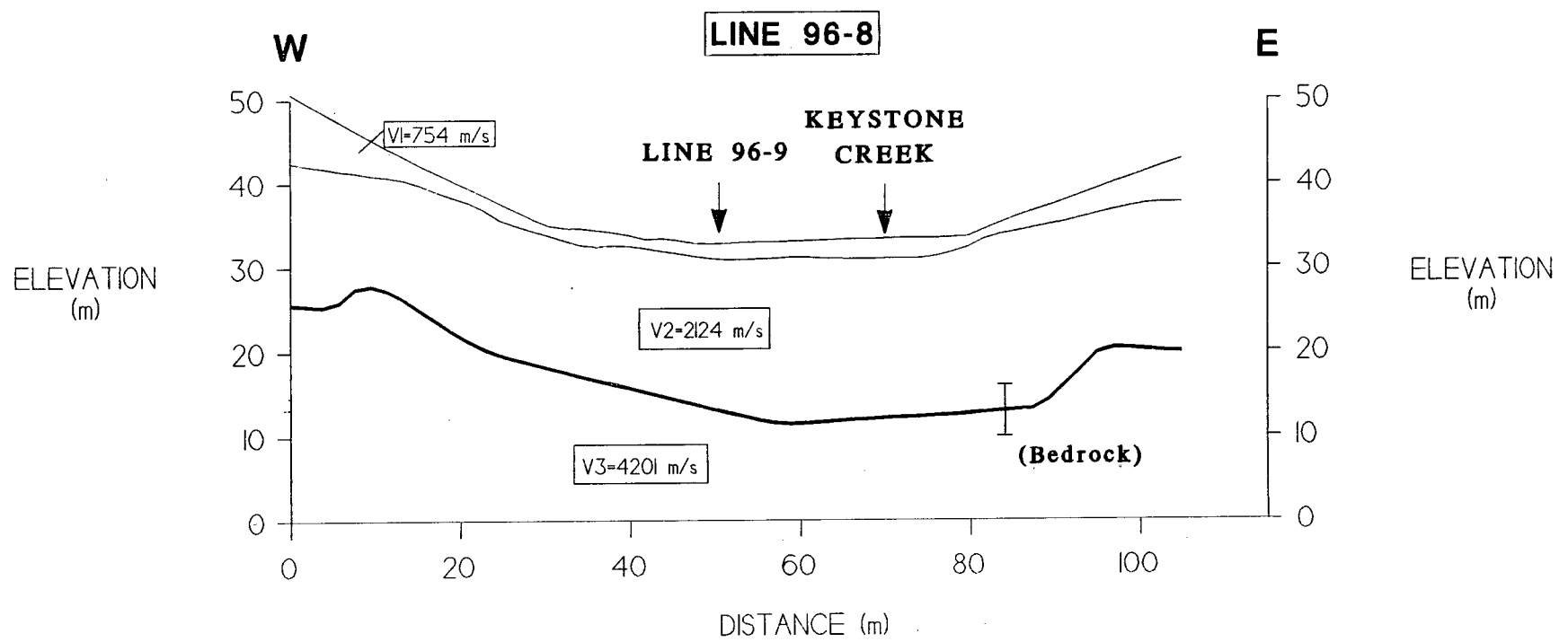
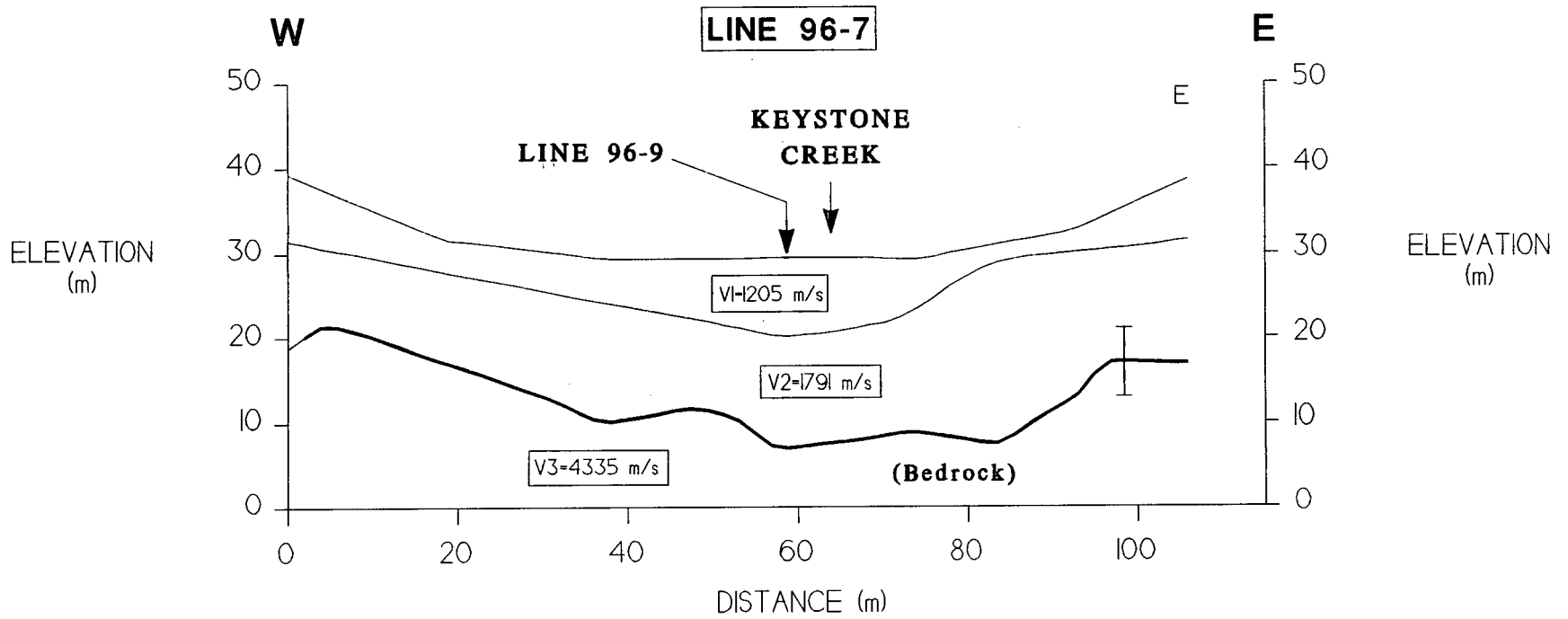
Three lines were surveyed on Keystone Creek near the southern end of PL 9859 (Figure 15 - inset). Lines 96-7 and 96-8 were cut orthogonal to the creek and line 96-9 was sited along a trail up the creek to intersect both lines. All lines were surveyed and the topography shown is relative to a common datum. A single spread of approximately 120 m was set up on each line. Only end-of-line and midpoint shots were recorded.

All three lines are shown in a composite drawing (Figure 15). The data quality was fair with some shots producing poor records because of bad ground and wind. Phones near Keystone Creek were also unreadable. An unrestrained three layer inversion was used to interpret each line. The upper layer has a velocity ranging from about 500 to 1200 m/s. This is in the range expected for undersaturated overburden. The second layer has a velocity ranging from about 1800 to 2200 m/s. This is in the range expected for compacted, water-saturated gravel. The lowest layer has a velocity ranging from about 4000 to 4300 m/s. This is in the range expected for bedrock. The scatter in calculated depth point determinations is approximately ± 4 m on lines 96-7 and 96-9 and ± 3 m on line 96-8. This is an indication in the apparent error in depth determination in the inversion. This is corroborated by the discrepancy in depth determinations on the intersecting lines. Lines 96-7 and 96-9 intersect at an interpreted elevation of 8 m (96-7) or 12 m (96-9). Lines 96-8 and 96-9 intersect at an interpreted elevation of 13 m (96-8) or 16 m (96-9).

On the whole, the data suggests that bedrock occurs at depths of roughly 20 to 30 m in this area of Keystone Creek. The relatively high velocity of the second layer suggest that the gravel which probably forms this layer is well compacted. Gravels composed of large boulders are reported on Keystone Creek and such material would also produce these high seismic velocities.

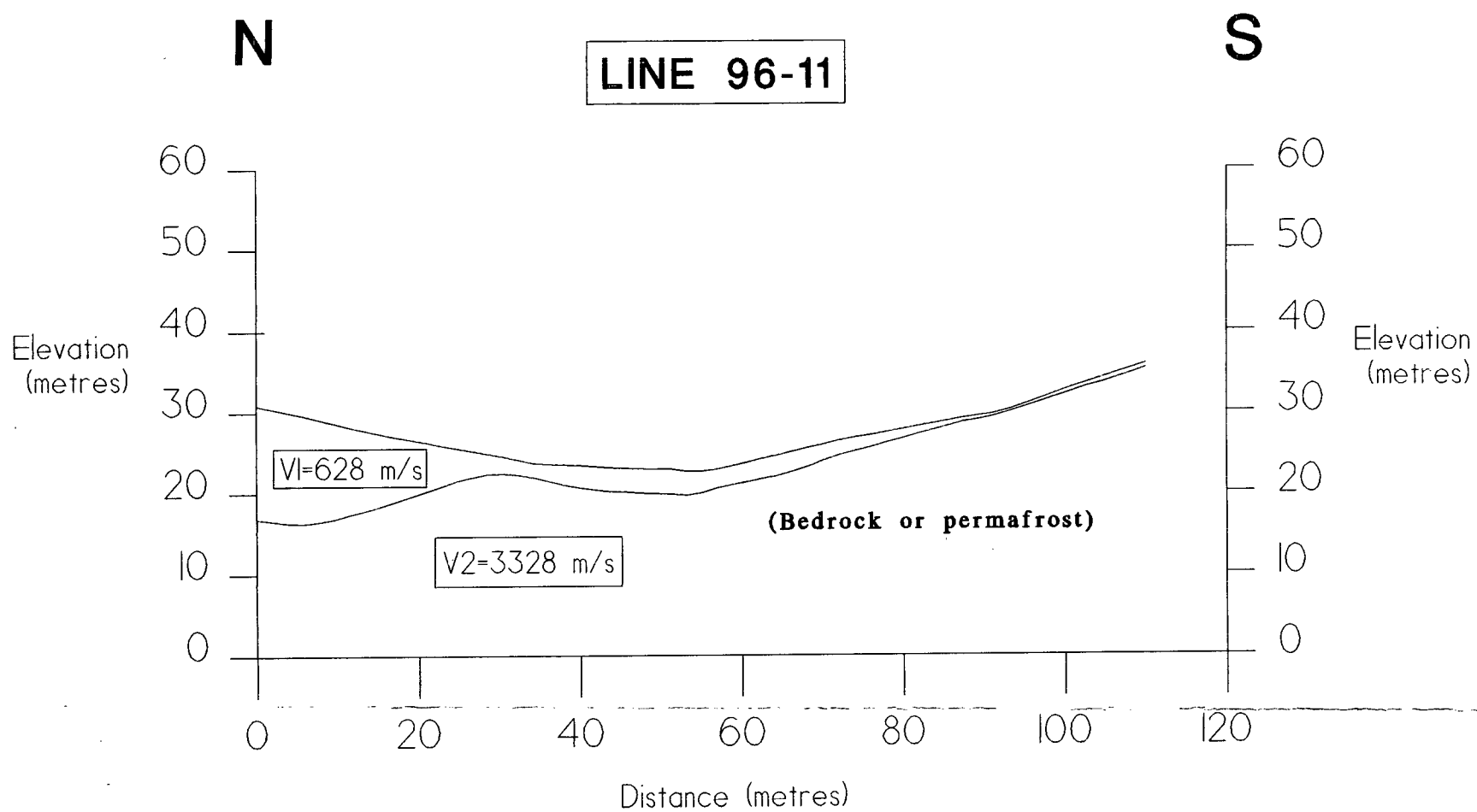
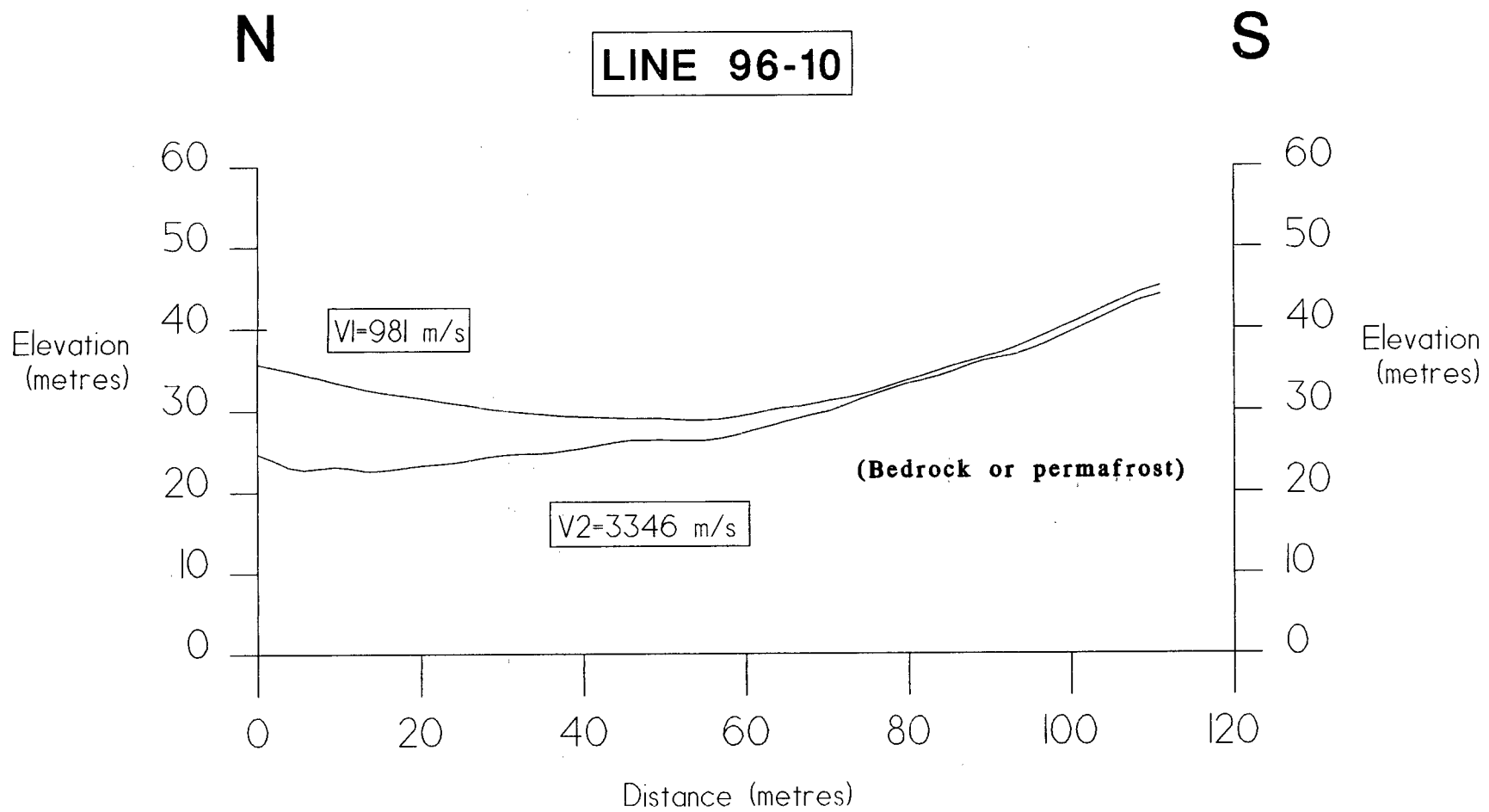
7.6 Forty Pup Creek

Two lines were surveyed on Forty Pup Creek (PL 9774) (Figure 2). Line 96-10 is 80 m upstream of line 96-11. A single spread covering 120 m was set up on each line and offset, end-of-line and midpoint shots were fired at each setup. The data was generally good, particularly on the south side of the line where the ground appears to be frozen. A two layer inversion was used for both lines as this appeared to provide the best fit to the data. Velocities were not restrained in the inversion. The upper layer has a velocity apparently ranging from 628 to 981 m/s and appears to be a layer of non-water-saturated sediments. The lower layer has an apparent velocity ranging from 3328 to 3354 m/s. This is in the range expected for permafrost and weathered bedrock. The top of this layer dips to the north under the south facing slope on the



Vertical spread in calculated depth points

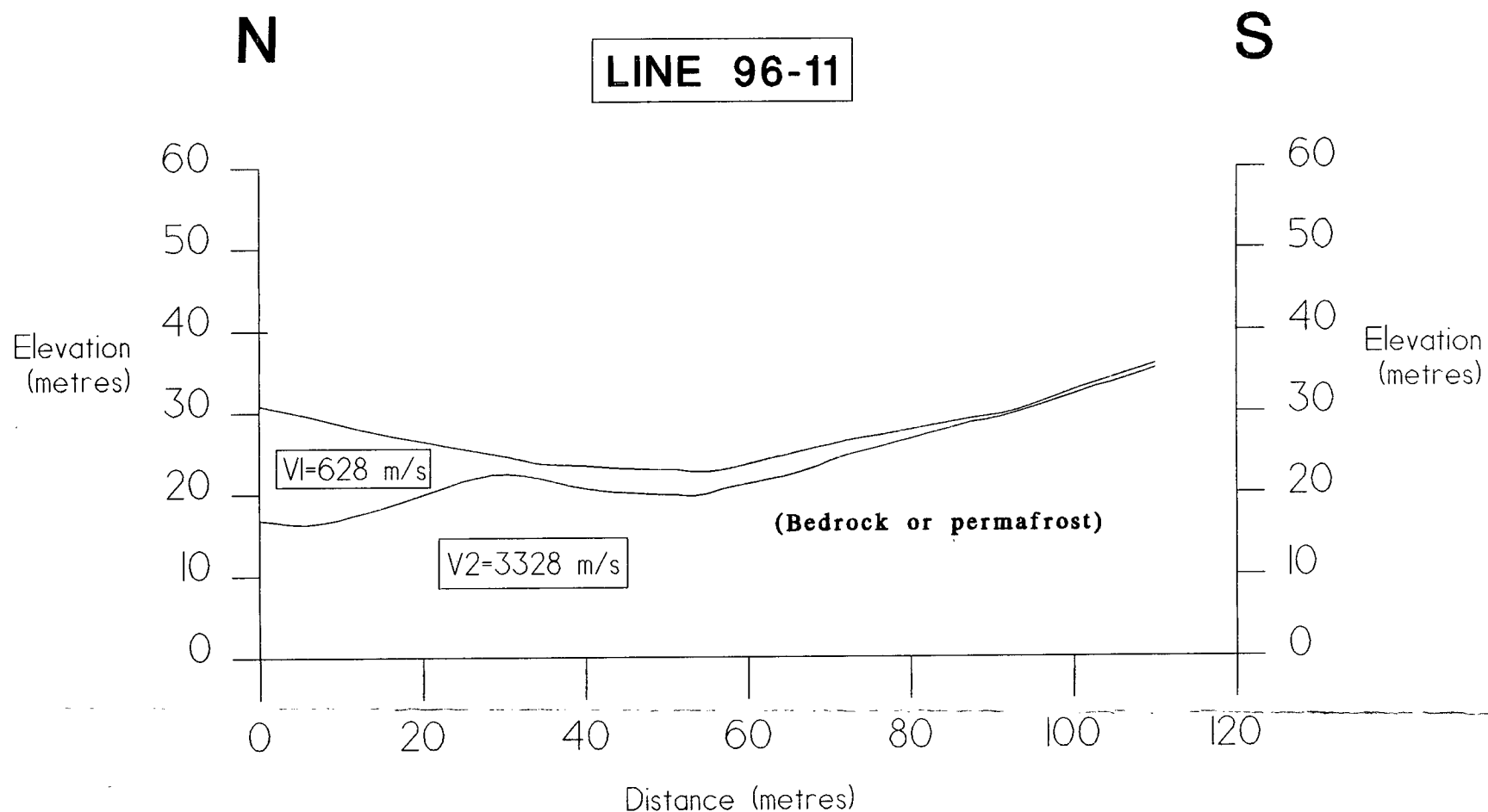
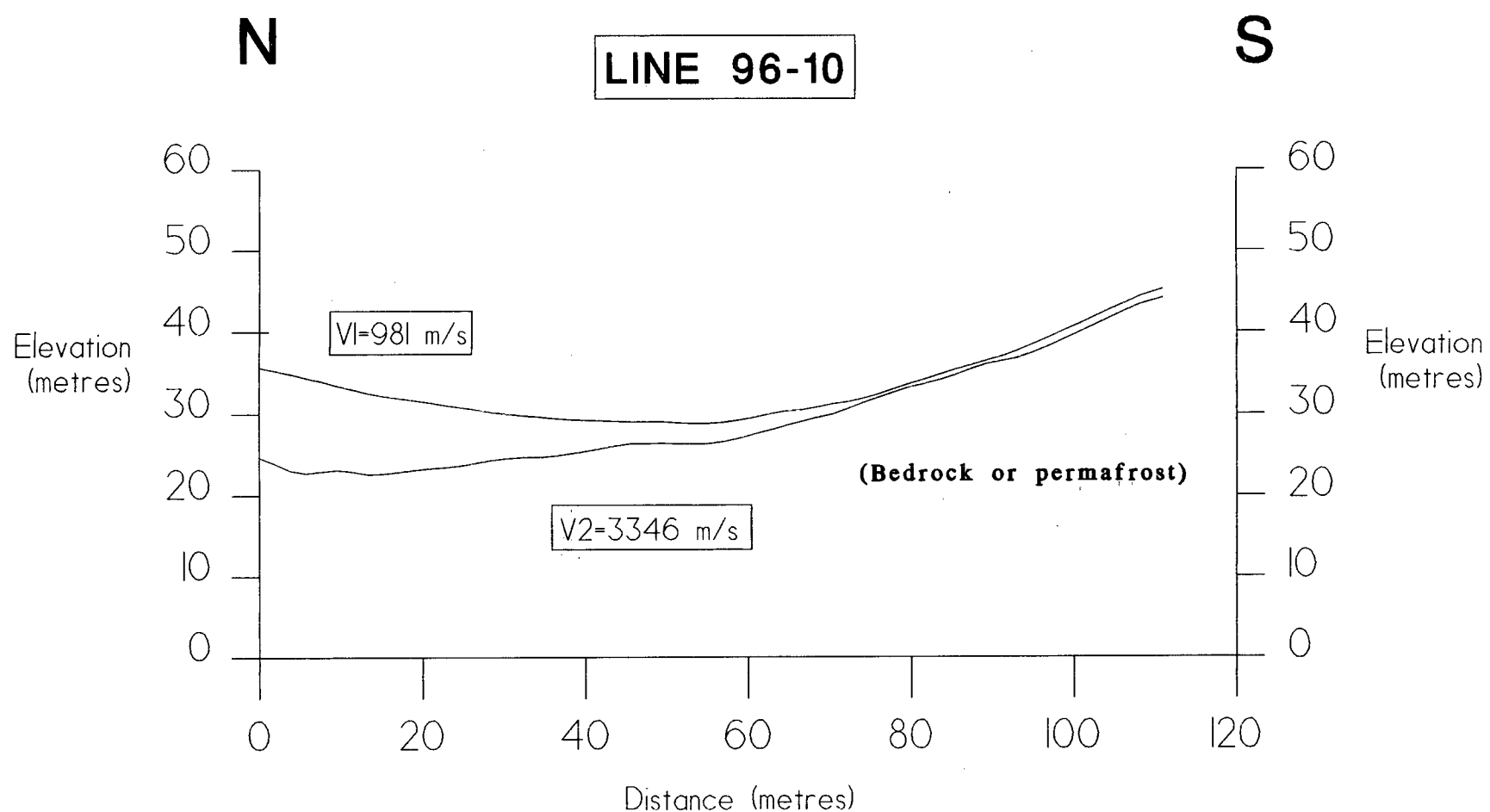
DUNCAN CREEK GOLDDUSTERS LTD.	DUNCAN CREEK PROPERTY	
REFRACTION SEISMIC SURVEY	MINING DISTRICT: MAYO, YT	
KEYSTONE CREEK LINES	NTS: 105M14	SCALE: 1:800
AMEROK GEOSCIENCES LTD.	DRAWN BY: M.P.	
	DATE: 22DEC96	FIGURE: 15



**Vertical spread in calculated
depth points is less than 0.5 m**



DUNCAN CREEK GOLDDUSTERS LTD.	DUNCAN CREEK PROPERTY	
REFRACTION SEISMIC SURVEY	MINING DISTRICT: MAYO, YT	
40 PUP SURVEY LINES	NTS: 1:105M14	SCALE: 1:800
AMEROK GEOSCIENCES LTD.	DRAWN BY: M.P.	
	DATE: 22DEC96	FIGURE: 16



**Vertical spread in calculated
depth points is less than 0.5 m**



DUNCAN CREEK GOLDDUSTERS LTD.	DUNCAN CREEK PROPERTY	
REFRACTION SEISMIC SURVEY 40 PUP SURVEY LINES	MINING DISTRICT: MAYO, YT	
	NTS: 105M14	SCALE: 1:800
	DRAWN BY: M.P.	
AMEROK GEOSCIENCES LTD.	DATE: 22DEC96	FIGURE: 16

north side of Forty Pup, suggesting that it may be the top of permafrost. In addition, no outcrop was noted on either survey lines suggesting that the lower layer is probably frozen overburden.

8.0 CONCLUSIONS

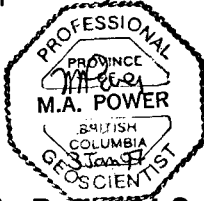
The specific results of the surveys have been listed in the discussion of each survey. The results of the survey suggest the following general conclusions:

- a. Apparent bedrock refractions have velocities ranging from 4000 to 6000 m/s along Duncan Creek depending upon the direction of survey (velocity anisotropy) or the bedrock lithology. Velocities measured in a general east-west direction are often faster than those measured in a north-south direction because of a pronounced east-west schistosity in rocks of the Hyland Group.
- b. Frozen gravel and till appears to have an apparent velocity of 3000 to 4000 m/s, although there may be some overlap with bedrock velocities at the upper end of this scale. The V2 velocities recorded on the left limit of Duncan Creek on line 96-3 and on the south side of the Forty Pup lines almost certainly represent permafrost velocities (3853 and 3328-54 m/s respectively). A slightly higher velocity of 4569 m/s was determined for V2 on line 96-4 and this too appears to be permafrost.
- c. Refractors with velocities of 3500 to 4500 m/s are in a range common to both weathered bedrock and permafrost. Drilling or excavation may be necessary to discriminate between these two possibilities in situations where the depth or geometry of this layer provides no other clues.
- d. A 24 channel spread is considerably more efficient than a 12 channel spread, even when working on isolated line segments. Continued efforts to ensure that the gear is as man-portable as possible and to revise the method of laying out and firing charges also have contributed to increased survey efficiency.

9.0 RECOMMENDATIONS

Seismic surveys supplemented by drill holes should be continued in the Duncan Creek valley ahead of the current mine workings to permit the operators to mine ahead with confidence and to plan the location of bedrock drains and other necessary excavations well in advance. Test drill holes are *essential* to confirm the results of the seismic surveys and to indicate corrections which may be necessary to improve the reliability of the seismic methods.

Respectfully submitted,



M. A. Power M.Sc. P. Geo.
Geophysicist

December 23, 1996

References Cited

- Birch, F. (1966) Compressibility; elastic constants. in: Clark, S.P. (ed) Handbook of Physical Constants. Geological Society of America Memoir 97 pp 97-173.
- Coates, D.I. (1965) Rock Mechanics Principles. Mines Branch Monograph 874. Ottawa: Department of Mines and Technical Surveys.
- Hughes, O.L. (1982) Janet Lake: Surficial Geology and Geomorphology, Map 4-1989 (105 M NW) 1:100,000. Ottawa: Geological Survey of Canada.
- Johnston, G.H. (1981) Permafrost: Engineering Design and Construction. Toronto: John Wiley and Son.
- Pullan, S and J. Hunter (1990). Delineating of buried bedrock valleys using the optimum offset shallow seismic reflection technique. in: S. Ward (ed.) Geotechnical and Environmental Geophysics - Volume III: Geotechnical. Tulsa: Society of Exploration Geophysicists.
- Roots, C.F. and D. Murphy (1992) Geology of the Mayo Map Area (105M). Geological Survey of Canada Open File 1992-4. Ottawa: Geological Survey of Canada.
- Scott, J.H. (1973). Seismic refraction modeling by computer. Geophysics Vol. 38. No. 2.
- Sims, J. (1982) Paleoplacer Deposits in: Campbell, B.W. and L.Finch (eds.) 2nd Annual Conference on Alaska Placer Mining. MRL Report No. 46.
- Taylor, T. (1990) A preliminary study of the geomorphology and stratigraphy of the Duncan Creek drainage basin. Unpublished undergraduate research paper, Simon Fraser University.
- Telford, W.M., L.P. Geldart and R.E. Sheriff (1990). Applied Geophysics - Second Edition. New York: Cambridge University Press.

Appendix A. Statement of Qualifications

I, Michael Allan Power of Whitehorse, Yukon Territory, certify that:

1. I obtained a Bachelor of Science degree with First Class Honours in Geology from the University of Alberta in 1986 and a Masters degree in Geophysics from the University of Alberta in 1988. I am a Professional Geoscientist registered with the British Columbia Association of Engineers and Geoscientists (Number 21131) and a Professional Geophysicist registered with the Northwest Territories Association of Professional Engineers, Geologists and Geophysicists (L942).

2. I have worked in the mining exploration industry and in geophysical research since 1984.

3. I conducted the geophysical survey described in this report and prepared this report for submission.

4. I have not received nor expect to receive, directly or indirectly, any interest in the property of Duncan Creek Goldbusters Ltd.



Michael A. Power M.Sc. P. Geo.

Whitehorse, Yukon Territory
December 23, 1996

Appendix B. Survey Log

Date	Description
04 AUG 96	Check and pack equipment
05 AUG 96	Pick up explosives, drive to Duncan Creek, begin Line 96-1
06 AUG 96	Finish 96-1, set up, survey 96-2
07 AUG 96	Survey line 96-3
08 AUG 96	Survey line 96-3, line 96-4
09 AUG 96	Survey lines 96-5, 96-6; topo survey lines 96-3, 96-4
10 AUG 96	Surveys on Keystone Creek.
11 AUG 96	Survey on Forty Pup Creek; topo survey on lines 96-3, 96-4.
12 AUG 96	Demobe to Whitehorse.

Appendix C. Statement of Costs

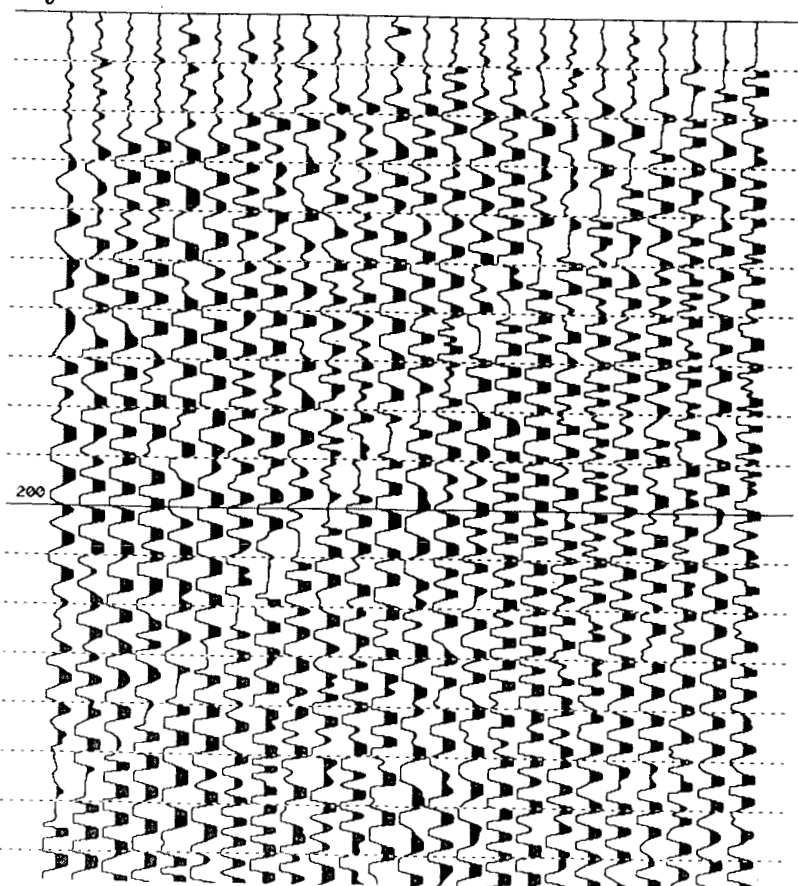
Mobe / demobe	\$500.00
Seismic survey: 5.0 days @ \$1660	8,300.00
Data processing, CADD, report	<u>1,200.00</u>
Total	\$10,000.00
Federal GST	<u>700.00</u>
Total	\$10,700.00

D-1

Appendix D. Shot Records

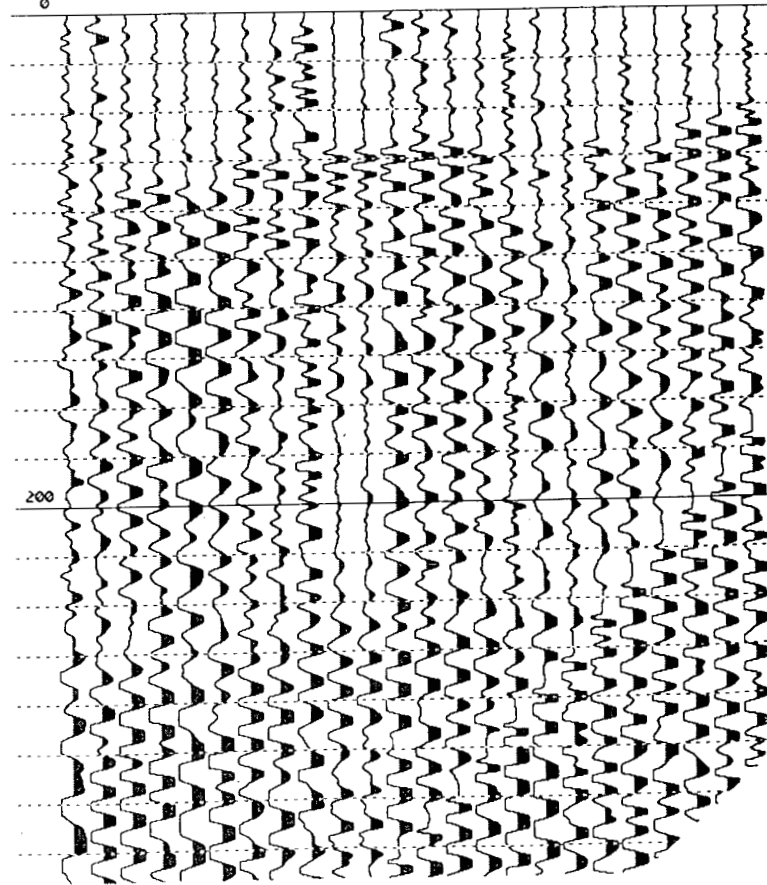
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 DISP FILT HI CUT 250HZ LO CUT 70HZ
 GROUP INTERVAL 5.00
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 RECORD LEN 384 MS
 PHONE 24 LOC 115.00
 DELAY 0 MS
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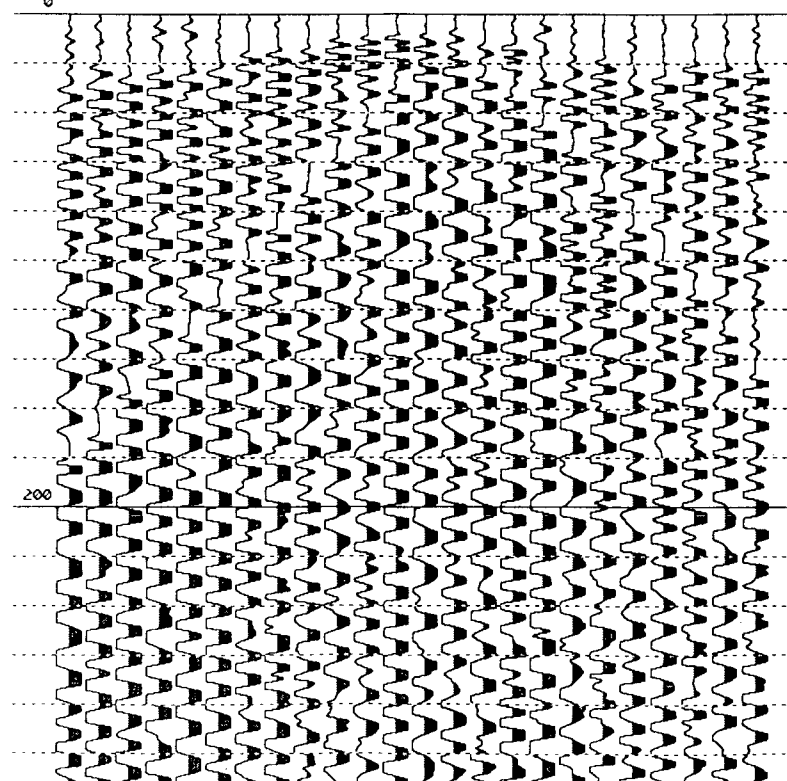
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 RECORD LEN 384 MS
 PHONE 24 LOC 115.00
 DELAY 0 MS
 STACKS 1
 AGC 90
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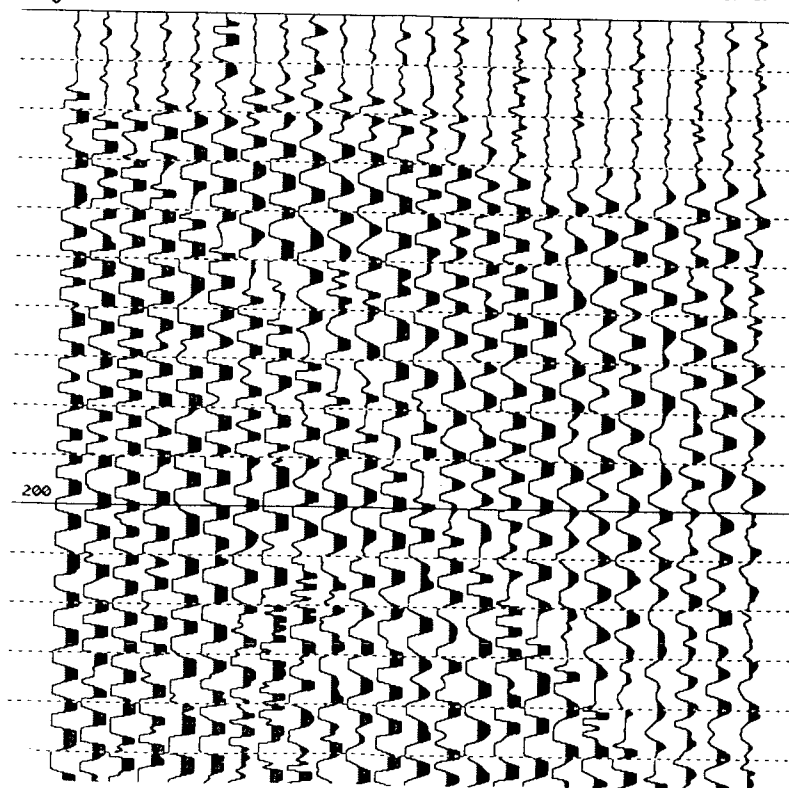
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 RECORD LEN 384 MS
 PHONE 24 LOC 115.00
 DELAY 0 MS
 STACKS 1
 AGC 90
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GEOMETRICS.

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 GROUP INTERVAL 5.00
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 RECORD LEN 384 MS
 PHONE 24 LOC 115.00
 DELAY 0 MS
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GEOMETRICS

SmartSeis

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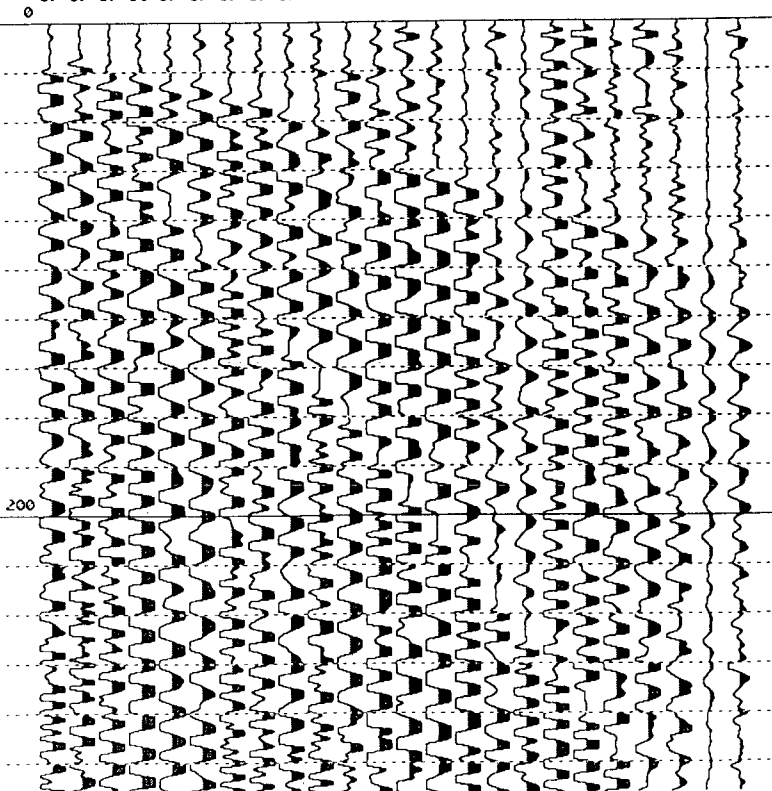
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GEOMETRICS

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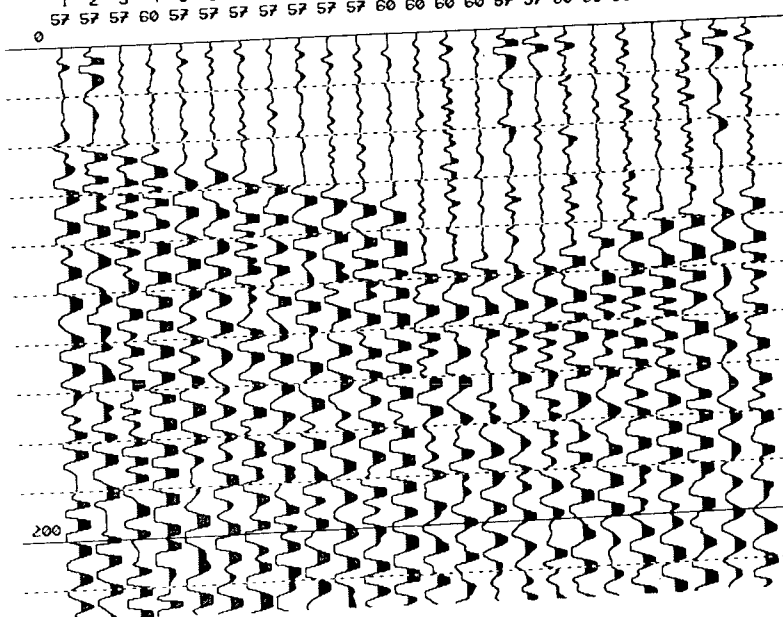
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GEOMETRICS

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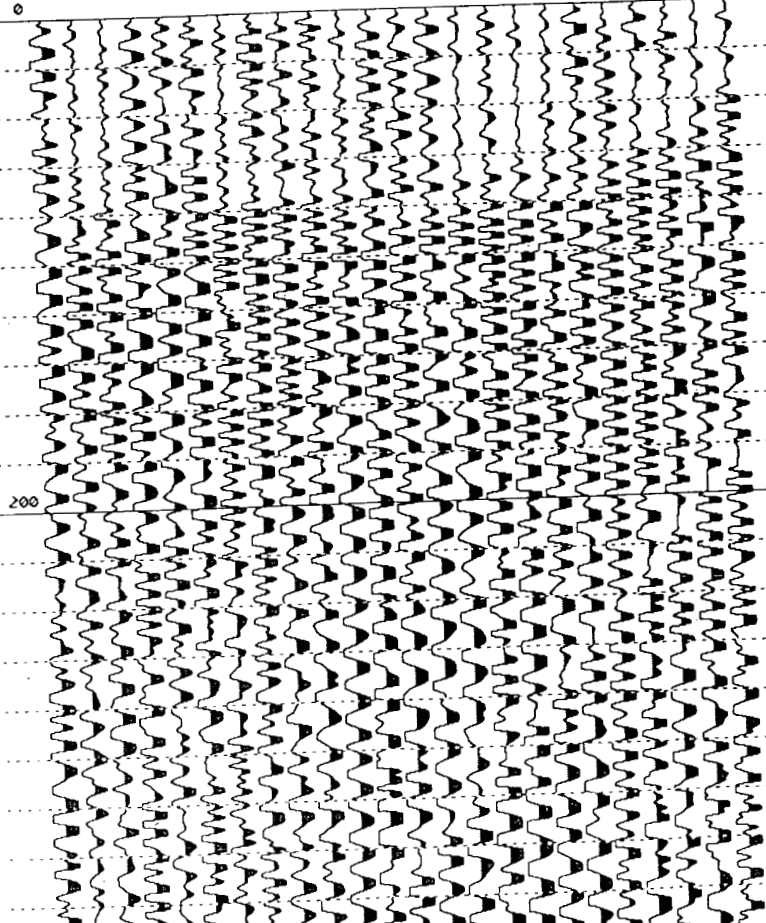
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AGC 90

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YUKON ENERGY, MINES
& RESOURCES LIBRARY
P.O. BOX 2703
WHITEHORSE, YUKON Y1A 2C6

SmartSeis

11:24:516/AUG/1996

GEOMETRICS

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LINE NUMBER 01

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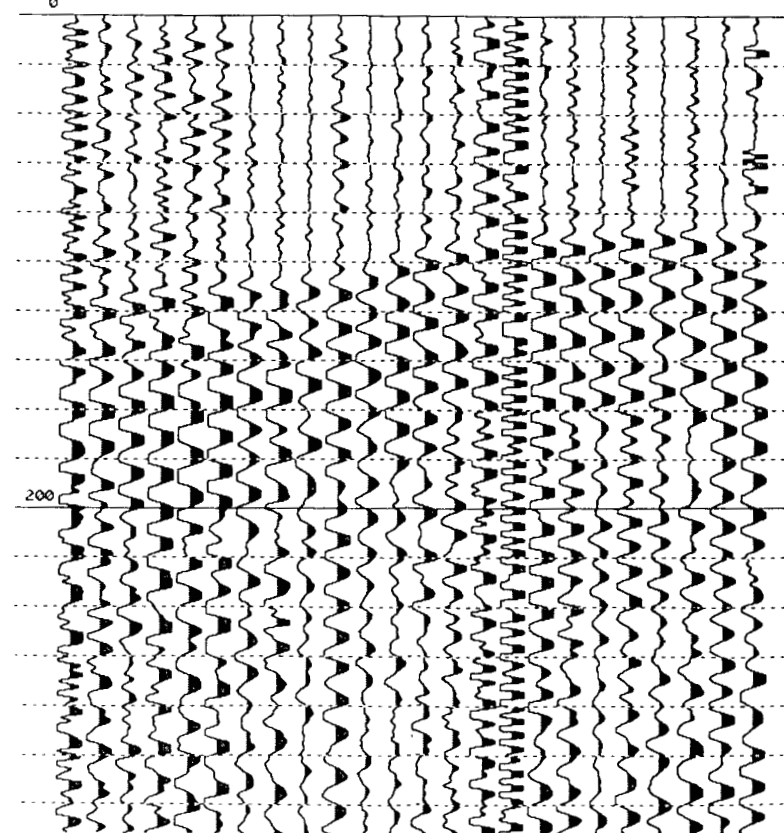
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GEOMETRICS

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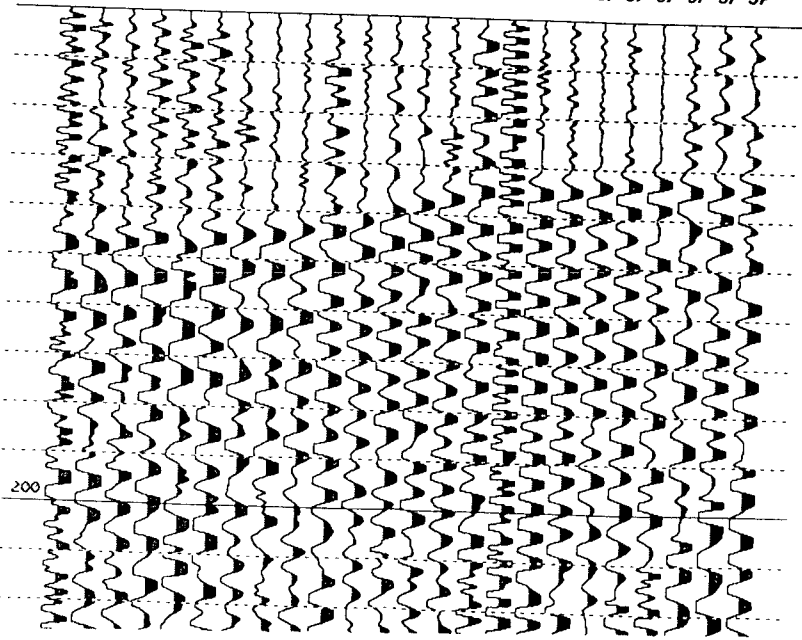
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GEOMETRICS

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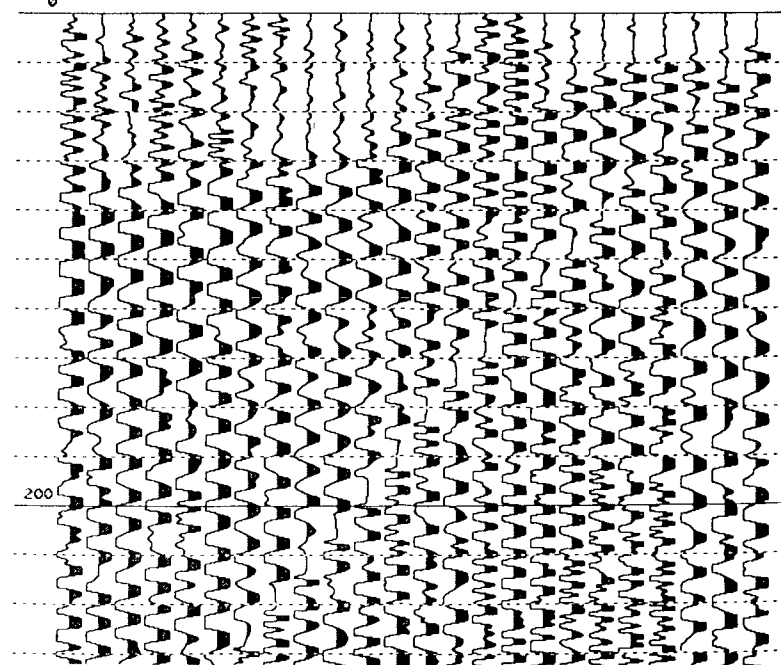
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GEOMETRICS

SmartSeis

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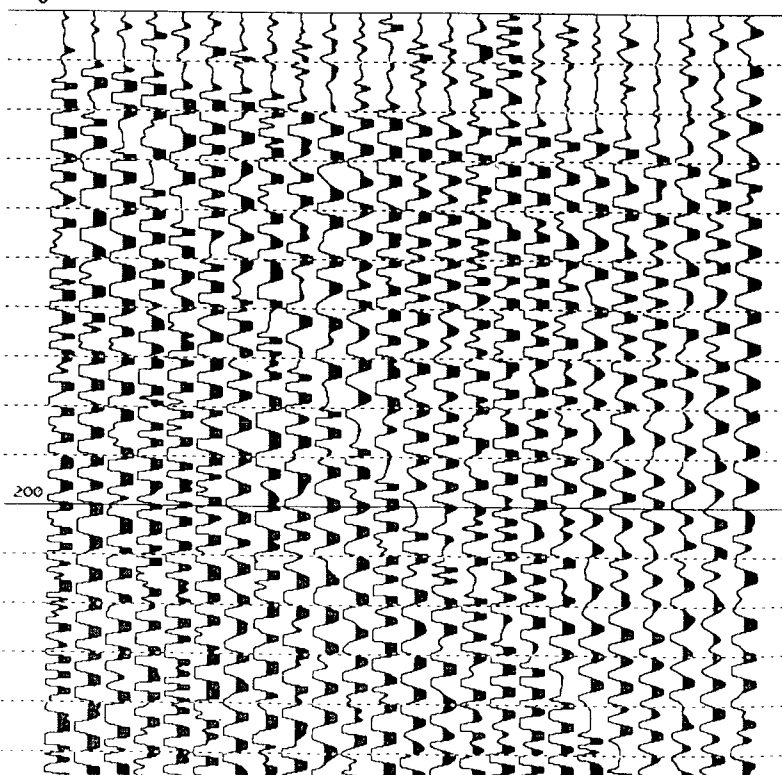
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AGC 90

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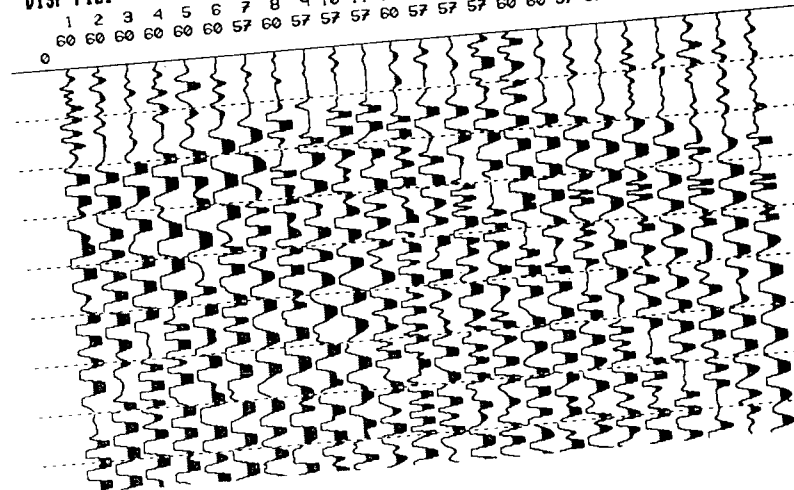
DISP FILT HI CUT 250HZ

LO CUT 70HZ

STACKS 1

AGC 90

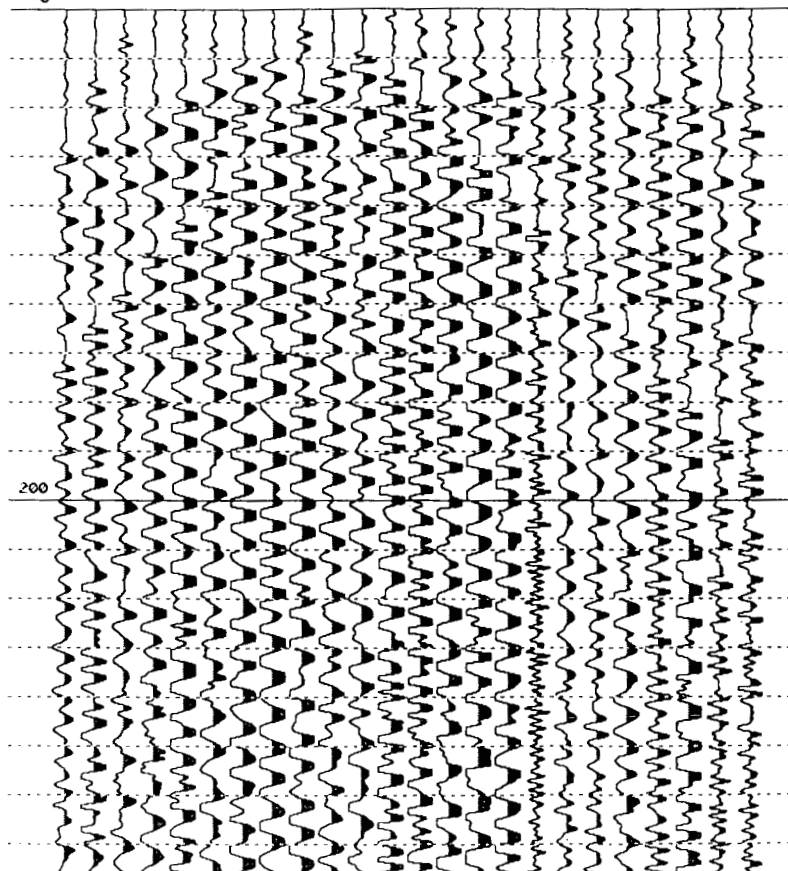
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
60 60 60 60 60 60 57 60 57 57 57 60 57 57 57 60 60 57 57 57 57 57 57 57
0



GEOMETRICS

SmartSeis

READ FROM 1-2.DAT
 LINE NUMBER 96-11
 SHOT LOC 58.00
 SAMPLE INTERVAL 250 μ S
 ACQ FILT LO CUT 0HZ
 DISP FILT HI CUT 250HZ
 GROUP INTERVAL 5.00
 PHONE 1 LOC 0.00
 RECORD LEN 384 MS
 NOTCH 0HZ
 LO CUT 70HZ
 PHONE 24 LOC 115.00
 DELAY 0 MS
 STACKS 1
 AGC 90
 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
 51 54 51 54 57 54 57 57 57 54 54 57 57 57 57 51 51 51 54 54 57 51 54

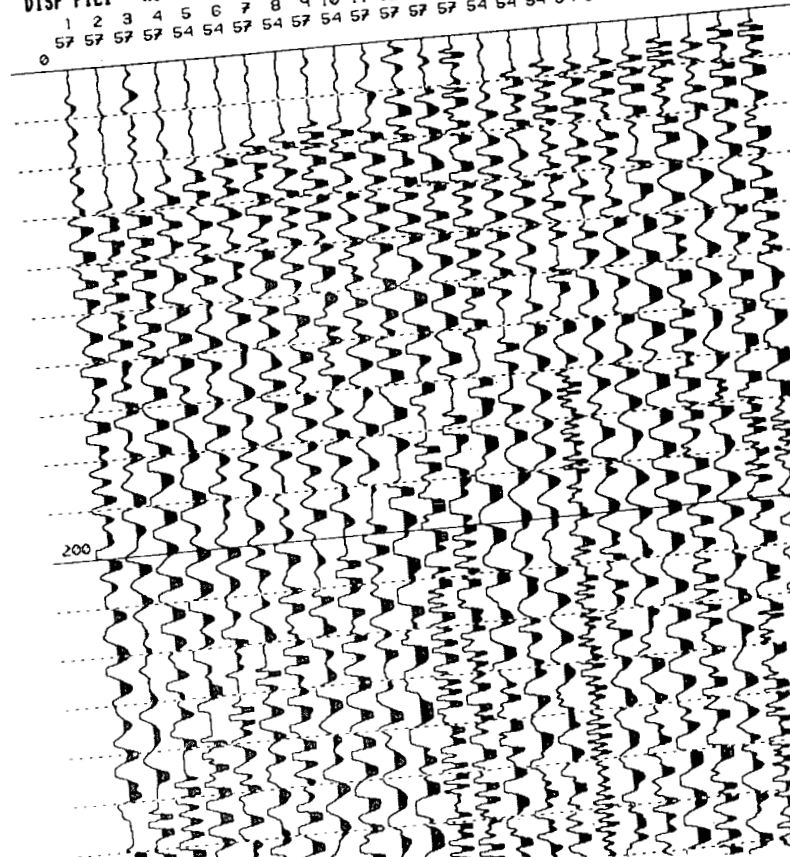


GEOMETRICS

SmartSeis

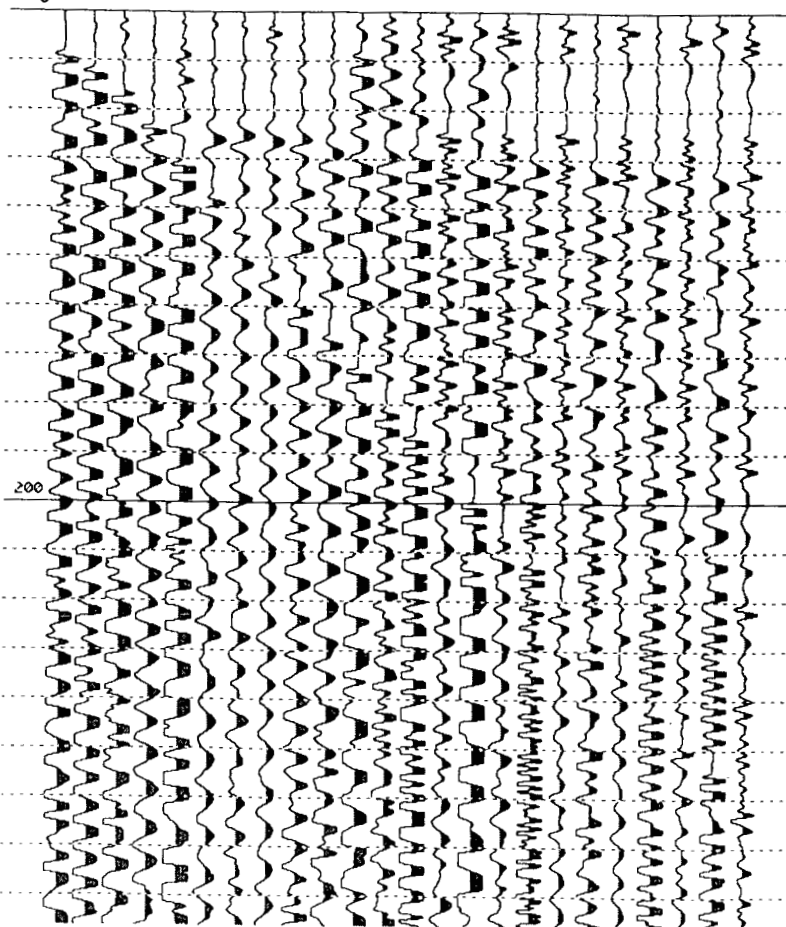
18:29:4211/AUG/1996

READ FROM 1-1.DAT
 LINE NUMBER 96-11
 SHOT LOC 115.00
 SAMPLE INTERVAL 250 μ S
 ACQ FILT LO CUT 0HZ
 DISP FILT HI CUT 250HZ
 GROUP INTERVAL 5.00
 PHONE 1 LOC 0.00
 RECORD LEN 384 MS
 NOTCH 0HZ
 LO CUT 70HZ
 PHONE 24 LOC 115.00
 DELAY 0 MS
 STACKS 1
 AGC 90
 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
 57 57 57 57 54 54 57 54 57 54 57 57 57 57 54 54 54 54 54 54 57 57 54 57 57



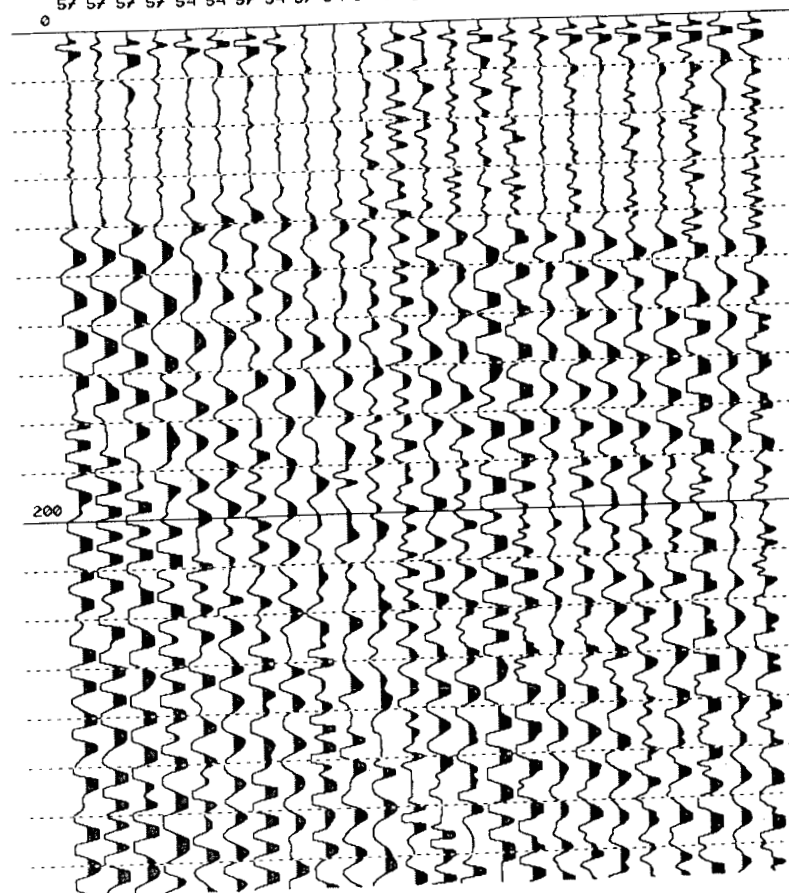
GEOMETRICS

READ FROM 1-3.DAT
 LINE NUMBER 96-11
 SHOT LOC 0.00
 SAMPLE INTERVAL 250 uS
 ACQ FILT LO CUT 0HZ
 DISP FILT HI CUT 250HZ LO CUT 70HZ
 GROUP INTERVAL 5.00
 PHONE 1 LOC 0.00
 RECORD LEN 384 MS
 NOTCH 0HZ
 LO CUT 70HZ
 SmartSeis
 18:44:4411/AUG/1996
 PHONE 24 LOC 115.00
 DELAY 0 MS
 STACKS 1
 AGC 90
 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
 57 57 57 54 60 51 51 51 54 54 57 54 60 51 60 51 57 48 54 48 57 48 57 48



GEOMETRICS

READ FROM 1-4.DAT
 LINE NUMBER 96-11
 SHOT LOC -61.00
 SAMPLE INTERVAL 250 uS
 ACQ FILT LO CUT 0HZ
 DISP FILT HI CUT 250HZ LO CUT 70HZ
 GROUP INTERVAL 5.00
 PHONE 1 LOC 0.00
 RECORD LEN 384 MS
 NOTCH 0HZ
 LO CUT 70HZ
 SmartSeis
 19:08:2611/AUG/1996
 PHONE 24 LOC 115.00
 DELAY 0 MS
 STACKS 2
 AGC 90
 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
 57 57 57 57 54 54 57 54 57 54 54 57 57 60 60 57 57 57 60 60 57 60



GEOMETRICS

READ FROM 1-1.DAT
LINE NUMBER 96-10

SHOT LOC 175.00
SAMPLE INTERVAL 250 uS

ACQ FILT LO CUT 0HZ
DISP FILT HI CUT 250HZ

GROUP INTERVAL 5.00
PHONE 1 LOC 0.00
RECORD LEN 384 MS

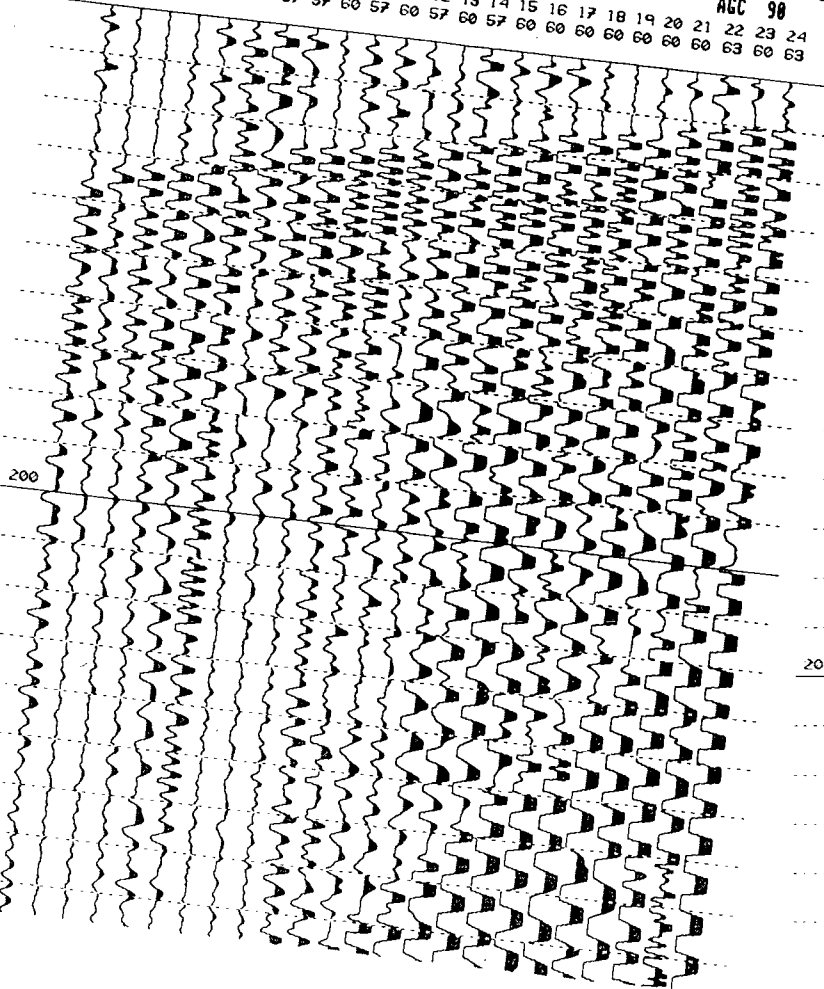
NOTCH 0HZ
LO CUT 70HZ

SmartSeis

16:41:4411/AUG/1996

PHONE 24 LOC 115.00
DELAY 0 MS
STACKS 1
AGC 90

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
57 57 57 57 57 57 57 57 60 57 60 57 60 57 60 60 60 60 60 60 60 63 60 63



ETRICS

ROM 1-2.DAT
UMBER 96-10

LOC 115.00
INTERVAL 250 uS

ILT LO CUT 0HZ
FILT HI CUT 250HZ

GROUP INTERVAL 5.00
PHONE 1 LOC 0.00
RECORD LEN 384 MS

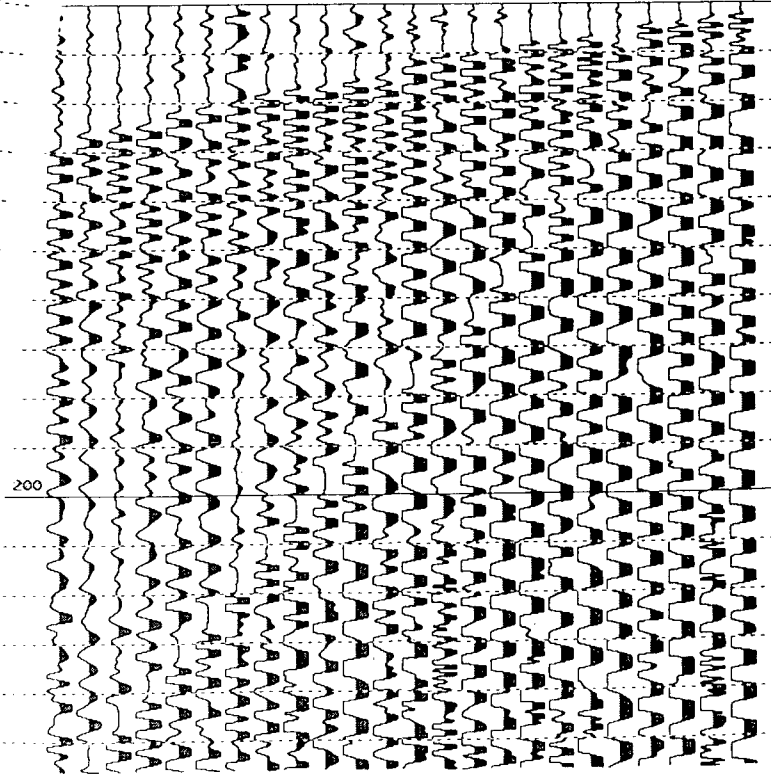
NOTCH 0HZ
LO CUT 70HZ

SmartSeis

16:50:1311/AUG/1996

PHONE 24 LOC 115.00
DELAY 0 MS
STACKS 1
AGC 90

2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
57 57 57 57 57 57 57 60 57 60 57 60 57 60 60 60 60 60 60 60 63 60 63



GEOMETRICS

READ FROM 1-4.DAT

LINE NUMBER 96-10

SHOT LOC 0.00

SAMPLE INTERVAL 250 uS

ACQ FILT LO CUT 0HZ

DISP FILT HI CUT 250HZ

GROUP INTERVAL 5.00

PHONE 1 LOC 0.00

RECORD LEN 384 MS

NOTCH 0HZ

LO CUT 70HZ

SmartSe

17:13:3811/AUG/199

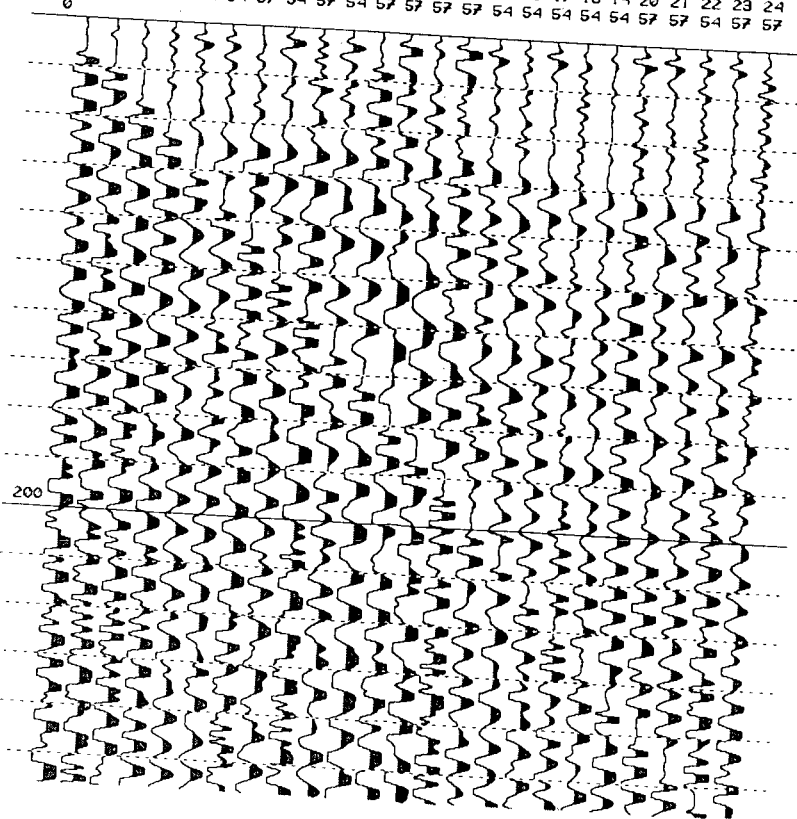
PHONE 24 LOC 115.00

DELAY 0 MS

STACKS 90

AGC 90

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
57 57 57 57 54 54 57 54 57 54 57 57 57 57 54 54 54 54 54 57 57 54 57 57



GEOMETRICS

READ FROM 1-3.DAT

LINE NUMBER 96-10

SHOT LOC 65.00

SAMPLE INTERVAL 250 uS

ACQ FILT LO CUT 0HZ

DISP FILT HI CUT 250HZ

GROUP INTERVAL 5.00

PHONE 1 LOC 0.00

RECORD LEN 384 MS

NOTCH 0HZ

LO CUT 70HZ

SmartSe

16:59:3711/AUG/199

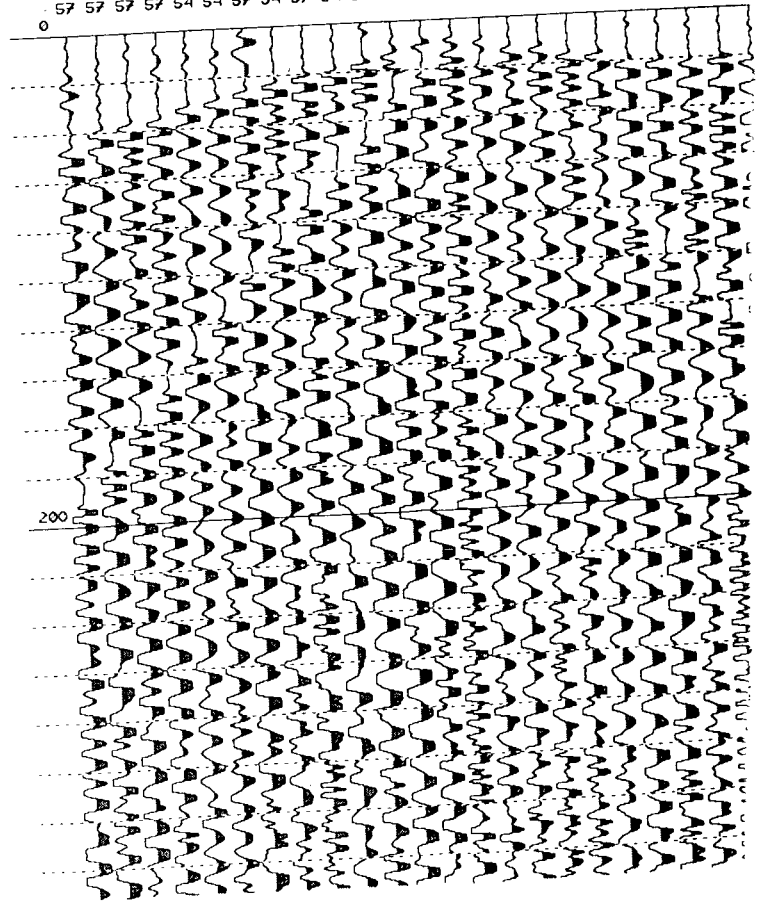
PHONE 24 LOC 115.00

DELAY 0 MS

STACKS 90

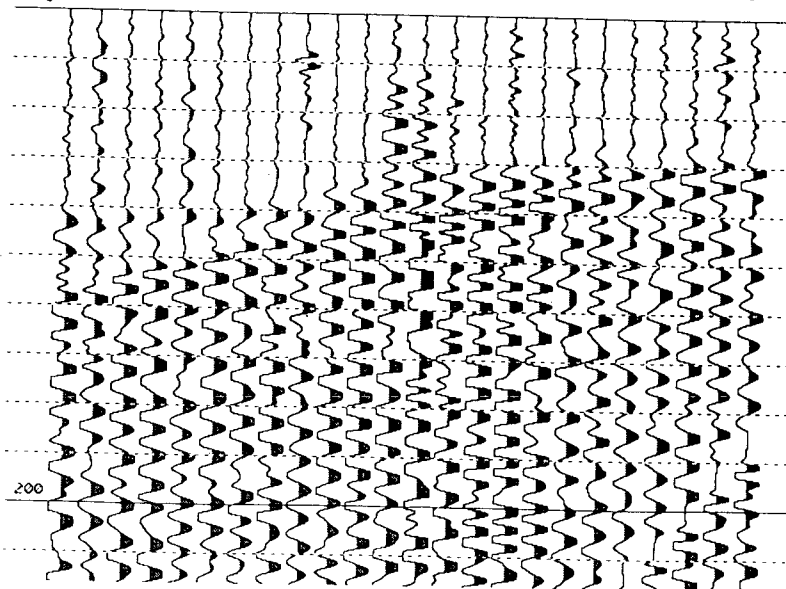
AGC 90

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
57 57 57 57 54 54 57 54 57 54 57 57 57 57 54 54 54 54 54 57 57 54 57 57



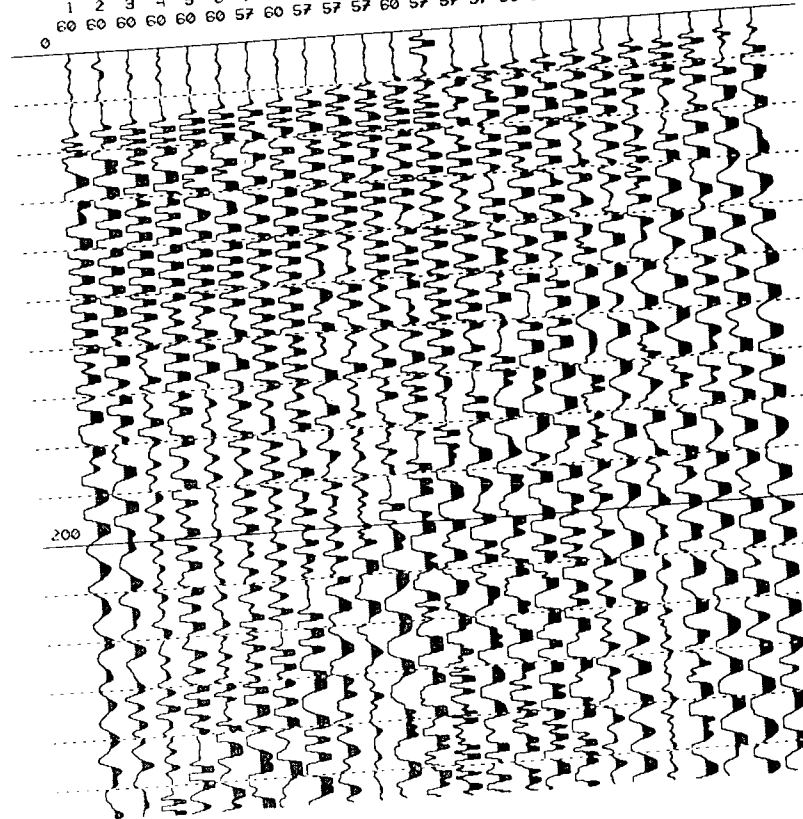
GEOMETRICS

READ FROM 1-5.DAT
 LINE NUMBER 96-05
 SHOT LOC 175.00
 SAMPLE INTERVAL 250 μ S
 ACQ FILT LO CUT 0HZ
 DISP FILT HI CUT 250HZ
 GROUP INTERVAL 5.00
 PHONE 1 LOC 0.00
 RECORD LEN 384 MS
 NOTCH 0HZ
 LO CUT 70HZ
 SmartSeis
 18:36:229/AUG/1996
 PHONE 24 LOC 115.00
 DELAY 0 MS
 STACKS 1
 AGC 98
 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
 57 54 57 57 54 57 57 57 54 57 60 57 60 57 60 57 60 57 54 54 54 57 54 54



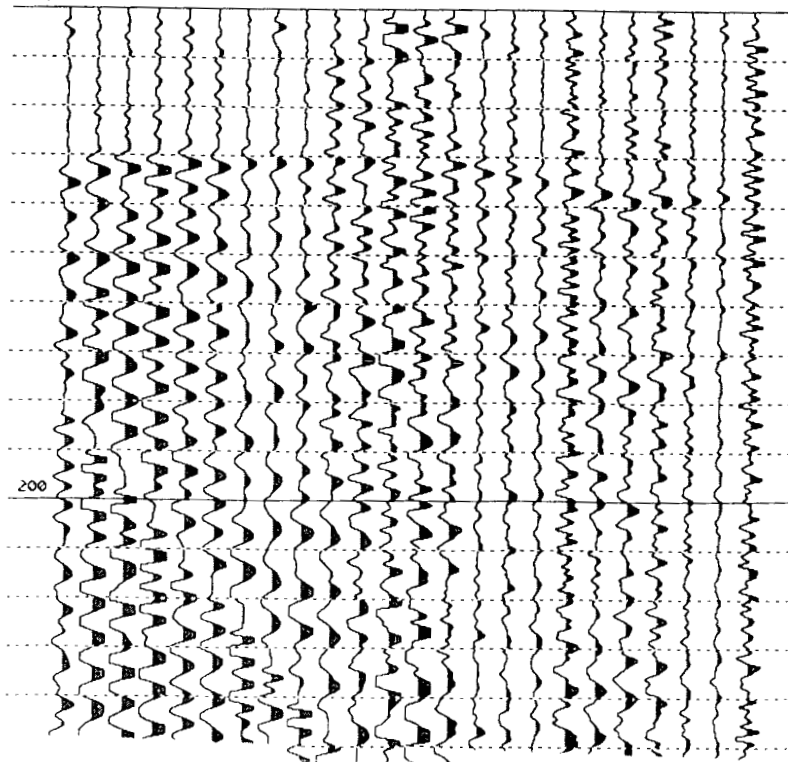
GEOMETRICS

READ FROM 1-1.DAT
 LINE NUMBER 96-04
 SHOT LOC 175.00
 SAMPLE INTERVAL 250 μ S
 ACQ FILT LO CUT 0HZ
 DISP FILT HI CUT 250HZ
 GROUP INTERVAL 5.00
 PHONE 1 LOC 0.00
 RECORD LEN 384 MS
 NOTCH 0HZ
 LO CUT 70HZ
 SmartSeis
 17:51:288/AUG/1996
 PHONE 24 LOC 115.00
 DELAY 0 MS
 STACKS 1
 AGC 98
 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
 60 60 60 60 60 60 57 60 57 57 57 60 57 57 57 60 60 57 57 57 57 57 57 57



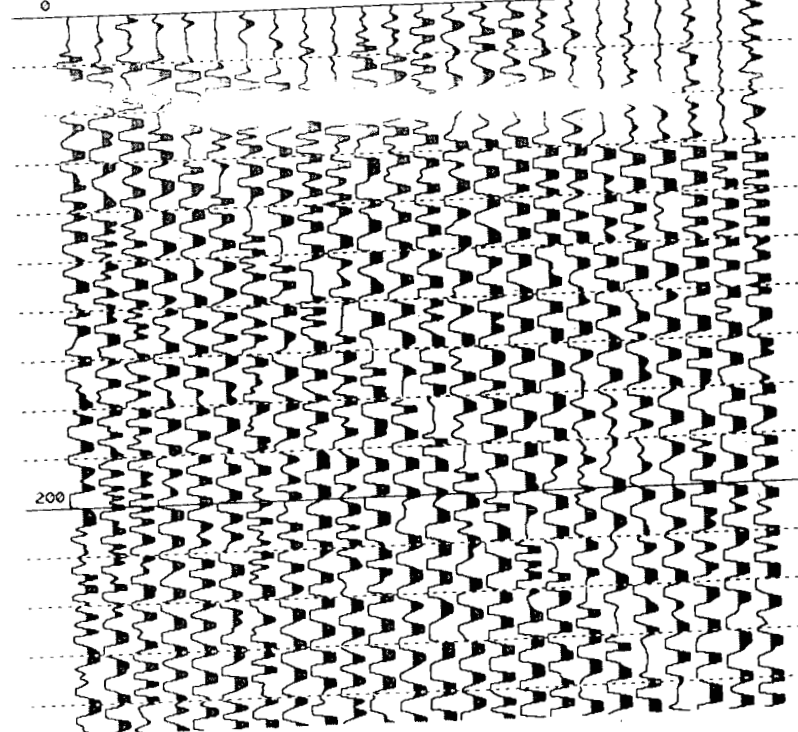
GEOMETRICS

READ FROM 1-5.DAT
 LINE NUMBER 96-10
 SHOT LOC -60.00
 SAMPLE INTERVAL 250 uS
 ACQ FILT LO CUT 0HZ
 DISP FILT HI CUT 250HZ
 GROUP INTERVAL 5.00
 PHONE 1 LOC 0.00
 RECORD LEN 384 MS
 NOTCH 0HZ
 LO CUT 70HZ
 SmartSeis
 17:25:2411/AUG/1996
 PHONE 24 LOC 115.00
 DELAY 0 MS
 STACKS 1
 AGC 90
 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
 51 57 57 57 54 54 57 54 57 54 57 60 63 57 54 54 64 63 63 57 66 54 57 63



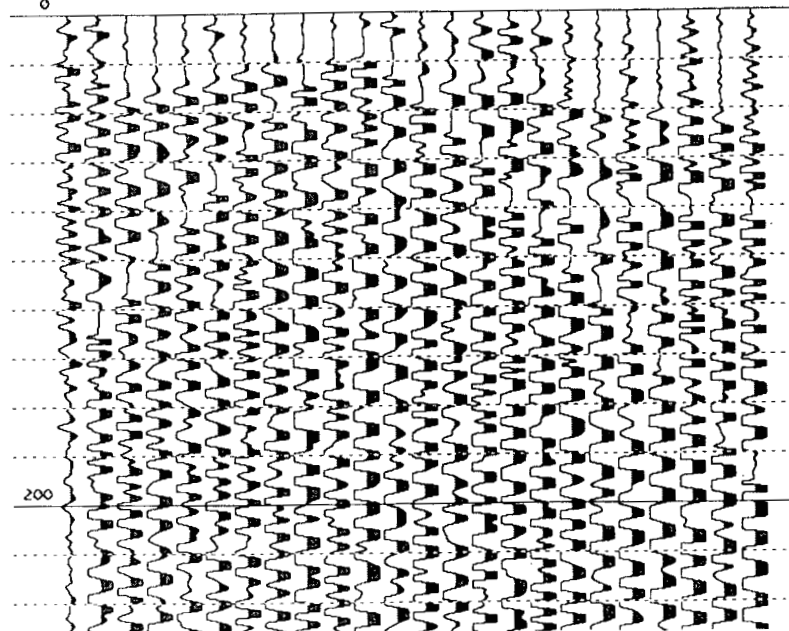
GEOMETRICS

READ FROM 1-1.DAT
 LINE NUMBER 96-06
 SHOT LOC 0.00
 SAMPLE INTERVAL 250 uS
 ACQ FILT LO CUT 0HZ
 DISP FILT HI CUT 250HZ
 GROUP INTERVAL 5.00
 PHONE 1 LOC 0.00
 RECORD LEN 384 MS
 NOTCH 0HZ
 LO CUT 70HZ
 SmartSeis
 19:51:179/AUG/1996
 PHONE 24 LOC 115.00
 DELAY 0 MS
 STACKS 1
 AGC 90
 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
 57 57 57 57 57 57 57 57 60 57 60 57 60 57 60 60 60 60 60 60 60 63 60 63



GEOMETRICS

READ FROM 1-2.DAT
 LINE NUMBER 00 96-06
 SHOT LOC 50.00
 SAMPLE INTERVAL 250 μ S
 ACQ FILT LO CUT 0HZ NOTCH 0HZ
 DISP FILT HI CUT 250HZ LO CUT 70HZ
 GROUP INTERVAL 5.00
 PHONE 1 LOC 0.00
 RECORD LEN 384 MS
 STACKS 1
 AGC 90
 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
 57 57 57 57 57 57 57 57 60 57 60 57 60 57 60 60 60 60 60 60 60 63 60 63

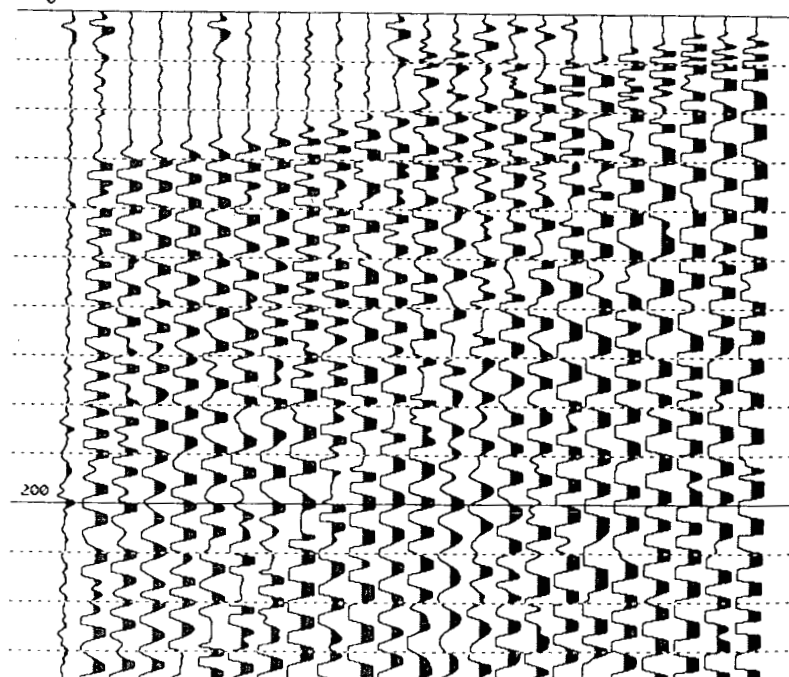


SmartSeis

20:03:249/AUG/1996

GEOMETRICS

READ FROM 1-3.DAT
 LINE NUMBER 03 96-06
 SHOT LOC 115.00
 SAMPLE INTERVAL 250 μ S
 ACQ FILT LO CUT 0HZ NOTCH 0HZ
 DISP FILT HI CUT 250HZ LO CUT 70HZ
 GROUP INTERVAL 5.00
 PHONE 1 LOC 0.00
 RECORD LEN 384 MS
 STACKS 1
 AGC 90
 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
 57 57 57 57 57 57 57 57 60 57 60 57 60 57 60 54 54 57 57 60 60 60 60 63 60 63



SmartSeis

20:18:449/AUG/1996

GEOMETRICS

SmartSeis

20:28:239/AUG/1996

READ FROM 1-4.DAT

LINE NUMBER 0096-06

GROUP INTERVAL 5.00

SHOT LOC 175.00

PHONE 1 LOC 0.00

PHONE 24 LOC 115.00

SAMPLE INTERVAL 250 uS

RECORD LEN 384 MS

DELAY 0 MS

ACQ FILT LO CUT 0HZ

NOTCH 0HZ

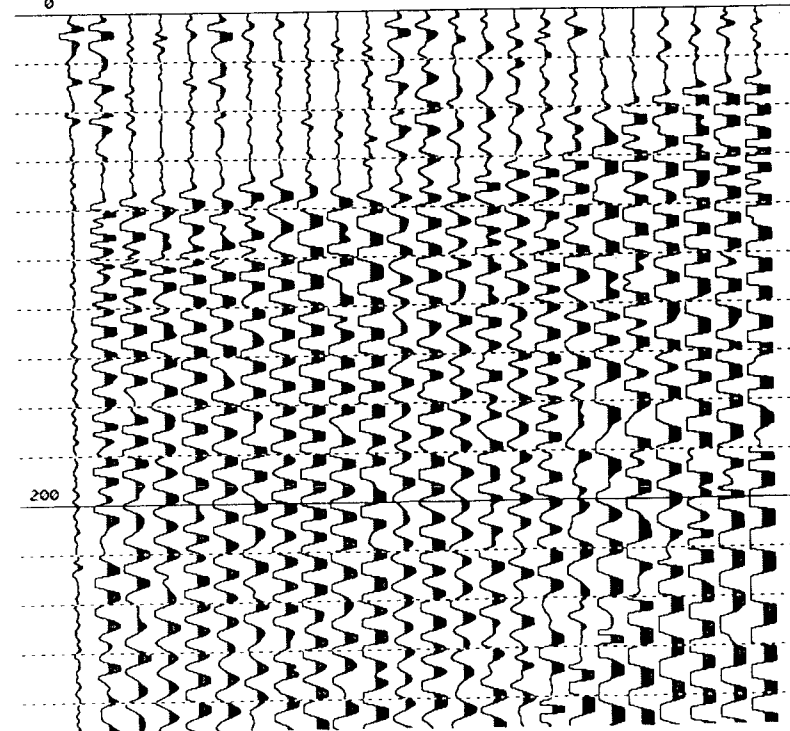
STACKS 1

DISP FILT HI CUT 250HZ LO CUT 70HZ

AGC 90

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
57 57 57 57 57 57 57 57 60 57 60 54 57 54 57 54 57 60 60 60 60 63 60 63

0



GEOMETRICS

SmartSeis

18:36:229/AUG/1996

READ FROM 1-5.DAT

LINE NUMBER 0096-06

GROUP INTERVAL 5.00

SHOT LOC 175.00

PHONE 1 LOC 0.00

PHONE 24 LOC 115.00

SAMPLE INTERVAL 250 uS

RECORD LEN 384 MS

DELAY 0 MS

ACQ FILT LO CUT 0HZ

NOTCH 0HZ

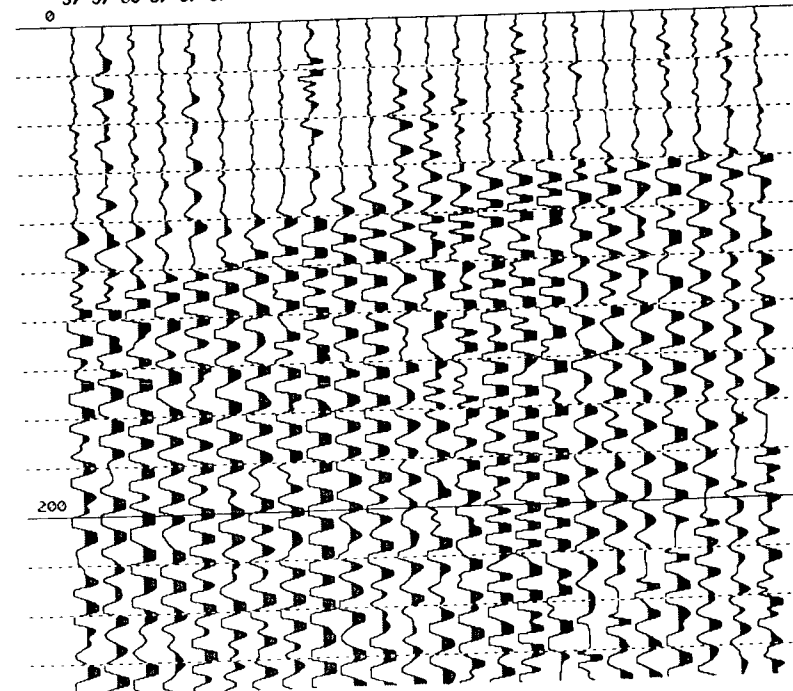
STACKS 1

DISP FILT HI CUT 250HZ LO CUT 70HZ

AGC 90

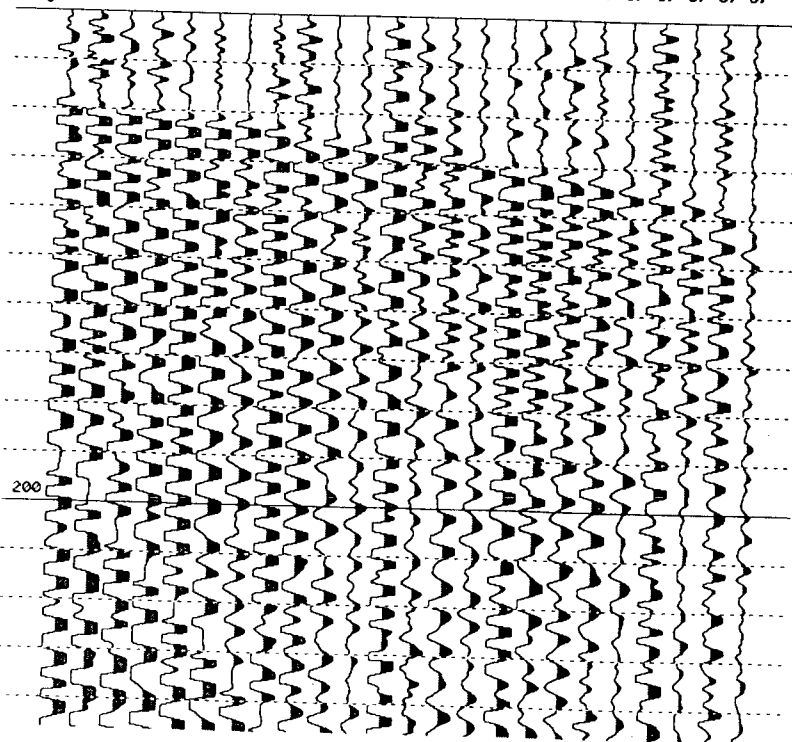
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
57 57 60 57 57 57 57 57 60 57 60 54 57 57 60 60 60 54 54 54 57 54 51 54

0



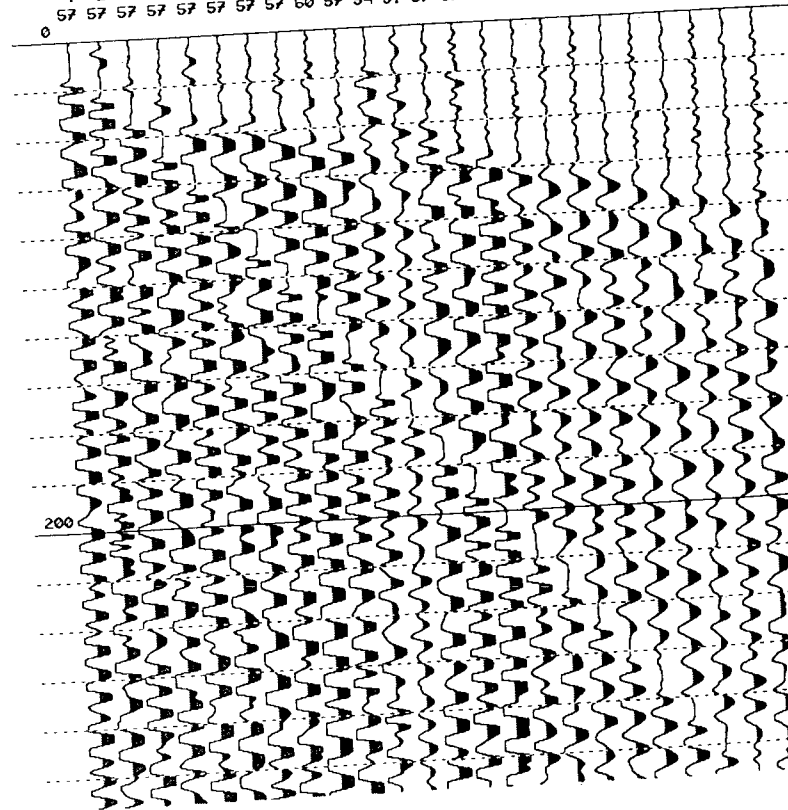
GEOMETRICS

READ FROM 1-1.DAT
 LINE NUMBER 00 96-05
 SHOT LOC -60.00
 SAMPLE INTERVAL 250 μ S
 ACQ FILT LO CUT 0HZ
 DISP FILT HI CUT 250HZ
 GROUP INTERVAL 5.00
 PHONE 1 LOC 0.00
 RECORD LEN 384 MS
 NOTCH 0HZ
 LO CUT 70HZ
 SmartSeis
 17:34:379/AUG/1996
 PHONE 24 LOC 115.00
 DELAY 0 MS
 STACKS 1
 AGC 90
 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
 60 60 60 60 60 60 57 60 57 57 57 60 57 57 57 60 60 57 57 57 57 57 57 57



GEOMETRICS

READ FROM 1-2.DAT
 LINE NUMBER 00 96-05
 SHOT LOC 0.00
 SAMPLE INTERVAL 250 μ S
 ACQ FILT LO CUT 0HZ
 DISP FILT HI CUT 250HZ
 GROUP INTERVAL 5.00
 PHONE 1 LOC 0.00
 RECORD LEN 384 MS
 NOTCH 0HZ
 LO CUT 70HZ
 SmartSeis
 17:42:099/AUG/1996
 PHONE 24 LOC 115.00
 DELAY 0 MS
 STACKS 1
 AGC 90
 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
 57 57 57 57 57 57 57 57 60 57 54 51 57 57 60 54 54 54 54 54 54 54 54 57



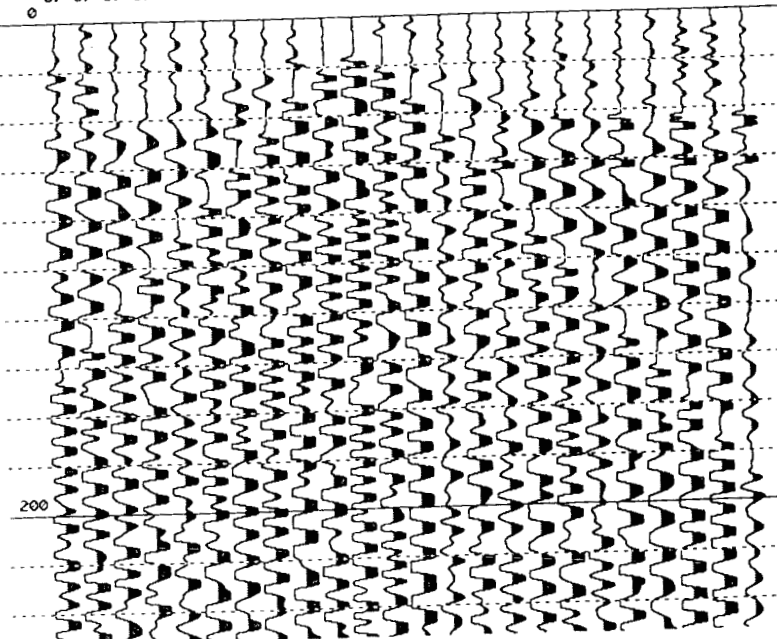
GEOMETRICS

SmartSeis

17:51:289/AUG/1996

READ FROM 1-3.DAT
 LINE NUMBER 96-05
 SHOT LOC 50.00
 SAMPLE INTERVAL 250 uS
 ACQ FILT LO CUT 0HZ
 DISP FILT HI CUT 250HZ
 GROUP INTERVAL 5.00
 PHONE 1 LOC 0.00
 RECORD LEN 384 MS
 NOTCH 0HZ
 LO CUT 70HZ
 PHONE 24 LOC 115.00
 DELAY 8 MS
 STACKS 1
 AGC 90

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
 57 57 57 57 54 57 57 57 60 57 60 57 60 51 57 54 57 57 54 57 57 60 60 51



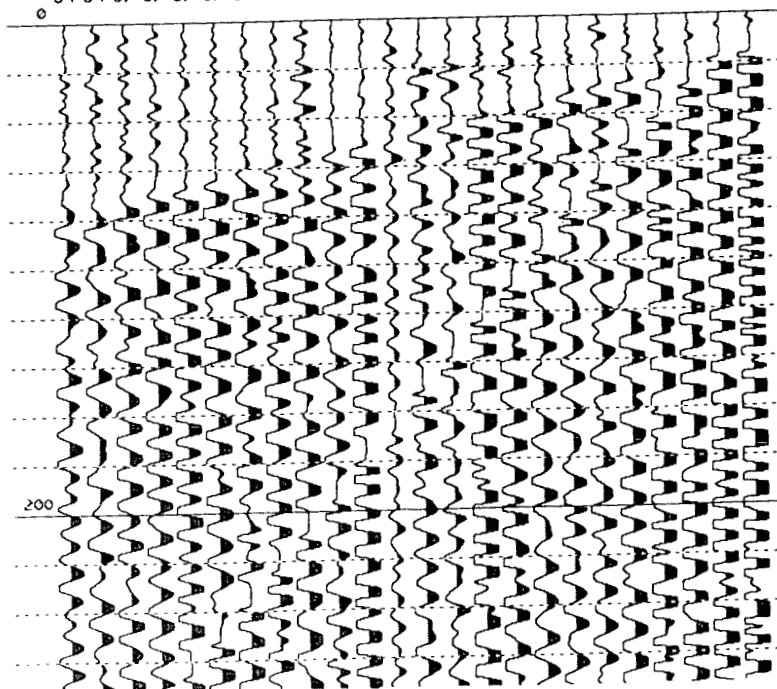
GEOMETRICS

SmartSeis

17:58:119/AUG/1996

READ FROM 1-4.DAT
 LINE NUMBER 96-05
 SHOT LOC 115.00
 SAMPLE INTERVAL 250 uS
 ACQ FILT LO CUT 0HZ
 DISP FILT HI CUT 250HZ
 GROUP INTERVAL 5.00
 PHONE 1 LOC 0.00
 RECORD LEN 384 MS
 NOTCH 0HZ
 LO CUT 70HZ
 PHONE 24 LOC 115.00
 DELAY 8 MS
 STACKS 1
 AGC 90

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
 54 54 57 57 57 57 57 57 57 54 60 48 54 51 60 57 54 54 54 57 60 60 63



Appendix E. First Arrivals

INPUT DATA FILE for 96-1.SIP

TITLE FOR SIPT2/SIPLUS INPUT DATA SET for 96-1.SIP

96-01

PROGRAM CONTROL DATA

S	L	V	PRINTER PLOT SCALES			DATUM	CONTROL	PLOT CONTROL				T O	
p	E	a	O										r f L
r	x	y	v	Elev	Horiz	Time	Pt 1	Pt 2	Elevations				a f D
d	i	r	e										c S i
s	t	s	r	m/col	m/row	ms/col	Elev/X	Elev/X	Top	Bottom	BLim	TLim	e P p
-	-	-	-	-----	-----	-----	-----	-----	---	-----	-----	-----	- - -
2	6	3	0	0.0	0.0	0.0	0.0	0.0	0	0	0.5	10.0	0 0 0
							0.0	0.0					

SHOTPOINT AND GEOPHONE DATA

Spread A, 5 SP's, 24 Geo's, X-Shift = 0.0, X-True = 1, Units: Meters.

SP	Elev	X-Loc	Y-Loc	Depth	Uphole T	Fudge T	End SP
---	----	-----	-----	-----	-----	-----	-----
A	0.8	7.8	5.0	0.0	0.0	0.0	1
B	0.0	63.2	5.0	0.0	0.0	0.0	0
C	5.7	120.7	5.0	0.0	0.0	0.0	2
D	34.2	240.0	0.0	0.0	0.0	0.0	0
E	35.0	295.0	0.0	0.0	0.0	0.0	0

ARRIVAL TIMES AND LAYERS REPRESENTED

Geo	Elev	X-Loc	Y	SP A	SP B	SP C	SP D	SP E
---	----	-----	---	-----L	-----L	-----L	-----L	-----L
1	0.8	7.8	0.0	12.25 1	31.75 2	57.00 0	81.75 3	109.00 0
2	1.0	12.8	0.0	16.00 1	30.50 2	54.75 0	80.50 3	108.00 0
3	1.1	17.7	0.0	19.50 1	27.50 2	52.00 0	79.50 3	106.20 0
4	1.3	22.7	0.0	21.50 1	25.75 2	50.00 3	76.75 3	104.20 3
5	1.5	27.6	0.0	26.25 2	24.25 2	48.50 3	77.00 3	105.00 3
6	1.8	32.6	0.0	25.50 2	22.25 2	47.50 3	75.75 3	104.00 3
7	1.5	37.6	0.0	26.25 2	16.75 2	46.25 3	74.50 3	101.50 3
8	1.3	42.7	0.0	29.25 2	18.25 2	45.75 3	75.00 3	101.00 3
9	1.0	47.7	0.0	30.25 2	16.00 2	43.50 3	71.25 3	99.25 3
10	0.8	52.8	0.0	33.50 3	15.00 2	42.75 3	69.75 3	99.50 0
11	0.4	58.0	0.0	31.75 3	12.50 2	39.00 2	67.50 3	93.75 3
12	0.0	63.2	0.0	33.25 3	13.50 1	36.25 2	64.75 3	91.00 3
13	-0.4	68.4	0.0	35.25 3	14.00 1	32.25 2	61.50 3	87.75 3
14	-0.8	73.6	0.0	35.75 3	17.75 1	29.25 2	59.75 3	86.50 3
15	-0.8	78.2	0.0	37.25 3	22.50 2	27.00 2	56.75 3	83.25 3
16	-0.8	82.9	0.0	40.75 3	24.00 2	26.25 2	54.25 3	80.25 0
17	-0.8	87.5	0.0	40.25 3	25.00 2	25.50 2	54.00 3	82.25 3
18	-0.4	92.3	0.0	44.25 3	27.25 2	22.75 2	53.00 3	82.50 3
19	0.1	97.1	0.0	43.50 3	27.75 2	18.25 2	51.00 3	80.25 3
20	0.6	101.8	0.0	45.50 3	31.00 2	15.75 2	52.25 3	79.50 3

21	1.7	106.4	0.0	47.50	3	34.25	2	11.50	2	51.25	2	78.25	3
22	2.9	111.0	0.0	51.00	3	40.00	3	12.75	2	51.25	3	79.00	3
23	4.3	115.8	0.0	54.25	3	43.25	3	9.25	2	51.25	3	78.00	3
24	5.7	120.7	0.0	57.50	3	46.75	3	6.00	1	51.25	3	77.75	3

SHOTPOINT AND GEOPHONE DATA

Spread B, 5 SP's, 24 Geo's, X-Shift = 0.0, X-True = 1, Units: Meters.

SP	Elev	X-Loc	Y-Loc	Depth	Uphole T	Fudge T	End SP
A	0.0	62.2	0.0	0.0	0.0	0.0	0
B	7.6	124.0	5.0	0.0	0.0	0.0	1
C	19.1	172.7	5.0	0.0	0.0	0.0	0
D	34.2	235.0	5.0	0.0	0.0	0.0	2
E	35.0	295.0	0.0	0.0	0.0	0.0	0

ARRIVAL TIMES AND LAYERS REPRESENTED

Geo	Elev	X-Loc	Y	SP A	SP B	SP C	SP D	SP E
1	7.6	124.0	0.0	33.25 2	9.25 1	43.75 2	76.75 3	72.50 0
2	7.8	128.2	0.0	31.25 2	9.00 2	41.00 2	75.00 3	72.50 0
3	8.8	133.0	0.0	35.50 2	12.50 2	36.00 2	75.00 3	74.75 0
4	9.8	137.8	0.0	38.50 2	16.00 2	35.00 2	75.75 3	75.00 3
5	10.8	142.6	0.0	41.25 2	19.25 2	33.00 2	74.00 3	72.75 3
6	11.8	147.4	0.0	44.00 2	19.75 2	30.50 2	72.00 3	72.75 3
7	12.8	152.2	0.0	47.75 2	23.25 2	27.75 2	70.75 3	73.50 3
8	14.3	157.0	0.0	48.75 2	27.00 2	23.25 2	67.25 3	72.50 3
9	15.7	161.9	0.0	53.00 3	31.00 2	20.00 2	67.50 3	69.50 3
10	17.1	166.7	0.0	56.00 3	37.25 2	14.25 2	65.50 3	65.75 3
11	19.1	172.7	0.0	57.25 3	42.75 2	14.25 1	63.25 3	63.00 3
12	21.0	178.8	0.0	61.25 3	47.50 2	19.25 1	63.00 3	64.75 3
13	22.3	183.0	0.0	62.25 3	51.50 3	23.50 2	60.25 3	63.00 3
14	23.5	187.2	0.0	67.25 3	53.00 3	27.50 2	59.50 3	61.75 3
15	24.7	191.5	0.0	69.25 3	56.25 3	33.75 2	60.25 3	61.00 3
16	25.9	195.7	0.0	72.25 3	61.50 3	37.75 2	58.50 3	61.25 3
17	27.1	200.3	0.0	75.00 3	65.00 3	45.75 2	56.25 3	59.25 3
18	28.3	204.9	0.0	76.25 3	66.50 3	51.25 2	55.00 3	60.50 3
19	29.5	209.5	0.0	83.75 3	71.75 3	58.50 2	55.00 3	60.25 3
20	30.7	214.2	0.0	84.75 3	73.50 3	62.25 3	48.00 2	57.00 2
21	31.9	218.8	0.0	86.75 3	76.50 3	62.75 3	34.00 1	50.75 2
22	32.6	224.2	0.0	87.55 3	77.75 3	63.50 3	24.50 1	48.25 2
23	33.4	229.6	0.0	88.75 3	76.75 3	64.75 3	18.50 1	43.50 2
24	34.2	235.0	0.0	87.75 3	78.50 3	66.50 3	12.25 1	31.00 2

INPUT DATA FILE for 96-2.SIP

TITLE FOR SIPT2/SIPLUS INPUT DATA SET for 96-2.SIP

96-2

PROGRAM CONTROL DATA

S	L	V	PRINTER PLOT SCALES			DATUM	CONTROL	PLOT CONTROL				T O	
p	E	a	O										r f L
r	x	y	v	Elev	Horiz	Time	Pt 1	Pt 2	Elevations				a f D
d	i	r	e										c S i
s	t	s	r	m/col	m/row	ms/col	Elev/X	Elev/X	Top	Bottom	BLim	TLim	e P p
-	-	-	-	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1	6	3	0	0.0	0.0	0.0	0.0	0.0	0	0	0.5	10.0	0 0 0
							0.0	0.0					

SHOTPOINT AND GEOPHONE DATA

Spread A, 4 SP's, 24 Geo's, X-Shift = 0.0, X-True = 1, Units: Meters.

SP	Elev	X-Loc	Y-Loc	Depth	Uphole T	Fudge T	End SP
--	----	-----	-----	-----	-----	-----	-----
A	119.6	-135.0	5.0	0.0	0.0	-5.0	1
B	107.4	-66.0	5.0	0.0	0.0	5.0	0
C	99.8	-17.9	5.0	0.0	0.0	9.0	2
D	99.0	42.0	0.0	0.0	0.0	0.0	0

ARRIVAL TIMES AND LAYERS REPRESENTED

Geo	Elev	X-Loc	Y	SP A	SP B	SP C	SP D
---	----	-----	---	-----L	-----L	-----L	-----L
1	117.6	-125.8	0.0	11.50 1	26.50 3	54.20 3	61.50 3
2	116.7	-120.3	0.0	17.25 2	25.00 3	53.00 3	62.00 3
3	115.8	-114.7	0.0	21.25 2	24.25 3	50.75 3	62.25 3
4	114.9	-109.1	0.0	24.00 3	24.50 3	47.25 3	62.50 3
5	113.8	-104.1	0.0	28.25 3	23.00 3	46.25 3	62.00 3
6	112.7	-99.1	0.0	30.00 3	21.75 3	46.00 3	60.00 3
7	112.0	-94.3	0.0	32.00 3	17.70 3	43.00 3	58.75 3
8	111.4	-89.6	0.0	33.25 3	16.50 2	39.00 3	58.00 3
9	110.7	-84.9	0.0	34.75 3	14.25 2	38.00 3	56.00 3
10	109.9	-80.0	0.0	35.00 3	11.75 2	34.50 3	52.25 3
11	109.1	-75.1	0.0	36.50 3	10.25 2	34.00 3	51.30 3
12	108.4	-71.5	0.0	36.25 3	10.00 1	33.75 3	51.00 3
13	107.8	-68.0	0.0	37.00 3	8.00 1	34.00 3	50.00 3
14	107.1	-64.4	0.0	39.50 3	8.25 1	35.00 3	48.75 3
15	106.4	-60.9	0.0	41.75 3	12.25 2	36.00 3	49.75 3
16	105.8	-57.3	0.0	43.50 3	14.60 2	37.00 3	48.00 3
17	105.0	-52.4	0.0	44.25 3	17.00 2	39.00 3	47.00 3
18	104.3	-47.5	0.0	47.00 3	19.75 2	38.50 3	45.75 3
19	103.6	-42.6	0.0	48.00 3	20.00 3	37.50 2	45.00 3
20	102.8	-37.6	0.0	48.25 3	23.90 3	36.00 2	44.00 3
21	102.1	-32.7	0.0	50.25 3	24.20 3	32.25 2	43.75 3

22	101.4	-27.8	0.0	49.25	3	23.75	3	25.25	2	41.00	3
23	100.6	-22.8	0.0	50.00	3	24.50	3	22.50	1	39.75	3
24	99.9	-17.9	0.0	51.00	3	25.25	3	17.25	1	35.25	2

INPUT DATA FILE for 96-3-E.SIP

TITLE FOR SIPT2/SIPLUS INPUT DATA SET for 96-3-E.SIP

96-3 East Half

PROGRAM CONTROL DATA

S	L	V	PRINTER PLOT SCALES			DATUM	CONTROL	PLOT CONTROL		T O			
p	E	a	O	Elev	Horiz	Time	Pt 1	Pt 2	Elevations	r f L			
d	i	r	e	m/col	m/row	ms/col	Elev/X	Elev/X	Top	Bottom	BLim	TLim	c S i
s	t	s	r										e P p
3	6	2	0	0.0	0.0	0.0	0.0	0.0	0	0	0.5	10.0	0 0 0
							0.0	0.0					

SHOTPOINT AND GEOPHONE DATA

Spread A, 4 SP's, 24 Geo's, X-Shift = 0.0, X-True = 1, Units: Meters.

SP	Elev	X-Loc	Y-Loc	Depth	Uphole T	Fudge T	End SP
A	150.6	21.6	5.0	0.0	0.0	0.0	1
B	147.8	74.1	5.0	0.0	0.0	0.0	0
C	145.9	135.6	5.0	0.0	0.0	0.0	0
D	143.7	193.8	0.0	0.0	0.0	0.0	0

ARRIVAL TIMES AND LAYERS REPRESENTED

Geo	Elev	X-Loc	Y	SP A	SP B	SP C	SP D
1	150.6	21.6	0.0	3.75 1	16.00 2	32.25 2	46.00 0
2	150.3	26.8	0.0	3.75 2	15.50 2	30.50 2	46.50 0
3	150.1	31.9	0.0	5.00 2	12.75 2	29.50 2	43.75 0
4	149.9	37.1	0.0	6.25 2	11.50 2	27.25 2	42.25 2
5	149.6	41.9	0.0	7.75 2	9.50 2	26.25 2	39.50 2
6	149.3	46.7	0.0	9.50 2	8.25 2	25.25 2	38.25 2
7	149.0	51.4	0.0	10.75 2	7.00 2	23.75 2	36.50 2
8	148.7	56.2	0.0	11.75 2	5.00 2	22.00 2	34.00 2
9	148.5	61.4	0.0	14.25 2	4.00 2	21.50 2	31.75 2
10	148.2	66.5	0.0	14.50 2	2.50 2	19.50 2	30.75 2
11	148.0	71.6	0.0	16.50 2	2.25 1	18.25 2	30.25 2
12	147.8	76.7	0.0	17.75 2	2.75 1	17.00 2	29.25 2
13	147.6	81.7	0.0	19.25 2	4.50 2	16.00 2	27.50 2
14	147.3	86.7	0.0	21.00 2	6.00 2	15.00 2	28.00 2
15	147.1	91.8	0.0	22.75 2	7.75 2	12.75 2	26.75 2
16	146.9	96.8	0.0	22.50 2	9.00 2	12.25 2	25.00 2
17	146.8	101.6	0.0	23.25 2	9.50 2	11.25 2	23.75 2
18	146.6	106.5	0.0	26.50 2	12.50 2	11.75 2	23.25 2
19	146.5	111.3	0.0	26.75 2	13.75 2	11.00 2	22.75 2
20	146.4	116.2	0.0	27.25 2	13.75 2	8.75 2	21.00 2
21	146.3	121.0	0.0	29.50 2	15.50 2	7.25 2	18.75 2

22	146.2	125.9	0.0	29.25	2	16.00	2	5.00	2	18.75	2
23	146.0	130.7	0.0	30.50	2	15.75	2	3.75	2	17.50	2
24	145.9	135.6	0.0	32.75	2	18.50	2	3.50	1	17.25	2

SHOTPOINT AND GEOPHONE DATA

Spread B, 5 SP's, 24 Geo's, X-Shift = 0.0, X-True = 1, Units: Meters.

SP	Elev	X-Loc	Y-Loc	Depth	Uphole T	Fudge T	End SP
A	147.6	81.7	0.0	0.0	0.0	0.0	0
B	145.9	140.0	5.0	0.0	0.0	0.0	1
C	143.7	196.3	5.0	0.0	0.0	0.0	0
D	142.0	252.8	5.0	0.0	0.0	0.0	0
E	135.3	311.6	0.0	0.0	0.0	0.0	0

ARRIVAL TIMES AND LAYERS REPRESENTED

Geo	Elev	X-Loc	Y	SP A	SP B	SP C	SP D	SP E
1	145.9	140.0	0.0	16.75 2	2.75 1	14.50 2	29.25 2	60.50 0
2	145.7	145.0	0.0	17.00 2	3.25 2	13.25 2	26.50 2	61.25 0
3	145.5	149.9	0.0	18.25 2	3.75 2	11.50 2	25.75 2	59.25 0
4	145.2	154.9	0.0	20.50 2	6.25 2	11.50 2	26.00 2	58.75 0
5	145.0	159.8	0.0	22.50 2	8.50 2	11.50 2	25.50 2	60.75 0
6	144.8	164.7	0.0	23.25 2	9.00 2	10.00 2	23.25 0	60.00 0
7	144.6	169.7	0.0	24.00 2	9.50 2	10.50 0	23.25 2	57.50 0
8	144.4	174.6	0.0	23.75 2	10.25 2	9.00 2	21.25 2	56.00 0
9	144.2	179.4	0.0	25.25 2	11.75 2	8.00 2	20.50 2	51.50 0
10	144.0	184.2	0.0	25.75 2	12.50 2	7.00 2	20.25 2	43.50 2
11	143.9	189.0	0.0	27.75 2	14.50 2	6.75 1	17.50 2	41.75 2
12	143.7	193.8	0.0	29.25 2	16.50 2	3.75 1	18.50 2	40.00 2
13	143.6	198.9	0.0	28.75 2	15.25 2	5.00 1	16.00 2	38.25 2
14	143.5	203.9	0.0	32.75 2	19.25 2	8.25 1	17.00 2	38.75 2
15	143.3	209.0	0.0	31.75 2	18.50 2	8.25 2	14.25 2	38.25 2
16	143.2	214.1	0.0	33.25 2	19.25 2	9.00 2	13.25 2	36.25 2
17	143.0	219.1	0.0	34.50 2	21.50 2	11.25 2	12.25 2	34.50 2
18	142.8	224.1	0.0	34.00 2	21.00 2	10.25 2	11.00 2	33.75 2
19	142.6	229.1	0.0	36.00 2	22.25 2	13.00 2	9.75 2	32.00 2
20	142.5	234.1	0.0	36.00 2	23.25 2	12.00 2	7.75 2	30.75 2
21	142.2	238.6	0.0	36.75 2	23.75 2	12.00 2	6.00 2	27.75 2
22	142.3	243.2	0.0	38.75 2	24.75 2	14.25 2	4.75 2	27.00 2
23	142.1	248.0	0.0	39.00 2	25.75 2	14.00 2	4.00 2	29.00 2
24	142.0	252.8	0.0	39.75 2	26.50 2	15.75 2	3.25 1	27.00 2

SHOTPOINT AND GEOPHONE DATA

Spread C, 5 SP's, 24 Geo's, X-Shift = 0.0, X-True = 1, Units: Meters.

SP	Elev	X-Loc	Y-Loc	Depth	Uphole T	Fudge T	End SP
A	143.3	209.0	0.0	0.0	0.0	0.0	0
B	141.2	267.8	5.0	0.0	0.0	0.0	1
C	128.0	327.5	5.0	0.0	0.0	0.0	0
D	118.3	378.7	5.0	0.0	0.0	0.0	0
E	110.5	437.6	0.0	0.0	0.0	0.0	0

ARRIVAL TIMES AND LAYERS REPRESENTED

Geo	Elev	X-Loc	Y	SP A	SP B	SP C	SP D	SP E
---	---	---	---	---	---	---	---	---
1	141.2	267.8	0.0	17.25 2	10.50 1	27.50 2	31.50 2	45.25 2
2	141.0	272.8	0.0	20.50 2	12.75 2	26.25 2	32.00 2	44.25 2
3	140.7	277.8	0.0	20.25 2	13.50 2	25.00 2	30.25 2	44.25 2
4	140.5	282.8	0.0	24.00 2	16.50 2	25.25 2	31.25 2	46.25 2
5	140.3	287.8	0.0	25.75 2	20.00 2	25.75 2	29.50 2	43.25 2
6	140.0	292.8	0.0	24.75 2	18.00 2	23.50 2	27.25 2	41.25 2
7	139.8	297.8	0.0	26.75 2	18.50 2	24.00 2	27.50 2	41.50 2
8	139.6	302.8	0.0	32.25 2	23.25 2	25.50 2	31.25 2	42.50 2
9	137.4	307.8	0.0	32.75 2	25.00 2	26.50 2	30.25 2	40.75 2
10	135.3	311.6	0.0	31.00 2	22.75 2	24.50 2	27.25 2	37.50 2
11	133.2	316.0	0.0	33.50 2	19.50 2	20.75 2	23.75 2	37.00 2
12	131.1	320.4	0.0	33.50 2	19.25 2	17.75 2	20.25 2	34.25 2
13	129.0	324.8	0.0	31.25 2	21.25 2	15.25 1	18.25 2	32.50 2
14	127.4	329.5	0.0	34.00 2	26.00 2	15.50 1	18.75 2	32.25 2
15	125.9	334.2	0.0	34.25 2	29.00 2	16.00 2	15.25 2	29.75 2
16	124.4	338.9	0.0	35.00 2	27.75 2	16.75 2	14.00 2	27.50 2
17	123.9	343.9	0.0	36.75 2	30.75 2	19.75 2	12.75 2	26.50 2
18	123.4	348.8	0.0	39.75 2	32.25 2	22.25 2	13.25 2	27.00 2
19	123.0	353.8	0.0	40.00 2	34.25 2	23.00 2	11.50 2	25.25 2
20	122.5	358.7	0.0	41.00 2	36.00 2	21.75 2	9.50 2	23.50 2
21	121.4	363.7	0.0	40.25 2	34.25 2	22.50 2	6.00 2	18.50 2
22	120.4	368.7	0.0	41.25 2	34.75 2	22.00 2	4.00 2	18.25 2
23	119.3	373.7	0.0	41.50 2	34.50 2	21.00 2	3.25 2	17.00 2
24	118.3	378.7	0.0	42.50 2	37.50 2	21.50 2	2.25 1	15.50 2

INPUT DATA FILE for 96-3-W.SIP

TITLE FOR SIPT2/SIPLUS INPUT DATA SET for 96-3-W.SIP

96-3 west half

PROGRAM CONTROL DATA

S	L	V	PRINTER PLOT SCALES			DATUM	CONTROL	PLOT CONTROL			T O			
p	E	a	O									r	f	L
r	x	y	v	Elev	Horiz	Time	Pt 1	Pt 2	Elevations			a	f	D
d	i	r	e									c	S	i
s	t	s	r	m/col	m/row	ms/col	Elev/X	Elev/X	Top	Bottom	BLim	TLim	e	P
-	-	-	-	-----	-----	-----	-----	-----	---	-----	-----	-----	---	---
4	6	3	0	0.0	0.0	0.0	0.0	0.0	0	0	0.5	10.0	0	0
							0.0	0.0						0

SHOTPOINT AND GEOPHONE DATA

Spread A, 4 SP's, 24 Geo's, X-Shift = 0.0, X-True = 1, Units: Meters.

SP	Elev	X-Loc	Y-Loc	Depth	Uphole T	Fudge T	End SP
---	----	-----	-----	-----	-----	-----	-----
A	129.0	324.8	0.0	0.0	0.0	0.0	0
B	118.4	383.6	5.0	0.0	0.0	0.0	1
C	110.5	439.6	5.0	0.0	0.0	5.0	0
D	100.0	494.9	0.0	0.0	0.0	0.0	2

ARRIVAL TIMES AND LAYERS REPRESENTED

Geo	Elev	X-Loc	Y	SP A	SP B	SP C	SP D
---	----	-----	---	-----L	-----L	-----L	-----L
1	118.4	383.6	0.0	15.75 2	11.25 1	22.50 2	30.00 2
2	117.7	388.5	0.0	16.50 2	8.75 2	20.50 2	27.00 2
3	116.9	393.4	0.0	18.75 2	12.25 2	18.50 2	26.25 2
4	116.2	398.4	0.0	19.25 2	13.50 2	18.50 2	25.25 2
5	115.5	403.8	0.0	20.00 2	11.75 2	17.25 2	23.75 2
6	114.8	408.2	0.0	20.75 2	13.50 2	15.75 2	23.00 2
7	114.1	413.1	0.0	23.00 2	13.50 2	14.75 2	20.75 2
8	113.4	418.0	0.0	26.50 2	17.50 2	15.75 2	19.75 2
9	112.7	422.9	0.0	29.25 2	21.00 2	17.75 2	22.75 2
10	111.9	427.8	0.0	31.25 2	23.00 2	15.00 2	23.00 2
11	111.2	432.7	0.0	31.50 2	23.50 2	12.75 2	22.25 2
12	110.5	437.6	0.0	30.75 2	22.50 2	8.25 1	16.75 2
13	109.9	442.2	0.0	28.50 0	25.00 0	8.75 1	14.50 2
14	109.3	446.7	0.0	31.25 2	23.50 2	10.75 2	14.00 2
15	108.4	451.5	0.0	33.25 2	26.25 2	8.75 2	13.25 2
16	107.5	456.3	0.0	35.00 2	26.50 2	10.25 2	11.75 2
17	106.5	461.1	0.0	36.00 2	28.25 2	10.75 2	9.75 2
18	105.6	466.0	0.0	40.75 2	32.50 2	13.00 2	10.75 2
19	104.7	470.8	0.0	40.50 2	34.25 2	13.75 2	8.25 2
20	103.7	475.6	0.0	42.75 2	35.50 2	17.00 2	7.25 2
21	102.8	480.4	0.0	44.75 2	35.50 2	17.75 2	5.25 2

22	101.9	485.3	0.0	46.50	2	38.25	2	19.00	2	6.00	2
23	101.0	490.1	0.0	48.50	2	41.25	2	19.25	2	4.75	2
24	100.0	494.9	0.0	48.00	2	42.25	0	23.50	0	5.00	1

SHOTPOINT AND GEOPHONE DATA

Spread B, 5 SP's, 24 Geo's, X-Shift = 0.0, X-True = 1, Units: Meters.

SP	Elev	X-Loc	Y-Loc	Depth	Uphole T	Fudge T	End SP
---	----	-----	-----	-----	-----	-----	-----
A	109.9	442.2	0.0	0.0	0.0	0.0	0
B	99.3	499.3	0.0	0.0	0.0	0.0	1
C	89.2	557.1	0.0	0.0	0.0	0.0	0
D	80.2	609.5	0.0	0.0	0.0	-9.0	2
E	71.8	667.6	0.0	0.0	0.0	0.0	0

ARRIVAL TIMES AND LAYERS REPRESENTED

Geo	Elev	X-Loc	Y	SP A	SP B	SP C	SP D	SP E
---	----	-----	---	-----L	-----L	-----L	-----L	-----L
1	99.3	499.3	0.0	17.25 2	12.25 1	17.75 2	33.50 2	101.70 2
2	98.4	504.1	0.0	20.50 2	16.75 2	21.25 2	28.75 2	101.20 2
3	97.5	509.0	0.0	21.50 2	17.50 2	17.25 2	26.00 2	98.75 2
4	96.7	513.8	0.0	19.50 2	21.25 2	14.25 2	26.00 2	99.25 2
5	95.8	518.6	0.0	20.50 2	21.00 2	12.75 2	23.75 2	98.00 0
6	95.0	523.4	0.0	21.25 2	22.25 2	12.50 2	25.25 2	97.75 0
7	94.1	528.2	0.0	24.00 2	19.75 2	11.50 2	24.25 2	95.00 2
8	93.3	533.1	0.0	23.50 2	18.50 2	7.75 2	22.75 2	93.00 2
9	92.4	537.9	0.0	24.50 2	19.50 2	9.00 2	22.75 2	92.25 2
10	91.6	542.7	0.0	26.50 2	20.25 2	6.00 2	18.00 2	89.50 2
11	90.7	547.5	0.0	26.50 2	17.25 2	9.75 2	17.50 2	86.25 2
12	89.9	552.3	0.0	28.50 2	22.75 2	6.00 2	15.00 2	80.75 2
13	89.2	557.1	0.0	29.25 2	23.25 2	4.50 1	10.00 2	79.75 2
14	88.6	561.9	0.0	31.75 2	25.75 2	5.00 1	9.25 2	79.25 2
15	88.0	566.7	0.0	34.25 2	27.25 2	6.75 2	10.50 2	77.00 2
16	87.4	571.4	0.0	41.00 0	29.75 2	9.25 2	8.25 2	77.25 2
17	86.8	576.2	0.0	47.50 0	32.25 2	11.25 2	10.00 2	76.25 2
18	86.1	581.0	0.0	53.00 0	35.25 2	12.25 2	7.00 2	72.75 2
19	85.5	585.8	0.0	61.00 0	38.00 2	13.25 2	6.25 2	70.00 2
20	84.9	590.5	0.0	67.75 0	38.00 2	13.50 2	2.25 2	67.50 2
21	84.3	595.3	0.0	71.25 0	40.50 2	15.50 2	3.50 2	67.00 2
22	83.7	600.1	0.0	75.75 0	43.25 2	19.50 2	2.00 2	64.75 2
23	81.9	604.8	0.0	79.75 0	46.00 2	24.00 2	4.75 2	62.50 2
24	80.2	609.4	0.0	81.25 0	47.00 2	27.75 2	4.50 1	62.50 2

SHOTPOINT AND GEOPHONE DATA

Spread C, 5 SP's, 24 Geo's, X-Shift = 0.0, X-True = 1, Units: Meters.

SP	Elev	X-Loc	Y-Loc	Depth	Uphole T	Fudge T	End SP
A	89.2	557.1	0.0	0.0	0.0	0.0	0
B	77.7	615.5	5.0	0.0	0.0	0.0	1
C	71.7	665.0	5.0	0.0	0.0	0.0	0
D	72.6	725.8	5.0	0.0	0.0	-10.0	2
E	72.9	785.8	0.0	0.0	0.0	0.0	0

ARRIVAL TIMES AND LAYERS REPRESENTED

Geo	Elev	X-Loc	Y	SP A	SP B	SP C	SP D	SP E
---	---	---	---	-----L	-----L	-----L	-----L	-----L
1	77.7	615.5	0.0	21.00 2	6.50 1	61.75 2	69.25 3	75.25 3
2	76.4	620.1	0.0	24.25 2	8.75 2	58.50 2	69.75 3	76.00 3
3	75.2	624.7	0.0	27.25 2	11.00 2	57.50 2	69.25 3	75.50 3
4	74.0	629.3	0.0	30.75 2	15.50 2	55.25 2	68.75 3	74.75 3
5	72.8	633.9	0.0	36.00 2	22.50 2	52.00 2	68.25 3	73.75 3
6	71.6	638.4	0.0	46.00 2	32.50 2	51.75 2	67.25 3	73.00 3
7	71.6	643.4	0.0	56.75 2	41.50 2	48.50 2	65.00 2	72.50 3
8	71.7	648.3	0.0	62.00 2	46.50 2	44.00 2	63.00 2	72.25 3
9	71.7	653.2	0.0	66.00 2	49.00 2	32.00 1	62.00 2	72.10 3
10	71.7	658.2	0.0	68.00 2	52.25 2	21.50 1	58.75 2	72.00 3
11	71.7	662.9	0.0	70.50 2	54.50 2	16.00 1	57.75 2	71.50 3
12	71.8	667.6	0.0	72.25 2	56.75 2	21.25 1	54.50 2	71.50 3
13	71.8	672.3	0.0	74.25 2	56.50 2	30.00 1	55.75 2	70.75 3
14	71.9	677.1	0.0	77.00 2	58.25 2	42.00 1	52.25 2	69.25 3
15	71.9	681.9	0.0	80.00 2	60.75 2	48.25 2	49.25 2	67.00 3
16	72.0	686.8	0.0	81.75 3	61.75 2	53.25 2	46.00 2	65.75 3
17	72.1	691.7	0.0	86.00 3	65.00 2	54.50 2	44.50 2	65.00 3
18	72.1	696.5	0.0	88.50 3	65.75 2	56.75 2	40.00 2	62.50 2
19	72.2	701.4	0.0	90.50 3	67.25 2	56.00 2	37.75 2	60.25 2
20	72.3	706.3	0.0	91.25 3	69.50 2	59.25 2	34.75 2	58.00 2
21	72.4	711.2	0.0	92.50 3	71.75 2	61.25 2	28.25 2	55.50 2
22	72.4	716.0	0.0	93.00 3	77.25 3	63.25 3	15.00 1	53.50 2
23	72.5	720.9	0.0	94.00 3	78.50 3	64.50 3	7.50 1	51.25 2
24	72.6	725.8	0.0	94.25 3	79.50 3	64.75 3	3.00 1	49.00 2

SHOTPOINT AND GEOPHONE DATA

 Spread D, 4 SP's, 24 Geo's, X-Shift = 0.0, X-True = 1, Units: Meters.

SP	Elev	X-Loc	Y-Loc	Depth	Uphole T	Fudge T	End SP
---	----	-----	-----	-----	-----	-----	-----
A	71.8	672.3	0.0	0.0	0.0	0.0	0
B	72.6	740.0	5.0	0.0	0.0	0.0	1
C	83.4	790.1	5.0	0.0	0.0	0.0	0
D	99.8	855.0	0.0	0.0	0.0	0.0	2

ARRIVAL TIMES AND LAYERS REPRESENTED

Geo	Elev	X-Loc	Y	SP A	SP B	SP C	SP D
---	----	-----	---	-----L	-----L	-----L	-----L
1	72.3	740.0	0.0	63.50 2	12.75 1	47.00 2	83.75 2
2	72.1	745.0	0.0	69.25 2	24.00 2	41.25 2	80.50 2
3	72.0	750.1	0.0	69.50 2	36.25 2	35.75 2	77.25 2
4	71.8	755.1	0.0	69.00 2	39.25 2	25.50 2	74.00 2
5	71.1	759.8	0.0	74.00 2	42.00 2	19.00 2	68.50 2
6	72.9	764.4	0.0	73.25 2	43.00 2	21.50 2	64.75 2
7	74.8	768.9	0.0	74.25 2	42.75 2	16.00 2	61.75 2
8	76.7	773.5	0.0	73.50 2	43.25 2	16.75 2	63.00 2
9	78.6	778.1	0.0	74.00 2	43.75 2	17.25 2	65.00 2
10	80.5	782.6	0.0	73.00 2	45.25 2	14.25 2	66.25 2
11	82.4	787.6	0.0	73.75 2	50.75 2	9.00 1	65.25 2
12	84.3	792.6	0.0	74.25 2	51.75 2	11.75 1	66.25 2
13	86.2	797.5	0.0	77.00 2	55.00 2	23.00 2	62.50 2
14	88.1	802.5	0.0	80.25 2	51.50 2	22.25 2	57.75 2
15	88.9	807.4	0.0	81.25 2	53.50 2	25.50 2	55.75 2
16	89.6	812.3	0.0	82.25 2	55.75 2	27.00 2	52.25 2
17	90.4	817.3	0.0	81.00 2	62.75 0	31.75 2	54.75 2
18	91.2	822.2	0.0	81.75 2	65.25 0	32.75 2	53.50 2
19	92.8	826.6	0.0	81.50 2	67.75 0	33.75 2	46.25 2
20	94.4	831.0	0.0	82.25 2	70.75 0	33.50 2	34.75 2
21	96.0	835.0	0.0	84.00 2	74.75 0	35.25 2	28.75 2
22	97.6	839.8	0.0	84.50 2	75.75 0	36.00 2	24.25 2
23	98.7	844.9	0.0	84.75 2	78.75 0	37.75 2	21.25 2
24	99.8	850.0	0.0	85.00 2	79.50 0	38.50 2	12.75 1

INPUT DATA FILE for 96-4.SIP

TITLE FOR SIPT2/SIPLUS INPUT DATA SET for 96-4.SIP

96-4 North to south

PROGRAM CONTROL DATA

S	L	V	PRINTER PLOT SCALES			DATUM	CONTROL	PLOT CONTROL				T O		
p	E	a	O									r	f	L
r	x	y	v	Elev	Horiz	Time	Pt 1	Pt 2	Elevations			a	f	D
d	i	r	e									c	S	i
s	t	s	r	m/col	m/row	ms/col	Elev/X	Elev/X	Top	Bottom	BLim	TLim	e	P
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	6	2	0	0.0	0.0	0.0	0.0	0.0	0	0	0.5	10.0	0	0
							0.0	0.0						

SHOTPOINT AND GEOPHONE DATA

Spread A, 5 SP's, 24 Geo's, X-Shift = 0.0, X-True = 1, Units: Meters.

SP	Elev	X-Loc	Y-Loc	Depth	Uphole T	Fudge T	End SP
--	----	-----	-----	-----	-----	-----	-----
A	152.0	5.0	0.0	0.0	0.0	0.0	0
B	151.8	65.0	5.0	0.0	0.0	0.0	1
D	150.3	122.9	5.0	0.0	0.0	0.0	0
C	149.5	181.4	5.0	0.0	0.0	0.0	2
E	146.7	240.3	0.0	0.0	0.0	0.0	0

ARRIVAL TIMES AND LAYERS REPRESENTED

Geo	Elev	X-Loc	Y	SP A	SP B	SP D	SP C	SP E
---	----	-----	---	-----L	-----L	-----L	-----L	-----L
1	151.8	65.0	0.0	15.25 2	3.75 1	14.25 2	28.25 2	39.75 2
2	151.6	70.2	0.0	16.50 2	3.25 2	13.25 2	27.25 2	38.50 2
3	151.4	75.3	0.0	17.25 2	5.00 2	12.00 2	26.50 2	39.00 2
4	151.2	80.5	0.0	17.50 2	6.00 2	10.75 2	25.75 2	38.25 2
5	151.0	85.5	0.0	19.75 2	7.00 2	9.50 2	25.00 2	35.50 2
6	150.9	90.6	0.0	20.25 2	9.00 2	8.20 2	24.50 2	36.50 2
7	150.8	95.7	0.0	21.00 2	9.25 2	8.00 2	22.75 2	35.50 2
8	150.7	100.7	0.0	22.00 2	9.50 2	7.25 2	21.75 2	34.00 2
9	150.6	105.6	0.0	23.75 2	11.50 2	6.10 2	20.25 2	32.25 2
10	150.5	110.6	0.0	24.50 2	12.50 2	5.00 2	18.75 2	31.00 2
11	150.4	115.5	0.0	26.75 2	14.25 2	4.00 2	18.75 2	30.75 2
12	150.3	120.4	0.0	27.00 2	13.50 2	3.00 1	16.25 2	27.75 2
13	150.4	125.4	0.0	28.25 2	15.00 2	4.75 1	15.50 2	27.50 2
14	150.5	130.4	0.0	29.75 2	17.25 2	6.75 2	15.00 2	27.25 2
15	150.6	135.4	0.0	30.50 2	17.50 2	7.50 2	13.25 2	25.25 2
16	150.6	140.3	0.0	30.75 2	19.25 2	9.50 2	12.50 2	25.75 2
17	150.5	145.3	0.0	32.75 2	19.50 2	10.00 2	10.50 2	23.75 2
18	150.4	150.6	0.0	32.25 2	21.25 2	11.75 2	10.00 2	23.25 2
19	150.2	155.8	0.0	33.50 2	22.25 2	12.25 2	9.00 2	21.25 2
20	150.1	160.9	0.0	35.25 2	23.25 2	13.50 2	7.50 2	20.75 2

21	149.9	166.0	0.0	37.75	2	25.25	2	14.75	2	6.25	2	20.75	2
22	149.8	171.2	0.0	39.00	2	26.50	2	16.25	2	5.00	2	19.00	2
23	149.7	176.3	0.0	39.50	2	26.25	2	16.75	2	4.00	2	17.75	2
24	149.5	181.4	0.0	41.00	2	28.00	2	18.00	2	3.50	1	16.50	2

SHOTPOINT AND GEOPHONE DATA

Spread B, 4 SP's, 24 Geo's, X-Shift = 0.0, X-True = 1, Units: Meters.

SP	Elev	X-Loc	Y-Loc	Depth	Uphole T	Fudge T	End SP
A	150.0	125.0	5.0	0.0	0.0	0.0	1
B	149.6	185.7	5.0	0.0	0.0	0.0	0
C	146.7	240.3	5.0	0.0	0.0	0.0	2
D	146.3	300.0	0.0	0.0	0.0	0.0	0

ARRIVAL TIMES AND LAYERS REPRESENTED

Geo	Elev	X-Loc	Y	SP A	SP B	SP C	SP D
1	149.6	185.7	0.0	18.75 2	3.50 1	15.25 2	29.00 2
2	149.2	190.7	0.0	18.50 2	3.50 2	13.50 2	28.25 2
3	148.9	195.7	0.0	19.00 2	4.50 2	12.25 2	25.75 2
4	148.6	200.7	0.0	19.75 2	6.00 2	11.00 2	25.50 2
5	148.3	205.6	0.0	20.75 2	7.25 2	9.75 2	24.00 2
6	148.1	210.4	0.0	21.50 2	8.50 2	8.50 2	21.75 2
7	147.8	215.2	0.0	22.75 2	9.75 2	6.75 2	21.50 2
8	147.6	220.0	0.0	24.00 2	11.00 2	6.50 2	21.50 2
9	147.4	225.1	0.0	24.75 2	12.00 2	4.75 2	19.50 2
10	147.2	230.1	0.0	25.25 2	13.00 2	4.25 2	17.00 2
11	146.9	235.2	0.0	26.75 2	14.50 2	3.50 2	17.50 2
12	146.7	240.3	0.0	27.75 2	15.75 2	2.25 1	16.50 2
13	146.6	245.0	0.0	28.75 2	16.50 2	2.20 1	15.75 2
14	146.6	249.8	0.0	28.75 2	17.00 2	5.75 1	14.50 2
15	146.5	254.6	0.0	30.50 2	18.25 2	7.25 2	12.25 2
16	146.4	259.4	0.0	32.25 2	19.75 2	8.75 2	12.50 2
17	146.3	264.2	0.0	33.00 2	20.00 2	10.00 2	11.25 2
18	146.3	269.0	0.0	34.50 2	21.25 2	10.75 2	10.00 2
19	146.2	273.8	0.0	35.75 2	23.50 2	12.50 2	9.50 2
20	146.2	278.6	0.0	36.25 2	23.00 2	12.75 2	7.50 2
21	146.2	284.0	0.0	37.25 2	26.00 2	14.25 2	7.25 2
22	146.2	289.3	0.0	39.00 2	24.50 2	15.25 2	6.00 2
23	146.2	294.7	0.0	40.25 2	27.50 2	17.50 2	6.00 1
24	146.3	300.0	0.0	42.00 2	27.75 2	16.75 2	3.25 1

INPUT DATA FILE for 96-5A.SIP

TITLE FOR SIPT2/SIPLUS INPUT DATA SET for 96-5A.SIP

Line 96-5 North - south along Duncan Creek

PROGRAM CONTROL DATA

S	L	V	PRINTER PLOT SCALES			DATUM	CONTROL	PLOT CONTROL		T O			
p	E	a	O										r f L
r	x	y	v	Elev	Horiz	Time	Pt 1	Pt 2	Elevations				a f D
d	i	r	e										c S i
s	t	s	r	m/col	m/row	ms/col	Elev/X	Elev/X	Top	Bottom	BLim	TLim	e P p
-	-	-	-	-----	-----	-----	-----	-----	---	-----	-----	-----	- - -
1	6	3	0	0.0	0.0	0.0	0.0	0.0	0	0	0.5	10.0	0 0 0
							0.0	0.0					

SHOTPOINT AND GEOPHONE DATA

Spread A, 5 SP's, 24 Geo's, X-Shift = 0.0, X-True = 1, Units: Meters.

SP	Elev	X-Loc	Y-Loc	Depth	Uphole T	Fudge T	End SP
--	---	---	---	---	---	---	---
A	0.0	-60.0	0.0	0.0	0.0	0.0	0
B	0.0	0.0	0.0	0.0	0.0	0.0	1
C	0.0	52.5	0.0	0.0	0.0	0.0	0
D	0.0	115.0	0.0	0.0	0.0	0.0	2
E	0.0	175.0	0.0	0.0	0.0	0.0	0

ARRIVAL TIMES AND LAYERS REPRESENTED

Geo	Elev	X-Loc	Y	SP A	SP B	SP C	SP D	SP E
---	---	---	---	-----L	-----L	-----L	-----L	-----L
1	0.0	0.0	0.0	30.75 2	14.00 1	40.50 3	60.50 3	68.00 3
2	0.0	5.0	0.0	34.75 2	20.50 1	39.75 3	59.50 3	67.00 3
3	0.0	10.0	0.0	34.00 2	26.25 2	36.25 2	59.00 3	66.60 3
4	0.0	15.0	0.0	35.50 2	29.25 2	34.25 2	58.25 3	65.70 3
5	0.0	20.0	0.0	37.75 2	31.50 2	31.25 2	58.00 3	65.20 3
6	0.0	25.0	0.0	38.75 2	32.00 2	26.00 2	56.60 3	64.75 3
7	0.0	30.0	0.0	40.50 2	35.25 2	22.25 2	55.50 3	64.00 3
8	0.0	35.0	0.0	42.25 2	36.50 2	21.25 2	53.75 3	63.25 3
9	0.0	40.0	0.0	45.00 2	39.50 2	18.75 2	53.00 3	62.80 3
10	0.0	45.0	0.0	45.75 2	40.75 2	15.00 1	48.75 2	63.50 3
11	0.0	50.0	0.0	46.25 2	43.25 2	12.50 1	46.25 2	62.50 3
12	0.0	55.0	0.0	46.75 2	45.00 2	14.50 1	45.00 2	61.00 3
13	0.0	60.0	0.0	48.50 2	46.00 2	18.50 2	41.50 2	60.50 3
14	0.0	65.0	0.0	50.75 2	47.75 2	21.00 2	37.00 2	57.50 2
15	0.0	70.0	0.0	52.25 2	48.00 2	24.00 2	35.00 2	56.25 2
16	0.0	75.0	0.0	55.00 2	51.25 2	27.00 2	33.50 2	54.75 2
17	0.0	80.0	0.0	58.00 3	51.50 2	29.50 2	31.00 2	52.00 2
18	0.0	85.0	0.0	58.50 3	53.50 2	30.75 2	26.75 2	49.00 2
19	0.0	90.0	0.0	60.00 3	54.50 0	33.50 2	23.25 2	46.25 2
20	0.0	95.0	0.0	61.50 3	57.75 0	36.00 2	21.75 2	46.75 2

21	0.0	100.0	0.0	63.25	3	60.50	0	40.50	3	21.00	2	46.75	2
22	0.0	105.0	0.0	65.75	3	62.75	0	43.50	3	17.50	1	44.50	2
23	0.0	110.0	0.0	66.25	3	65.25	0	44.75	3	15.25	1	44.50	2
24	0.0	115.0	0.0	67.00	0	69.75	0	45.75	3	14.00	1	44.50	2

INPUT DATA FILE for 96-6.SIP

TITLE FOR SIPT2/SIPLUS INPUT DATA SET for 96-6.SIP

Line 96-6 East-west across Duncan Creek

PROGRAM CONTROL DATA

S	L	V	PRINTER PLOT SCALES			DATUM	CONTROL	PLOT CONTROL		T O			
p	E	a	O										r f L
r	x	y	v	Elev	Horiz	Time	Pt 1	Pt 2	Elevations				a f D
d	i	r	e										c S i
s	t	s	r	m/col	m/row	ms/col	Elev/X	Elev/X	Top	Bottom	BLim	TLim	e P p
-	-	-	-	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1	6	3	0	0.0	0.0	0.0	0.0	0.0	0	0	0.5	10.0	0 0 0
							0.0	0.0					

SHOTPOINT AND GEOPHONE DATA

Spread A, 4 SP's, 24 Geo's, X-Shift = 0.0, X-True = 1, Units: Meters.

SP	Elev	X-Loc	Y-Loc	Depth	Uphole T	Fudge T	End SP
---	----	-----	-----	-----	-----	-----	-----
A	0.0	0.0	5.0	0.0	0.0	0.0	1
B	0.0	52.5	5.0	0.0	0.0	-3.0	0
C	0.0	115.0	5.0	0.0	0.0	0.0	2
D	0.0	175.0	0.0	0.0	0.0	0.0	0

ARRIVAL TIMES AND LAYERS REPRESENTED

Geo	Elev	X-Loc	Y	SP A	SP B	SP C	SP D
---	----	-----	---	-----L	-----L	-----L	-----L
1	0.0	0.0	0.0	3.75 1	30.75 2	50.25 3	74.25 0
2	0.0	5.0	0.0	6.25 2	28.25 2	49.75 3	71.50 0
3	0.0	10.0	0.0	8.50 2	25.25 2	50.00 3	69.25 0
4	0.0	15.0	0.0	11.75 2	24.00 2	47.50 3	69.50 0
5	0.0	20.0	0.0	15.75 2	18.50 2	46.75 3	65.50 3
6	0.0	25.0	0.0	17.75 2	17.50 2	45.75 3	65.00 3
7	0.0	30.0	0.0	20.00 2	15.25 2	42.00 2	63.75 3
8	0.0	35.0	0.0	22.50 2	12.75 2	40.25 2	63.00 3
9	0.0	40.0	0.0	27.50 2	11.50 2	39.00 2	65.00 3
10	0.0	45.0	0.0	30.00 2	10.00 2	39.25 2	64.00 3
11	0.0	50.0	0.0	34.00 2	9.00 1	36.75 2	64.60 3
12	0.0	55.0	0.0	36.50 2	9.25 1	35.00 2	65.50 3
13	0.0	60.0	0.0	39.25 2	14.75 2	32.50 2	63.25 2
14	0.0	65.0	0.0	40.75 2	17.25 2	30.25 2	61.00 2
15	0.0	70.0	0.0	44.00 2	18.75 2	26.75 2	57.00 2
16	0.0	75.0	0.0	46.50 2	22.00 2	21.50 2	49.75 2
17	0.0	80.0	0.0	48.00 2	24.50 2	19.25 2	43.50 2
18	0.0	85.0	0.0	50.00 2	27.25 2	16.00 2	38.50 2
19	0.0	90.0	0.0	51.25 3	28.75 2	12.75 2	35.50 2
20	0.0	95.0	0.0	51.25 3	30.25 2	10.50 2	34.25 2
21	0.0	100.0	0.0	52.00 3	31.25 3	8.00 2	30.75 2

22	0.0	105.0	0.0	53.00	3	32.00	3	5.25	2	27.50	2
23	0.0	110.0	0.0	54.00	3	32.00	3	5.25	2	25.75	2
24	0.0	115.0	0.0	55.00	3	33.50	3	3.75	1	23.25	2

INPUT DATA FILE for 96-7.SIP

TITLE FOR SIPT2/SIPLUS INPUT DATA SET for 96-7.SIP

96-7

PROGRAM CONTROL DATA

S	L	V	PRINTER PLOT SCALES			DATUM	CONTROL	PLOT CONTROL		T O			
p	E	a	O									r f L	
r	x	y	v	Elev	Horiz	Time	Pt 1	Pt 2	Elevations			a f D	
d	i	r	e									c S i	
s	t	s	r	m/col	m/row	ms/col	Elev/X	Elev/X	Top	Bottom	BLim	TLim	e P p
-	-	-	-	-	-	-	-	-	-	-	-	-	-
1	6	3	0	0.0	0.0	0.0	0.0	0.0	0	0	0.5	10.0	0 0 0
							0.0	0.0					

SHOTPOINT AND GEOPHONE DATA

Spread A, 3 SP's, 24 Geo's, X-Shift = 0.0, X-True = 1, Units: Meters.

SP	Elev	X-Loc	Y-Loc	Depth	Uphole T	Fudge T	End SP
--	----	-----	-----	-----	-----	-----	-----
A	108.6	105.9	5.0	0.0	0.0	-2.0	1
B	99.5	61.7	5.0	0.0	0.0	0.0	0
C	109.3	0.0	5.0	0.0	0.0	-5.0	2

ARRIVAL TIMES AND LAYERS REPRESENTED

Geo	Elev	X-Loc	Y	SP A	SP B	SP C
---	----	-----	---	-----L	-----L	-----L
1	108.6	105.9	0.0	2.50 1	35.50 3	49.75 3
2	106.6	101.4	0.0	4.50 2	35.00 3	51.00 3
3	104.6	96.9	0.0	5.75 2	32.75 3	51.00 3
4	102.7	92.5	0.0	7.50 2	31.50 3	49.00 3
5	101.8	87.8	0.0	10.75 2	27.75 2	47.75 3
6	101.0	83.2	0.0	13.50 2	23.50 2	46.00 3
7	100.2	78.5	0.0	19.25 2	21.50 2	46.50 3
8	99.3	73.9	0.0	23.75 2	20.00 2	45.25 3
9	99.4	70.6	0.0	27.00 2	17.50 2	42.00 2
10	99.5	67.4	0.0	30.25 2	15.25 2	39.25 2
11	99.5	64.2	0.0	32.00 2	12.75 1	37.75 2
12	99.5	58.4	0.0	34.50 2	11.50 1	34.50 2
13	99.4	52.6	0.0	35.50 2	12.25 2	32.00 2
14	99.4	46.8	0.0	36.75 2	15.50 2	30.25 2
15	99.4	41.7	0.0	39.75 2	19.25 2	28.75 2
16	99.5	36.5	0.0	43.00 2	23.00 2	26.00 2
17	100.1	31.8	0.0	44.50 3	26.25 2	25.50 2
18	100.7	27.1	0.0	46.00 3	27.25 3	24.00 2
19	101.3	22.3	0.0	46.00 3	28.25 3	22.00 2
20	102.0	17.6	0.0	46.75 3	29.00 3	19.00 2
21	103.8	13.2	0.0	48.00 3	31.25 3	15.00 2
22	105.6	8.8	0.0	49.00 3	32.25 3	10.25 2

23	107.4	4.4	0.0	49.75	3	33.50	3	6.50	1
24	109.3	0.0	0.0	51.25	3	34.25	3	2.50	1

INPUT DATA FILE for 96-8A.SIP

TITLE FOR SIPT2/SIPLUS INPUT DATA SET for 96-8A.SIP

96-8

PROGRAM CONTROL DATA

S	L	V	PRINTER PLOT SCALES			DATUM	CONTROL	PLOT CONTROL				T O			
p	E	a	Elev	Horiz	Time	Pt 1	Pt 2	Elevations				r f L			
d	i	r	m/col	m/row	ms/col	Elev/X	Elev/X	Top	Bottom	BLim	TLim	a f D			
s	t	s										c S i			
-	-	-										e P p			
1	6	3	0.0	0.0	0.0	0.0	0.0	0	0	0.5	10.0	0	0	0	
						0.0	0.0								

SHOTPOINT AND GEOPHONE DATA

Spread A, 3 SP's, 24 Geo's, X-Shift = 0.0, X-True = 1, Units: Meters.

SP	Elev	X-Loc	Y-Loc	Depth	Uphole T	Fudge T	End SP
A	120.7	0.0	5.0	0.0	0.0	-7.0	1
B	103.4	41.6	5.0	0.0	0.0	0.0	0
C	112.9	104.9	5.0	0.0	0.0	0.0	2

ARRIVAL TIMES AND LAYERS REPRESENTED

Geo	Elev	X-Loc	Y	SP A	SP B	SP C
1	120.7	0.0	0.0	5.00 1	35.00 3	54.25 3
2	118.2	4.3	0.0	11.00 1	31.00 3	51.25 3
3	115.7	8.6	0.0	20.75 1	29.50 3	48.75 3
4	113.3	13.0	0.0	23.50 2	26.25 3	47.25 3
5	111.2	17.2	0.0	26.25 2	24.75 3	47.25 3
6	109.2	21.4	0.0	28.25 2	23.25 3	46.25 3
7	107.2	25.6	0.0	27.50 3	18.00 2	45.00 3
8	105.2	29.8	0.0	28.00 3	16.75 2	40.50 3
9	104.6	34.6	0.0	27.00 3	11.00 2	36.50 3
10	104.0	39.3	0.0	27.75 3	9.00 1	33.25 3
11	103.4	44.1	0.0	30.25 3	8.25 1	31.00 3
12	102.8	48.8	0.0	33.50 3	10.25 2	31.25 3
13	103.0	55.2	0.0	36.75 2	14.00 2	30.25 3
14	103.1	60.0	0.0	38.75 3	17.25 2	29.25 3
15	103.3	64.7	0.0	42.00 3	20.50 2	28.75 3
16	103.4	69.5	0.0	43.00 3	24.00 3	27.25 3
17	103.5	74.2	0.0	46.25 3	25.00 3	24.00 2
18	103.6	78.9	0.0	49.00 3	28.00 3	21.00 2
19	105.1	83.1	0.0	52.25 3	29.75 3	15.50 2
20	106.6	87.2	0.0	52.50 3	31.00 3	12.50 2
21	108.1	91.6	0.0	54.25 3	35.50 3	10.50 2
22	109.7	96.0	0.0	55.25 3	37.75 3	9.25 2

23	111.3	100.5	0.0	54.00	3	39.25	3	6.50	2
24	112.9	104.9	0.0	55.00	3	44.50	0	4.75	1

INPUT DATA FILE for 96-9.SIP

TITLE FOR SIPT2/SIPLUS INPUT DATA SET for 96-9.SIP

96-9

PROGRAM CONTROL DATA

S	L	V	PRINTER PLOT SCALES			DATUM	CONTROL	PLOT CONTROL		T O			
p	E	a	O										r f L
r	x	y	v	Elev	Horiz	Time	Pt 1	Pt 2	Elevations				a f D
d	i	r	e										c S i
s	t	s	r	m/col	m/row	ms/col	Elev/X	Elev/X	Top	Bottom	BLim	TLim	e P p
-	-	-	-	-----	-----	-----	-----	-----	---	-----	-----	-----	- - -
1	6	3	0	0.0	0.0	0.0	0.0	0.0	0	0	0.5	10.0	0 0 0
							0.0	0.0					

SHOTPOINT AND GEOPHONE DATA

Spread A, 4 SP's, 24 Geo's, X-Shift = 0.0, X-True = 1, Units: Meters.

SP	Elev	X-Loc	Y-Loc	Depth	Uphole T	Fudge T	End SP
--	---	---	---	---	---	---	---
A	96.5	-60.0	0.0	0.0	0.0	0.0	0
B	99.5	0.0	5.0	0.0	0.0	0.0	1
C	101.8	50.0	5.0	0.0	0.0	0.0	0
D	105.7	111.3	5.0	0.0	0.0	0.0	2

ARRIVAL TIMES AND LAYERS REPRESENTED

Geo	Elev	X-Loc	Y	SP A	SP B	SP C	SP D
---	---	---	---	-----L	-----L	-----L	-----L
1	99.5	0.0	0.0	41.00 2	10.75 1	36.25 2	50.75 3
2	99.6	4.3	0.0	40.75 2	13.00 2	33.25 2	47.50 3
3	99.7	8.6	0.0	43.75 2	15.50 2	32.25 2	46.50 3
4	99.8	12.9	0.0	44.50 2	18.50 2	29.00 2	45.50 3
5	100.0	17.9	0.0	44.75 2	19.00 2	25.00 2	44.25 3
6	100.3	23.0	0.0	46.75 2	21.75 2	22.50 2	40.75 3
7	100.6	28.0	0.0	48.00 2	24.25 2	21.00 2	39.50 3
8	100.8	33.1	0.0	50.25 2	28.25 2	17.50 2	38.50 3
9	101.1	38.0	0.0	50.50 2	29.50 2	14.00 2	35.50 2
10	101.5	42.9	0.0	53.00 2	31.50 2	11.00 2	32.25 2
11	101.8	47.8	0.0	54.00 2	33.75 2	10.50 1	31.00 2
12	102.1	52.7	0.0	56.75 3	37.75 2	10.50 1	30.50 2
13	102.6	58.2	0.0	59.75 3	39.25 2	14.75 2	29.50 2
14	102.9	63.0	0.0	61.75 3	42.50 2	18.25 2	30.25 2
15	103.3	67.7	0.0	62.00 3	44.50 3	20.75 2	27.50 2
16	103.6	72.4	0.0	63.50 3	44.00 3	24.50 2	26.50 2
17	104.0	77.1	0.0	62.75 3	44.25 3	26.00 2	22.25 2
18	104.4	81.9	0.0	62.50 3	45.75 3	27.00 2	22.75 2
19	104.7	86.6	0.0	63.00 3	47.50 3	30.25 2	20.00 2
20	105.1	91.3	0.0	65.50 3	48.50 3	31.25 3	19.50 2
21	105.2	96.3	0.0	66.50 3	50.00 3	32.25 3	15.75 2

22	105.4	101.3	0.0	68.50	3	50.50	3	33.50	3	13.30	2
23	105.6	106.3	0.0	67.75	3	51.50	3	35.25	3	12.50	2
24	105.7	111.3	0.0	69.25	3	52.50	3	37.25	3	10.75	1

INPUT DATA FILE for 96-11.SIP

TITLE FOR SIPT2/SIPLUS INPUT DATA SET for 96-11.SIP

96-11

PROGRAM CONTROL DATA

S	L	V	PRINTER PLOT SCALES			DATUM	CONTROL	PLOT CONTROL		T O			
p	E	a	O										r f L
r	x	y	v	Elev	Horiz	Time	Pt 1	Pt 2	Elevations				a f D
d	i	r	e										c S i
s	t	s	r	m/col	m/row	ms/col	Elev/X	Elev/X	Top	Bottom	BLim	TLim	e P p
-	-	-	-	-	-	-	-	-	-	-	-	-	-
1	6	2	0	0.0	0.0	0.0	0.0	0.0	0	0	0.5	10.0	0 0 0
							0.0	0.0					

SHOTPOINT AND GEOPHONE DATA

Spread A, 4 SP's, 24 Geo's, X-Shift = 0.0, X-True = 1, Units: Meters.

SP	Elev	X-Loc	Y-Loc	Depth	Uphole T	Fudge T	End SP
---	---	---	---	---	---	---	---
A	108.0	-60.0	0.0	0.0	0.0	0.0	0
B	100.9	0.0	5.0	0.0	0.0	0.0	1
C	93.0	50.9	5.0	0.0	0.0	0.0	0
D	105.9	110.0	5.0	0.0	0.0	0.0	2

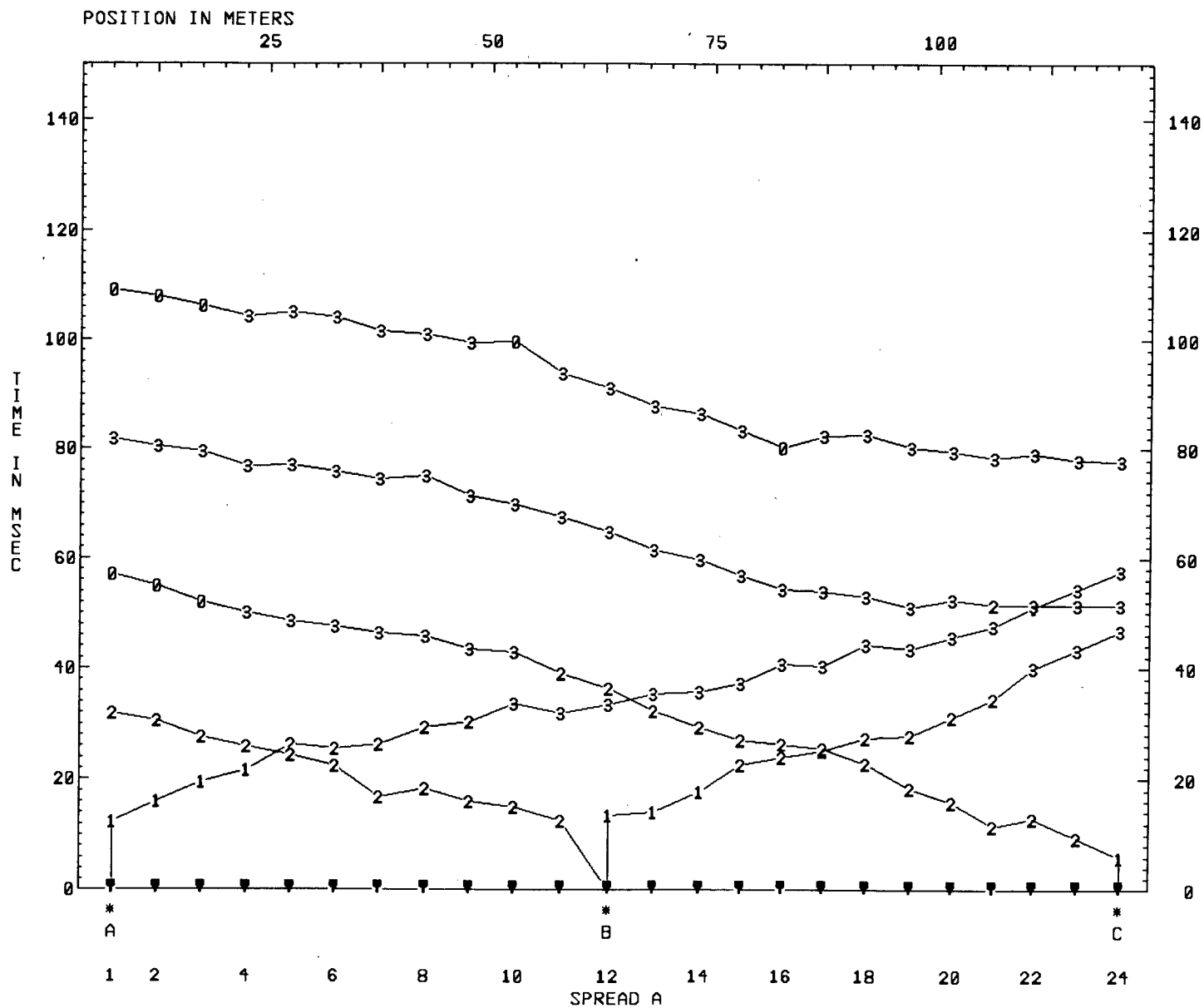
ARRIVAL TIMES AND LAYERS REPRESENTED

Geo	Elev	X-Loc	Y	SP A	SP B	SP C	SP D
---	---	---	---	---	---	---	---
1	100.9	0.0	0.0	74.75 2	14.50 1	46.25 2	56.25 2
2	99.8	4.9	0.0	72.25 2	18.75 1	43.50 2	53.00 2
3	98.6	9.9	0.0	71.25 2	24.00 1	38.00 2	47.50 2
4	97.5	14.8	0.0	68.75 2	35.50 1	33.50 2	42.00 2
5	96.5	19.8	0.0	64.25 2	39.00 2	23.50 2	36.75 2
6	95.6	24.7	0.0	63.00 2	38.50 2	20.50 2	32.25 2
7	94.7	29.7	0.0	61.75 2	36.25 2	15.75 2	29.00 2
8	93.7	34.6	0.0	64.25 2	37.25 2	16.50 2	28.75 2
9	93.5	39.4	0.0	66.00 2	40.50 2	15.00 2	25.75 2
10	93.2	44.2	0.0	67.50 2	43.75 2	13.50 2	24.25 2
11	93.0	48.9	0.0	68.00 2	45.75 2	13.00 1	23.00 2
12	92.7	53.7	0.0	71.00 2	47.50 2	11.75 1	19.00 2
13	93.2	58.1	0.0	72.00 2	49.00 2	15.25 1	17.50 2
14	94.3	62.8	0.0	74.75 2	51.00 2	18.25 1	16.75 2
15	95.4	67.4	0.0	74.25 2	51.25 2	21.50 2	18.00 2
16	96.5	72.1	0.0	75.00 2	51.50 2	21.75 2	13.25 2
17	97.3	76.9	0.0	76.00 2	52.00 2	22.75 2	10.00 2
18	98.2	81.8	0.0	75.75 2	53.25 2	23.25 2	9.25 2
19	99.0	86.6	0.0	76.25 2	53.50 2	24.00 2	8.50 2
20	99.8	91.4	0.0	78.00 2	53.50 2	25.50 2	8.00 2
21	101.3	96.1	0.0	78.50 2	53.50 2	24.75 2	5.25 2

22	102.9	100.7	0.0	80.00	2	54.00	2	25.50	2	4.75	2
23	104.4	105.4	0.0	78.75	2	56.25	2	26.25	2	3.25	2
24	105.9	110.0	0.0	80.50	2	56.75	2	27.25	2	2.75	1

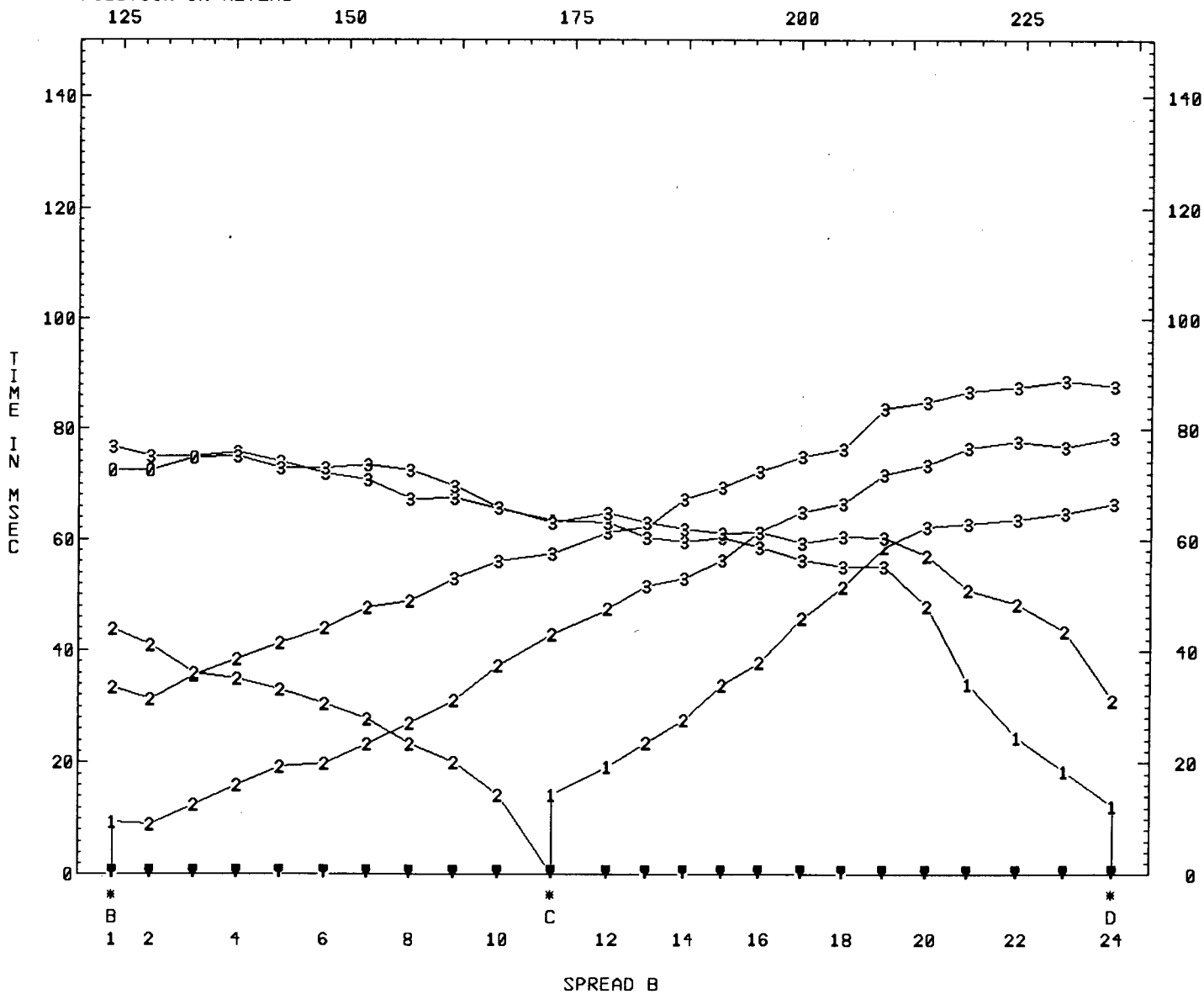
Appendix F. T-X Plots

FILE 96-1.SIP
96-01 - RAW ARRIVAL TIMES

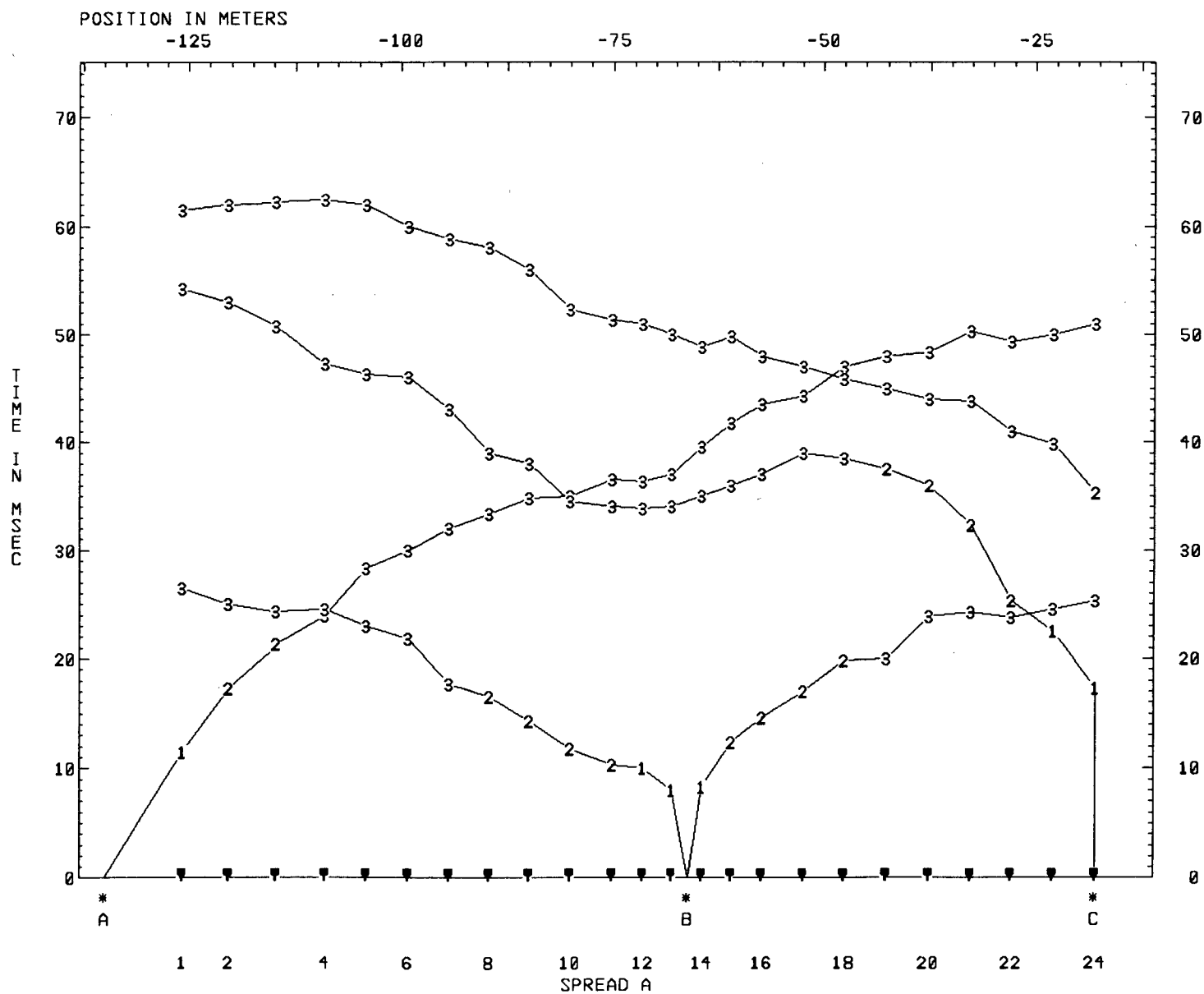


FILE 96-1.SIP
96-01 - RAW ARRIVAL TIMES

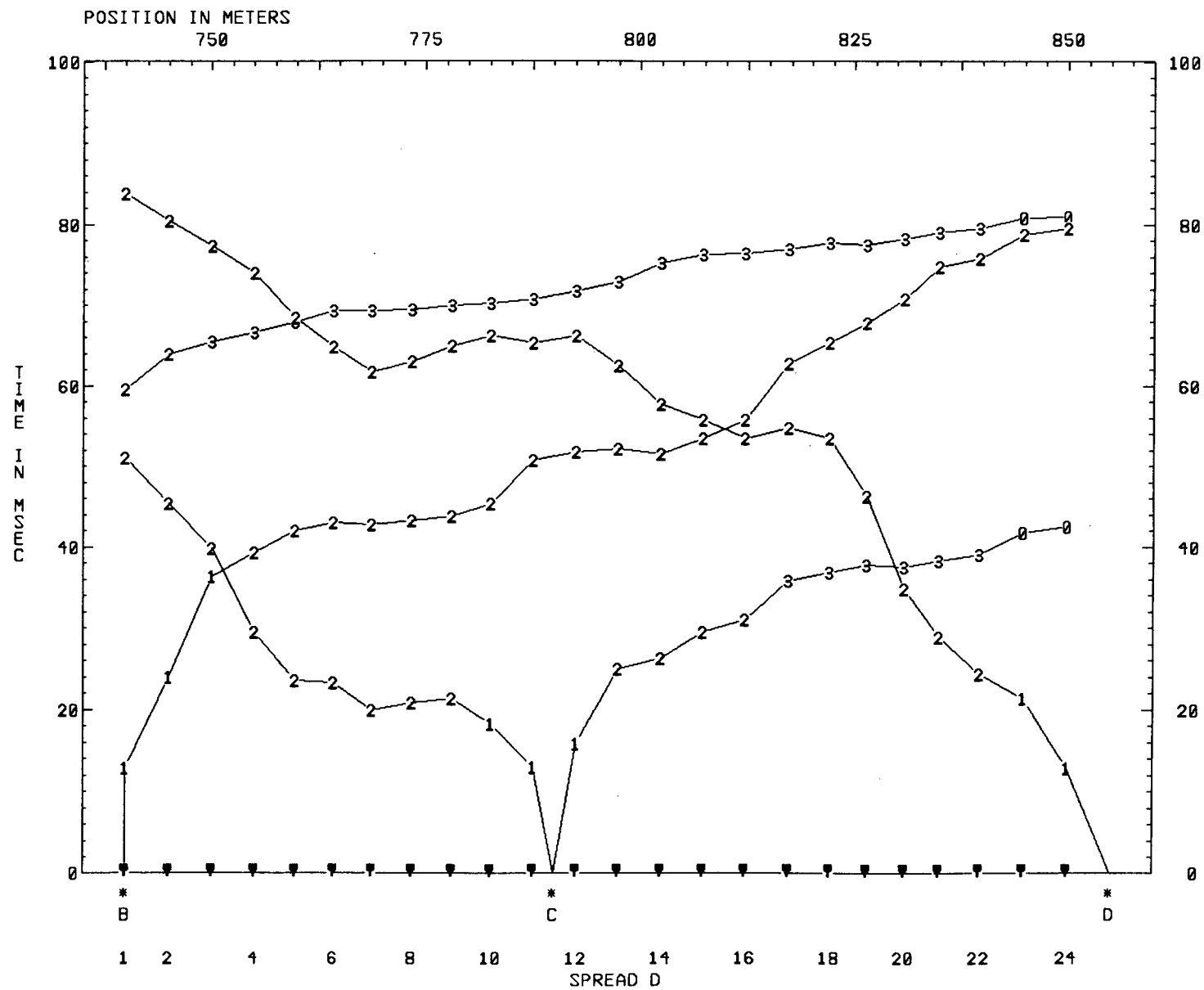
POSITION IN METERS



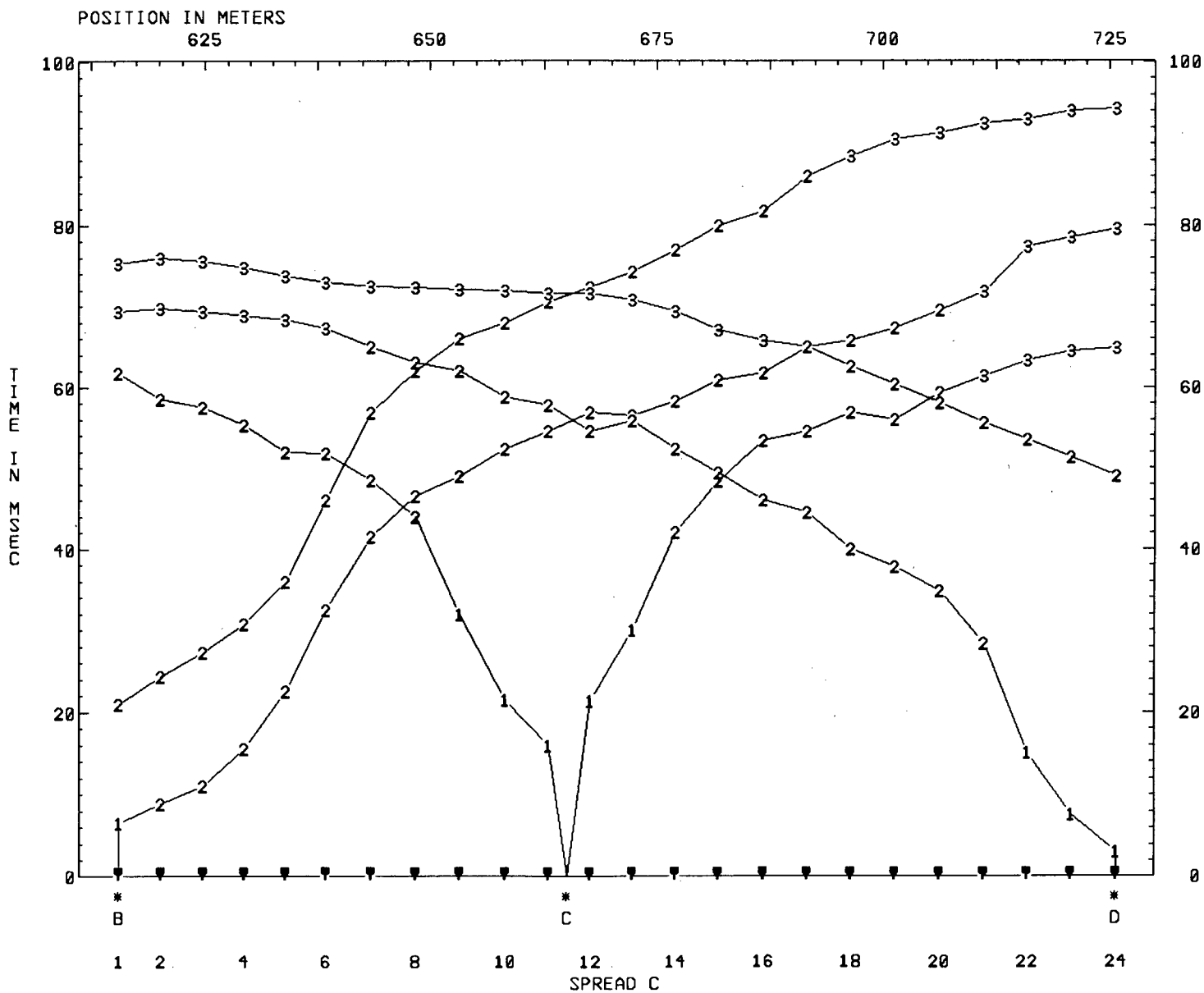
FILE 96-2.SIP
96-2 - RAW ARRIVAL TIMES



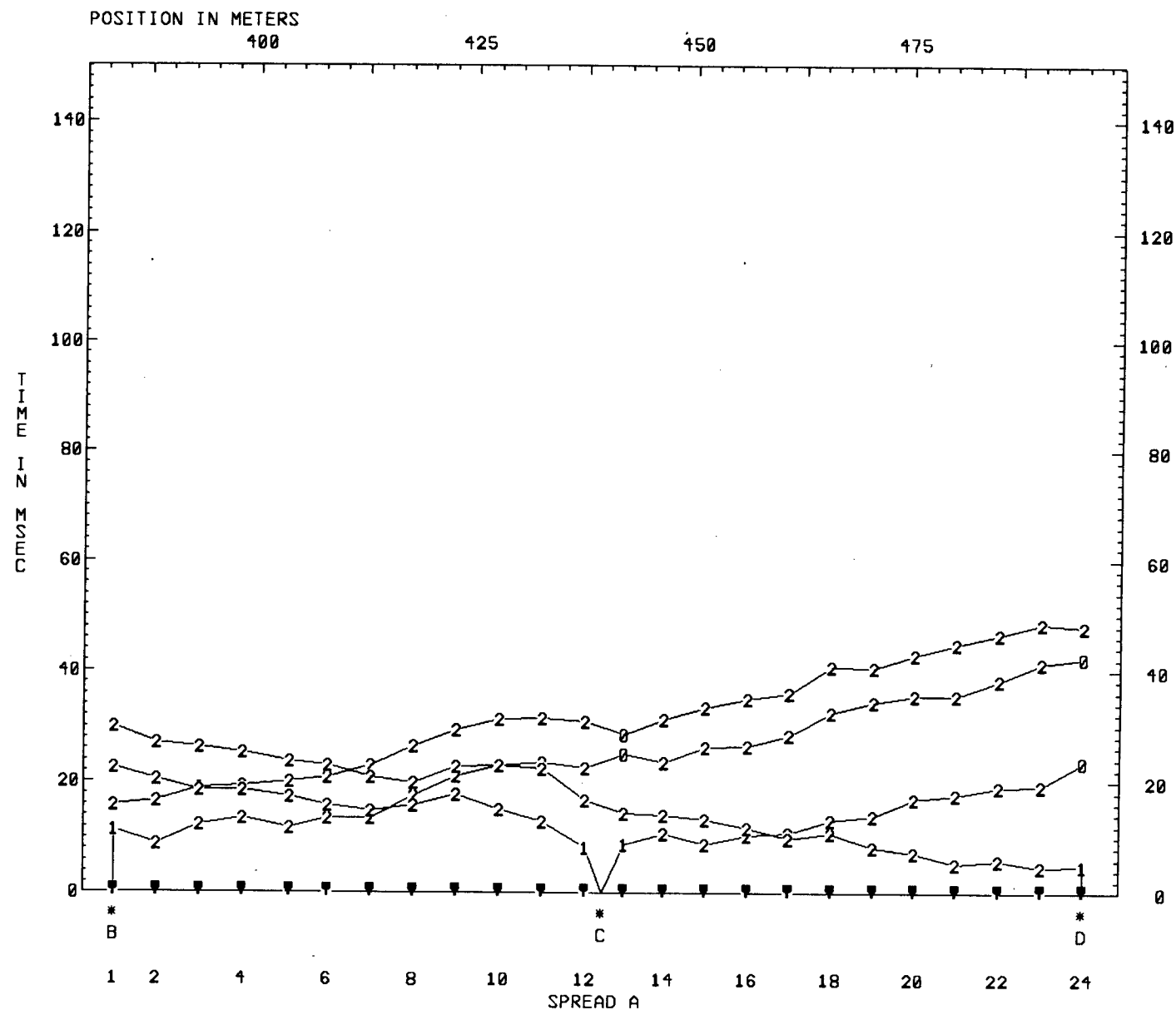
FILE CREEK-W.SIP
96-3 WEST HALF - RAW ARRIVAL TIMES



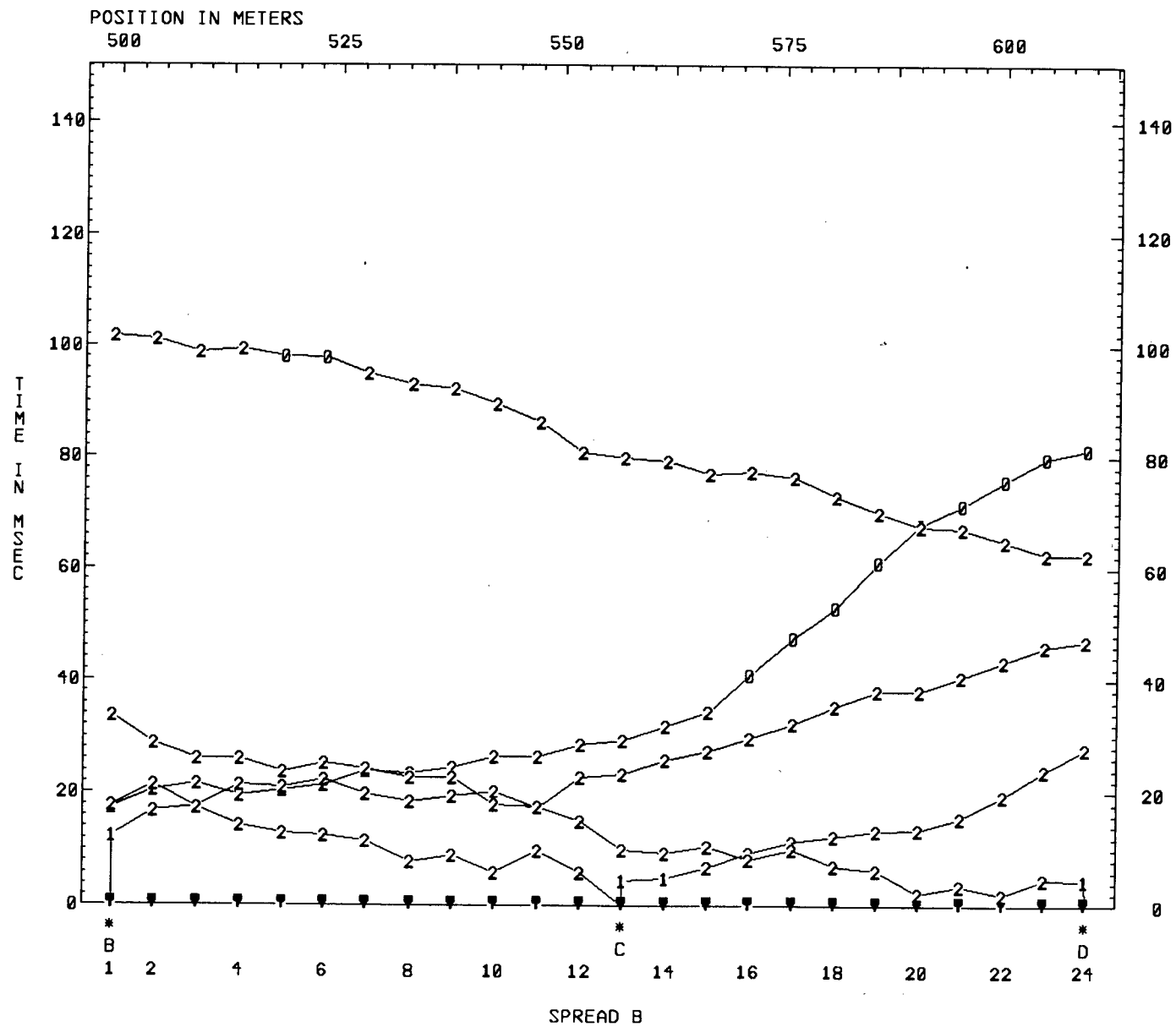
FILE CREEK.SIP
96-3 WEST HALF - RAW ARRIVAL TIMES



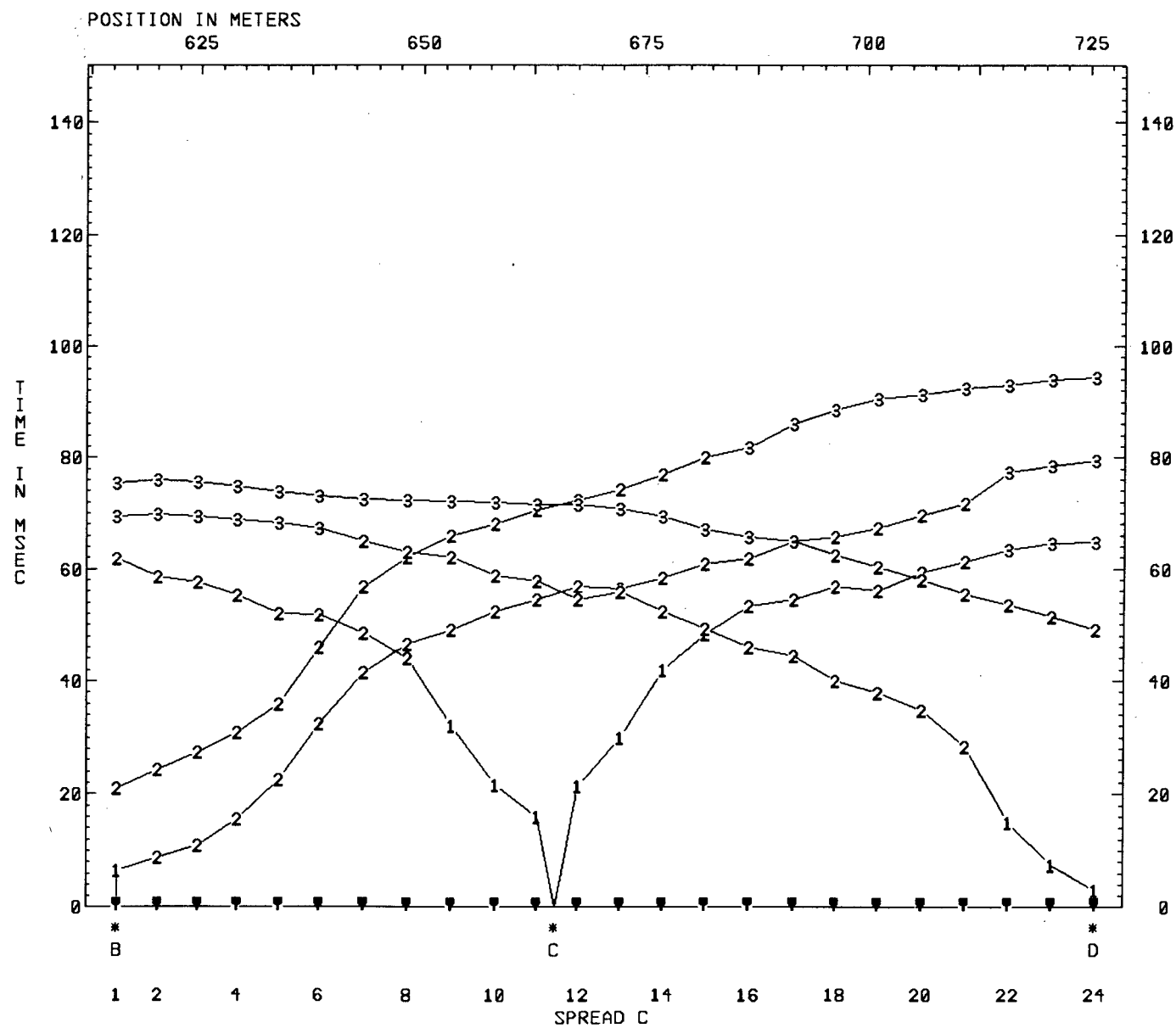
FILE 96-3-W.SIP
96-3 WEST HALF - RAW ARRIVAL TIMES



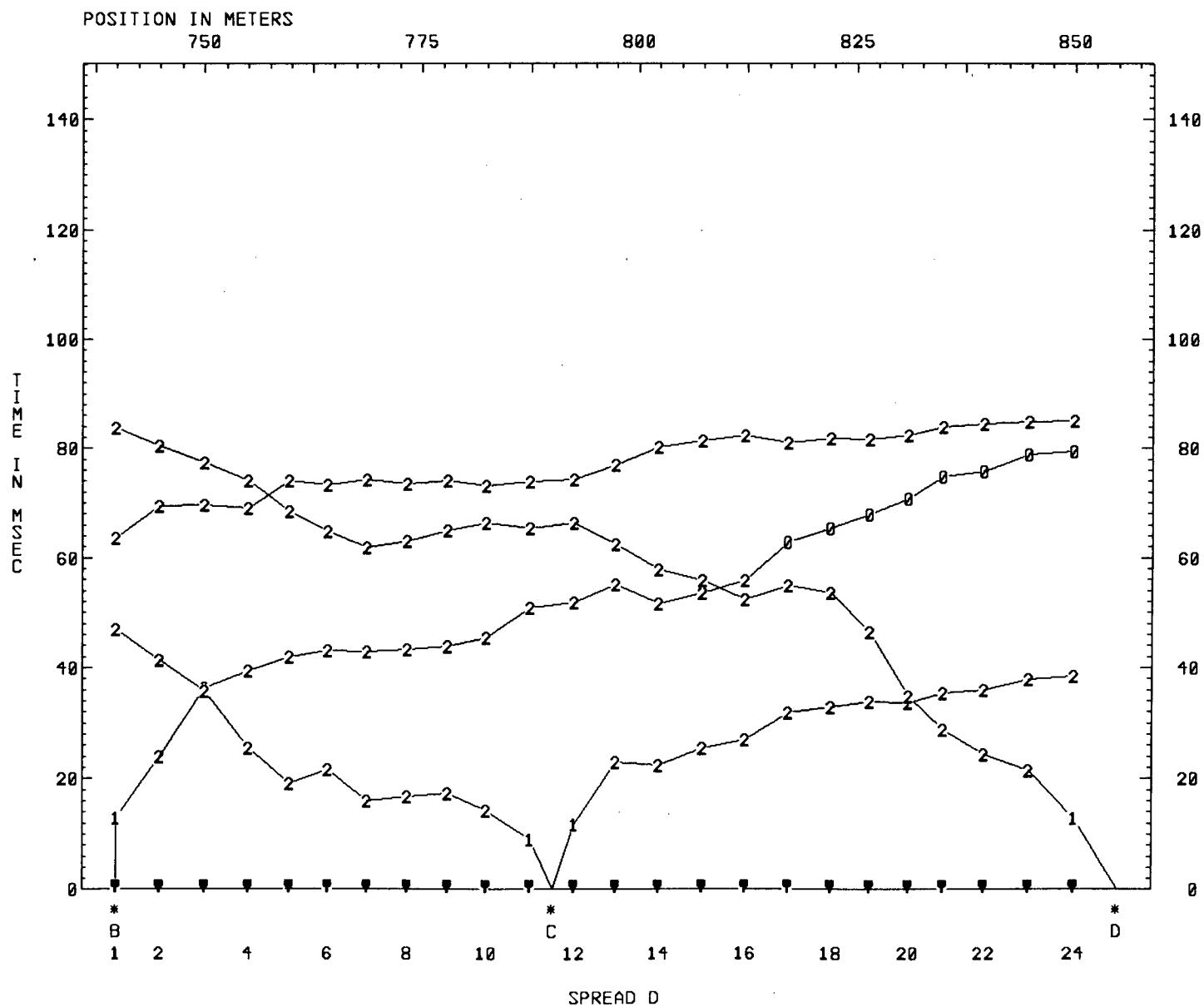
FILE 96-3-W.SIP
96-3 WEST HALF - RAW ARRIVAL TIMES



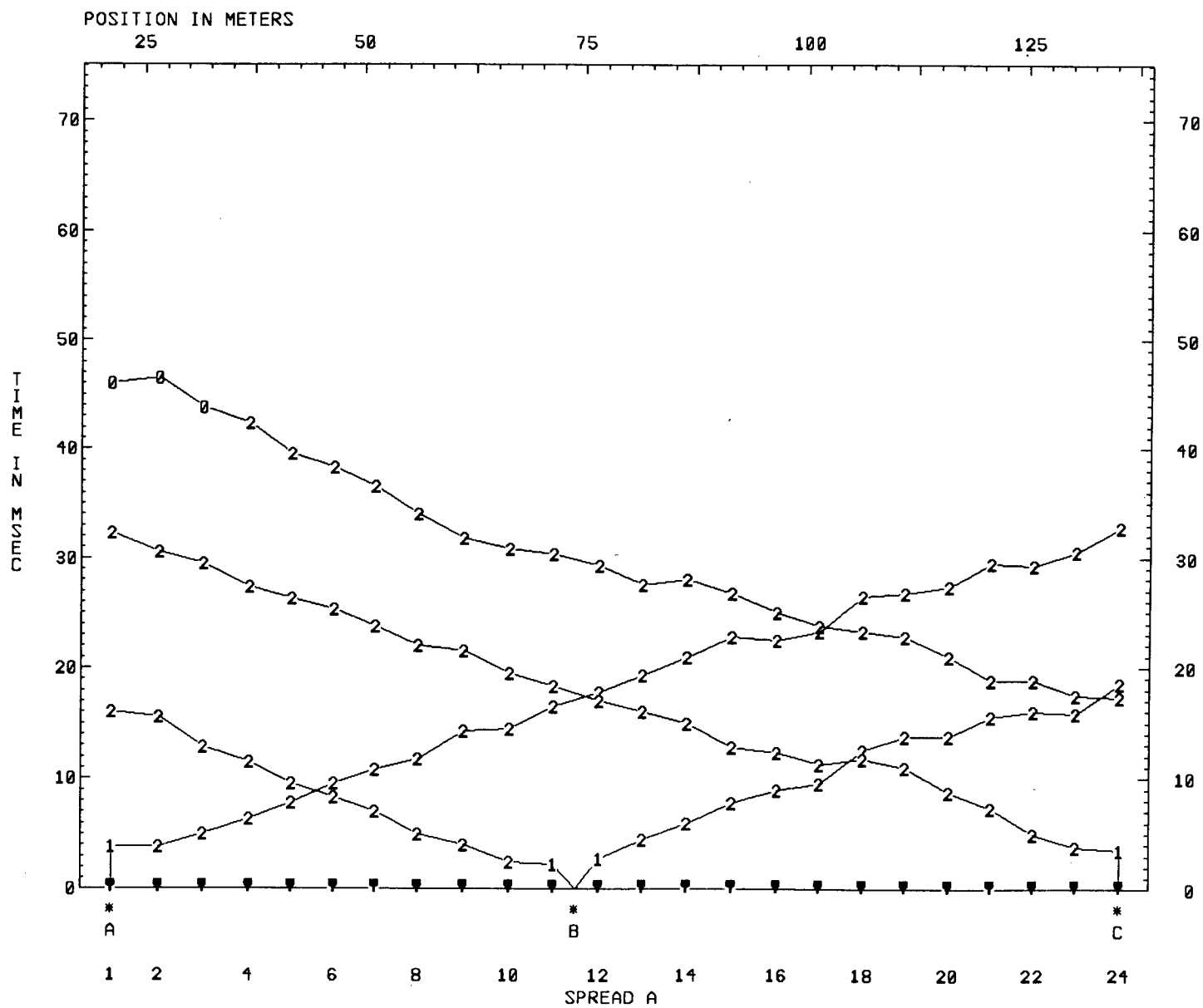
FILE 96-3-W.SIP
96-3 WEST HALF - RAW ARRIVAL TIMES



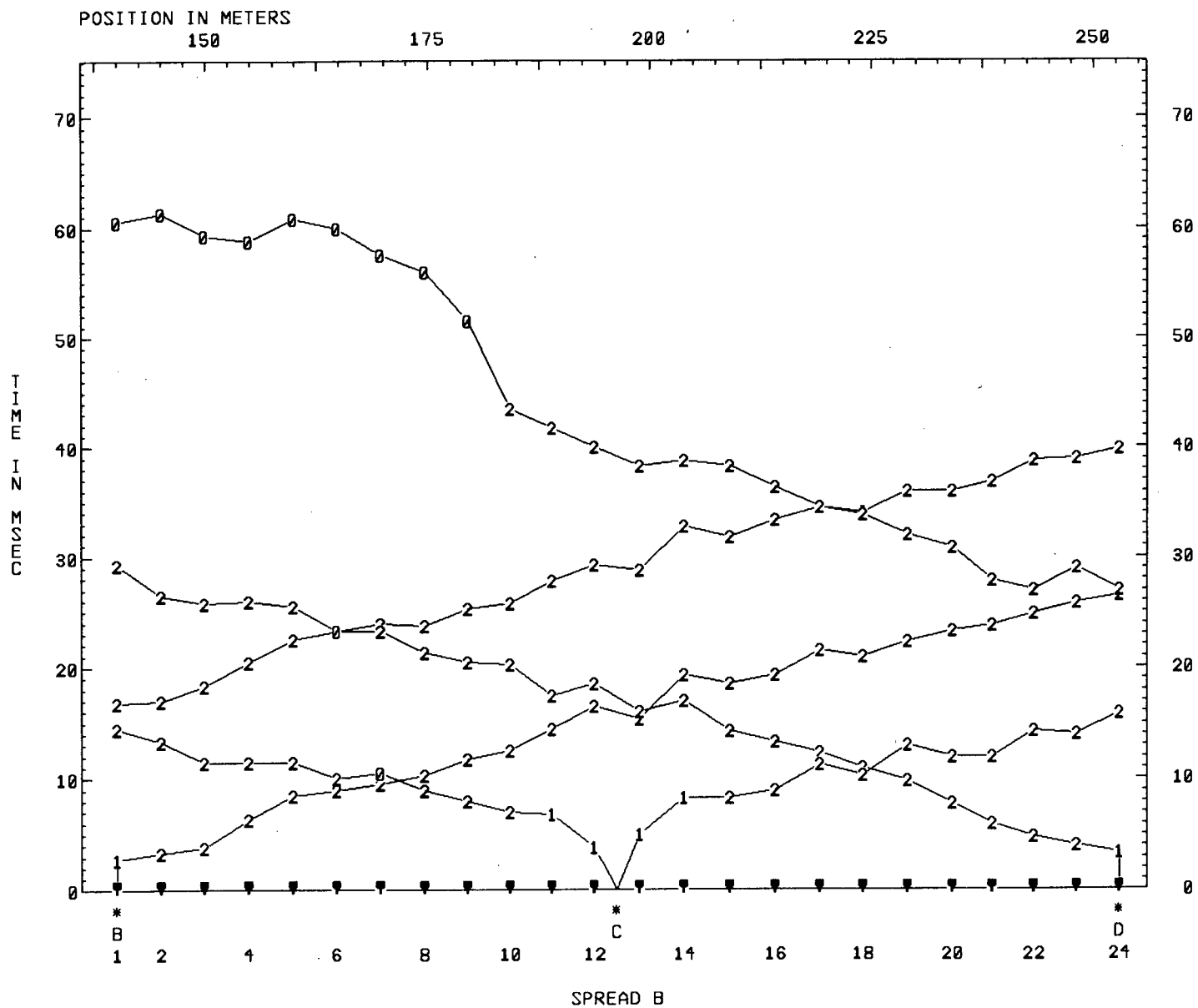
FILE 96-3-W.SIP
 96-3 WEST HALF - RAW ARRIVAL TIMES



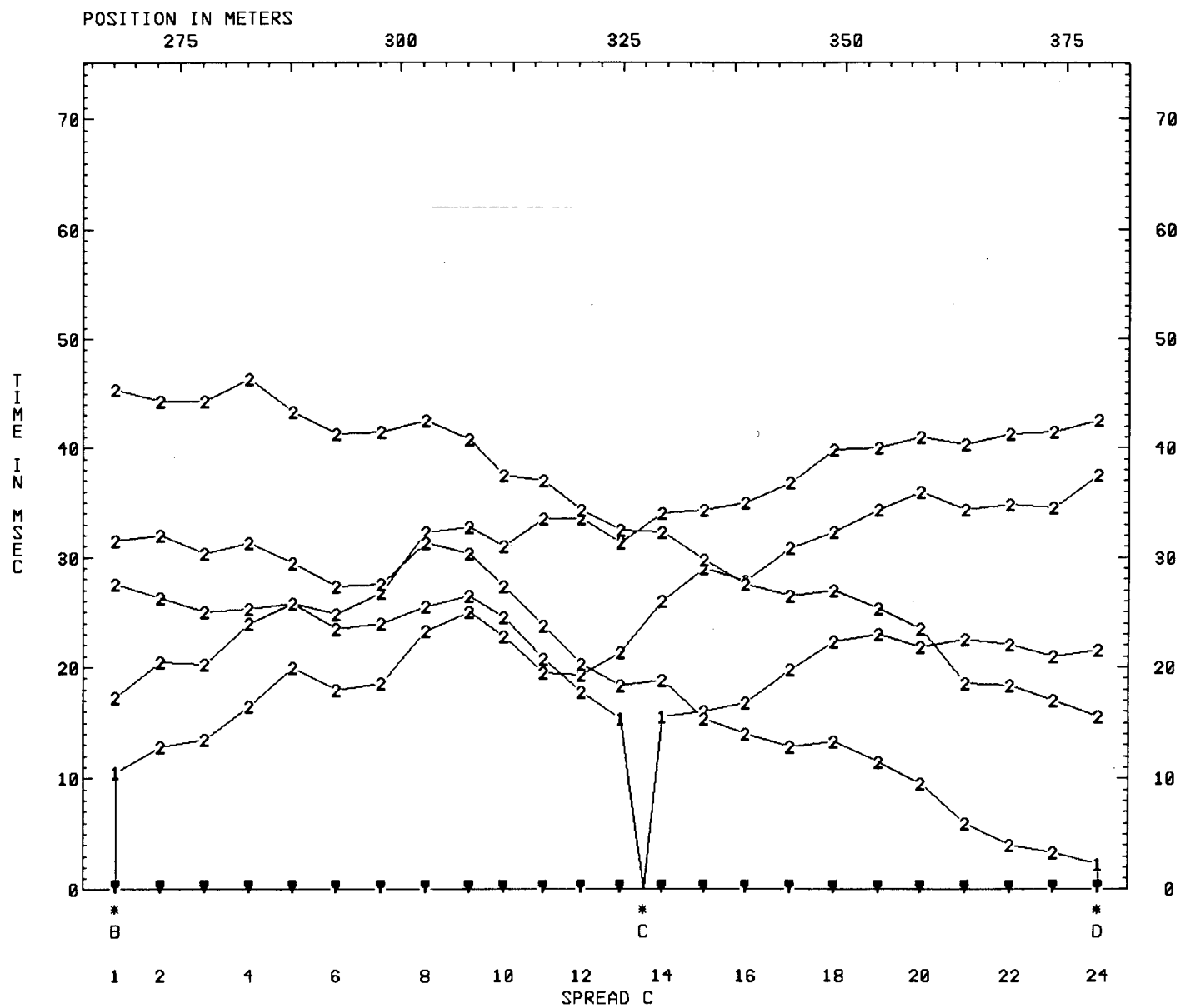
FILE 96-3-E.SIP
96-3 EAST HALF - RAW ARRIVAL TIMES



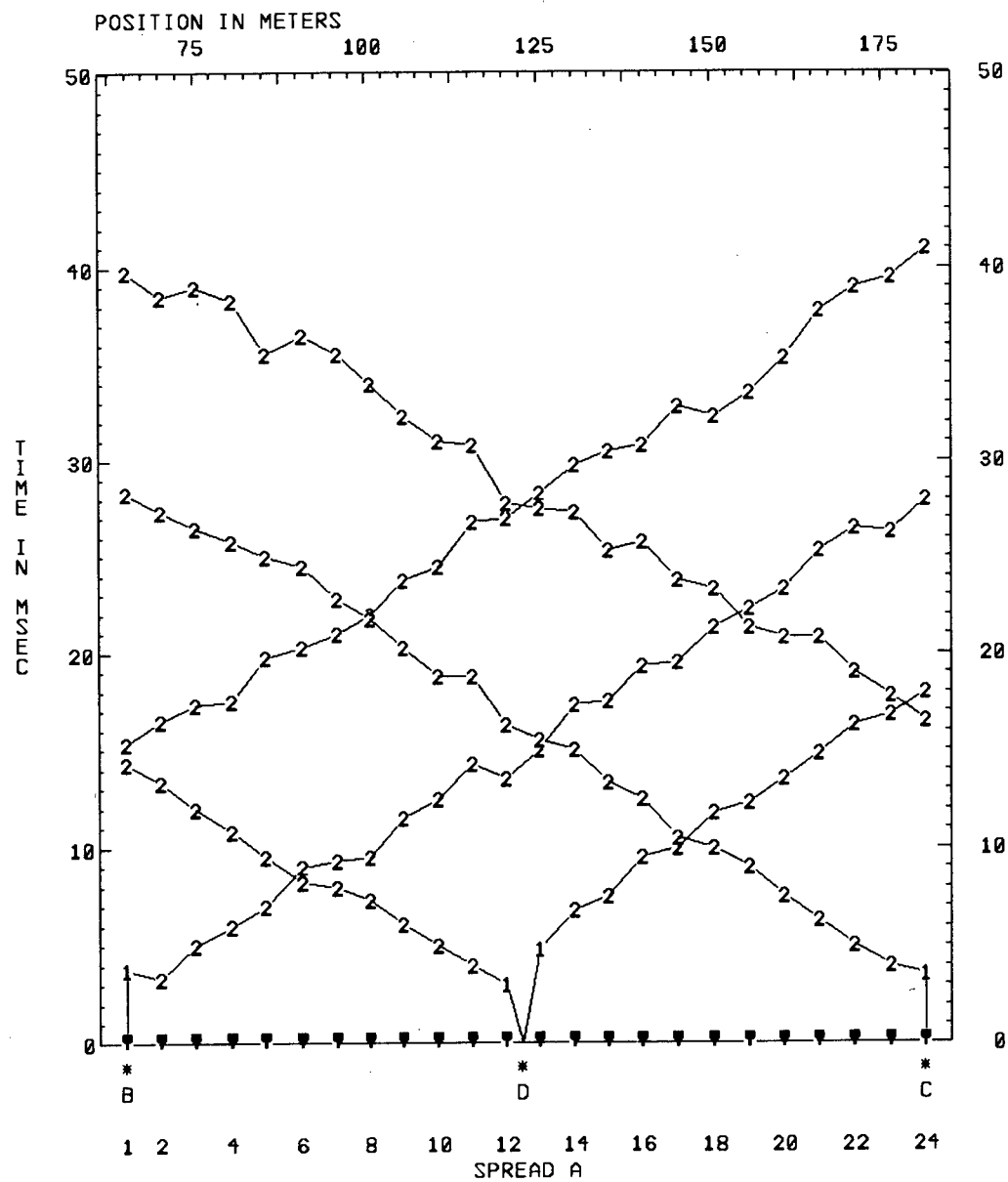
FILE 96-3-E.SIP
96-3 EAST HALF - RAW ARRIVAL TIMES



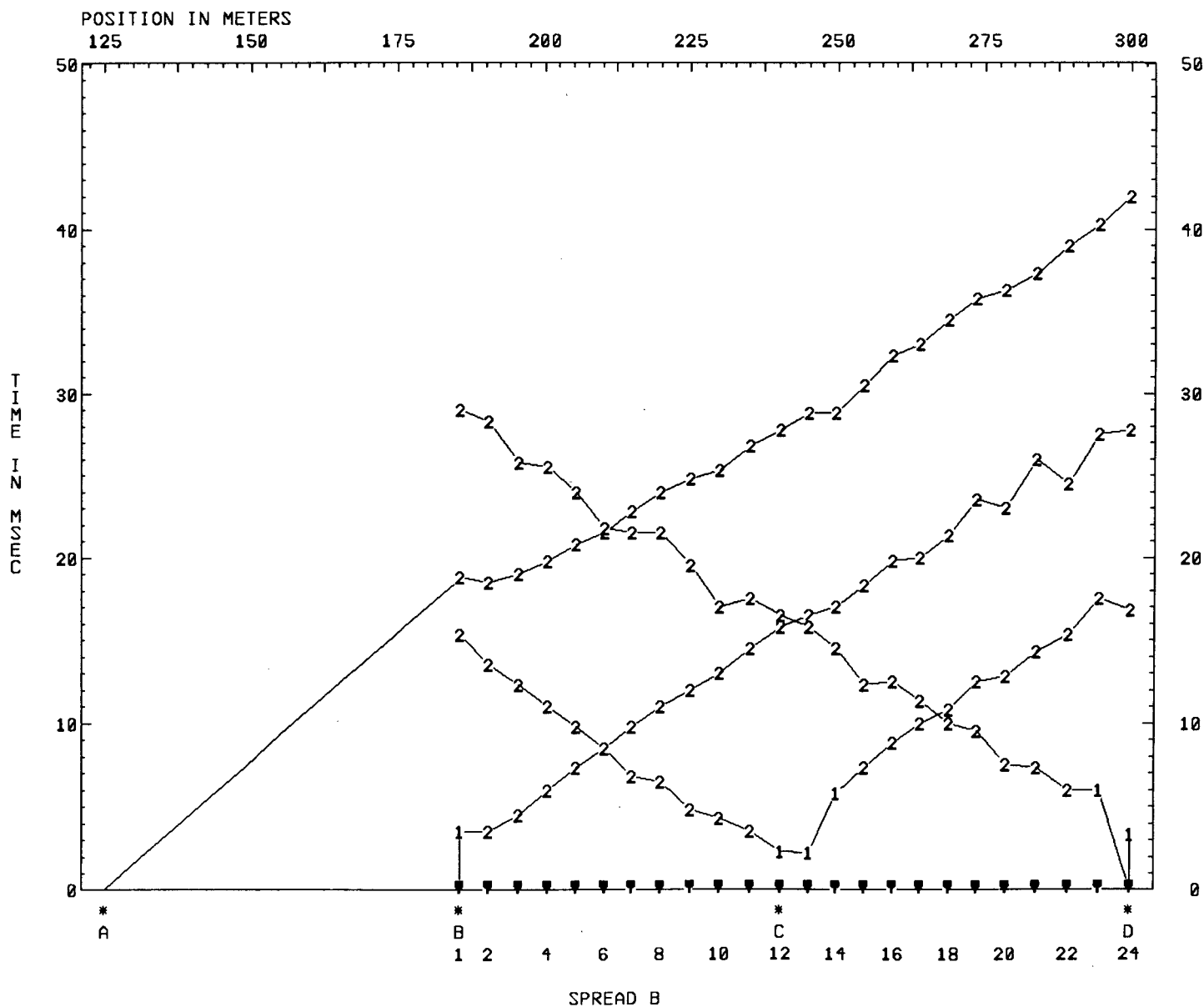
FILE 96-3-E.SIP
96-3 EAST HALF - RAW ARRIVAL TIMES



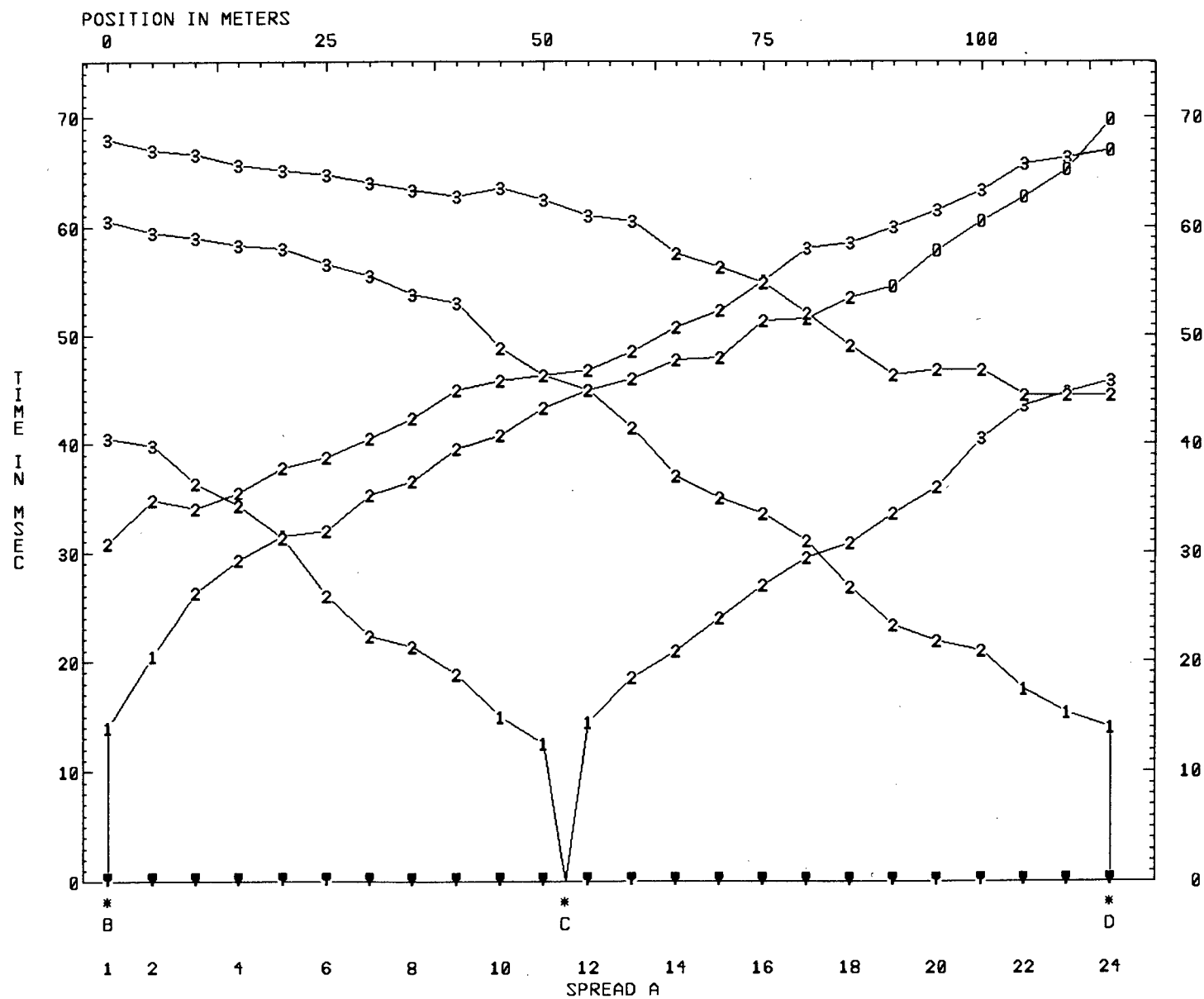
FILE 96-4.SIP
96-4 NORTH TO SOUTH - RAW ARRIVAL TIMES



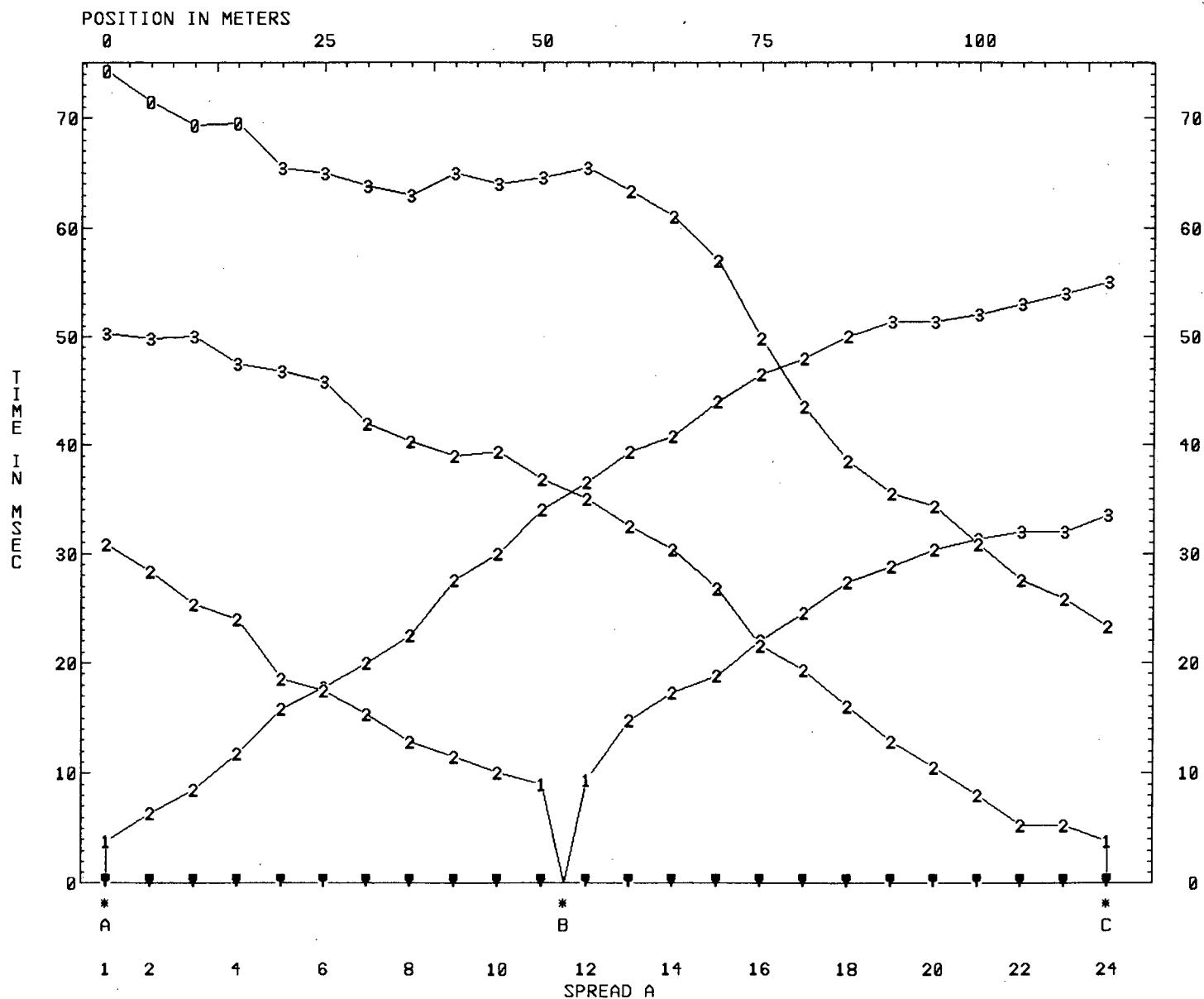
FILE 96-4.SIP
 96-4 NORTH TO SOUTH - RAW ARRIVAL TIMES



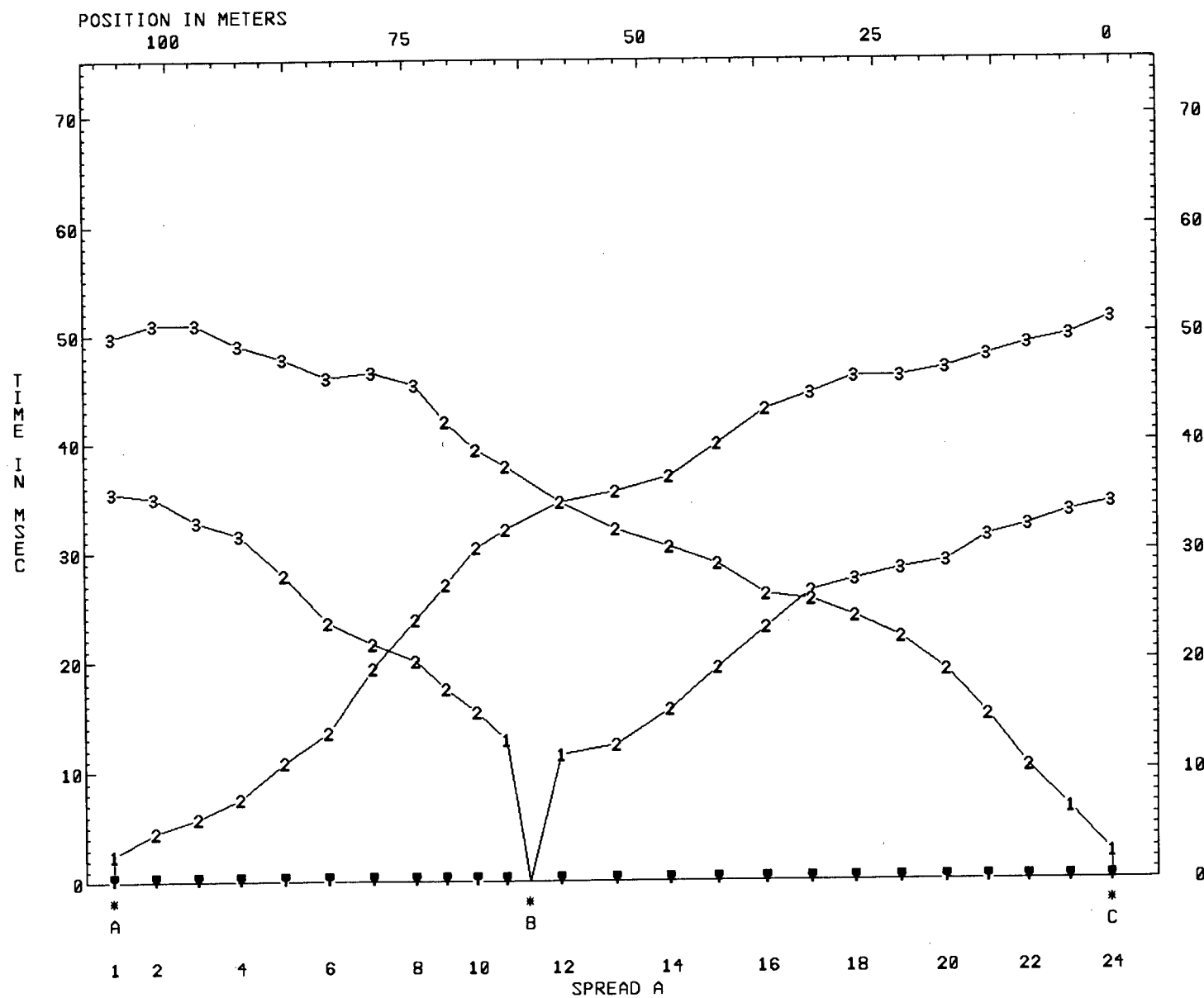
FILE 96-5A.SIP
 LINE 96-5 NORTH - SOUTH ALONG DUNCAN CREEK - RAW ARRIVAL TIMES



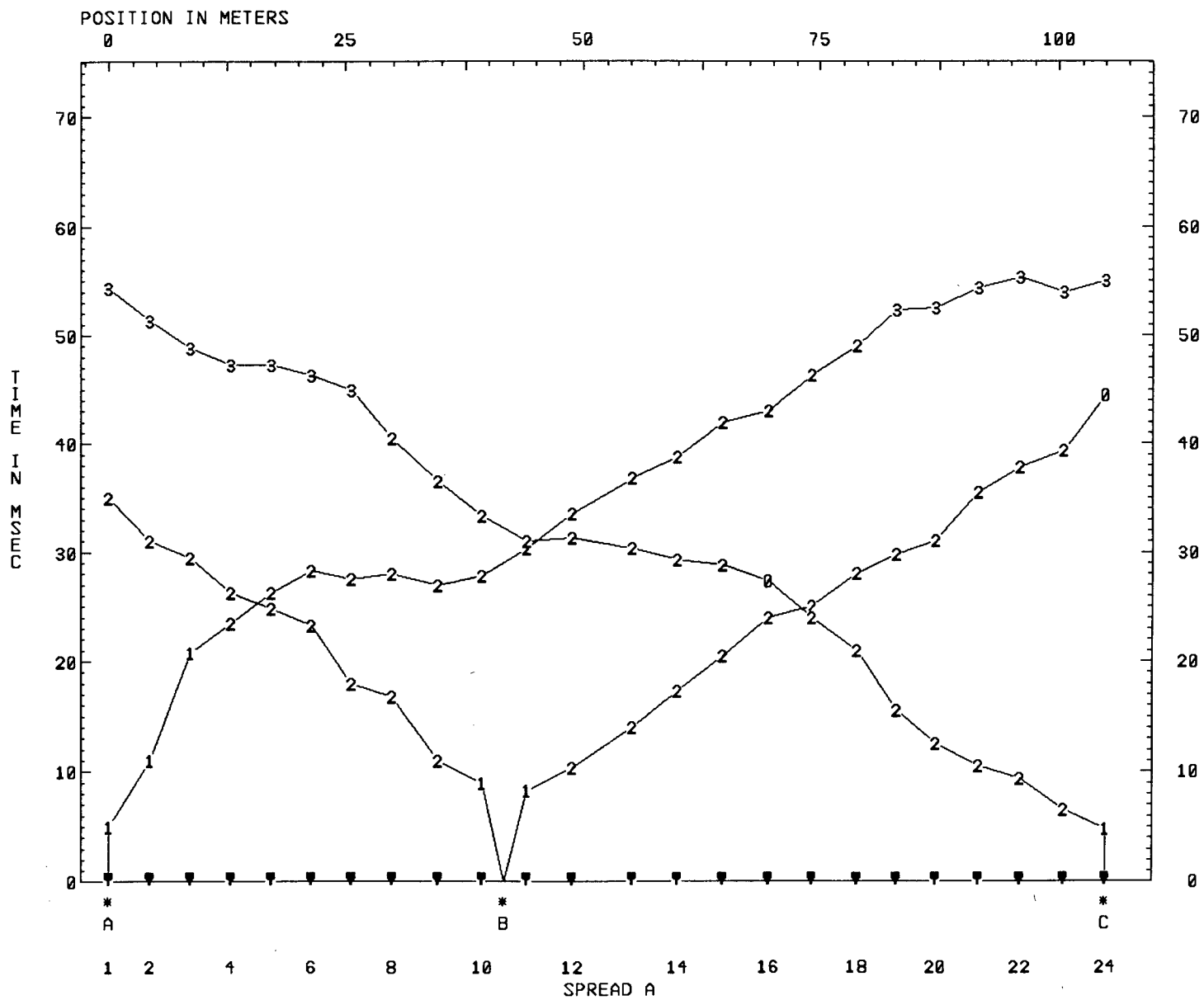
FILE 96-6.SIP
 LINE 96-6 EAST-WEST ACROSS DUNCAN CREEK - RAW ARRIVAL TIMES



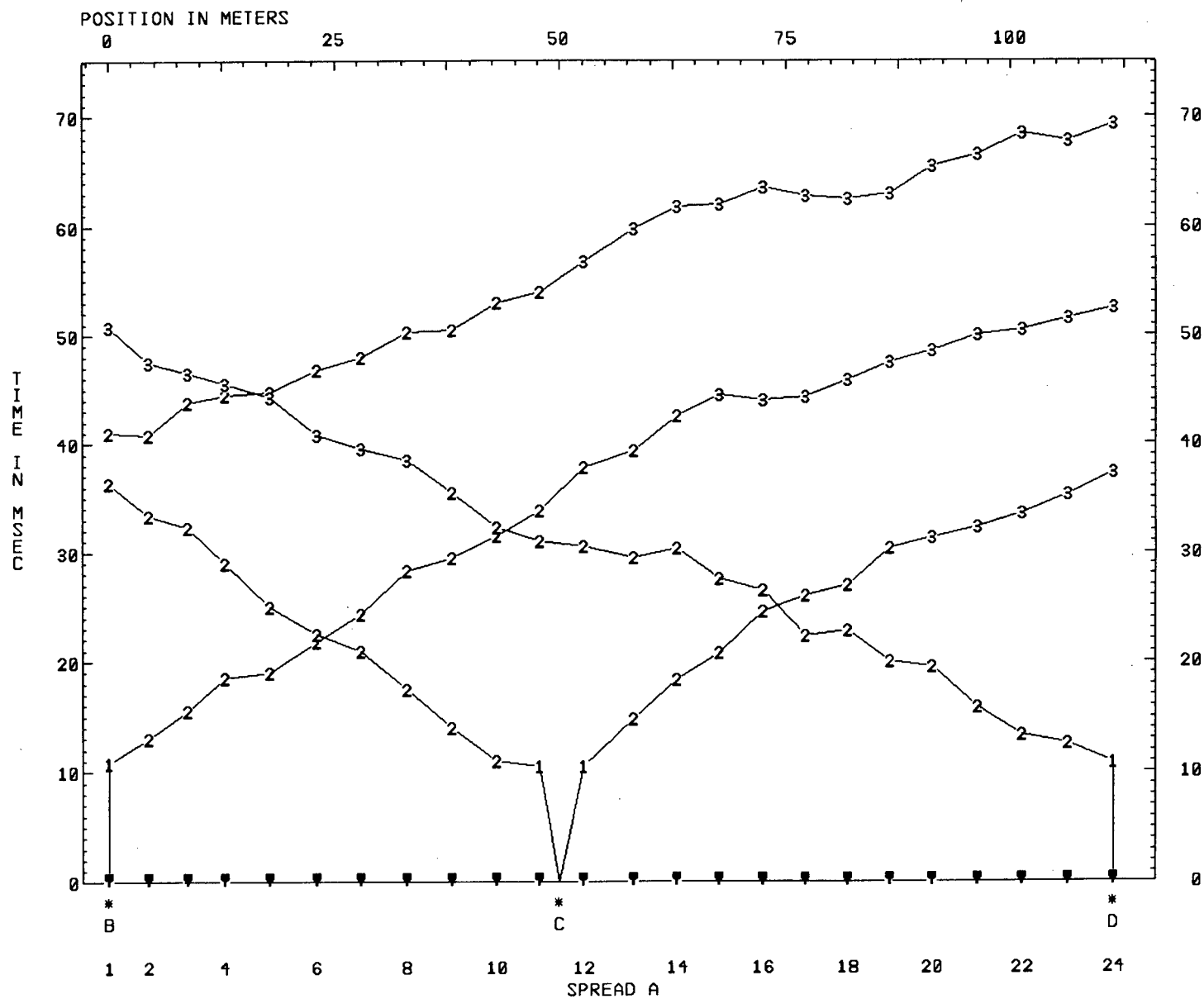
FILE 96-7.SIP
96-7 - RAW ARRIVAL TIMES



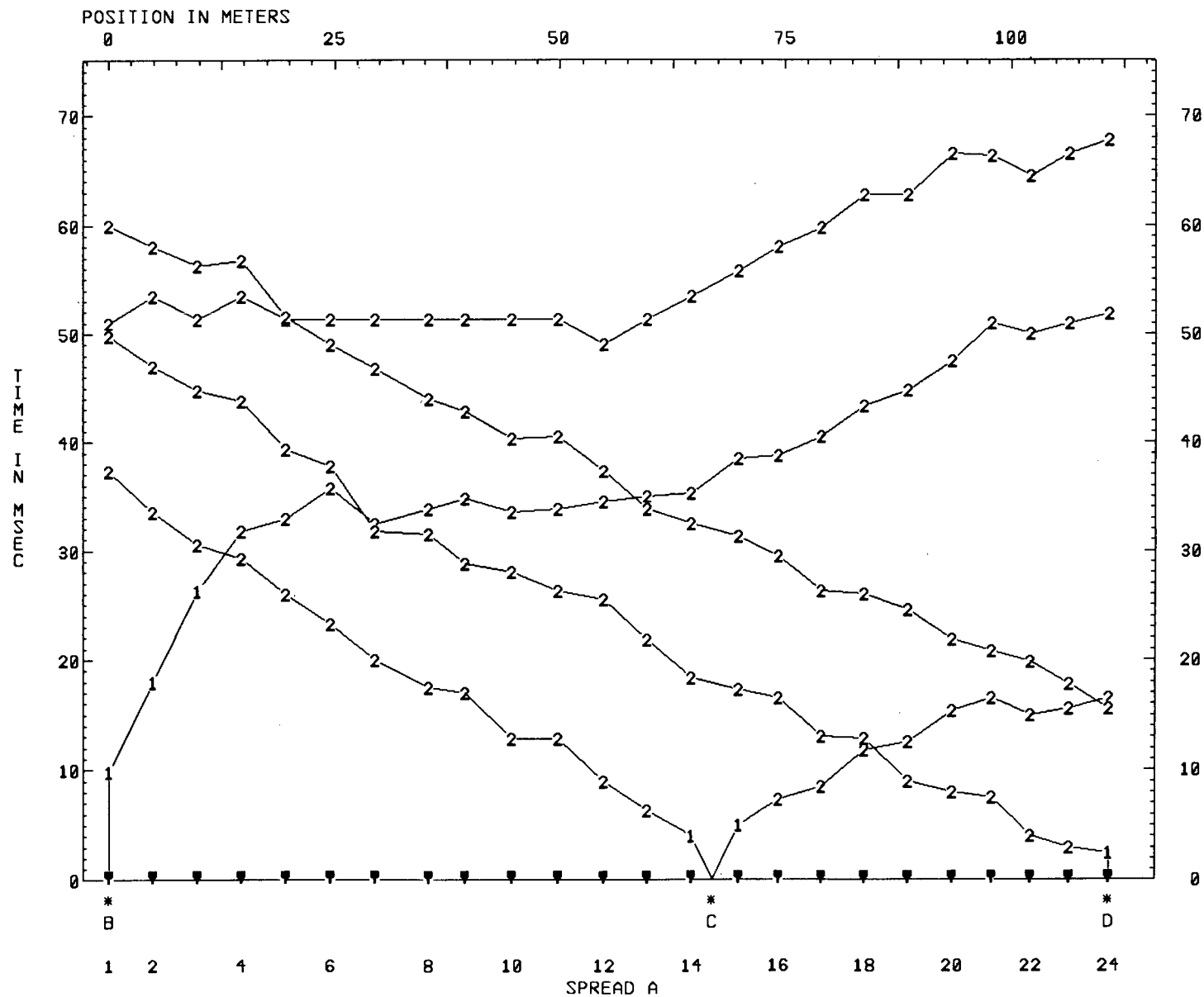
FILE 96-8.SIP
96-8 - RAW ARRIVAL TIMES



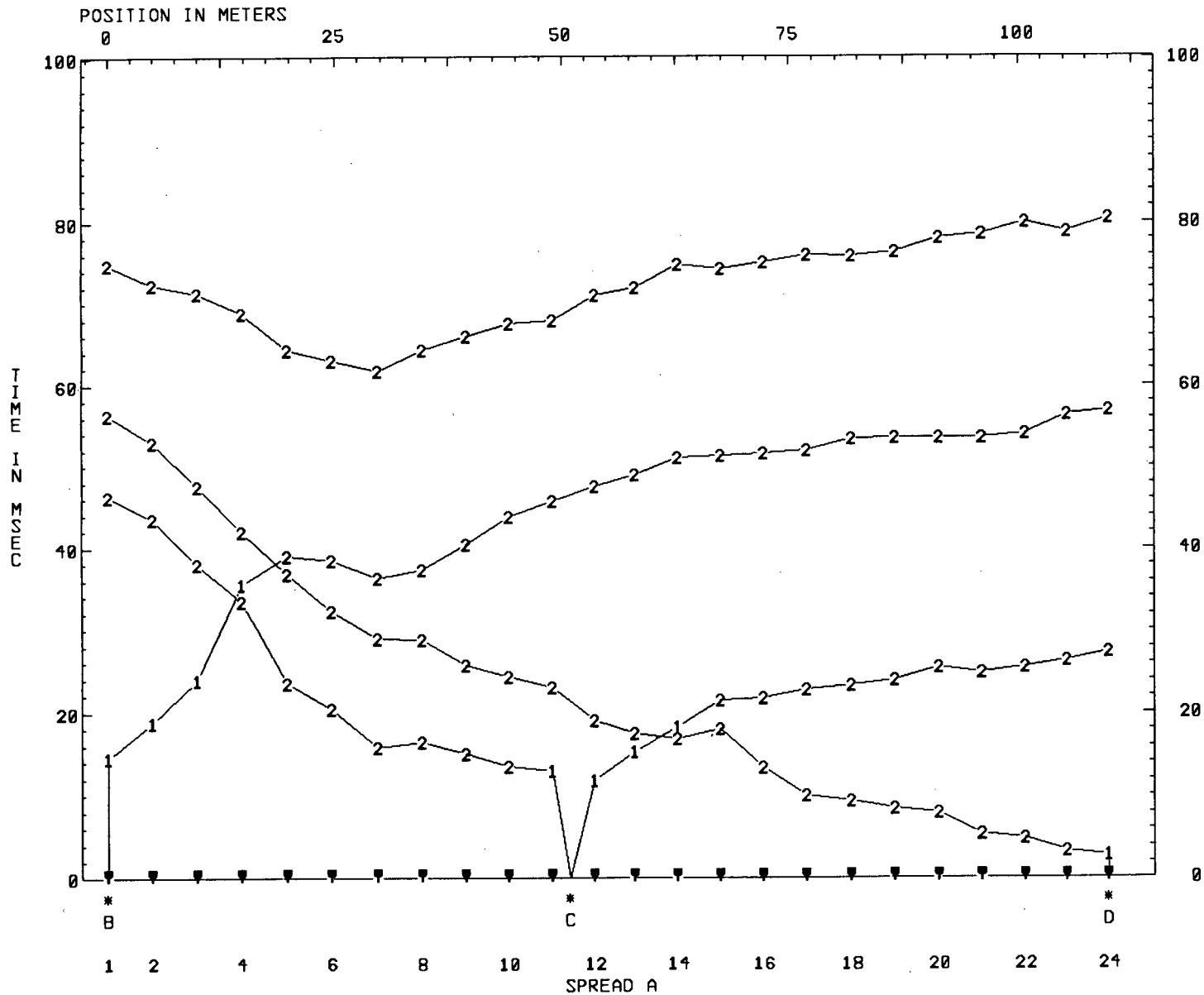
FILE 96-9.SIP
 96-9 - RAW ARRIVAL TIMES



FILE 96-10.SIP
96-10 - RAW ARRIVAL TIMES



FILE 96-11.SIP
96-11 - RAW ARRIVAL TIMES



G-2

Appendix G. Inversion model listings

Layer 1 Velocity from direct arrivals

Spread A	SP	Geo	DD	V	Avg V
	A	1	5.0	408	
	A	2	7.1	442	
	A	3	11.1	569	
	A	4	15.7	731	
					538
	B	12	5.0	370	
	B	13	7.2	516	
	B	14	11.6	652	
					513
	C	24	5.0	833	
					833

Spread B	SP	Geo	DD	V	Avg V
	B	1	5.0	541	541
	C	11	5.0	351	
	C	12	8.1	421	386
	D	21	17.1	503	
	D	22	12.0	490	
	D	23	7.4	400	
	D	24	5.0	408	450

Wtd Avg Velocity computed for Layer 1 = 509

Layer 2 Velocity computed by regression of raw uncorrected arrivals

Spread A									
V	Ti	Geos	<-SP->	Geos	Ti	V	Avg V	Avg Ti	Pts
-----	-----	-----	---	-----	-----	-----	-----	-----	---
			A	5 9	20.3	4201	4201	20.3	5
2490	9.4	1 11	B	15 21	15.5	2493	2491	12.4	18
1923	5.7	11 23	C				1923	5.7	13
							-----		---
						Avg =	2372	for	36 Pts

Spread B											
V	Ti	Geos	<-SP->	Geos	Ti	V	Avg V	Avg Ti	Pts		
-----	-----	-----	---	-----	-----	-----	-----	-----	---		
			A	1 8	-2.6	1848	1848	-2.6	8		
			B	2 12	3.5	1333	1333	3.5	11		
1572	11.9	1 10	C	13 19	6.9	757	1089	9.4	17		
888	-33.5	20 24	E				888	-33.5	5		
							-----		---		
						Avg =	1212	for	41	Pts	

Avg of all regression velocities: 1572 for 77 points in Layer 2.

Layer 2 Velocity computed by Hobson-Overton method

Spread A		V	Avg TdSP	Std Err Overall	4 Highest		Std Err at geophones					
SPs	Geos				Err	Geo	Err	Geo	Err	Geo	Err	Geo
A B	5 9	3062	6.6	0.990	1.522	7	-1.516	6	0.437	5	-0.250	8
B C	15 21	2041	6.3	1.906	2.779	21	2.624	15	-2.232	17	-1.852	18

Avg = 2467 for 12 Pts

Spread B		V	Avg TdSP	Std Err Overall	4 Highest		Std Err at geophones					
SPs	Geos				Err	Geo	Err	Geo	Err	Geo	Err	Geo
A C	1 8	1803	-18.6	1.184	-2.398	2	1.455	1	1.442	3	-0.747	6
B C	2 10	1511	-5.8	2.575	5.014	10	-3.370	7	-3.269	6	2.808	3

Avg = 1648 for 17 Pts

Avg of all Hobson-Overton velocities: 1987 for 29 points in Layer 2.

Wtd Avg Velocity computed for Layer 2 = 1750

Layer 3 Velocity computed by regression of raw uncorrected arrivals

Spread A		Ti	Geos	<-SP->	Geos	Ti	V	Avg V	Avg Ti	Pts
V										
				A	10 24	13.3	2771	2771	13.3	15
				B	22 24	7.0	1459	1459	7.0	3
4179	26.4	4 10		C			4179	4179	26.4	7
3081	6.4	1 24		D			3081	3081	6.4	23
3129	17.4	4 24		E			3129	3129	17.4	19
							Avg =	2954	for	67 Pts

Spread B		Ti	Geos	<-SP->	Geos	Ti	V	Avg V	Avg Ti	Pts
V										
				A	9 24	-0.8	1876	1876	-0.8	16
				B	13 24	19.6	1814	1814	19.6	12
				C	20 24	53.2	4988	4988	53.2	5
3765	47.2	1 19		D			3765	3765	47.2	19
4380	38.2	4 19		E			4380	4380	38.2	16
							Avg =	2737	for	68 Pts

Avg of all regression velocities: 2840 for 135 points in Layer 3.

Layer 3 Velocity computed by Hobson-Overton method

Spread A		V	Avg TdSP	Std Err Overall	4 Highest		Std Err at		geophones		Err	Geo
SPs	Geos				Err	Geo	Err	Geo	Err	Geo		
A D	10 24	3100	10.3	1.661	3.867	16	2.609	18	-2.580	11	-1.625	12
A E	10 24	3177	-0.9	0.965	1.865	15	-1.569	11	1.469	13	-0.939	20
B D	22 24	2953	17.4	0.041	-0.059	23	0.030	22	0.029	24		
B E	22 24	2486	16.9	0.139	0.196	23	-0.099	22	-0.097	24		

Avg = 3061 for 33 Pts

Spread B		V	Avg TdSP	Std Err Overall	4 Highest		Std Err at		geophones		Err	Geo
SPs	Geos				Err	Geo	Err	Geo	Err	Geo		
A D	9 19	2373	-25.9	1.267	2.501	19	-1.662	15	1.553	10	-1.328	12
A E	9 19	2635	-2.6	1.453	-2.528	18	-1.950	13	1.866	10	1.649	19
B D	13 19	2033	-13.9	1.234	-2.402	15	1.494	13	1.427	17	-0.532	14
B E	13 19	2334	10.5	1.124	2.183	17	-1.606	18	-0.776	14	0.724	16

Avg = 2379 for 36 Pts

Avg of all Hobson-Overton velocities: 2706 for 69 points in Layer 3.

Wtd Avg Velocity computed for Layer 3 = 2772

DEPTH MODEL TABLES for 96-1.SIP

Spread A Depth and Elev of layers directly beneath SPs and Geos

SP	Surface		Layer 2		Layer 3	
	X-Loc	Elev	Depth	Elev	Depth	Elev
A	7.8	0.8	1.6	-0.8	8.6	-7.8
B	63.2	0.0	2.3	-2.3	7.9	-7.9
C	120.7	5.7	2.4	3.3	15.3	-9.6

Geo	Surface		Layer 2		Layer 3	
	X-Loc	Elev	Depth	Elev	Depth	Elev
1	7.8	0.8	1.6	-0.8	8.6	-7.8
2	12.8	1.0	0.2	0.8	8.0	-7.0
3	17.7	1.1	0.1	1.0	5.7	-4.6
4	22.7	1.3	0.1	1.2	6.7	-5.4
5	27.6	1.5	0.0	1.5	7.8	-6.3
6	32.6	1.8	0.0	1.8	10.3	-8.5
7	37.6	1.5	0.0	1.5	11.7	-10.2
8	42.7	1.3	0.7	0.6	12.6	-11.3
9	47.7	1.0	1.1	-0.1	12.0	-11.0
10	52.8	0.8	2.0	-1.2	11.1	-10.3
11	58.0	0.4	1.6	-1.2	10.0	-9.6
12	63.2	0.0	2.3	-2.3	7.9	-7.9
13	68.4	-0.4	2.2	-2.6	6.9	-7.3
14	73.6	-0.8	1.8	-2.6	6.5	-7.3
15	78.2	-0.8	1.7	-2.5	6.8	-7.6
16	82.9	-0.8	1.5	-2.3	7.2	-8.0
17	87.5	-0.8	1.6	-2.4	7.8	-8.6
18	92.3	-0.4	1.4	-1.8	9.8	-10.2
19	97.1	0.1	1.1	-1.0	10.8	-10.7
20	101.8	0.6	0.7	-0.1	12.4	-11.8
21	106.4	1.7	0.8	0.9	13.4	-11.7
22	111.0	2.9	1.9	1.0	13.9	-11.0
23	115.8	4.3	2.3	2.0	16.1	-11.8
24	120.7	5.7	2.4	3.3	15.3	-9.6

Spread B Depth and Elev of layers directly beneath SPs and Geos

SP	Surface		Layer 2		Layer 3	
	X-Loc	Elev	Depth	Elev	Depth	Elev
B	124.0	7.6	3.4	4.2	15.6	-8.0
C	172.7	19.1	4.5	14.6	26.3	-7.2
D	235.0	34.2	7.2	27.0	21.5	12.7

Geo	Surface		Layer 2		Layer 3	
	X-Loc	Elev	Depth	Elev	Depth	Elev
1	124.0	7.6	3.4	4.2	15.6	-8.0
2	128.2	7.8	3.1	4.7	11.9	-4.1
3	133.0	8.8	3.6	5.2	14.1	-5.3
4	137.8	9.8	3.9	5.9	16.8	-7.0
5	142.6	10.8	4.3	6.5	19.9	-9.1
6	147.4	11.8	3.9	7.9	22.4	-10.6
7	152.2	12.8	3.7	9.1	23.8	-11.0
8	157.0	14.3	3.9	10.4	25.3	-11.0
9	161.9	15.7	4.0	11.7	26.2	-10.5
10	166.7	17.1	3.9	13.2	26.3	-9.2
11	172.7	19.1	4.5	14.6	26.3	-7.2
12	178.8	21.0	6.4	14.6	23.7	-2.7
13	183.0	22.3	7.4	14.9	23.1	-0.8
14	187.2	23.5	8.3	15.2	26.4	-2.9
15	191.5	24.7	9.7	15.0	25.1	-0.4
16	195.7	25.9	11.2	14.7	23.4	2.5
17	200.3	27.1	12.4	14.7	21.1	6.0
18	204.9	28.3	13.6	14.7	21.2	7.1
19	209.5	29.5	14.8	14.7	22.6	6.9
20	214.2	30.7	12.9	17.8	23.7	7.0
21	218.8	31.9	11.0	20.9	24.1	7.8
22	224.2	32.6	9.6	23.0	23.9	8.7
23	229.6	33.4	8.4	25.0	21.6	11.8
24	235.0	34.2	7.2	27.0	21.5	12.7

Velocities used to formulate the Depth Model

Spread A	Layer 1	Layer 2	Layer 3
Vertical	509	1750	
Horizontal		1750	2772

Spread B	Layer 1	Layer 2	Layer 3
Vertical	509	1750	
Horizontal		1750	2772

VELOCITY ANALYSIS TABLES for 96-2.SIP

Layer 1 Velocity from direct arrivals

Spread A	SP	Geo	DD	V	Avg V
	A	1	10.7	927	
					927
	B	12	7.5	750	
	B	13	5.4	675	
	B	14	5.3	637	
					687
	C	23	7.0	313	
	C	24	5.0	290	
					302

Wtd Avg Velocity computed for Layer 1 = 599

Layer 2 Velocity computed by regression of raw uncorrected arrivals

Spread A	V	Ti	Geos	<-SP-->	Geos	Ti	V	Avg V	Avg Ti	Pts
				A	2 3	5.7	1363	1363	5.7	2
2189	5.2	8 11	B		15 18	8.2	1664	1891	6.7	8
1182	17.3	19 22	C					1182	17.3	4
								Avg = 1541	for	14 Pts

Layer 2 Velocity computed by Hobson-Overton method

Not enough points.

Wtd Avg Velocity computed for Layer 2 = 1541

Layer 3 Velocity computed by regression of raw uncorrected arrivals

Spread A	V	Ti	Geos	<-SP-->	Geos	Ti	V	Avg V	Avg Ti	Pts
				A	4 24	19.1	3469	3469	19.1	21
4414	13.2	1 7	B		19 24	17.8	6261	5110	15.5	13
4130	24.7	1 18	C					4130	24.7	18
4220	24.8	1 23	D					4220	24.8	23
								Avg = 4075	for	75 Pts

Layer 3 Velocity computed by Hobson-Overton method

Spread A			Avg	Std Err	4 Highest	Std Err at geophones								
SPs	Geos	V	TdSP	Overall	Err	Geo	Err	Geo	Err	Geo	Err	Geo	Err	Geo
A B	4 7	2104	7.9	0.691	-1.043	6	0.769	5	0.447	7	-0.173	4		
A C	4 18	4071	-2.2	2.950	-4.876	4	-4.516	17	4.446	10	4.016	11		
A D	4 23	3604	-0.7	1.434	-3.102	4	-2.697	23	2.115	18	-1.900	22		
B D	19 23	4428	-10.2	0.860	1.549	20	-1.091	19	-0.305	23	-0.117	21		

Avg = 3721 for 44 Pts

Wtd Avg Velocity computed for Layer 3 = 3884

DEPTH MODEL TABLES for 96-2.SIP

Spread A Depth and Elev of layers directly beneath SPs and Geos

SP	Surface		Layer 2		Layer 3	
	X-Loc	Elev	Depth	Elev	Depth	Elev
A	-135.0	119.6	3.1	116.5	12.6	107.0
B	-66.0	107.4	2.0	105.4	13.2	94.2
C	-17.9	99.8	6.3	93.5	10.9	88.9

Geo	Surface		Layer 2		Layer 3	
	X-Loc	Elev	Depth	Elev	Depth	Elev
1	-125.8	117.6	2.3	115.3	11.3	106.3
2	-120.3	116.7	2.3	114.4	10.7	106.0
3	-114.7	115.8	2.2	113.6	11.9	103.9
4	-109.1	114.9	2.1	112.8	13.0	101.9
5	-104.1	113.8	1.6	112.2	13.5	100.3
6	-99.1	112.7	1.2	111.5	13.7	99.0
7	-94.3	112.0	1.1	110.9	14.1	97.9
8	-89.6	111.4	1.2	110.2	14.4	97.0
9	-84.9	110.7	1.1	109.6	14.7	96.0
10	-80.0	109.9	0.9	109.0	14.4	95.5
11	-75.1	109.1	0.8	108.3	13.5	95.6
12	-71.5	108.4	1.2	107.2	12.8	95.6
13	-68.0	107.8	1.7	106.1	12.8	95.0
14	-64.4	107.1	2.3	104.8	13.5	93.6
15	-60.9	106.4	2.4	104.0	15.1	91.3
16	-57.3	105.8	2.5	103.3	14.6	91.2
17	-52.4	105.0	2.6	102.4	13.8	91.2
18	-47.5	104.3	4.7	99.6	12.2	92.1
19	-42.6	103.6	6.7	96.9	10.1	93.5
20	-37.6	102.8	8.1	94.7	9.2	93.6
21	-32.7	102.1	7.7	94.4	9.6	92.5
22	-27.8	101.4	7.4	94.0	10.0	91.4
23	-22.8	100.6	6.3	94.3	10.3	90.3
24	-17.9	99.9	6.4	93.5	11.0	88.9

Velocities used to formulate the Depth Model

Spread A	Layer 1	Layer 2	Layer 3
Vertical	599	1541	
Horizontal		1541	3884

Abstract

Layer 1 Velocity from direct arrivals

Spread D	SP	Geo	DD	V	Avg V
	B	1	5.0	393	
	B	2	7.1	295	
	B	3	11.3	311	
					333
	C	10	9.5	519	
	C	11	5.7	437	
	C	12	5.7	360	
					438
	D	23	10.2	478	
	D	24	5.0	392	
					435

Wtd Avg Velocity computed for Layer 1 = 398

Layer 2 Velocity computed by regression of raw uncorrected arrivals

Spread D									
V	Ti	Geos	<-SP->	Geos	Ti	V	Avg V	Avg Ti	Pts
-----	-----	-----	----	-----	-----	-----	-----	-----	----
			A	1 2	-1.4	1111	1111	-1.4	2
			B	4 24	29.0	2323	2323	29.0	21
1184	2.8	1 9	C	13 16	20.5	2230	1384	11.7	13
2293	30.3	1 22	D				2293	30.3	22
							-----		----
						Avg =	1944	for	58 Pts

Layer 2 Velocity computed by Hobson-Overton method

Spread D				V	Avg TdSP	Std Err Overall	4 Highest		Std Err at		geophones			
SPs	Geos						Err	Geo	Err	Geo	Err	Geo	Err	Geo
A C	1 2		956	-8.4	0.000	-0.000	1	0.000	2					
A D	1 2		1265	15.7	0.000	-0.000	1	0.000	2					
B C	4 9		4172	18.9	2.502	-4.066	4	2.604	5	-2.418	9	2.396	7	
B D	4 22		2379	-1.8	8.548	16.426	22	15.146	21	9.278	6	-9.178	15	
C D	13 16		1946	-11.5	0.521	0.663	15	-0.566	16	-0.450	13	0.353	14	

Avg = 2499 for 33 Pts

Wtd Avg Velocity computed for Layer 2 = 2239

Layer 3 Velocity computed by regression of raw uncorrected arrivals

Spread D									
V	Ti	Geos	<-SP->	Geos	Ti	V	Avg V	Avg Ti	Pts
-----	-----	-----	---	-----	-----	-----	-----	-----	---
			A	3 22	54.2	6550	6550	54.2	20
			C	17 22	32.4	7891	7891	32.4	6
							-----		---
						Avg =	6818	for	26 Pts

Layer 3 Velocity computed by Hobson-Overton method

Not enough points.

Wtd Avg Velocity computed for Layer 3 = 6818

DEPTH MODEL TABLES for CREEK-W.SIP

Spread D Depth and Elev of layers directly beneath SPs and Geos

SP	Surface		Layer 2		Layer 3	
	X-Loc	Elev	Depth	Elev	Depth	Elev
B	740.0	72.6	5.6	67.0	36.6	36.0
C	790.1	83.4	3.7	79.7	20.6	62.8
D	855.0	99.8	1.9	97.9	17.0	82.8

Geo	Surface		Layer 2		Layer 3	
	X-Loc	Elev	Depth	Elev	Depth	Elev
1	740.0	72.3	5.3	67.0	36.3	36.0
2	745.0	72.1	4.5	67.6	34.7	37.4
3	750.1	72.0	3.6	68.4	33.1	38.9
4	755.1	71.8	2.7	69.1	31.8	40.0
5	759.8	71.1	1.5	69.6	30.4	40.7
6	764.4	72.9	1.7	71.2	31.6	41.3
7	768.9	74.8	1.4	73.4	32.9	41.9
8	773.5	76.7	1.7	75.0	32.3	44.4
9	778.1	78.6	2.0	76.6	28.9	49.7
10	782.6	80.5	2.8	77.7	25.4	55.1
11	787.6	82.4	3.5	78.9	21.6	60.8
12	792.6	84.3	3.9	80.4	19.4	64.9
13	797.5	86.2	4.3	81.9	18.3	67.9
14	802.5	88.1	4.4	83.7	18.9	69.2
15	807.4	88.9	3.8	85.1	19.2	69.7
16	812.3	89.6	3.6	86.0	18.6	71.0
17	817.3	90.4	3.7	86.7	17.5	72.9
18	822.2	91.2	4.2	87.0	16.0	75.2
19	826.6	92.8	4.4	88.4	15.9	76.9
20	831.0	94.4	3.6	90.8	16.8	77.6
21	835.0	96.0	2.0	94.0	18.8	77.2
22	839.8	97.6	0.9	96.7	19.0	78.6
23	844.9	98.7	1.5	97.2	18.7	80.0
24	850.0	99.8	2.2	97.6	18.3	81.5

Velocities used to formulate the Depth Model

Spread D	Layer 1	Layer 2	Layer 3
Vertical	400	1900	
Horizontal		1900	5000

VELOCITY ANALYSIS TABLES for CREEK.SIP

Layer 1 Velocity from direct arrivals

Spread C	SP	Geo	DD	V	Avg V
	B	1	5.0	769	
					769
	C	9	12.8	400	
	C	10	8.4	393	
	C	11	5.4	339	
	C	12	5.6	265	
	C	13	8.8	295	
					338
	D	22	11.0	734	
	D	23	7.0	934	
	D	24	5.0	1667	
					1111

Wtd Avg Velocity computed for Layer 1 = 644

Layer 2 Velocity computed by regression of raw uncorrected arrivals

Spread C	V	Ti	Geos	<-SP->	Geos	Ti	V	Avg V	Avg Ti	Pts
				A	1 17	-29.7	1117	1117	-29.7	17
				B	2 20	13.4	1423	1423	13.4	18
2004	36.8	1	8	C	14 20	38.5	1891	1950	37.6	15
1953	24.9	7	21	D				1953	24.9	15
2144	20.9	17	24	E				2144	20.9	8
								Avg =	1554	for 73 Pts

Layer 2 Velocity computed by Hobson-Overton method

Spread C	SPs	Geos	V	Avg TdSP	Std Err Overall	4 Highest Err Geo	Std Err at geophones Err Geo	Err Geo	Err Geo	Err Geo
A C	1	8	1119	-53.5	3.559	-4.668	4	-4.524	5	4.326
A D	7	17	2043	-9.3	1.346	-2.963	13	-1.691	7	1.470
B C	2	8	997	-15.4	2.421	4.280	2	-3.285	4	-2.211
B D	7	20	2249	2.2	1.599	-3.039	13	2.610	12	2.144
B E	17	20	2370	6.5	0.177	-0.250	19	0.125	18	0.125
C D	14	20	1761	13.5	2.171	-3.396	14	3.366	16	2.007
C E	17	20	2636	15.1	0.836	-1.264	19	0.933	18	0.533

Avg = 1842 for 53 Pts

Wtd Avg Velocity computed for Layer 2 = 1725

Layer 3 Velocity computed by regression of raw uncorrected arrivals

Spread C

V	Ti	Geos	<-SP->	Geos	Ti	V	Avg V	Avg Ti	Pts
			A	18 24	62.3	5212	5212	62.3	7
			B	17 24	30.2	2215	2215	30.2	5
			C	21 24	50.4	4134	4134	50.4	4
10763	59.6	1 6	D				10763	59.6	6
8341	55.9	1 16	E				8341	55.9	16
							Avg = 5395	for	38 Pts

Layer 3 Velocity computed by Hobson-Overton method

Not enough points.

Wtd Avg Velocity computed for Layer 3 = 5395

DEPTH MODEL TABLES for CREEK.SIP

Spread C Depth and Elev of layers directly beneath SPs and Geos

SP	Surface		Layer 2		Layer 3	
	X-Loc	Elev	Depth	Elev	Depth	Elev
B	615.5	77.7	3.6	74.1	33.5	44.2
C	665.0	71.7	8.9	62.8	32.7	39.0
D	725.8	72.6	7.9	64.7	37.2	35.4

Geo	Surface		Layer 2		Layer 3	
	X-Loc	Elev	Depth	Elev	Depth	Elev
1	615.5	77.7	3.6	74.1	33.5	44.2
2	620.1	76.4	2.8	73.6	32.4	44.0
3	624.7	75.2	3.1	72.1	31.3	43.9
4	629.3	74.0	4.7	69.3	33.1	40.9
5	633.9	72.8	7.1	65.7	32.7	40.1
6	638.4	71.6	9.3	62.3	30.5	41.1
7	643.4	71.6	9.6	62.0	29.5	42.1
8	648.3	71.7	10.0	61.7	29.8	41.9
9	653.2	71.7	9.8	61.9	30.9	40.8
10	658.2	71.7	9.6	62.1	31.4	40.3
11	662.9	71.7	8.6	63.1	32.2	39.5
12	667.6	71.8	9.3	62.5	33.4	38.4
13	672.3	71.8	10.1	61.7	34.6	37.2
14	677.1	71.9	10.5	61.4	36.0	35.9
15	681.9	71.9	9.3	62.6	37.2	34.7
16	686.8	72.0	9.6	62.4	38.5	33.5
17	691.7	72.1	8.8	63.3	36.5	35.6
18	696.5	72.1	7.8	64.3	37.3	34.8
19	701.4	72.2	7.1	65.1	39.2	33.0
20	706.3	72.3	6.5	65.8	41.1	31.2
21	711.2	72.4	6.5	65.9	41.8	30.6
22	716.0	72.4	7.1	65.3	36.8	35.6
23	720.9	72.5	8.0	64.5	37.0	35.5
24	725.8	72.6	7.9	64.7	37.2	35.4

Velocities used to formulate the Depth Model

Spread C	Layer 1	Layer 2	Layer 3
Vertical	644	1725	
Horizontal		1725	5395

DEPTH MODEL TABLES for CREEK.SIP

Spread C Depth and Elev of layers directly beneath SPs and Geos

SP	Surface		Layer 2		Layer 3	
	X-Loc	Elev	Depth	Elev	Depth	Elev
B	615.5	77.7	2.7	75.0	34.2	43.5
C	665.0	71.7	6.8	64.9	32.4	39.3
D	725.8	72.6	7.2	65.4	29.7	42.9

Geo	Surface		Layer 2		Layer 3	
	X-Loc	Elev	Depth	Elev	Depth	Elev
1	615.5	77.7	2.7	75.0	34.2	43.5
2	620.1	76.4	1.7	74.7	33.0	43.4
3	624.7	75.2	1.9	73.3	31.9	43.3
4	629.3	74.0	2.4	71.6	33.3	40.7
5	633.9	72.8	4.0	68.8	32.8	40.0
6	638.4	71.6	5.9	65.7	31.5	40.1
7	643.4	71.6	7.1	64.5	30.9	40.7
8	648.3	71.7	7.5	64.2	30.4	41.3
9	653.2	71.7	7.6	64.1	30.7	41.0
10	658.2	71.7	7.3	64.4	31.3	40.4
11	662.9	71.7	7.0	64.7	32.0	39.7
12	667.6	71.8	6.7	65.1	33.0	38.8
13	672.3	71.8	7.2	64.6	32.8	39.0
14	677.1	71.9	7.9	64.0	32.5	39.4
15	681.9	71.9	7.4	64.5	32.1	39.8
16	686.8	72.0	7.0	65.0	32.9	39.1
17	691.7	72.1	6.6	65.5	33.8	38.3
18	696.5	72.1	5.7	66.4	34.1	38.0
19	701.4	72.2	4.9	67.3	34.4	37.8
20	706.3	72.3	4.6	67.7	34.4	37.9
21	711.2	72.4	5.1	67.3	34.6	37.8
22	716.0	72.4	6.0	66.4	33.4	39.0
23	720.9	72.5	7.2	65.3	32.0	40.5
24	725.8	72.6	7.2	65.4	29.7	42.9

Velocities used to formulate the Depth Model

Spread C	Layer 1	Layer 2	Layer 3
Vertical	600	1550	
Horizontal		1550	5400

VELOCITY ANALYSIS TABLES for 96-3-W.SIP

Layer 1 Velocity from direct arrivals

Spread A	SP	Geo	DD	V	Avg V
	B	1	5.0	444	
	C	12	5.4	653	444
	C	13	5.7	648	
					650

Spread B	SP	Geo	DD	V	Avg V
	C	14	4.8	967	
	D	24	0.1	22	967
					22

Spread C	SP	Geo	DD	V	Avg V
	B	1	5.0	769	
	C	9	12.8	400	769
	C	10	8.4	393	
	C	11	5.4	339	
	C	12	5.6	265	
	C	13	8.8	295	
	C	14	13.1	312	
	D	22	11.0	734	334
	D	23	7.0	934	
	D	24	5.0	1667	
					1111

Spread D	SP	Geo	DD	V	Avg V
	B	1	5.0	393	
	C	11	5.7	631	393
	C	12	5.7	482	
	D	24	5.0	392	556
					392

Wtd Avg Velocity computed for Layer 1 = 565

Layer 2 Velocity computed by regression of raw uncorrected arrivals

Spread A

V	Ti	Geos	<-SP->	Geos	Ti	V	Avg V	Avg Ti	Pts
-----	-----	-----	----	-----	-----	-----	-----	-----	----
			A	1 24	-2.4	3400	3400	-2.4	23
			B	2 23	7.0	3367	3367	7.0	21
6575	12.3	1 11	C	14 23	6.2	3840	4910	9.3	21
4325	3.2	1 23	D				4325	3.2	23
							-----	-----	----
Avg =							3895	for	88 Pts

Spread B

V	Ti	Geos	<-SP->	Geos	Ti	V	Avg V	Avg Ti	Pts
-----	-----	-----	----	-----	-----	-----	-----	-----	----
			A	1 15	5.0	4714	4714	5.0	15
			B	2 24	11.6	3568	3568	11.6	23
3955	4.1	1 12	C	15 24	1.8	2316	2992	2.9	22
3507	-1.1	1 23	D				3507	-1.1	23
2625	39.1	1 24	E				2625	39.1	22
							-----	-----	----
Avg =							3290	for	105 Pts

Spread C

V	Ti	Geos	<-SP->	Geos	Ti	V	Avg V	Avg Ti	Pts
-----	-----	-----	----	-----	-----	-----	-----	-----	----
			A	1 15	-35.7	1033	1033	-35.7	15
			B	2 21	14.4	1490	1490	14.4	20
2004	36.8	1 8	C	15 21	43.1	2565	2232	40.0	15
1953	24.9	7 21	D				1953	24.9	15
2168	21.3	18 24	E				2168	21.3	7
							-----	-----	----
Avg =							1580	for	72 Pts

Spread D

V	Ti	Geos	<-SP->	Geos	Ti	V	Avg V	Avg Ti	Pts
-----	-----	-----	----	-----	-----	-----	-----	-----	----
			A	1 24	56.4	6007	6007	56.4	24
			B	2 16	31.1	2823	2823	31.1	15
1325	2.5	1 10	C	13 24	20.2	3165	1940	11.3	22
2143	27.7	1 23	D				2143	27.7	23
							-----	-----	----
Avg =							2677	for	84 Pts

Avg of all regression velocities: 2655 for 349 points in Layer 2.

Layer 2 Velocity computed by Hobson-Overton method

Spread A		V	Avg TdSP	Std Err Overall	4 Highest		Std Err at		geophones		Err	Geo
SPs	Geos				Err	Geo	Err	Geo	Err	Geo		
A C	1 11	4031	-7.2	0.898	1.828	3	-1.588	9	0.966	11	-0.857	5
A D	1 23	3803	-0.3	1.309	2.692	8	-2.622	11	2.159	21	-2.046	14
B C	2 11	4342	-0.4	1.424	2.422	3	1.659	11	-1.520	7	-1.509	5
B D	2 23	3803	7.5	1.458	-2.763	11	2.619	3	2.314	4	-1.923	14
C D	14 23	4192	4.2	1.232	2.123	14	1.801	21	-1.489	18	1.371	20

Avg = 3963 for 74 Pts

Spread B		V	Avg TdSP	Std Err Overall	4 Highest		Std Err at		geophones		Err	Geo
SPs	Geos				Err	Geo	Err	Geo	Err	Geo		
A C	1 12	4640	-0.8	1.518	-3.427	11	2.428	10	-1.928	2	1.880	8
A D	1 15	3763	-0.2	2.654	4.729	3	-4.616	9	3.627	2	3.223	14
A E	1 15	3416	-53.3	2.692	-4.462	9	3.484	15	-3.353	8	3.219	3
B C	2 12	6622	8.1	3.162	-6.477	11	-5.165	2	3.361	4	3.166	6
B D	2 23	3655	12.3	3.741	-8.739	11	-6.405	9	5.490	4	4.818	5
B E	2 24	2928	-36.1	4.020	-8.082	11	6.575	2	6.373	3	6.299	4
C D	15 23	3417	6.5	0.972	1.608	16	-1.468	21	1.226	22	-0.971	17
C E	15 24	2431	-34.2	1.531	-2.960	21	2.016	23	2.007	15	1.810	24

Avg = 3773 for 113 Pts

Spread C		V	Avg TdSP	Std Err Overall	4 Highest		Std Err at		geophones		Err	Geo
SPs	Geos				Err	Geo	Err	Geo	Err	Geo		
A C	1 8	1119	-53.5	3.559	-4.668	4	-4.524	5	4.326	1	4.083	8
A D	7 15	2107	-8.8	1.374	-2.525	13	-2.098	7	1.496	10	1.152	12
B C	2 8	997	-15.4	2.421	4.280	2	-3.285	4	-2.211	5	1.600	8
B D	7 21	2181	2.3	1.948	4.222	21	-3.241	13	2.539	12	-2.360	14
B E	18 21	2248	6.5	0.256	-0.324	19	0.274	18	0.224	21	-0.174	20
C D	15 21	1857	14.3	1.637	-2.451	19	2.051	16	1.958	21	-1.390	20
C E	18 21	2440	16.8	0.934	-1.497	19	0.998	18	0.497	21	0.002	20

Avg = 1840 for 54 Pts

Spread D		V	Avg TdSP	Std Err Overall	4 Highest		Std Err at		geophones		Err	Geo
SPs	Geos				Err	Geo	Err	Geo	Err	Geo		
A C	1 10	2103	17.8	5.919	11.334	5	-8.963	1	-7.149	10	5.640	7
A D	1 23	3128	0.7	6.799	-10.767	12	10.326	22	10.249	23	-9.886	18
B C	2 10	1855	18.5	7.413	-14.382	2	11.275	5	6.704	4	-5.927	10
B D	2 16	3072	-7.4	5.442	-14.523	2	8.266	6	7.970	7	6.561	5
C D	13 23	1656	-13.2	3.421	-7.264	18	-4.610	19	3.707	13	3.660	21

Avg = 2558 for 68 Pts

Avg of all Hobson-Overton velocities: 3213 for 309 points in Layer 2.

Wtd Avg Velocity computed for Layer 2 = 3012

Layer 3 Velocity computed by regression of raw uncorrected arrivals

Spread C

V	Ti	Geos	<-SP->	Geos	Ti	V	Avg V	Avg Ti	Pts
			A	16 24	46.2	3413	3413	46.2	9
			B	22 24	54.1	4341	4341	54.1	3
			C	22 24	55.5	6509	6509	55.5	3
10763	59.6	1 6	D				10763	59.6	6
7765	54.6	1 17	E				7765	54.6	17
							Avg =	5814	for 38 Pts

Avg of all regression velocities: 5814 for 38 points in Layer 3.

Layer 3 Velocity computed by Hobson-Overton method

SPs	Geos	V	Avg TdSP	Std Err Overall	4 Highest Err Geo	Std Err at geophones Err Geo
A E	16 17	1949	-0.3	0.000	-0.000 16	0.000 17
Avg = 1949 for 2 Pts						

Avg of all Hobson-Overton velocities: 1949 for 2 points in Layer 3.

Wtd Avg Velocity computed for Layer 3 = 5446

DEPTH MODEL TABLES for 96-3-W.SIP

Spread A Depth and Elev of layers directly beneath SPs and Geos

SP	Surface		Layer 2		Layer 3	
	X-Loc	Elev	Depth	Elev	Depth	Elev
B	383.6	118.4	0.5	117.9	0.6	117.8
C	439.6	110.5	1.3	109.2	3.8	106.7
D	494.9	100.0	0.1	99.9	7.6	92.4

Geo	Surface		Layer 2		Layer 3	
	X-Loc	Elev	Depth	Elev	Depth	Elev
1	383.6	118.4	0.5	117.9	0.6	117.8
2	388.5	117.7	0.4	117.3	0.4	117.3
3	393.4	116.9	0.3	116.6	0.3	116.6
4	398.4	116.2	0.3	115.9	0.3	115.9
5	403.8	115.5	0.1	115.4	0.1	115.4
6	408.2	114.8	0.1	114.7	0.1	114.7
7	413.1	114.1	0.1	114.0	0.5	113.6
8	418.0	113.4	0.8	112.6	1.1	112.3
9	422.9	112.7	0.6	112.1	1.7	111.0
10	427.8	111.9	0.8	111.1	2.1	109.8
11	432.7	111.2	0.7	110.5	2.7	108.5
12	437.6	110.5	0.9	109.6	3.3	107.2
13	442.2	109.9	1.3	108.6	3.8	106.1
14	446.7	109.3	0.4	108.9	4.4	104.9
15	451.5	108.4	0.1	108.3	4.7	103.7
16	456.3	107.5	0.1	107.4	5.1	102.4
17	461.1	106.5	0.0	106.5	5.3	101.2
18	466.0	105.6	0.0	105.6	5.7	99.9
19	470.8	104.7	0.0	104.7	6.0	98.7
20	475.6	103.7	0.0	103.7	6.3	97.4
21	480.4	102.8	0.0	102.8	6.6	96.2
22	485.3	101.9	0.2	101.7	7.0	94.9
23	490.1	101.0	0.3	100.7	7.3	93.7
24	494.9	100.0	0.1	99.9	7.6	92.4

Spread B Depth and Elev of layers directly beneath SPs and Geos

SP	Surface		Layer 2		Layer 3	
	X-Loc	Elev	Depth	Elev	Depth	Elev
B	499.3	99.3	0.5	98.8	8.0	91.3
C	557.1	89.2	2.7	86.5	12.8	76.4
D	609.5	80.2	5.1	75.1	17.4	62.8

Geo	Surface		Layer 2		Layer 3	
	X-Loc	Elev	Depth	Elev	Depth	Elev
1	499.3	99.3	0.5	98.8	8.0	91.3
2	504.1	98.4	4.2	94.2	8.3	90.1
3	509.0	97.5	4.7	92.8	8.7	88.8
4	513.8	96.7	4.4	92.3	9.2	87.5
5	518.6	95.8	3.6	92.2	9.5	86.3
6	523.4	95.0	3.8	91.2	9.9	85.1
7	528.2	94.1	4.2	89.9	10.3	83.8
8	533.1	93.3	4.1	89.2	10.7	82.6
9	537.9	92.4	4.1	88.3	11.1	81.3
10	542.7	91.6	3.8	87.8	11.5	80.1
11	547.5	90.7	3.8	86.9	11.9	78.8
12	552.3	89.9	3.3	86.6	12.3	77.6
13	557.1	89.2	2.7	86.5	12.8	76.4
14	561.9	88.6	3.3	85.3	13.5	75.1
15	566.7	88.0	3.8	84.2	14.1	73.9
16	571.4	87.4	4.3	83.1	14.7	72.7
17	576.2	86.8	4.9	81.9	15.4	71.4
18	581.0	86.1	4.9	81.2	15.9	70.2
19	585.8	85.5	4.4	81.1	16.6	68.9
20	590.5	84.9	4.8	80.1	17.2	67.7
21	595.3	84.3	5.6	78.7	17.8	66.5
22	600.1	83.7	6.7	77.0	18.5	65.2
23	604.8	81.9	6.4	75.5	17.9	64.0
24	609.4	80.2	5.1	75.1	17.4	62.8

Spread C Depth and Elev of layers directly beneath SPs and Geos

SP	Surface		Layer 2		Layer 3	
	X-Loc	Elev	Depth	Elev	Depth	Elev
B	615.5	77.7	4.6	73.1	16.4	61.3
C	665.0	71.7	17.6	54.1	25.7	46.0
D	725.8	72.6	3.4	69.2	23.0	49.6

Geo	Surface		Layer 2		Layer 3	
	X-Loc	Elev	Depth	Elev	Depth	Elev
1	615.5	77.7	4.6	73.1	16.4	61.3
2	620.1	76.4	5.9	70.5	16.3	60.1
3	624.7	75.2	8.6	66.6	16.3	58.9
4	629.3	74.0	12.5	61.5	16.3	57.7
5	633.9	72.8	15.1	57.7	18.5	54.3
6	638.4	71.6	15.9	55.7	20.1	51.5
7	643.4	71.6	16.7	54.9	21.6	50.0
8	648.3	71.7	16.9	54.8	21.0	50.7
9	653.2	71.7	17.0	54.7	22.0	49.7
10	658.2	71.7	17.7	54.0	23.6	48.1
11	662.9	71.7	17.9	53.8	25.2	46.5
12	667.6	71.8	17.4	54.4	26.5	45.3
13	672.3	71.8	16.7	55.1	26.5	45.3
14	677.1	71.9	16.4	55.5	29.4	42.5
15	681.9	71.9	16.1	55.8	28.3	43.6
16	686.8	72.0	15.8	56.2	24.0	48.0
17	691.7	72.1	15.5	56.6	26.7	45.4
18	696.5	72.1	15.0	57.1	32.2	39.9
19	701.4	72.2	14.3	57.9	37.1	35.1
20	706.3	72.3	12.6	59.7	35.0	37.3
21	711.2	72.4	11.1	61.3	31.0	41.4
22	716.0	72.4	9.5	62.9	22.3	50.1
23	720.9	72.5	6.9	65.6	22.7	49.8
24	725.8	72.6	3.4	69.2	23.0	49.6

Spread D Depth and Elev of layers directly beneath SPs and Geos

SP	Surface		Layer 2		Layer 3	
	X-Loc	Elev	Depth	Elev	Depth	Elev
B	740.0	72.6	8.3	64.3	23.7	48.9
C	790.1	83.4	8.0	75.4	37.1	46.3
D	855.0	99.8	2.4	97.4	56.7	43.1

Geo	Surface		Layer 2		Layer 3	
	X-Loc	Elev	Depth	Elev	Depth	Elev
1	740.0	72.3	8.0	64.3	23.4	48.9
2	745.0	72.1	9.5	62.6	23.5	48.6
3	750.1	72.0	9.4	62.6	23.7	48.3
4	755.1	71.8	9.2	62.6	23.7	48.1
5	759.8	71.1	7.4	63.7	23.2	47.9
6	764.4	72.9	7.6	65.3	25.3	47.6
7	768.9	74.8	7.4	67.4	27.4	47.4
8	773.5	76.7	6.8	69.9	29.5	47.2
9	778.1	78.6	6.5	72.1	31.7	46.9
10	782.6	80.5	6.8	73.7	33.8	46.7
11	787.6	82.4	7.7	74.7	35.9	46.5
12	792.6	84.3	8.1	76.2	38.1	46.2
13	797.5	86.2	8.3	77.9	40.2	46.0
14	802.5	88.1	8.0	80.1	42.4	45.7
15	807.4	88.9	6.4	82.5	43.4	45.5
16	812.3	89.6	6.0	83.6	44.4	45.2
17	817.3	90.4	5.6	84.8	45.4	45.0
18	822.2	91.2	4.5	86.7	46.5	44.7
19	826.6	92.8	4.0	88.8	48.3	44.5
20	831.0	94.4	3.5	90.9	50.1	44.3
21	835.0	96.0	3.2	92.8	51.9	44.1
22	839.8	97.6	2.8	94.8	53.8	43.8
23	844.9	98.7	2.7	96.0	55.1	43.6
24	850.0	99.8	3.1	96.7	56.5	43.3

Velocities used to formulate the Depth Model

Spread A	Layer 1	Layer 2	Layer 3
Vertical	565	3012	
Horizontal		3012	5446

Spread B	Layer 1	Layer 2	Layer 3
Vertical	565	3012	
Horizontal		3012	5446

Spread C	Layer 1	Layer 2	Layer 3
Vertical	565	3012	
Horizontal		3012	5446

Spread D	Layer 1	Layer 2	Layer 3
Vertical	565	3012	
Horizontal		3012	5446

DEPTH MODEL TABLES for 96-3-E.SIP

Spread A Depth and Elev of layers directly beneath SPs and Geos

SP	Surface		Layer 2	
	X-Loc	Elev	Depth	Elev
A	21.6	150.6	3.6	147.0
B	74.1	147.8	3.2	144.6
C	135.6	145.9	2.6	143.3

Geo	Surface		Layer 2	
	X-Loc	Elev	Depth	Elev
1	21.6	150.6	3.6	147.0
2	26.8	150.3	4.9	145.4
3	31.9	150.1	5.8	144.3
4	37.1	149.9	6.1	143.8
5	41.9	149.6	5.9	143.7
6	46.7	149.3	5.6	143.7
7	51.4	149.0	5.3	143.7
8	56.2	148.7	4.8	143.9
9	61.4	148.5	4.2	144.3
10	66.5	148.2	3.8	144.4
11	71.6	148.0	3.4	144.6
12	76.7	147.8	3.2	144.6
13	81.7	147.6	3.7	143.9
14	86.7	147.3	4.2	143.1
15	91.8	147.1	4.1	143.0
16	96.8	146.9	4.0	142.9
17	101.6	146.8	4.5	142.3
18	106.5	146.6	5.0	141.6
19	111.3	146.5	5.2	141.3
20	116.2	146.4	4.7	141.7
21	121.0	146.3	3.7	142.6
22	125.9	146.2	3.7	142.5
23	130.7	146.0	3.6	142.4
24	135.6	145.9	2.6	143.3

Spread B Depth and Elev of layers directly beneath SPs and Geos

SP	Surface		Layer 2	
	X-Loc	Elev	Depth	Elev
B	140.0	145.9	1.5	144.4
C	196.3	143.7	1.8	141.9
D	252.8	142.0	1.1	140.9

Geo	Surface		Layer 2	
	X-Loc	Elev	Depth	Elev
1	140.0	145.9	1.5	144.4
2	145.0	145.7	0.0	145.7
3	149.9	145.5	0.0	145.5
4	154.9	145.2	0.8	144.4
5	159.8	145.0	1.6	143.4
6	164.7	144.8	1.5	143.3
7	169.7	144.6	1.4	143.2
8	174.6	144.4	0.5	143.9
9	179.4	144.2	0.7	143.5
10	184.2	144.0	1.1	142.9
11	189.0	143.9	1.3	142.6
12	193.8	143.7	1.8	141.9
13	198.9	143.6	1.7	141.9
14	203.9	143.5	2.5	141.0
15	209.0	143.3	1.8	141.5
16	214.1	143.2	1.4	141.8
17	219.1	143.0	1.3	141.7
18	224.1	142.8	0.7	142.1
19	229.1	142.6	0.7	141.9
20	234.1	142.5	0.2	142.3
21	238.6	142.2	0.0	142.2
22	243.2	142.3	0.3	142.0
23	248.0	142.1	0.5	141.6
24	252.8	142.0	1.1	140.9

Spread C Depth and Elev of layers directly beneath SPs and Geos

SP	Surface		Layer 2	
	X-Loc	Elev	Depth	Elev
B	267.8	141.2	4.1	137.1
C	327.5	128.0	10.2	117.8
D	378.7	118.3	2.7	115.6

Geo	Surface		Layer 2	
	X-Loc	Elev	Depth	Elev
1	267.8	141.2	4.1	137.1
2	272.8	141.0	6.4	134.6
3	277.8	140.7	7.8	132.9
4	282.8	140.5	8.9	131.6
5	287.8	140.3	9.2	131.1
6	292.8	140.0	9.6	130.4
7	297.8	139.8	11.3	128.5
8	302.8	139.6	13.7	125.9
9	307.8	137.4	14.4	123.0
10	311.6	135.3	12.8	122.5
11	316.0	133.2	11.1	122.1
12	320.4	131.1	10.1	121.0
13	324.8	129.0	10.3	118.7
14	329.5	127.4	10.2	117.2
15	334.2	125.9	10.4	115.5
16	338.9	124.4	9.9	114.5
17	343.9	123.9	9.9	114.0
18	348.8	123.4	9.6	113.8
19	353.8	123.0	9.3	113.7
20	358.7	122.5	8.8	113.7
21	363.7	121.4	7.2	114.2
22	368.7	120.4	5.5	114.9
23	373.7	119.3	3.7	115.6
24	378.7	118.3	2.7	115.6

Velocities used to formulate the Depth Model

Spread A	Layer 1	Layer 2
Vertical	1365	
Horizontal		4358

Spread B	Layer 1	Layer 2
Vertical	1365	
Horizontal		4358

Spread C	Layer 1	Layer 2
Vertical	1365	
Horizontal		4358

DEPTH MODEL TABLES for 96-3-E.SIP

Spread A Depth and Elev of layers directly beneath SPs and Geos

SP	Surface		Layer 2	
	X-Loc	Elev	Depth	Elev
A	21.6	150.6	3.6	147.0
B	74.1	147.8	3.2	144.6
C	135.6	145.9	2.6	143.3

Geo	Surface		Layer 2	
	X-Loc	Elev	Depth	Elev
1	21.6	150.6	3.6	147.0
2	26.8	150.3	4.9	145.4
3	31.9	150.1	5.8	144.3
4	37.1	149.9	6.1	143.8
5	41.9	149.6	5.9	143.7
6	46.7	149.3	5.6	143.7
7	51.4	149.0	5.3	143.7
8	56.2	148.7	4.8	143.9
9	61.4	148.5	4.2	144.3
10	66.5	148.2	3.8	144.4
11	71.6	148.0	3.4	144.6
12	76.7	147.8	3.2	144.6
13	81.7	147.6	3.7	143.9
14	86.7	147.3	4.2	143.1
15	91.8	147.1	4.1	143.0
16	96.8	146.9	4.0	142.9
17	101.6	146.8	4.5	142.3
18	106.5	146.6	5.0	141.6
19	111.3	146.5	5.2	141.3
20	116.2	146.4	4.7	141.7
21	121.0	146.3	3.7	142.6
22	125.9	146.2	3.7	142.5
23	130.7	146.0	3.6	142.4
24	135.6	145.9	2.6	143.3

Spread B Depth and Elev of layers directly beneath SPs and Geos

SP	Surface		Layer 2	
	X-Loc	Elev	Depth	Elev
B	140.0	145.9	1.5	144.4
C	196.3	143.7	1.8	141.9
D	252.8	142.0	1.1	140.9

Geo	Surface		Layer 2	
	X-Loc	Elev	Depth	Elev
1	140.0	145.9	1.5	144.4
2	145.0	145.7	0.0	145.7
3	149.9	145.5	0.0	145.5
4	154.9	145.2	0.8	144.4
5	159.8	145.0	1.6	143.4
6	164.7	144.8	1.5	143.3
7	169.7	144.6	1.4	143.2
8	174.6	144.4	0.5	143.9
9	179.4	144.2	0.7	143.5
10	184.2	144.0	1.1	142.9
11	189.0	143.9	1.3	142.6
12	193.8	143.7	1.8	141.9
13	198.9	143.6	1.7	141.9
14	203.9	143.5	2.5	141.0
15	209.0	143.3	1.8	141.5
16	214.1	143.2	1.4	141.8
17	219.1	143.0	1.3	141.7
18	224.1	142.8	0.7	142.1
19	229.1	142.6	0.7	141.9
20	234.1	142.5	0.2	142.3
21	238.6	142.2	0.0	142.2
22	243.2	142.3	0.3	142.0
23	248.0	142.1	0.5	141.6
24	252.8	142.0	1.1	140.9

Spread C Depth and Elev of layers directly beneath SPs and Geos

SP	Surface		Layer 2	
	X-Loc	Elev	Depth	Elev
B	267.8	141.2	4.1	137.1
C	327.5	128.0	10.2	117.8
D	378.7	118.3	2.7	115.6

Geo	Surface		Layer 2	
	X-Loc	Elev	Depth	Elev
1	267.8	141.2	4.1	137.1
2	272.8	141.0	6.4	134.6
3	277.8	140.7	7.8	132.9
4	282.8	140.5	8.9	131.6
5	287.8	140.3	9.2	131.1
6	292.8	140.0	9.6	130.4
7	297.8	139.8	11.3	128.5
8	302.8	139.6	13.7	125.9
9	307.8	137.4	14.4	123.0
10	311.6	135.3	12.8	122.5
11	316.0	133.2	11.1	122.1
12	320.4	131.1	10.1	121.0
13	324.8	129.0	10.3	118.7
14	329.5	127.4	10.2	117.2
15	334.2	125.9	10.4	115.5
16	338.9	124.4	9.9	114.5
17	343.9	123.9	9.9	114.0
18	348.8	123.4	9.6	113.8
19	353.8	123.0	9.3	113.7
20	358.7	122.5	8.8	113.7
21	363.7	121.4	7.2	114.2
22	368.7	120.4	5.5	114.9
23	373.7	119.3	3.7	115.6
24	378.7	118.3	2.7	115.6

Velocities used to formulate the Depth Model

Spread A	Layer 1	Layer 2
Vertical	1365	
Horizontal		4358

Spread B	Layer 1	Layer 2
Vertical	1365	
Horizontal		4358

Spread C	Layer 1	Layer 2
Vertical	1365	
Horizontal		4358

VELOCITY ANALYSIS TABLES for 96-3-E.SIP

Layer 1 Velocity from direct arrivals

Spread A	SP	Geo	DD	V	Avg V
	A	1	5.0	1333	
					1333
	B	11	5.6	2486	
	B	12	5.6	2049	
					2268
	C	24	5.0	1429	
					1429

Spread B	SP	Geo	DD	V	Avg V
	B	1	5.0	1818	
					1818
	C	11	8.9	1311	
	C	12	5.6	1491	
	C	13	5.6	1127	
	C	14	9.1	1103	
					1258
	D	24	5.0	1538	
					1538

Spread C	SP	Geo	DD	V	Avg V
	B	1	5.0	476	
					476
	C	13	5.8	378	
	C	14	5.4	350	
					364
	D	24	5.0	2222	
					2222

Wtd Avg Velocity computed for Layer 1 = 1365

Layer 2 Velocity computed by regression of raw uncorrected arrivals

Spread A	V	Ti	Geos	<-SP->	Geos	Ti	V	Avg V	Avg Ti	Pts
				A	2 24	2.6	3754	3754	2.6	23
	3123	-0.6	1 10	B	13 24	3.0	3967	3533	1.2	22
	4005	2.9	1 23	C				4005	2.9	23
	4196	2.1	4 24	D				4196	2.1	21
								-----	-----	-----
								Avg = 3853	for	89 Pts

Spread B

V	Ti	Geos	<-SP->	Geos	Ti	V	Avg V	Avg Ti	Pts
			A	1 24	5.3	4857	4857	5.3	24
			B	2 24	3.1	4640	4640	3.1	23
6423	5.2	1 10	C	15 24	6.5	6483	6455	5.9	19
4415	3.8	1 23	D				4415	3.8	22
4081	11.7	10 24	E				4081	11.7	15
							Avg = 4790	for	103 Pts

Spread C

V	Ti	Geos	<-SP->	Geos	Ti	V	Avg V	Avg Ti	Pts
			A	1 24	8.4	4762	4762	8.4	24
			B	2 24	12.3	4478	4478	12.3	23
8923	20.4	1 12	C	15 24	17.4	9144	9022	18.9	22
3493	3.2	1 23	D				3493	3.2	23
3535	0.1	1 24	E				3535	0.1	24
							Avg = 4463	for	116 Pts

Avg of all regression velocities: 4363 for 308 points in Layer 2.

Layer 2 Velocity computed by Hobson-Overton method

Spread A		V	Avg TdSP	Std Err Overall	4 Highest		Std Err at		geophones		Err	Geo
SPs	Geos				Err	Geo	Err	Geo	Err	Geo		
A B	2 10	3209	1.5	0.453	-0.806	10	-0.701	2	0.446	9	0.412	6
A C	2 23	3887	0.7	0.997	2.494	15	-1.725	19	-1.462	20	-1.442	3
A D	4 24	3997	2.8	1.488	-3.673	4	2.766	9	1.874	13	-1.784	5
B C	13 23	4064	0.1	0.582	1.209	15	0.760	22	-0.621	20	0.542	16
B D	13 24	4266	1.0	0.809	1.738	21	-1.302	23	-1.085	14	1.010	18
Avg = 3923 for 75 Pts												

Spread B		V	Avg TdSP	Std Err Overall	4 Highest		Std Err at		geophones		Err	Geo
SPs	Geos				Err	Geo	Err	Geo	Err	Geo		
A C	1 10	5375	2.5	0.739	1.256	6	-0.934	2	-0.898	8	0.821	5
A D	1 23	4593	-0.3	0.681	1.514	22	-1.509	10	-1.338	18	1.153	11
A E	10 24	4586	-10.6	1.173	2.077	22	-1.766	23	-1.699	10	1.461	14
B C	2 10	5100	-0.5	0.568	0.848	6	-0.756	2	0.737	5	-0.725	8
B D	2 23	4484	-1.3	0.616	1.554	11	-1.064	10	-1.034	18	-0.745	19
B E	10 24	4596	-11.2	1.142	-1.705	10	-1.677	23	1.653	21	1.627	12
C D	15 23	4580	0.5	0.680	-1.093	18	1.026	22	0.807	17	0.756	19
C E	15 24	4802	-10.2	1.307	-2.299	23	1.945	22	1.538	19	1.420	17
Avg = 4691 for 109 Pts												

Spread C		V	Avg TdSP	Std Err Overall	4 Highest		Std Err at		geophones			
SPs	Geos				Err	Geo	Err	Geo	Err	Geo	Err	Geo
A C	1 12	4671	-8.5	1.473	-3.185	10	2.183	12	-1.694	9	1.386	4
A D	1 23	3993	-1.5	1.127	-3.139	10	-2.352	9	1.688	12	1.461	5
A E	1 24	4056	-0.2	0.923	1.992	2	1.808	21	-1.673	13	-1.421	4
B C	2 12	7002	-4.8	1.155	2.050	5	-1.680	2	-1.557	11	1.426	8
B D	2 23	3834	5.3	2.485	-5.484	11	-4.692	12	4.262	5	-3.283	10
B E	2 24	3879	7.2	2.281	-5.430	11	-5.349	12	-4.023	13	3.648	5
C D	15 23	4268	10.3	1.060	-1.910	23	1.319	21	-1.036	16	0.955	17
C E	15 24	4545	9.3	1.482	3.015	21	-1.895	15	-1.696	24	-1.460	23

Avg = 4326 for 134 Pts

Avg of all Hobson-Overton velocities: 4356 for 318 points in Layer 2.

Wtd Avg Velocity computed for Layer 2 = 4358

DEPTH MODEL TABLES for 96-3-E.SIP

Spread A Depth and Elev of layers directly beneath SPs and Geos

SP	Surface		Layer 2	
	X-Loc	Elev	Depth	Elev
A	21.6	150.6	3.6	147.0
B	74.1	147.8	3.2	144.6
C	135.6	145.9	2.6	143.3

Geo	Surface		Layer 2	
	X-Loc	Elev	Depth	Elev
1	21.6	150.6	3.6	147.0
2	26.8	150.3	4.9	145.4
3	31.9	150.1	5.8	144.3
4	37.1	149.9	6.1	143.8
5	41.9	149.6	5.9	143.7
6	46.7	149.3	5.6	143.7
7	51.4	149.0	5.3	143.7
8	56.2	148.7	4.8	143.9
9	61.4	148.5	4.2	144.3
10	66.5	148.2	3.8	144.4
11	71.6	148.0	3.4	144.6
12	76.7	147.8	3.2	144.6
13	81.7	147.6	3.7	143.9
14	86.7	147.3	4.2	143.1
15	91.8	147.1	4.1	143.0
16	96.8	146.9	4.0	142.9
17	101.6	146.8	4.5	142.3
18	106.5	146.6	5.0	141.6
19	111.3	146.5	5.2	141.3
20	116.2	146.4	4.7	141.7
21	121.0	146.3	3.7	142.6
22	125.9	146.2	3.7	142.5
23	130.7	146.0	3.6	142.4
24	135.6	145.9	2.6	143.3

Spread B Depth and Elev of layers directly beneath SPs and Geos

SP	Surface		Layer 2	
	X-Loc	Elev	Depth	Elev
B	140.0	145.9	1.5	144.4
C	196.3	143.7	1.8	141.9
D	252.8	142.0	1.1	140.9

Geo	Surface		Layer 2	
	X-Loc	Elev	Depth	Elev
1	140.0	145.9	1.5	144.4
2	145.0	145.7	0.0	145.7
3	149.9	145.5	0.0	145.5
4	154.9	145.2	0.8	144.4
5	159.8	145.0	1.6	143.4
6	164.7	144.8	1.5	143.3
7	169.7	144.6	1.4	143.2
8	174.6	144.4	0.5	143.9
9	179.4	144.2	0.7	143.5
10	184.2	144.0	1.1	142.9
11	189.0	143.9	1.3	142.6
12	193.8	143.7	1.8	141.9
13	198.9	143.6	1.7	141.9
14	203.9	143.5	2.5	141.0
15	209.0	143.3	1.8	141.5
16	214.1	143.2	1.4	141.8
17	219.1	143.0	1.3	141.7
18	224.1	142.8	0.7	142.1
19	229.1	142.6	0.7	141.9
20	234.1	142.5	0.2	142.3
21	238.6	142.2	0.0	142.2
22	243.2	142.3	0.3	142.0
23	248.0	142.1	0.5	141.6
24	252.8	142.0	1.1	140.9

Spread C Depth and Elev of layers directly beneath SPs and Geos

SP	Surface		Layer 2	
	X-Loc	Elev	Depth	Elev
B	267.8	141.2	4.1	137.1
C	327.5	128.0	10.2	117.8
D	378.7	118.3	2.7	115.6

Geo	Surface		Layer 2	
	X-Loc	Elev	Depth	Elev
1	267.8	141.2	4.1	137.1
2	272.8	141.0	6.4	134.6
3	277.8	140.7	7.8	132.9
4	282.8	140.5	8.9	131.6
5	287.8	140.3	9.2	131.1
6	292.8	140.0	9.6	130.4
7	297.8	139.8	11.3	128.5
8	302.8	139.6	13.7	125.9
9	307.8	137.4	14.4	123.0
10	311.6	135.3	12.8	122.5
11	316.0	133.2	11.1	122.1
12	320.4	131.1	10.1	121.0
13	324.8	129.0	10.3	118.7
14	329.5	127.4	10.2	117.2
15	334.2	125.9	10.4	115.5
16	338.9	124.4	9.9	114.5
17	343.9	123.9	9.9	114.0
18	348.8	123.4	9.6	113.8
19	353.8	123.0	9.3	113.7
20	358.7	122.5	8.8	113.7
21	363.7	121.4	7.2	114.2
22	368.7	120.4	5.5	114.9
23	373.7	119.3	3.7	115.6
24	378.7	118.3	2.7	115.6

Velocities used to formulate the Depth Model

Spread A	Layer 1	Layer 2
Vertical	1365	
Horizontal		4358

Spread B	Layer 1	Layer 2
Vertical	1365	
Horizontal		4358

Spread C	Layer 1	Layer 2
Vertical	1365	
Horizontal		4358

VELOCITY ANALYSIS TABLES for 96-4.SIP

Layer 1 Velocity from direct arrivals

Spread A	SP	Geo	DD	V	Avg V
	B	1	5.0	1333	1333
	D	12	5.6	1863	
	D	13	5.6	1177	1520
	C	24	5.0	1429	1429

Spread B	SP	Geo	DD	V	Avg V
	B	1	5.0	1429	1429
	C	12	5.0	2222	
	C	13	6.9	3120	
	C	14	10.7	1867	2403
	D	23	5.3	883	883

Wtd Avg Velocity computed for Layer 1 = 1703

Layer 2 Velocity computed by regression of raw uncorrected arrivals

Spread A									
V	Ti	Geos	<-SP->	Geos	Ti	V	Avg V	Avg Ti	Pts
-----	----	-----	----	-----	----	-----	-----	-----	----
			A	1 24	1.6	4547	4547	1.6	24
			B	2 24	2.3	4529	4529	2.3	23
4926	2.2	1 11	D	14 24	4.9	4425	4662	3.6	22
4401	2.8	1 23	C				4401	2.8	23
4868	4.6	1 24	E				4868	4.6	24
							-----		----
						Avg =	4597	for	116 Pts

Spread B									
V	Ti	Geos	<-SP->	Geos	Ti	V	Avg V	Avg Ti	Pts
-----	-----	-----	----	-----	-----	-----	-----	-----	----
			A	1 24	3.9	4750	4750	3.9	24
			B	2 24	2.7	4451	4451	2.7	23
4043	1.2	1 11	C	15 24	4.3	4473	4237	2.7	21
4559	3.3	1 22	D				4559	3.3	22
							-----		----
						Avg =	4500	for	90 Pts

Avg of all regression velocities: 4554 for 206 points in Layer 2.

Layer 2 Velocity computed by Hobson-Overton method

Spread A		V	Avg TdSP	Std Err Overall	4 Highest		Std Err at		geophones		Err	Geo
SPs	Geos				Err	Geo	Err	Geo	Err	Geo		
A D	1 11	4792	0.5	0.596	1.036	11	-0.989	8	0.809	5	-0.673	7
A C	1 23	4488	-1.8	0.900	-1.459	19	1.431	1	-1.408	18	1.363	2
A E	1 24	4702	-1.3	1.040	-1.770	7	-1.618	18	1.580	2	-1.553	4
B D	2 11	4636	0.7	0.736	1.521	6	-1.321	8	-0.834	2	0.525	11
B C	2 23	4436	-1.0	0.491	-1.196	8	1.048	22	0.819	3	0.808	21
B E	2 24	4671	-0.9	0.556	-1.396	8	1.059	5	-1.017	7	-0.713	23
D C	14 23	4254	2.1	0.369	-0.561	19	0.553	17	-0.443	14	0.384	22
D E	14 24	4699	1.4	0.363	-0.820	21	0.503	19	-0.429	14	0.311	15

Avg = 4585 for 134 Pts

Spread B		V	Avg TdSP	Std Err Overall	4 Highest		Std Err at		geophones		Err	Geo
SPs	Geos				Err	Geo	Err	Geo	Err	Geo		
A C	1 11	4749	1.7	0.423	0.699	7	0.594	9	0.569	1	-0.480	4
A D	1 22	4709	-0.1	0.627	-1.535	14	1.185	1	0.830	10	-0.748	13
B C	2 11	4037	1.0	0.444	0.937	7	-0.555	11	-0.500	10	0.381	9
B D	2 22	4508	-0.2	0.874	-1.961	22	-1.883	2	1.766	10	1.213	6
C D	15 22	4689	1.2	0.261	-0.486	16	0.392	20	0.268	15	0.179	19

Avg = 4561 for 72 Pts

Avg of all Hobson-Overton velocities: 4577 for 206 points in Layer 2.

Wtd Avg Velocity computed for Layer 2 = 4569

DEPTH MODEL TABLES for 96-4.SIP

Spread A Depth and Elev of layers directly beneath SPs and Geos

SP	Surface		Layer 2	
	X-Loc	Elev	Depth	Elev
B	65.0	151.8	1.4	150.4
D	122.9	150.3	2.3	148.0
C	181.4	149.5	3.5	146.0

Geo	Surface		Layer 2	
	X-Loc	Elev	Depth	Elev
1	65.0	151.8	1.4	150.4
2	70.2	151.6	1.6	150.0
3	75.3	151.4	2.2	149.2
4	80.5	151.2	2.3	148.9
5	85.5	151.0	2.2	148.8
6	90.6	150.9	2.6	148.3
7	95.7	150.8	3.0	147.8
8	100.7	150.7	2.8	147.9
9	105.6	150.6	2.6	148.0
10	110.6	150.5	2.6	147.9
11	115.5	150.4	2.8	147.6
12	120.4	150.3	2.1	148.2
13	125.4	150.4	2.6	147.8
14	130.4	150.5	3.1	147.4
15	135.4	150.6	2.8	147.8
16	140.3	150.6	3.0	147.6
17	145.3	150.5	2.7	147.8
18	150.6	150.4	2.7	147.7
19	155.8	150.2	2.5	147.7
20	160.9	150.1	2.9	147.2
21	166.0	149.9	3.4	146.5
22	171.2	149.8	3.5	146.3
23	176.3	149.7	3.1	146.6
24	181.4	149.5	3.5	146.0

Spread B Depth and Elev of layers directly beneath SPs and Geos

SP	Surface		Layer 2	
	X-Loc	Elev	Depth	Elev
A	125.0	150.0	2.2	147.8
B	185.7	149.6	4.3	145.3
C	240.3	146.7	2.5	144.2

Geo	Surface		Layer 2	
	X-Loc	Elev	Depth	Elev
1	185.7	149.6	4.3	145.3
2	190.7	149.2	3.5	145.7
3	195.7	148.9	2.7	146.2
4	200.7	148.6	2.8	145.8
5	205.6	148.3	2.6	145.7
6	210.4	148.1	2.2	145.9
7	215.2	147.8	2.5	145.3
8	220.0	147.6	2.9	144.7
9	225.1	147.4	2.5	144.9
10	230.1	147.2	2.0	145.2
11	235.2	146.9	2.6	144.3
12	240.3	146.7	2.5	144.2
13	245.0	146.6	1.5	145.1
14	249.8	146.6	1.0	145.6
15	254.6	146.5	1.7	144.8
16	259.4	146.4	2.2	144.2
17	264.2	146.3	2.3	144.0
18	269.0	146.3	2.5	143.8
19	273.8	146.2	2.2	144.0
20	278.6	146.2	2.0	144.2
21	284.0	146.2	2.2	144.0
22	289.3	146.2	2.3	143.9
23	294.7	146.2	2.7	143.5
24	300.0	146.3	2.8	143.5

Velocities used to formulate the Depth Model

Spread A	Layer 1		Layer 2	
Vertical	1703			
Horizontal			4569	

Spread B	Layer 1		Layer 2	
Vertical	1703			
Horizontal			4569	

.....

Spread A	SP	Geo	DD	V	Avg V
	B	2	5.0	244	244
	C	10	7.5	500	
	C	11	2.5	200	
	C	12	2.5	172	
					291
	D	22	10.0	571	
	D	23	5.0	328	
					450

Layer 2 Velocity computed by regression of raw uncorrected arrivals

Layer 2 Velocity computed by Hobson-Overton method

Avg = 2238 for 53 Pts

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Layer 3 Velocity computed by regression of raw uncorrected arrivals

Spread A	V	Ti	Geos	<-SP->	Geos	Ti	V	Avg V	Avg Ti	Pts
				A	17 23	14.8	3294	3294	14.8	7
6667	32.6	1 2	C		21 24	24.9	2941	3614	28.8	6
5367	39.4	1 9	D					5367	39.4	9
8725	47.6	1 13	E					8725	47.6	13
								Avg = 5035	for	35 Pts

Layer 3 Velocity computed by Hobson-Overton method

Not enough points.

Wtd Avg Velocity computed for Layer 3 = 5035

DEPTH MODEL TABLES for 96-5A.SIP

Spread A Depth and Elev of layers directly beneath SPs and Geos

SP	Surface		Layer 2		Layer 3	
	X-Loc	Elev	Depth	Elev	Depth	Elev
B	0.0	0.0	4.3	-4.3	17.5	-17.5
C	52.5	0.0	3.0	-3.0	23.8	-23.8
D	115.0	0.0	3.1	-3.1	27.2	-27.2

Geo	Surface		Layer 2		Layer 3	
	X-Loc	Elev	Depth	Elev	Depth	Elev
1	0.0	0.0	4.3	-4.3	17.5	-17.5
2	5.0	0.0	4.5	-4.5	17.5	-17.5
3	10.0	0.0	4.0	-4.0	17.5	-17.5
4	15.0	0.0	3.9	-3.9	18.5	-18.5
5	20.0	0.0	3.8	-3.8	19.1	-19.1
6	25.0	0.0	3.2	-3.2	19.9	-19.9
7	30.0	0.0	3.1	-3.1	20.9	-20.9
8	35.0	0.0	3.1	-3.1	21.2	-21.2
9	40.0	0.0	3.2	-3.2	21.6	-21.6
10	45.0	0.0	3.4	-3.4	22.3	-22.3
11	50.0	0.0	3.0	-3.0	23.2	-23.2
12	55.0	0.0	2.9	-2.9	24.3	-24.3
13	60.0	0.0	2.7	-2.7	26.1	-26.1
14	65.0	0.0	2.3	-2.3	27.3	-27.3
15	70.0	0.0	2.3	-2.3	28.5	-28.5
16	75.0	0.0	2.5	-2.5	28.8	-28.8
17	80.0	0.0	2.5	-2.5	27.6	-27.6
18	85.0	0.0	2.2	-2.2	27.0	-27.0
19	90.0	0.0	2.3	-2.3	27.6	-27.6
20	95.0	0.0	2.6	-2.6	27.8	-27.8
21	100.0	0.0	2.8	-2.8	27.2	-27.2
22	105.0	0.0	2.7	-2.7	27.2	-27.2
23	110.0	0.0	3.2	-3.2	27.2	-27.2
24	115.0	0.0	3.1	-3.1	27.2	-27.2

Velocities used to formulate the Depth Model

Spread A	Layer 1	Layer 2	Layer 3
Vertical	336	2329	
Horizontal		2329	5035

VELOCITY ANALYSIS TABLES for 96-6.SIP

Layer 1 Velocity from direct arrivals

Spread A	SP	Geo	DD	V	Avg V
	A	1	5.0	1333	
					1333
	B	11	5.6	621	
	B	12	5.6	604	
					613
	C	24	5.0	1333	
					1333

Wtd Avg Velocity computed for Layer 1 = 973

Layer 2 Velocity computed by regression of raw uncorrected arrivals

Spread A	V	Ti	Geos	<-SP->	Geos	Ti	V	Avg V	Avg Ti	Pts
				A	2 18	3.1	1732	1732	3.1	17
2044	4.4	1 10	B	13 20	10.7	2100	2069	7.6		18
1901	0.8	7 23	C				1901	0.8		17
1313	-25.8	13 24	D				1313	-25.8		12
								Avg = 1749	for	64 Pts

Layer 2 Velocity computed by Hobson-Overton method

Spread A				V	Avg TdSP	Std Err Overall	4 Highest Err Geo	Std Err at geophones						
SPs	Geos							Err	Geo	Err	Geo	Err	Geo	Err
A	B	2	10	1829	1.0	1.183	2.988	5	-1.180	4	-0.790	10	-0.724	2
A	C	7	18	1940	5.0	1.212	-2.244	14	1.993	16	-1.457	10	1.424	9
A	D	13	18	1337	14.9	1.365	2.093	13	-1.846	15	-1.625	14	0.710	17
B	C	13	20	1751	8.7	1.080	-1.646	20	1.630	16	-1.265	15	1.111	18
B	D	13	20	1411	26.0	2.255	-3.643	20	3.216	18	-2.752	15	2.503	17

Avg = 1699 for 43 Pts

Wtd Avg Velocity computed for Layer 2 = 1720

Layer 3 Velocity computed by regression of raw uncorrected arrivals

Spread A									
V	Ti	Geos	<-SP-->	Geos	Ti	V	Avg V	Avg Ti	Pts
-----	-----	-----	---	-----	-----	-----	-----	-----	---
			A	19 24	36.3	6242	6242	36.3	6
			B	21 24	24.7	7376	7376	24.7	4
5141	28.4	1 6	C				5141	28.4	6
560006	64.8	5 12	D				560006	64.8	8
							-----	-----	---
Avg =							8939	for	24 Pts

Layer 3 Velocity computed by Hobson-Overton method

Not enough points.

Wtd Avg Velocity computed for Layer 3 = 8939

DEPTH MODEL TABLES for 96-6.SIP

Spread A Depth and Elev of layers directly beneath SPs and Geos

SP	Surface		Layer 2		Layer 3	
	X-Loc	Elev	Depth	Elev	Depth	Elev
A	0.0	0.0	1.5	-1.5	37.3	-37.3
B	52.5	0.0	3.7	-3.7	26.5	-26.5
C	115.0	0.0	0.8	-0.8	30.7	-30.7

Geo	Surface		Layer 2		Layer 3	
	X-Loc	Elev	Depth	Elev	Depth	Elev
1	0.0	0.0	1.5	-1.5	37.3	-37.3
2	5.0	0.0	1.1	-1.1	37.3	-37.3
3	10.0	0.0	0.8	-0.8	37.3	-37.3
4	15.0	0.0	1.5	-1.5	35.0	-35.0
5	20.0	0.0	1.9	-1.9	33.8	-33.8
6	25.0	0.0	1.5	-1.5	32.7	-32.7
7	30.0	0.0	0.9	-0.9	31.6	-31.6
8	35.0	0.0	0.5	-0.5	30.3	-30.3
9	40.0	0.0	2.0	-2.0	29.5	-29.5
10	45.0	0.0	2.7	-2.7	27.6	-27.6
11	50.0	0.0	3.3	-3.3	26.2	-26.2
12	55.0	0.0	4.1	-4.1	26.8	-26.8
13	60.0	0.0	3.9	-3.9	30.1	-30.1
14	65.0	0.0	3.5	-3.5	31.2	-31.2
15	70.0	0.0	3.2	-3.2	31.0	-31.0
16	75.0	0.0	3.2	-3.2	30.8	-30.8
17	80.0	0.0	3.0	-3.0	30.6	-30.6
18	85.0	0.0	2.4	-2.4	30.4	-30.4
19	90.0	0.0	1.3	-1.3	30.2	-30.2
20	95.0	0.0	0.0	-0.0	28.7	-28.7
21	100.0	0.0	0.3	-0.3	26.8	-26.8
22	105.0	0.0	0.6	-0.6	26.8	-26.8
23	110.0	0.0	0.8	-0.8	26.7	-26.7
24	115.0	0.0	0.8	-0.8	30.7	-30.7

Velocities used to formulate the Depth Model

Spread A	Layer 1	Layer 2	Layer 3
Vertical	973	1720	
Horizontal		1720	8939

VELOCITY ANALYSIS TABLES for 96-7.SIP

Layer 1 Velocity from direct arrivals

Spread A	SP	Geo	DD	V	Avg V
	A	1	5.0	2000	2000
	B	11	5.6	438	
	B	12	6.0	521	480
	C	23	6.9	1066	
	C	24	5.0	2000	1533

Wtd Avg Velocity computed for Layer 1 = 1205

Layer 2 Velocity computed by regression of raw uncorrected arrivals

Spread A	V	Ti	Geos	<-SP->	Geos	Ti	V	Avg V	Avg Ti	Pts
				A	2 16	-0.1	1531	1531	-0.1	15
	1664	11.2	5 10	B	13 17	4.6	1405	1535	7.9	11
	2227	9.0	9 22	C				2227	9.0	14
Avg =								1721	for	40 Pts

Layer 2 Velocity computed by Hobson-Overton method

Spread A				Avg	Std Err	4 Highest		Std Err at		geophones				
SPs	Geos			V	TdSP	Overall	Err	Geo	Err	Geo	Err	Geo	Err	Geo
---	-----			-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
A B	5	10	1238	-11.8	0.530	-0.994	8	0.739	10	0.245	7	0.239	5	
A C	9	16	2310	2.6	1.440	-2.637	9	2.044	12	-1.293	14	1.210	11	
B C	13	17	1903	2.7	0.492	0.815	16	-0.453	14	-0.377	15	0.323	13	

Avg =				1865	for 19 Pts									

Wtd Avg Velocity computed for Layer 2 = 1791

Layer 3 Velocity computed by regression of raw uncorrected arrivals

Spread A	V	Ti	Geos	<-SP->	Geos	Ti	V	Avg V	Avg Ti	Pts
				A	17 24	29.2	4918	4918	29.2	8
	3289	22.0	1 4	B	18 24	17.6	3706	3543	19.8	11
	5345	31.4	1 8	C				5345	31.4	8
Avg =								4335	for	27 Pts

Layer 3 Velocity computed by Hobson-Overton method

Not enough points.

Wtd Avg Velocity computed for Layer 3 = 4335

DEPTH MODEL TABLES for 96-7.SIP

Spread A Depth and Elev of layers directly beneath SPs and Geos

SP	Surface		Layer 2		Layer 3	
	X-Loc	Elev	Depth	Elev	Depth	Elev
A	105.9	108.6	7.0	101.6	21.6	87.0
B	61.7	99.5	9.0	90.5	22.2	77.3
C	0.0	109.3	7.8	101.5	20.4	88.9

Geo	Surface		Layer 2		Layer 3	
	X-Loc	Elev	Depth	Elev	Depth	Elev
1	105.9	108.6	7.0	101.6	21.6	87.0
2	101.4	106.6	5.7	100.9	19.5	87.1
3	96.9	104.6	4.1	100.5	17.5	87.1
4	92.5	102.7	2.6	100.1	19.9	82.8
5	87.8	101.8	2.1	99.7	21.7	80.1
6	83.2	101.0	2.2	98.8	23.5	77.5
7	78.5	100.2	3.7	96.5	22.0	78.2
8	73.9	99.3	6.0	93.3	20.4	78.9
9	70.6	99.4	7.5	91.9	20.9	78.5
10	67.4	99.5	8.2	91.3	21.5	78.0
11	64.2	99.5	8.8	90.7	21.9	77.6
12	58.4	99.5	9.3	90.2	22.6	76.9
13	52.6	99.4	8.1	91.3	18.9	80.5
14	46.8	99.4	6.9	92.5	17.8	81.6
15	41.7	99.4	6.0	93.4	18.7	80.7
16	36.5	99.5	5.2	94.3	19.2	80.3
17	31.8	100.1	4.9	95.2	17.7	82.4
18	27.1	100.7	4.5	96.2	16.5	84.2
19	22.3	101.3	4.2	97.1	15.4	85.9
20	17.6	102.0	4.0	98.0	14.6	87.4
21	13.2	103.8	4.9	98.9	14.8	89.0
22	8.8	105.6	5.8	99.8	15.1	90.5
23	4.4	107.4	6.8	100.6	15.9	91.5
24	0.0	109.3	7.8	101.5	20.4	88.9

Velocities used to formulate the Depth Model

Spread A	Layer 1	Layer 2	Layer 3
Vertical	1205	1791	
Horizontal		1791	4335

VELOCITY ANALYSIS TABLES for 96-8.SIP

Layer 1 Velocity from direct arrivals

Spread A	SP	Geo	DD	V	Avg V
	A	1	5.0	1000	
	A	2	7.1	641	
	A	3	11.1	537	
					726
	B	10	5.5	615	
	B	11	5.6	678	
					646
	C	24	5.0	1053	
					1053

Wtd Avg Velocity computed for Layer 1 = 754

Layer 2 Velocity computed by regression of raw uncorrected arrivals

Spread A	V	Ti	Geos	<-SP->	Geos	Ti	V	Avg V	Avg Ti	Pts
				A	4 18	15.9	2684	2684	15.9	15
	1674	8.1	1 9	B	12 23	6.4	1771	1728	7.2	21
	2176	5.4	8 23	C				2176	5.4	15
								Avg = 2070	for	51 Pts

Layer 2 Velocity computed by Hobson-Overton method

Spread A	Avg	Std Err	4 Highest	Std Err at	geophones								
SPs Geos	V	TdSP	Overall	Err Geo	Err Geo	Err Geo	Err Geo	Err Geo	Err Geo	Err Geo	Err Geo	Err Geo	Err Geo
A B 4 9	2455	3.7	0.565	-0.975	8	0.875	7	-0.341	4	0.210	5		
A C 8 18	2414	4.1	1.003	1.983	18	-1.471	15	-1.471	14	0.956	11		
B C 12 23	1803	3.4	1.479	-2.700	17	2.435	12	1.896	21	-1.739	18		
	Avg = 2174												

Wtd Avg Velocity computed for Layer 2 = 2124

Layer 3 Velocity computed by regression of raw uncorrected arrivals

Spread A	V	Ti	Geos	<-SP->	Geos	Ti	V	Avg V	Avg Ti	Pts
				A	19 24	41.4	7589	7589	41.4	6
	3038	18.2	1 7	C				3038	18.2	7
								Avg = 4201	for	13 Pts

Layer 3 Velocity computed by Hobson-Overton method

Not enough points.

Wtd Avg Velocity computed for Layer 3 = 4201

DEPTH MODEL TABLES for 96-8.SIP

Spread A Depth and Elev of layers directly beneath SPs and Geos

SP	Surface		Layer 2		Layer 3	
	X-Loc	Elev	Depth	Elev	Depth	Elev
A	0.0	120.7	8.3	112.4	25.1	95.6
B	41.6	103.4	1.1	102.3	18.1	85.3
C	104.9	112.9	5.2	107.7	23.0	89.9

Geo	Surface		Layer 2		Layer 3	
	X-Loc	Elev	Depth	Elev	Depth	Elev
1	0.0	120.7	8.3	112.4	25.1	95.6
2	4.3	118.2	6.5	111.7	22.9	95.3
3	8.6	115.7	4.6	111.1	17.8	97.9
4	13.0	113.3	2.8	110.5	16.8	96.5
5	17.2	111.2	2.2	109.0	17.5	93.7
6	21.4	109.2	1.6	107.6	18.1	91.1
7	25.6	107.2	1.9	105.3	17.8	89.4
8	29.8	105.2	1.2	104.0	16.9	88.3
9	34.6	104.6	2.0	102.6	17.6	87.0
10	39.3	104.0	1.4	102.6	18.1	85.9
11	44.1	103.4	1.5	101.9	18.7	84.7
12	48.8	102.8	1.7	101.1	19.3	83.5
13	55.2	103.0	2.0	101.0	21.1	81.9
14	60.0	103.1	1.9	101.2	21.6	81.5
15	64.7	103.3	2.3	101.0	21.5	81.8
16	69.5	103.4	2.4	101.0	21.3	82.1
17	74.2	103.5	2.4	101.1	21.2	82.3
18	78.9	103.6	1.5	102.1	21.0	82.6
19	83.1	105.1	1.3	103.8	22.2	82.9
20	87.2	106.6	2.0	104.6	23.4	83.2
21	91.6	108.1	2.6	105.5	21.7	86.4
22	96.0	109.7	3.1	106.6	19.4	90.3
23	100.5	111.3	3.8	107.5	21.1	90.2
24	104.9	112.9	5.2	107.7	23.0	89.9

Velocities used to formulate the Depth Model

Spread A	Layer 1	Layer 2	Layer 3
Vertical	754	2124	
Horizontal		2124	4201

VELOCITY ANALYSIS TABLES for 96-9.SIP

Layer 1 Velocity from direct arrivals

Spread A	SP	Geo	DD	V	Avg V
	B	1	5.0	465	465
	C	11	5.5	520	
	C	12	5.7	542	
					531
	D	24	5.0	465	465

Wtd Avg Velocity computed for Layer 1 = 498

Layer 2 Velocity computed by regression of raw uncorrected arrivals

Spread A	V	Ti	Geos	<-SP->	Geos	Ti	V	Avg V	Avg Ti	Pts
				A	1 11	23.7	3574	3574	23.7	11
				B	2 14	10.3	1987	1987	10.3	13
1678	6.4	1 10		C	13 19	10.6	1856	1747	8.5	17
3019	11.5	9 23		D				3019	11.5	15
								Avg = 2303	for	56 Pts

Layer 2 Velocity computed by Hobson-Overton method

Spread A			V	Avg	Std Err	4 Highest		Std Err at		geophones			
SPs	Geos	TdSP		Overall	Err	Geo	Err	Geo	Err	Geo	Err	Geo	
---	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
A C	1 10	2299	-0.1	0.618	-1.370	7	1.090	10	0.621	1	-0.390	9	
A D	9 11	2452	5.6	0.824	1.165	10	-0.583	11	-0.582	9			
B C	2 10	1818	1.4	0.672	-1.412	7	1.075	4	-0.691	3	0.601	8	
B D	9 14	2763	8.0	0.913	1.407	12	-1.227	9	-1.039	14	0.484	10	
C D	13 19	2203	4.9	1.129	2.059	17	-1.755	18	-1.113	14	0.529	16	

Avg = 2249 for 35 Pts

Wtd Avg Velocity computed for Layer 2 = 2273

Layer 3 Velocity computed by regression of raw uncorrected arrivals

Spread A									
V	Ti	Geos	<-SP-->	Geos	Ti	V	Avg V	Avg Ti	Pts
-----	-----	-----	---	-----	-----	-----	-----	-----	---
			A	12 24	37.9	5497	5497	37.9	13
			B	15 24	28.9	4710	4710	28.9	10
			C	20 24	18.3	3316	3316	18.3	5
2762	9.5	1 8	D				2762	9.5	8
							-----		---
						Avg =	4048	for	36 Pts

Layer 3 Velocity computed by Hobson-Overton method

Not enough points.

Wtd Avg Velocity computed for Layer 3 = 4048

DEPTH MODEL TABLES for 96-9.SIP

Spread A Depth and Elev of layers directly beneath SPs and Geos

SP	Surface		Layer 2		Layer 3	
	X-Loc	Elev	Depth	Elev	Depth	Elev
B	0.0	99.5	3.9	95.6	17.8	81.7
C	50.0	101.8	1.7	100.1	20.9	80.9
D	111.3	105.7	2.5	103.2	15.2	90.5

Geo	Surface		Layer 2		Layer 3	
	X-Loc	Elev	Depth	Elev	Depth	Elev
1	0.0	99.5	3.9	95.6	17.8	81.7
2	4.3	99.6	3.6	96.0	17.6	82.0
3	8.6	99.7	3.8	95.9	17.4	82.3
4	12.9	99.8	3.7	96.1	17.3	82.5
5	17.9	100.0	3.0	97.0	16.5	83.5
6	23.0	100.3	2.9	97.4	15.3	85.0
7	28.0	100.6	3.0	97.6	14.1	86.5
8	33.1	100.8	2.8	98.0	15.4	85.4
9	38.0	101.1	1.8	99.3	17.2	83.9
10	42.9	101.5	1.6	99.9	18.4	83.1
11	47.8	101.8	1.6	100.2	20.2	81.6
12	52.7	102.1	2.2	99.9	22.0	80.1
13	58.2	102.6	2.6	100.0	22.3	80.3
14	63.0	102.9	3.1	99.8	21.0	81.9
15	67.7	103.3	2.9	100.4	19.7	83.6
16	72.4	103.6	3.1	100.5	19.0	84.6
17	77.1	104.0	2.9	101.1	18.2	85.8
18	81.9	104.4	3.1	101.3	17.9	86.5
19	86.6	104.7	3.1	101.6	18.3	86.4
20	91.3	105.1	2.7	102.4	18.8	86.3
21	96.3	105.2	2.0	103.2	19.0	86.2
22	101.3	105.4	1.8	103.6	17.8	87.6
23	106.3	105.6	2.2	103.4	15.4	90.2
24	111.3	105.7	2.5	103.2	15.2	90.5

Velocities used to formulate the Depth Model

Spread A	Layer 1	Layer 2	Layer 3
Vertical	498	2273	
Horizontal		2273	4048

VELOCITY ANALYSIS TABLES for 96-10.SIP

Layer 1 Velocity from direct arrivals

Spread A	SP	Geo	DD	V	Avg V
	B	1	5.0	513	
	B	2	7.1	394	
	B	3	11.2	428	
					445
	C	14	5.5	1387	
	C	15	5.8	1162	
					1275
	D	24	5.0	2000	
					2000

Wtd Avg Velocity computed for Layer 1 = 981

Layer 2 Velocity computed by regression of raw uncorrected arrivals

Spread A	V	Ti	Geos	<-SP->	Geos	Ti	V	Avg V	Avg Ti	Pts
				A	1 24	37.8	6312	6312	37.8	24
				B	4 24	25.5	4593	4593	25.5	21
1975	2.0	1	13	C	16 24	6.5	4141	2513	4.3	22
2275	-1.2	1	23	D				2275	-1.2	23
2496	-9.5	1	24	E				2496	-9.5	24
								Avg =	3093	for 114 Pts

Layer 2 Velocity computed by Hobson-Overton method

Spread A			Avg	Std Err	4 Highest		Std Err at		geophones			
SPs	Geos	V	TdSP	Overall	Err	Geo	Err	Geo	Err	Geo	Err	Geo
---	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
A C	1 13	4256	17.9	1.207	-2.469	1	-1.941	12	1.450	2	1.228	10
A D	1 23	3387	14.8	2.794	-8.036	12	-4.833	13	4.213	20	4.003	2
A E	1 24	3566	19.2	2.706	-6.696	12	-4.882	11	4.717	2	4.511	20
B C	4 13	3738	14.4	1.302	2.705	6	-2.076	11	-2.062	4	0.679	8
B D	4 23	3148	14.3	2.380	-4.352	12	3.397	6	-3.267	16	3.112	7
B E	4 24	3268	19.2	2.214	4.847	6	-3.753	11	3.656	21	-3.203	14
C D	16 23	2991	2.6	1.236	1.882	20	-1.802	23	-1.691	16	1.407	19
C E	16 24	3443	5.6	1.427	2.550	20	2.128	21	-1.866	16	-1.296	23

Avg =		3458	for 128 Pts									

Wtd Avg Velocity computed for Layer 2 = 3346

DEPTH MODEL TABLES for 96-10.SIP

Spread A Depth and Elev of layers directly beneath SPs and Geos

SP	Surface		Layer 2	
	X-Loc	Elev	Depth	Elev
B	0.0	105.7	11.0	94.7
C	67.0	100.5	1.3	99.2
D	110.9	115.5	1.1	114.4

Geo	Surface		Layer 2	
	X-Loc	Elev	Depth	Elev
1	0.0	105.7	11.0	94.7
2	4.9	104.6	11.8	92.8
3	9.8	103.4	10.3	93.1
4	14.7	102.3	9.7	92.6
5	19.6	101.6	8.4	93.2
6	24.6	100.8	7.1	93.7
7	29.5	100.1	5.6	94.5
8	35.5	99.5	4.7	94.8
9	39.6	99.2	3.9	95.3
10	44.7	99.1	2.9	96.2
11	49.8	99.0	2.6	96.4
12	54.9	98.8	2.5	96.3
13	59.7	99.4	2.2	97.2
14	64.6	100.3	1.7	98.6
15	69.9	101.1	1.3	99.8
16	74.3	101.9	0.5	101.4
17	79.1	103.4	0.4	103.0
18	83.9	104.9	0.7	104.2
19	88.7	106.3	0.4	105.9
20	93.5	107.8	0.9	106.9
21	97.8	109.7	1.1	108.6
22	102.2	111.6	1.0	110.6
23	106.5	113.6	1.0	112.6
24	110.9	115.5	1.1	114.4

Velocities used to formulate the Depth Model

Spread A	Layer 1		Layer 2	
Vertical	981			
Horizontal			3346	

INPUT DATA FILE for 96-10.SIP

TITLE FOR SIPT2/SIPLUS INPUT DATA SET for 96-10.SIP

96-10

PROGRAM CONTROL DATA

S	L	V	PRINTER PLOT SCALES			DATUM	CONTROL	PLOT CONTROL		T O			
p	E	a	O										r f L
r	x	y	v	Elev	Horiz	Time	Pt 1	Pt 2	Elevations				a f D
d	i	r	e										c S i
s	t	s	r	m/col	m/row	ms/col	Elev/X	Elev/X	Top	Bottom	BLim	TLim	e P p
-	-	-	-	-	-	-	-	-	-	-	-	-	-
1	6	2	0	0.0	0.0	0.0	0.0	0.0	0	0	0.5	10.0	0 0 0
							0.0	0.0					

SHOTPOINT AND GEOPHONE DATA

Spread A, 5 SP's, 24 Geo's, X-Shift = 0.0, X-True = 1, Units: Meters.

SP	Elev	X-Loc	Y-Loc	Depth	Uphole T	Fudge T	End SP
--	----	-----	-----	-----	-----	-----	-----
A	110.0	-60.0	0.0	0.0	0.0	0.0	0
B	105.7	0.0	5.0	0.0	0.0	0.0	1
C	100.5	67.0	5.0	0.0	0.0	0.0	0
D	115.5	110.9	5.0	0.0	0.0	0.0	2
E	125.0	170.0	0.0	0.0	0.0	0.0	0

ARRIVAL TIMES AND LAYERS REPRESENTED

Geo	Elev	X-Loc	Y	SP A	SP B	SP C	SP D	SP E
---	----	-----	---	-----L	-----L	-----L	-----L	-----L
1	105.7	0.0	0.0	51.00 2	9.75 1	37.25 2	49.75 2	60.00 2
2	104.6	4.9	0.0	53.50 2	18.00 1	33.50 2	47.00 2	58.00 2
3	103.4	9.8	0.0	51.25 2	26.25 1	30.50 2	44.75 2	56.25 2
4	102.3	14.7	0.0	53.50 2	31.75 2	29.25 2	43.75 2	56.75 2
5	101.6	19.6	0.0	51.25 2	33.00 2	26.00 2	39.25 2	51.50 2
6	100.8	24.6	0.0	51.25 2	35.75 2	23.25 2	37.75 2	49.00 2
7	100.1	29.5	0.0	51.25 2	32.50 2	20.00 2	31.75 2	46.75 2
8	99.5	35.5	0.0	51.25 2	33.75 2	17.50 2	31.50 2	44.00 2
9	99.2	39.6	0.0	51.25 2	34.75 2	17.00 2	28.75 2	42.75 2
10	99.1	44.7	0.0	51.25 2	33.50 2	12.75 2	28.00 2	40.25 2
11	99.0	49.8	0.0	51.25 2	33.75 2	12.75 2	26.25 2	40.50 2
12	98.8	54.9	0.0	49.00 2	34.50 2	9.00 2	25.50 2	37.25 2
13	99.4	59.7	0.0	51.25 2	35.00 2	6.25 2	21.75 2	33.75 2
14	100.3	64.6	0.0	53.50 2	35.25 2	4.00 1	18.25 2	32.50 2
15	101.1	69.9	0.0	55.75 2	38.50 2	5.00 1	17.25 2	31.25 2
16	101.9	74.3	0.0	58.00 2	38.75 2	7.25 2	16.50 2	29.50 2
17	103.4	79.1	0.0	59.75 2	40.50 2	8.50 2	13.00 2	26.25 2
18	104.9	83.9	0.0	62.75 2	43.25 2	11.75 2	12.75 2	26.00 2
19	106.3	88.7	0.0	62.75 2	44.75 2	12.50 2	9.00 2	24.50 2
20	107.8	93.5	0.0	66.50 2	47.50 2	15.25 2	8.00 2	21.75 2

21	109.7	97.8	0.0	66.25	2	51.00	2	16.50	2	7.50	2	20.75	2
22	111.6	102.2	0.0	64.50	2	50.00	2	15.00	2	4.00	2	19.75	2
23	113.6	106.5	0.0	66.50	2	51.00	2	15.50	2	3.00	2	17.75	2
24	115.5	110.9	0.0	67.75	2	51.75	2	16.50	2	2.50	1	15.50	2

Spread A	SP	Geo	DD	V	Avg V
	--	---	-----	-----	-----
	B	1	5.0	345	
	B	2	7.1	378	
	B	3	11.3	472	
	B	4	16.0	450	
					411
	C	11	5.4	414	
	C	12	5.7	488	
	C	13	8.8	575	
	C	14	13.0	711	
					547
	D	24	5.0	1818	
					1818

Layer 2 Velocity computed by regression of raw uncorrected arrivals

Layer 2 Velocity computed by Hobson-Overton method

Wtd Avg Velocity computed for Layer 2 = 3328

DEPTH MODEL TABLES for 96-11.SIP

Spread A Depth and Elev of layers directly beneath SPs and Geos

SP	Surface		Layer 2	
	X-Loc	Elev	Depth	Elev
B	0.0	100.9	14.0	86.9
C	50.9	93.0	3.1	89.9
D	110.0	105.9	0.6	105.3

Geo	Surface		Layer 2	
	X-Loc	Elev	Depth	Elev
1	0.0	100.9	14.0	86.9
2	4.9	99.8	13.5	86.3
3	9.9	98.6	11.6	87.0
4	14.8	97.5	9.2	88.3
5	19.8	96.5	6.6	89.9
6	24.7	95.6	4.1	91.5
7	29.7	94.7	2.2	92.5
8	34.6	93.7	1.8	91.9
9	39.4	93.5	2.7	90.8
10	44.2	93.2	3.0	90.2
11	48.9	93.0	3.0	90.0
12	53.7	92.7	2.9	89.8
13	58.1	93.2	2.3	90.9
14	62.8	94.3	2.5	91.8
15	67.4	95.4	2.4	93.0
16	72.1	96.5	1.8	94.7
17	76.9	97.3	1.4	95.9
18	81.8	98.2	1.0	97.2
19	86.6	99.0	0.5	98.5
20	91.4	99.8	0.4	99.4
21	96.1	101.3	0.4	100.9
22	100.7	102.9	0.5	102.4
23	105.4	104.4	0.6	103.8
24	110.0	105.9	0.6	105.3

Velocities used to formulate the Depth Model

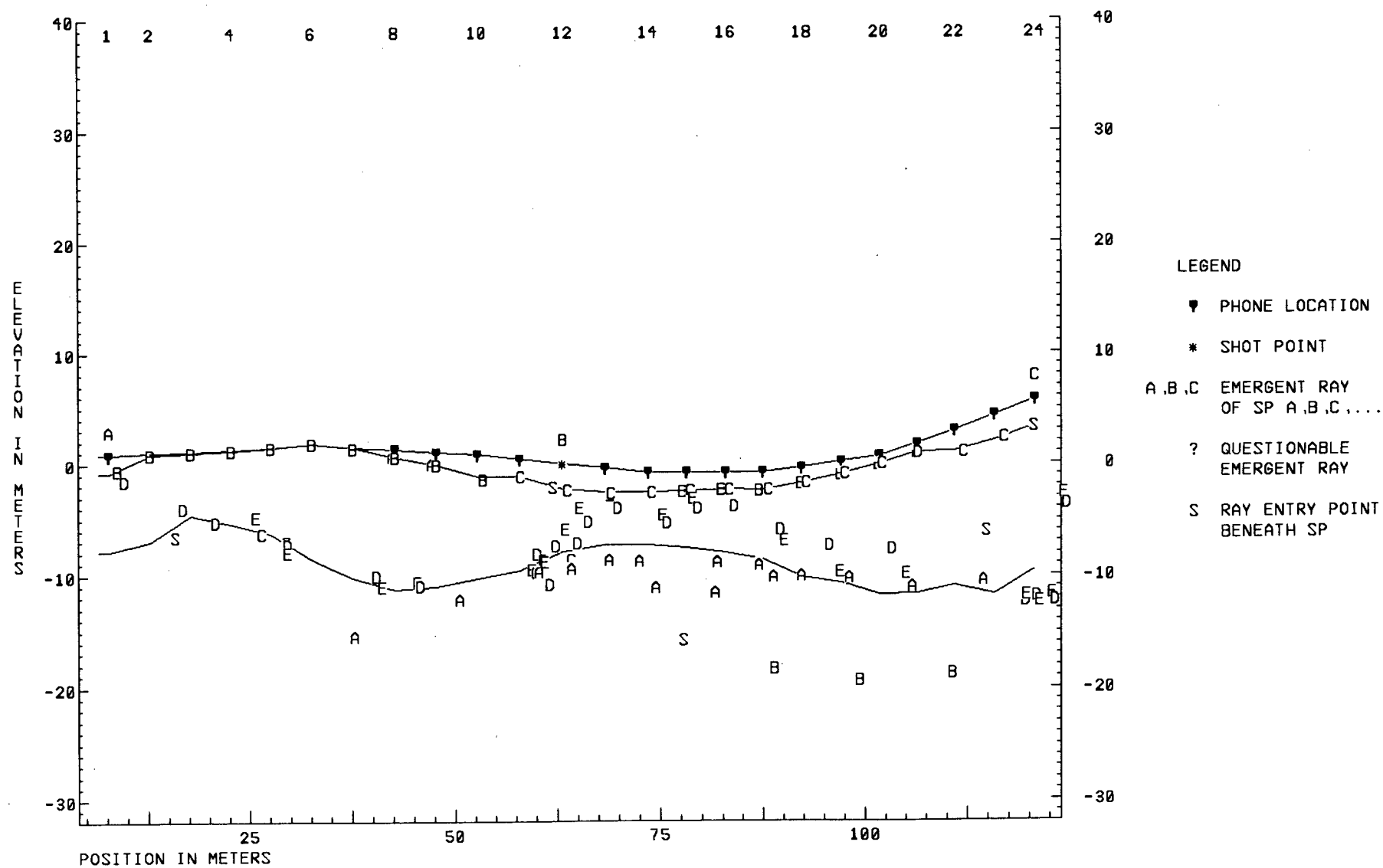
Spread A	Layer 1	Layer 2
Vertical	628	
Horizontal		3328

H-2

Appendix H. Inversion model plots

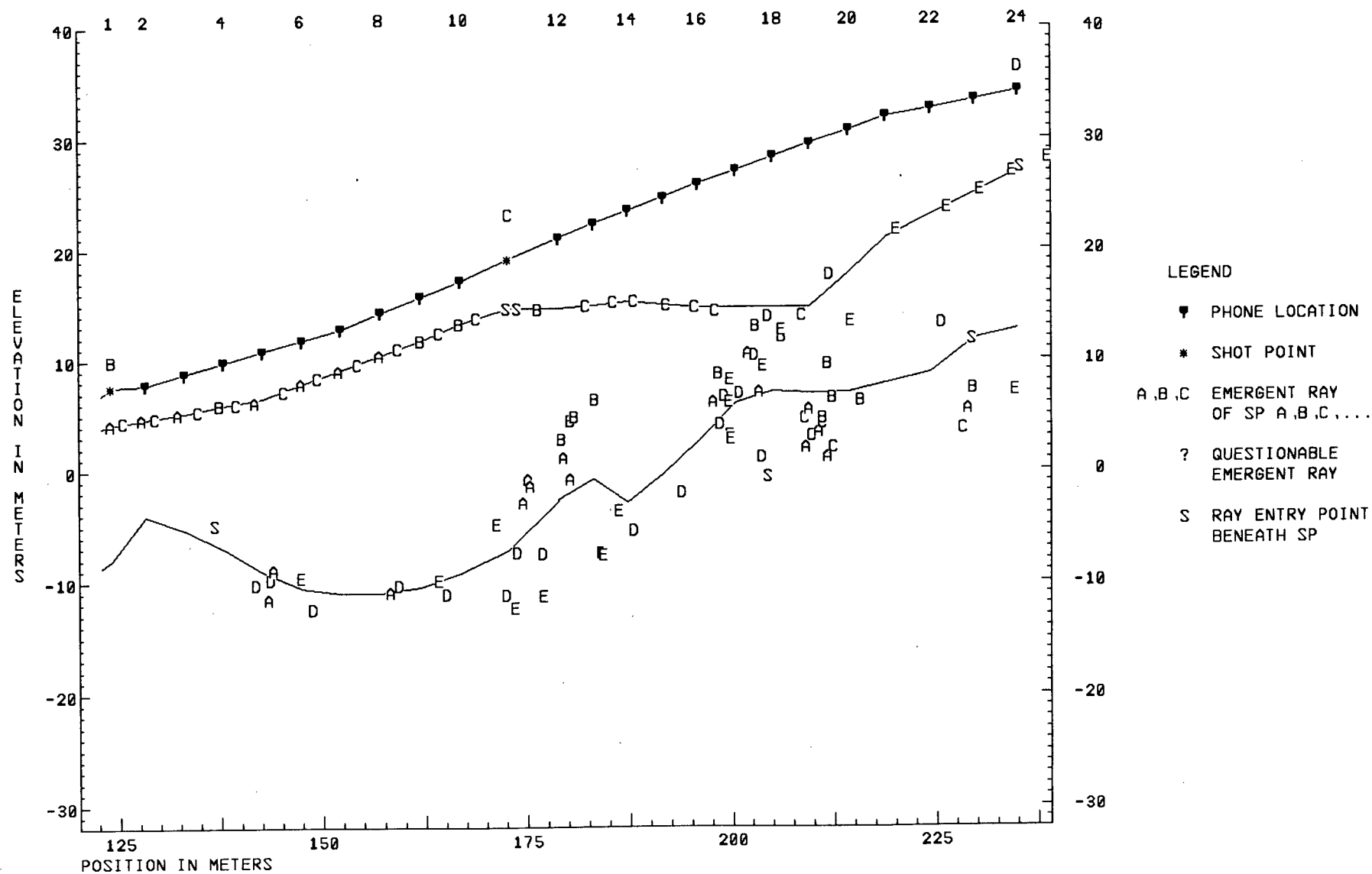
FILE 96-1.SIP
96-01

SPREAD A



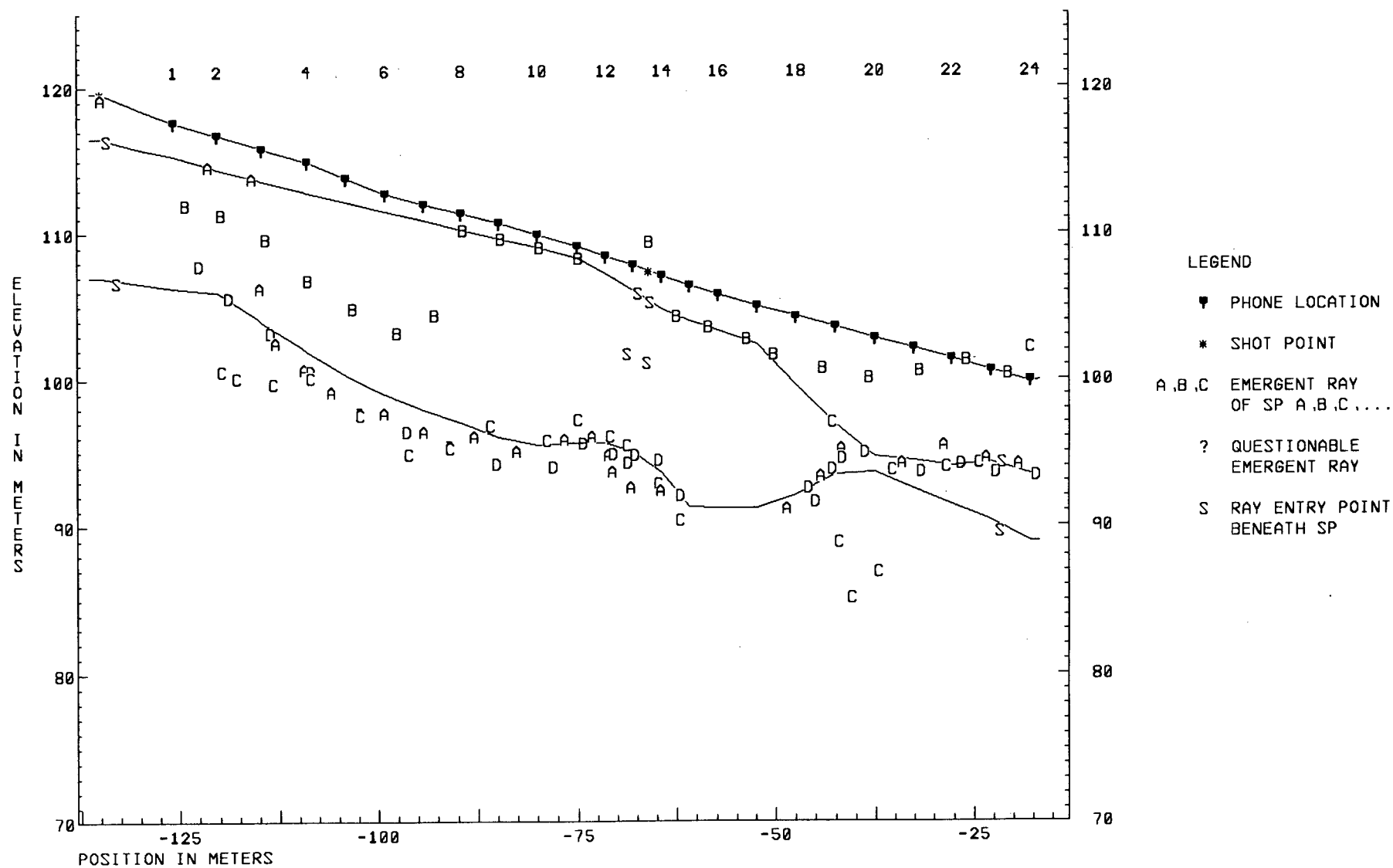
FILE 96-1.SIP
96-01

SPREAD B



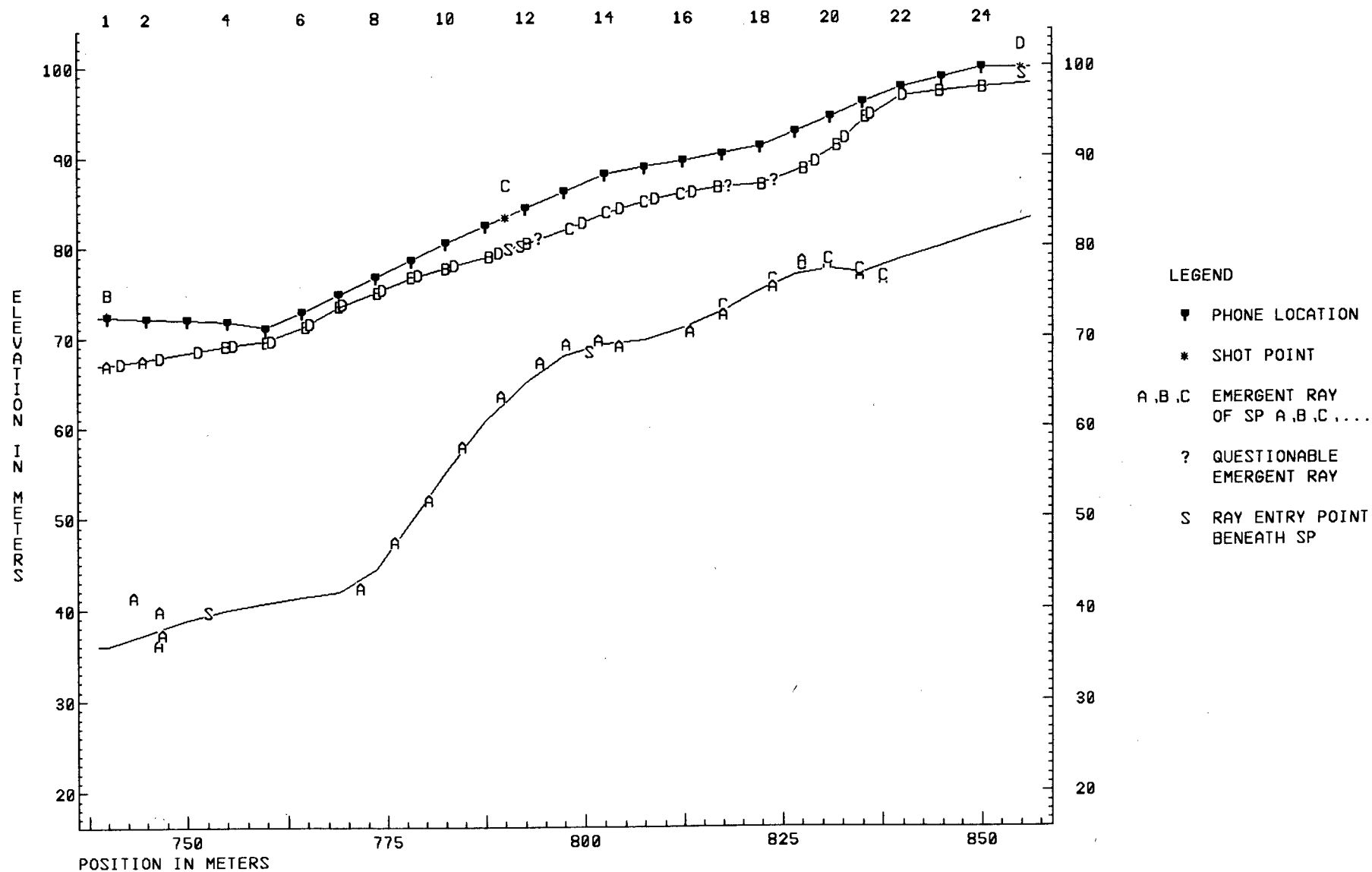
FILE 96-2.SIP
96-2

SPREAD A



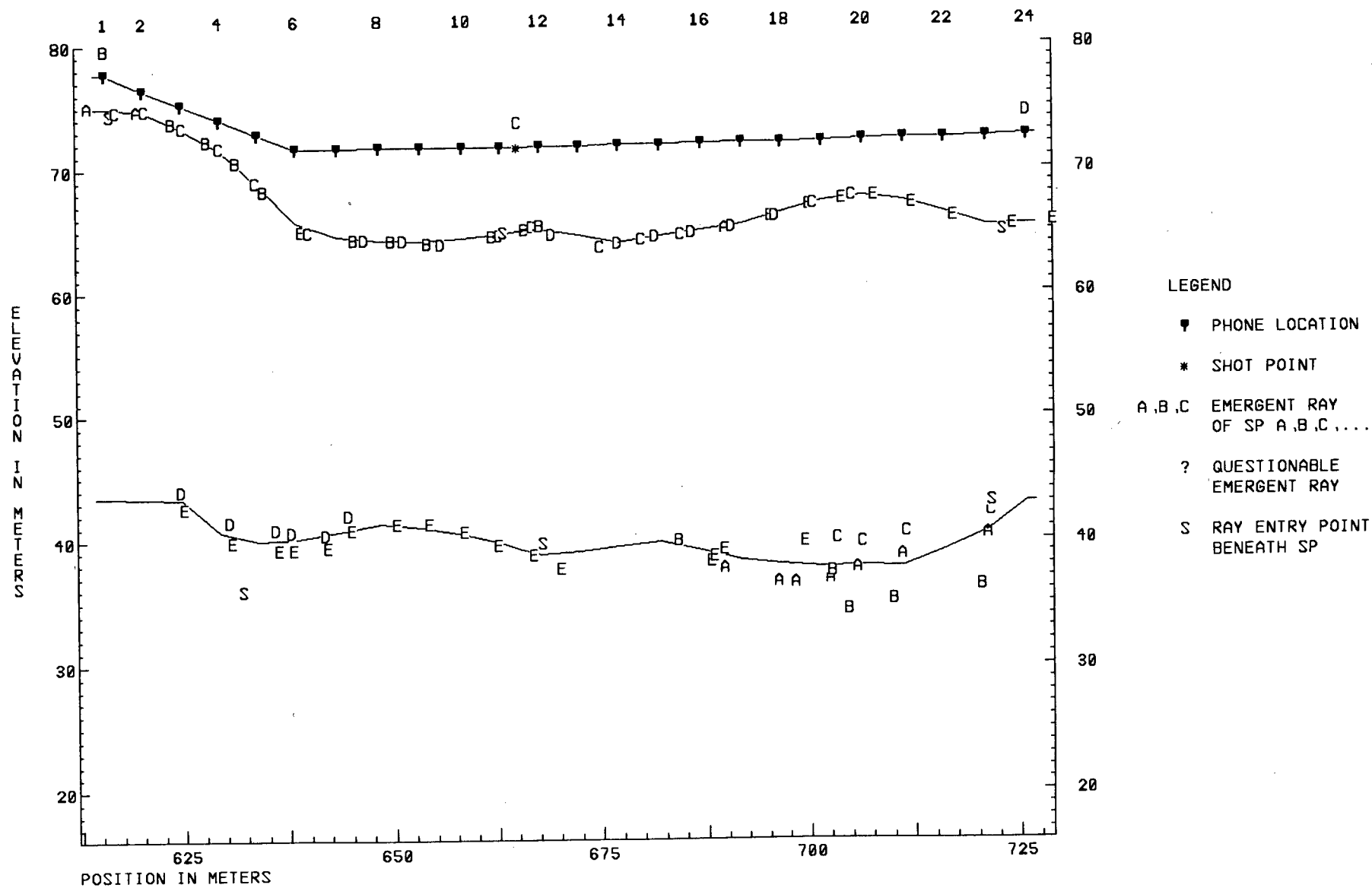
FILE CREEK-W.SIP
96-3 WEST HALF

SPREAD D



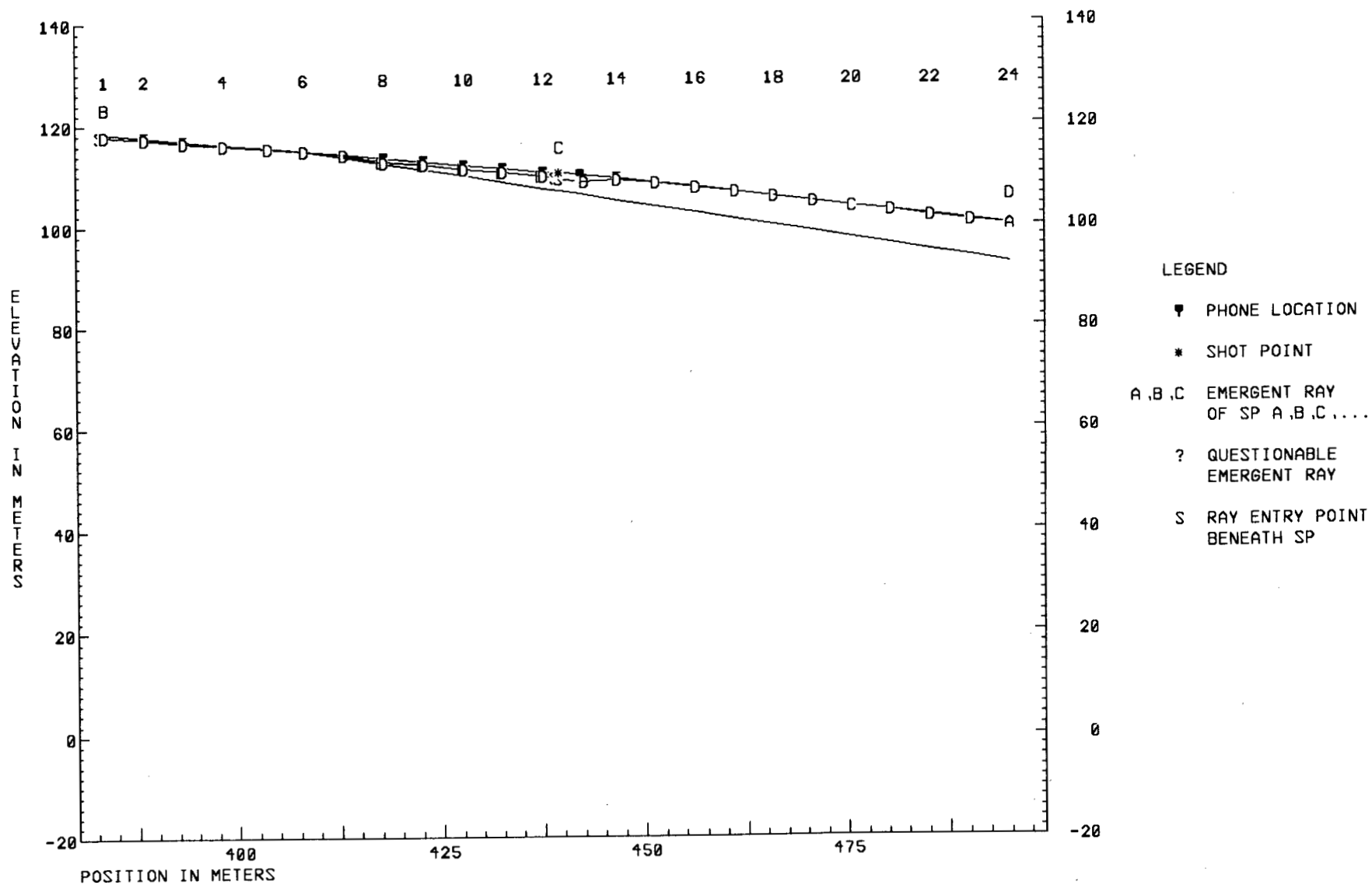
FILE CREEK.SIP
96-3 WEST HALF

SPREAD C



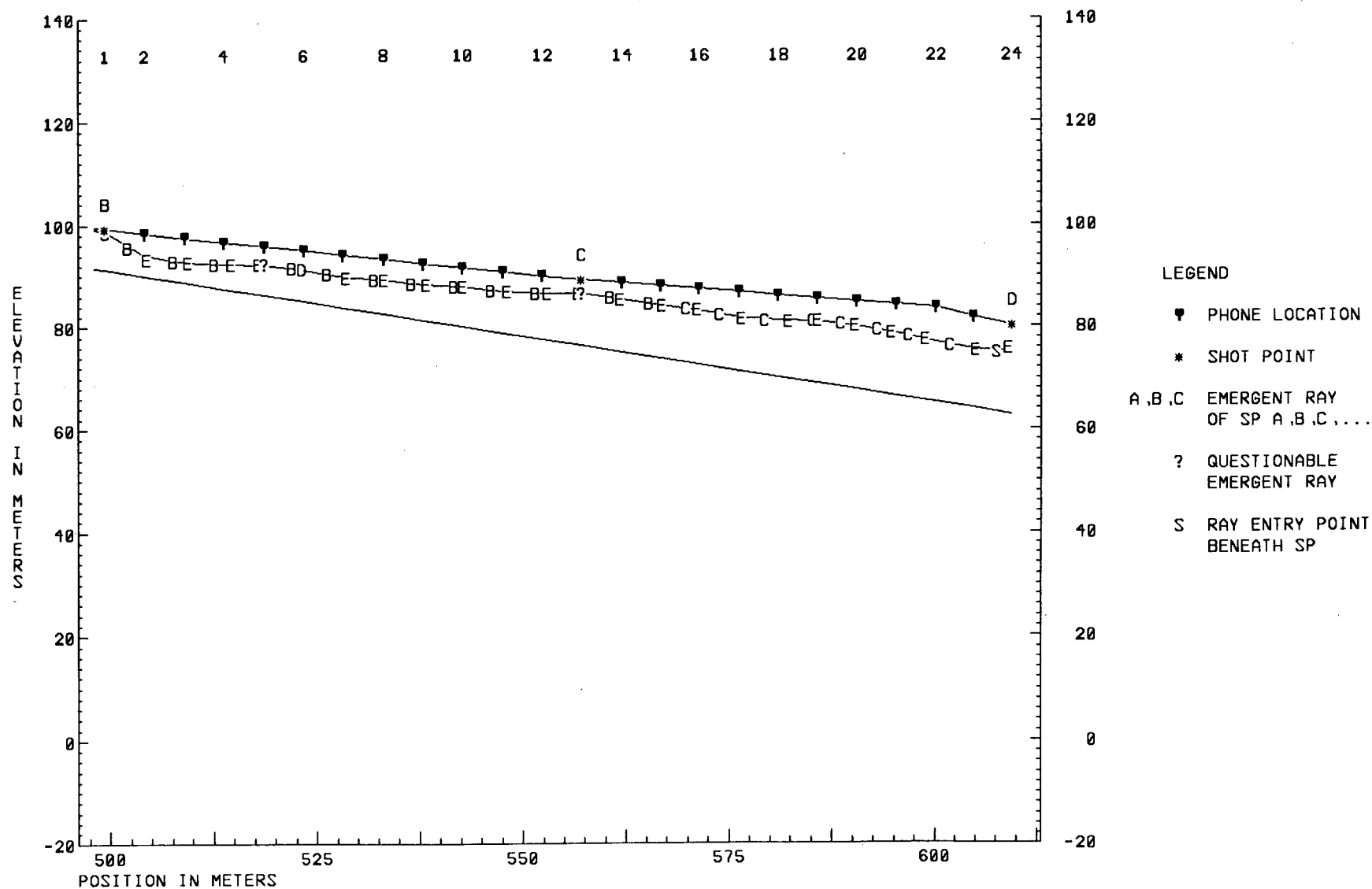
FILE 96-3-W.SIP
96-3 WEST HALF

SPREAD A



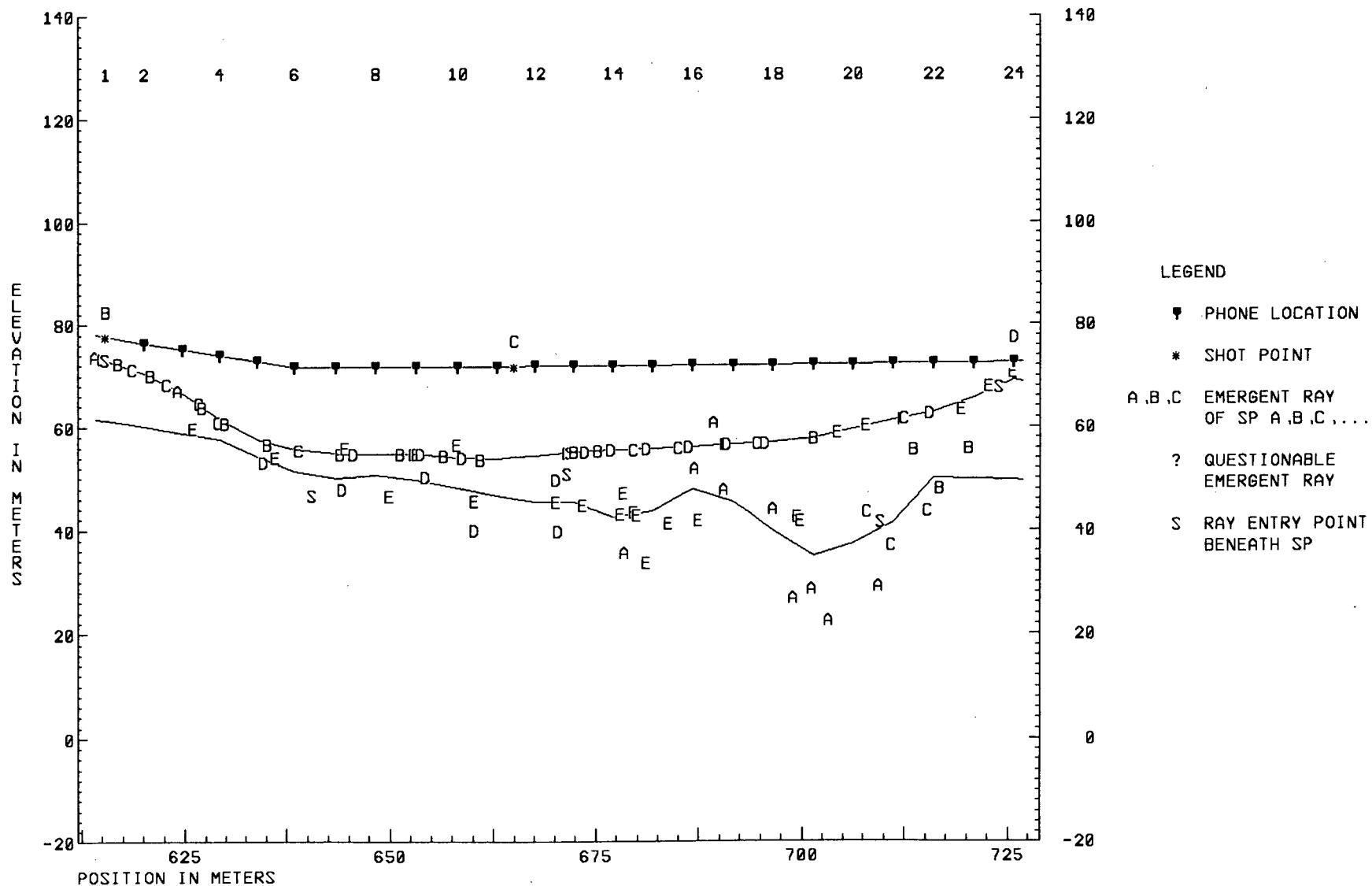
FILE 96-3-W.SIP
96-3 WEST HALF

SPREAD B



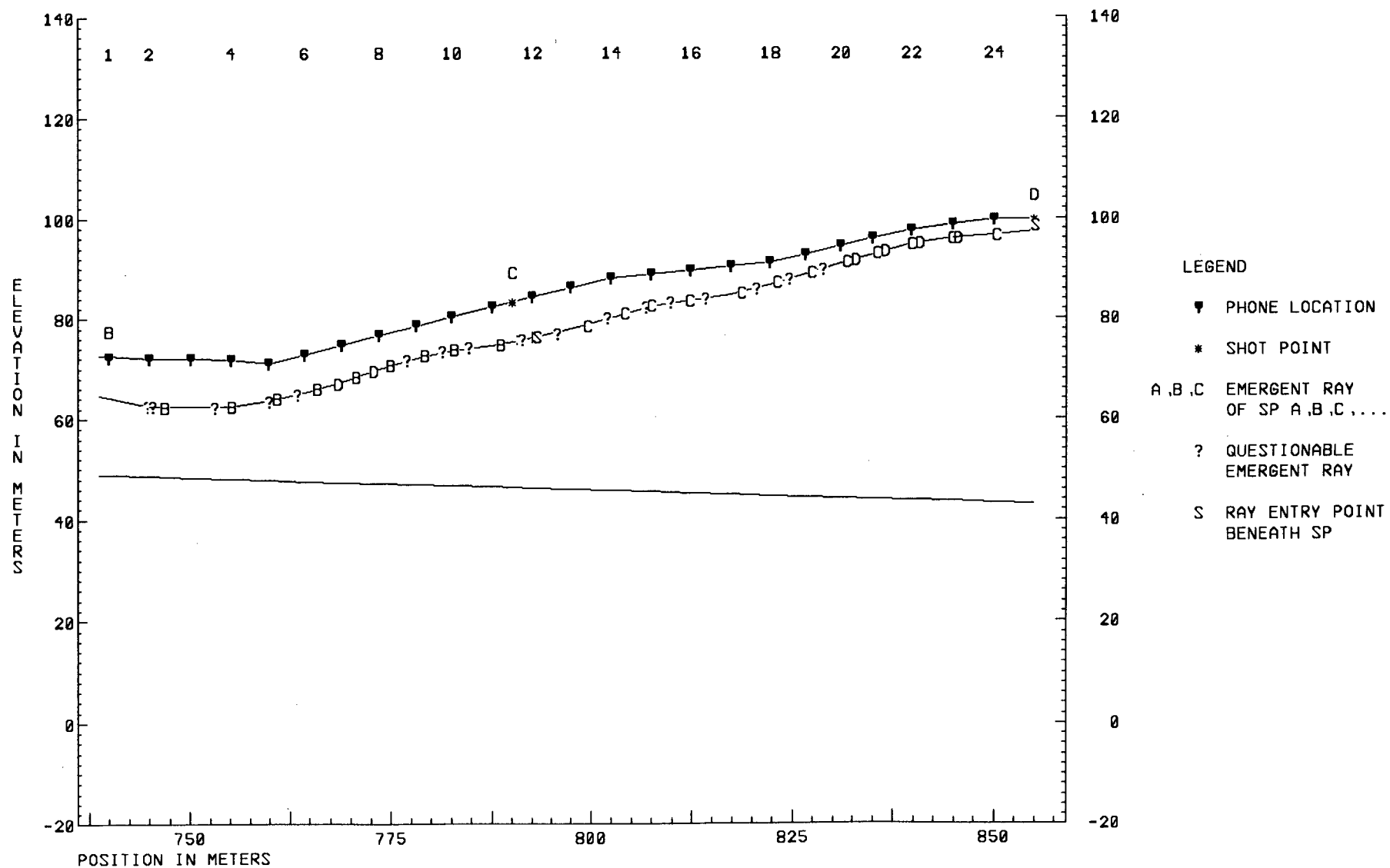
FILE 96-3-W.SIP
96-3 WEST HALF

SPREAD C



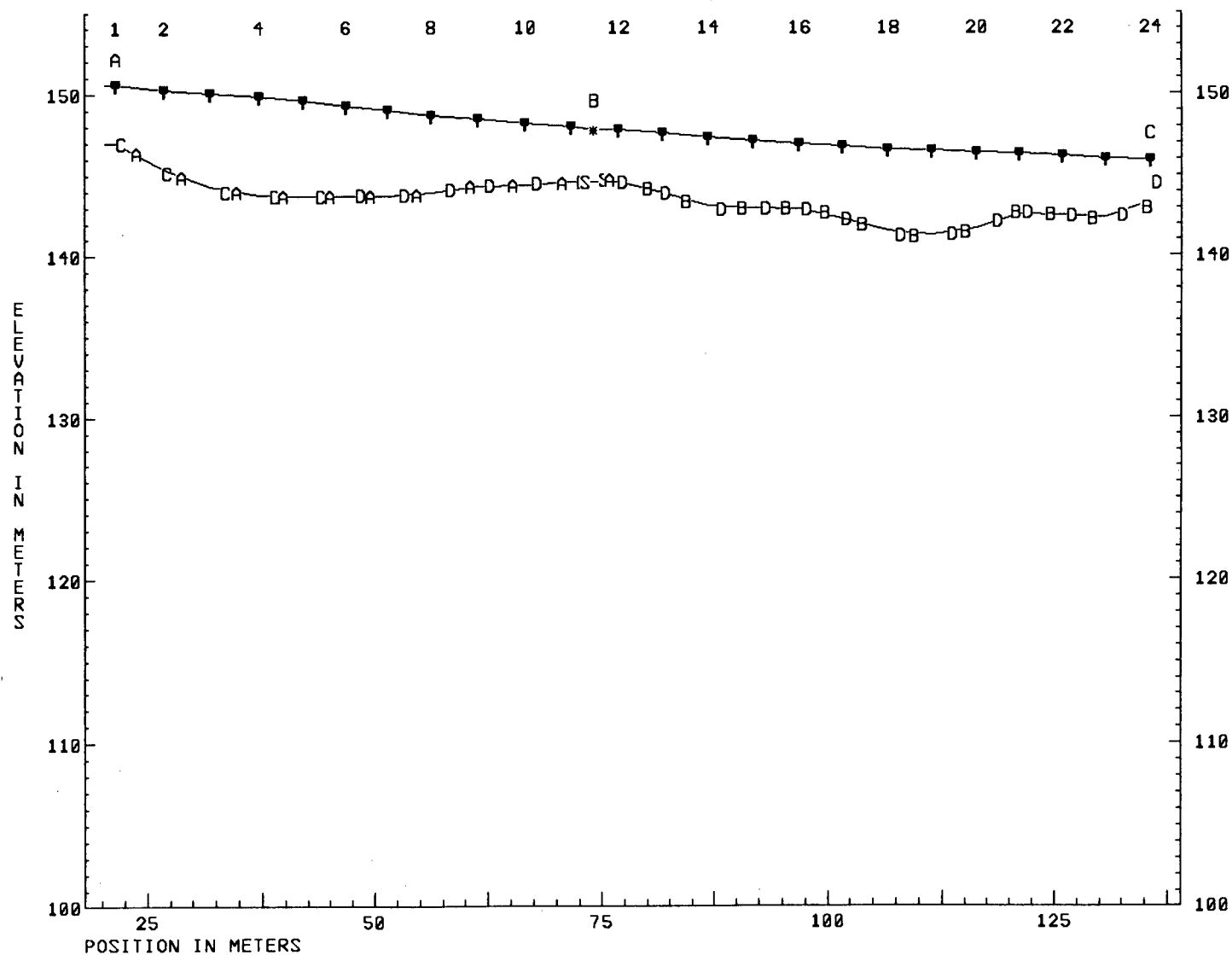
FILE 96-3-W.SIP
96-3 WEST HALF

SPREAD D



FILE 96-3-E.SIP
96-3 EAST HALF

SPREAD A



LEGEND

▼ PHONE LOCATION

* SHOT POINT

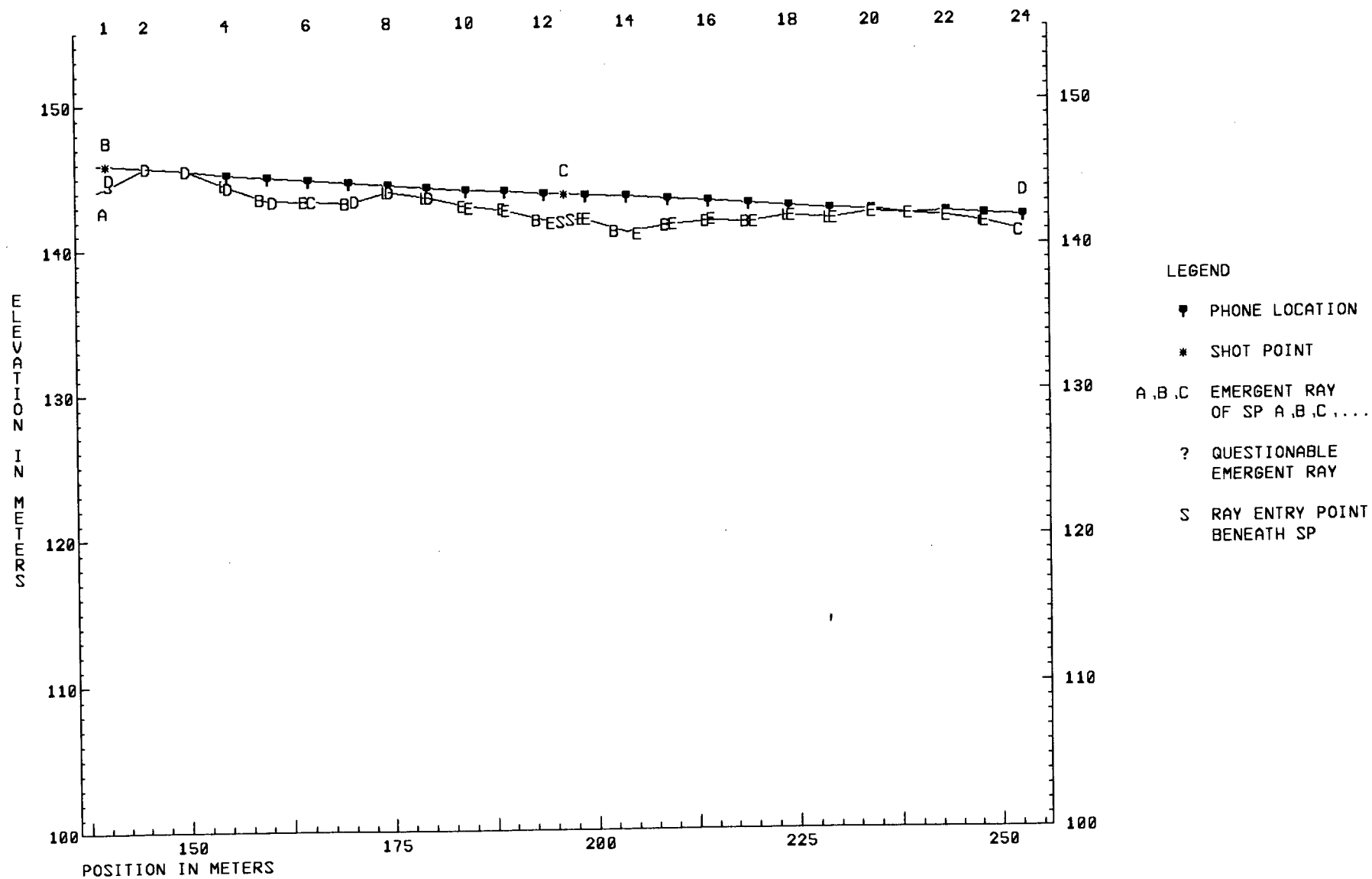
A, B, C EMERGENT RAY
OF SP A, B, C, ...

? QUESTIONABLE
EMERGENT RAY

S RAY ENTRY POINT
BENEATH SP

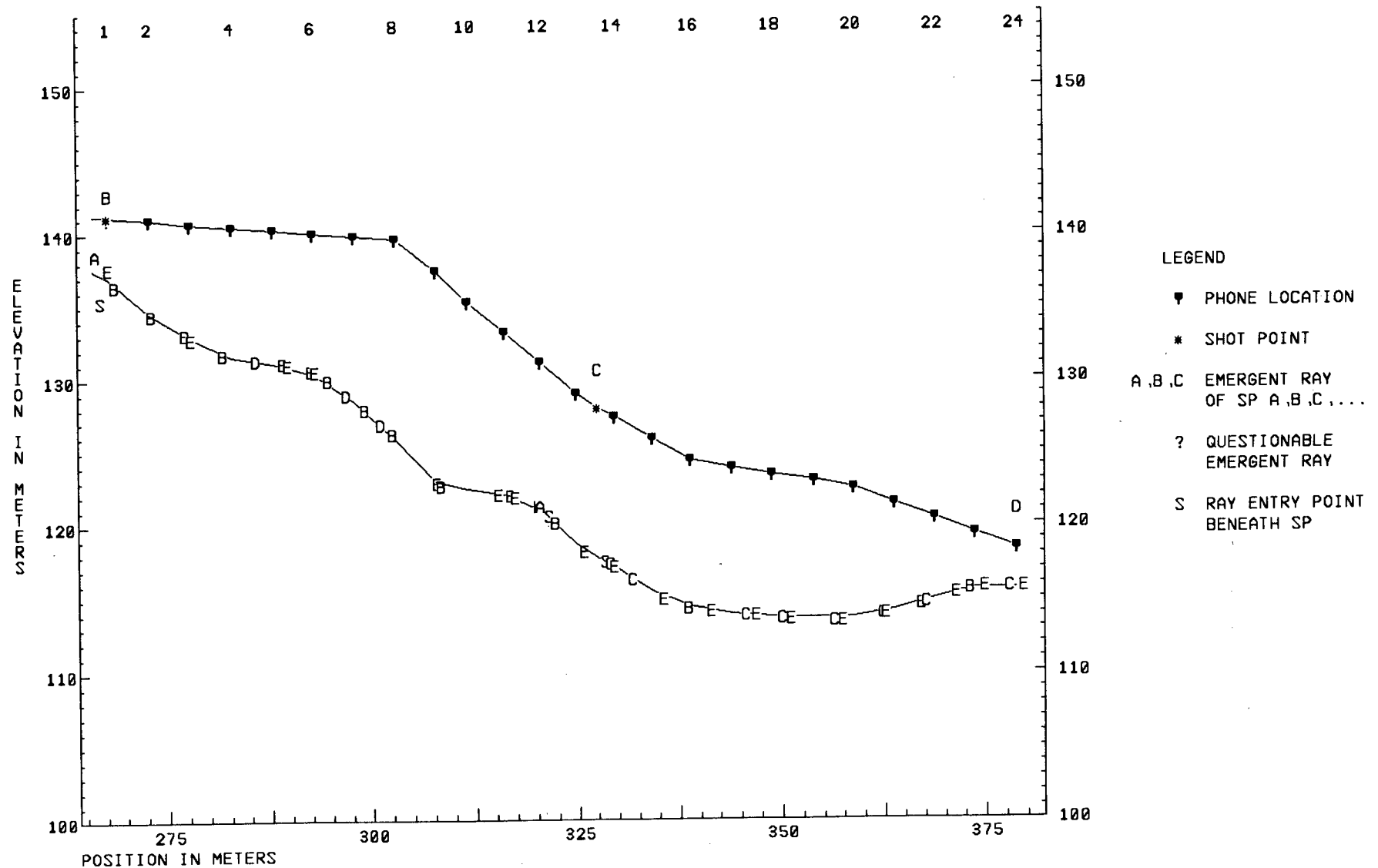
FILE 96-3-E.SIP
96-3 EAST HALF

SPREAD B



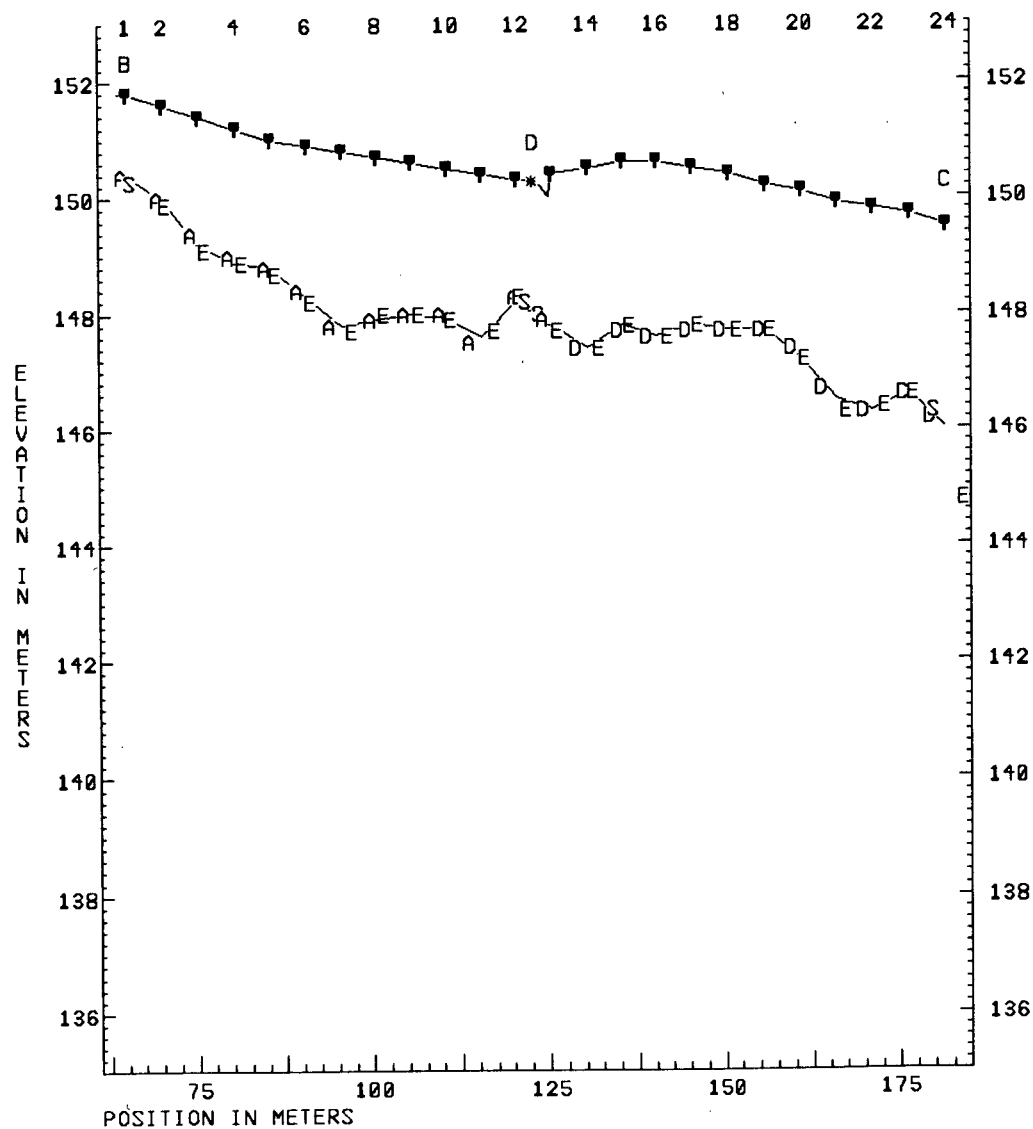
FILE 96-3-E.SIP
96-3 EAST HALF

SPREAD C



FILE 96-4.SIP
96-4 NORTH TO SOUTH

SPREAD A



LEGEND

▼ PHONE LOCATION

* SHOT POINT

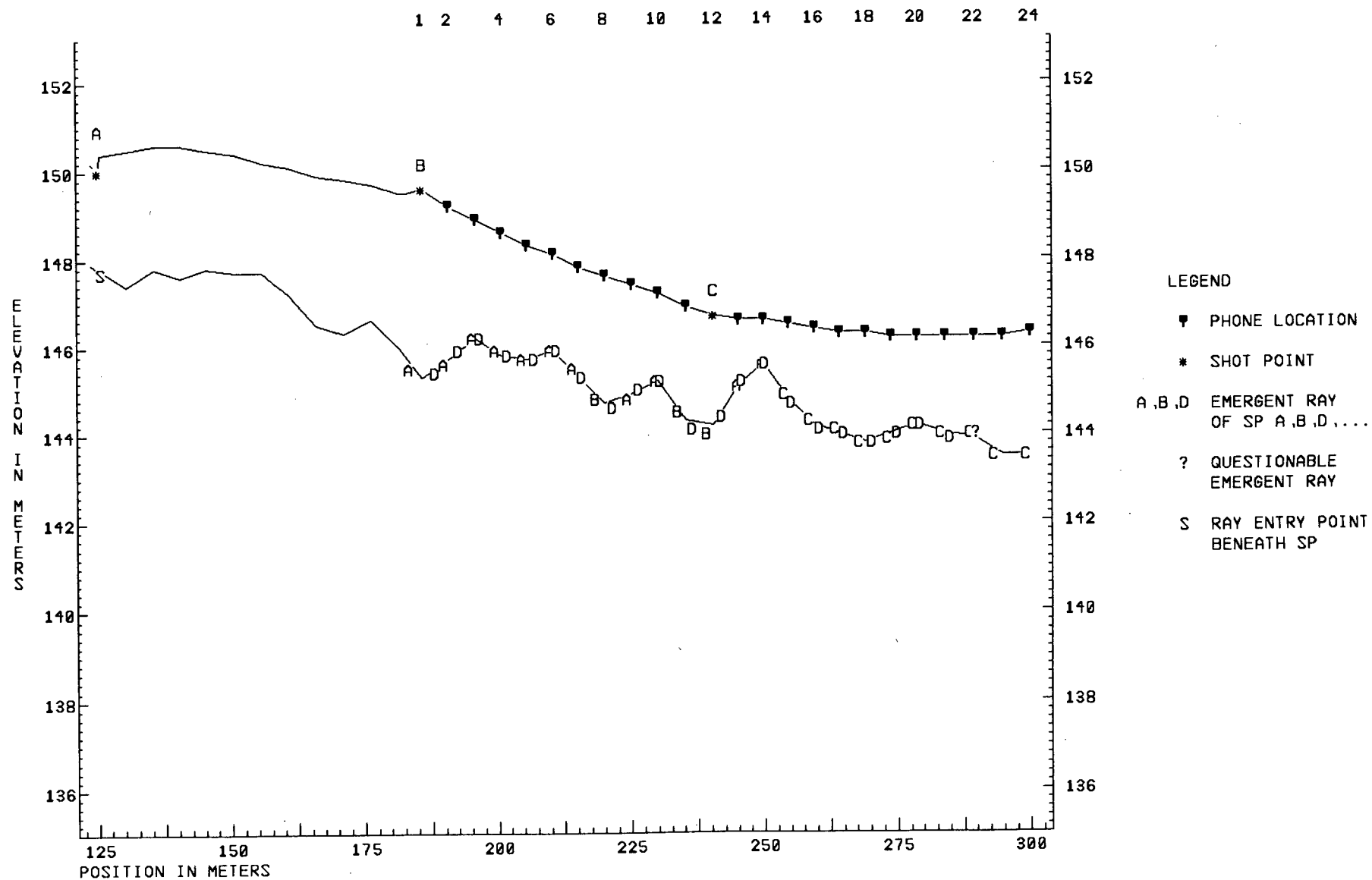
A, B, D EMERGENT RAY
OF SP A, B, D, ...

? QUESTIONABLE
EMERGENT RAY

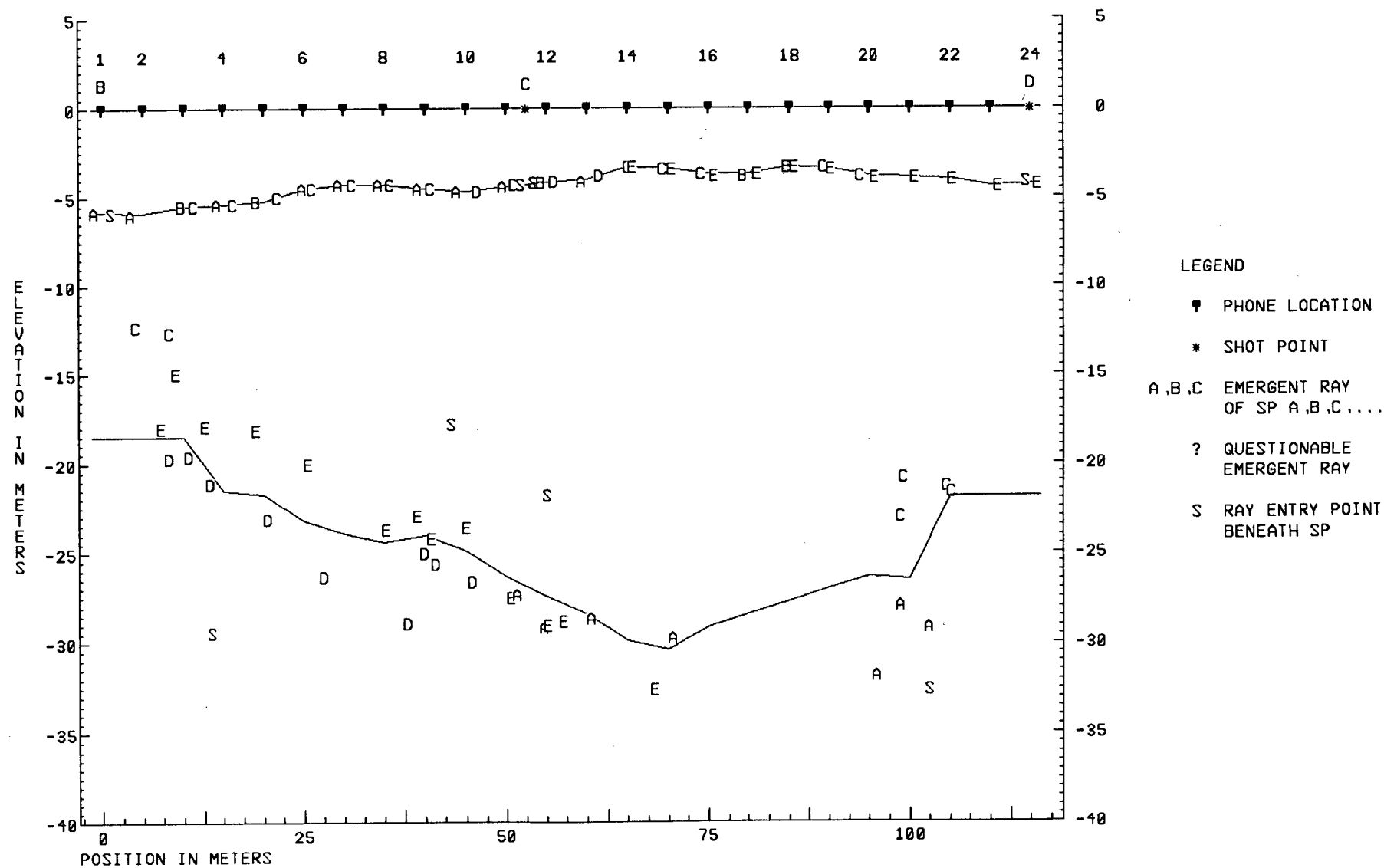
S RAY ENTRY POINT
BENEATH SP

FILE 96-4.SIP
96-4 NORTH TO SOUTH

SPREAD B

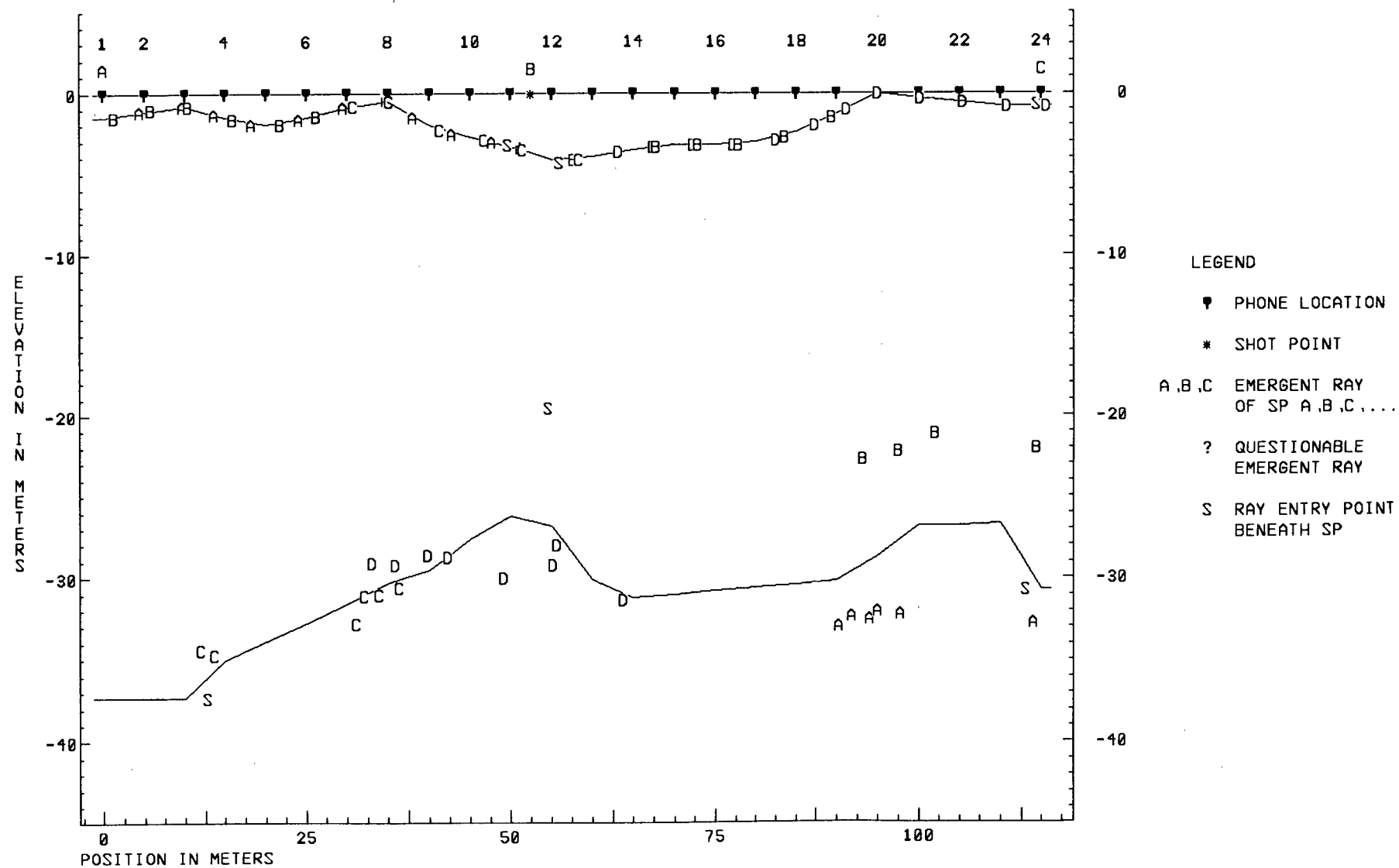


FILE 96-5.SIP
 LINE 96-5 NORTH - SOUTH ALONG DUNCAN CREEK
 SPREAD A



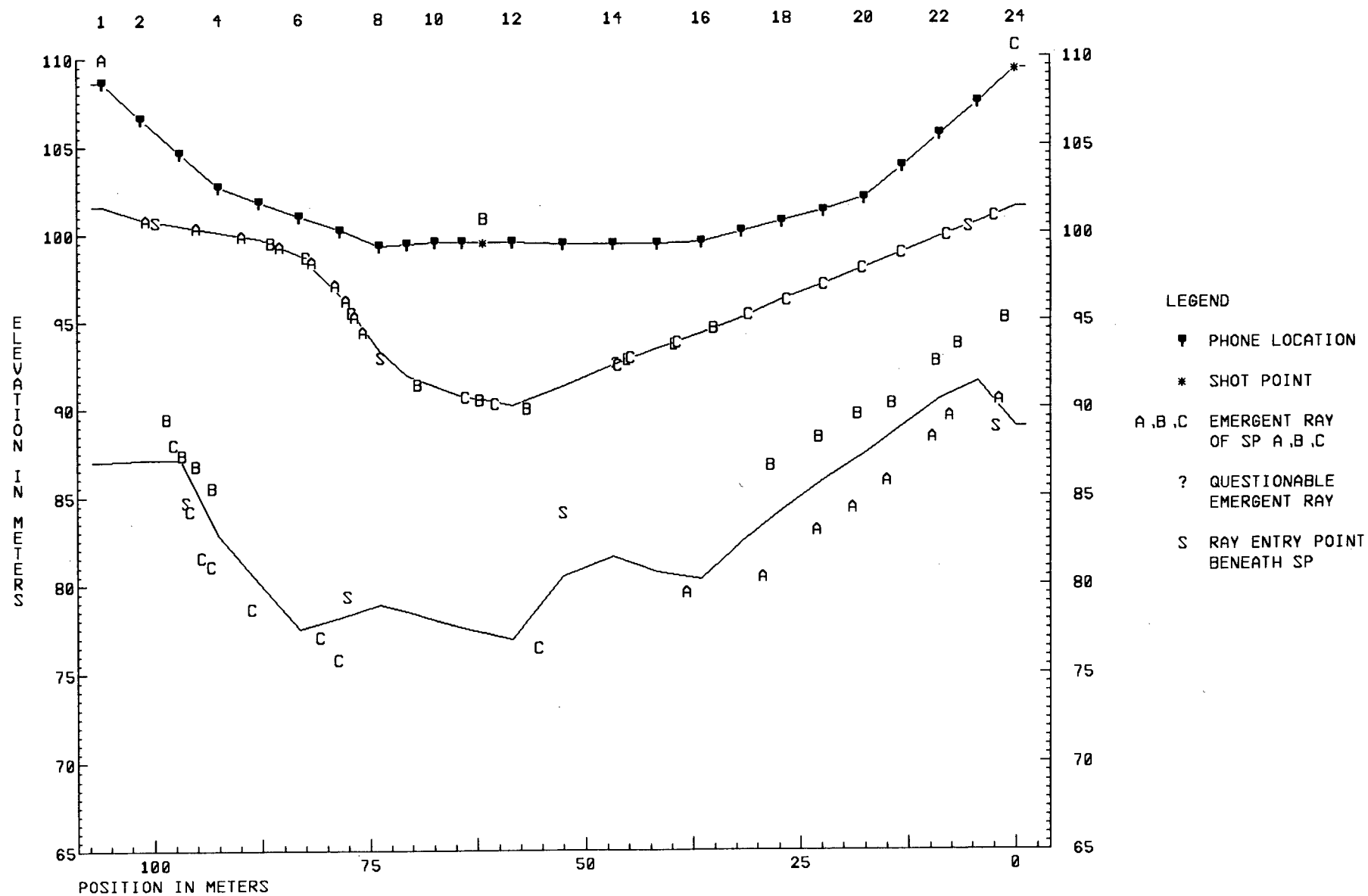
FILE 96-6.SIP
 LINE 96-6 EAST-WEST ACROSS DUNCAN CREEK

SPREAD A



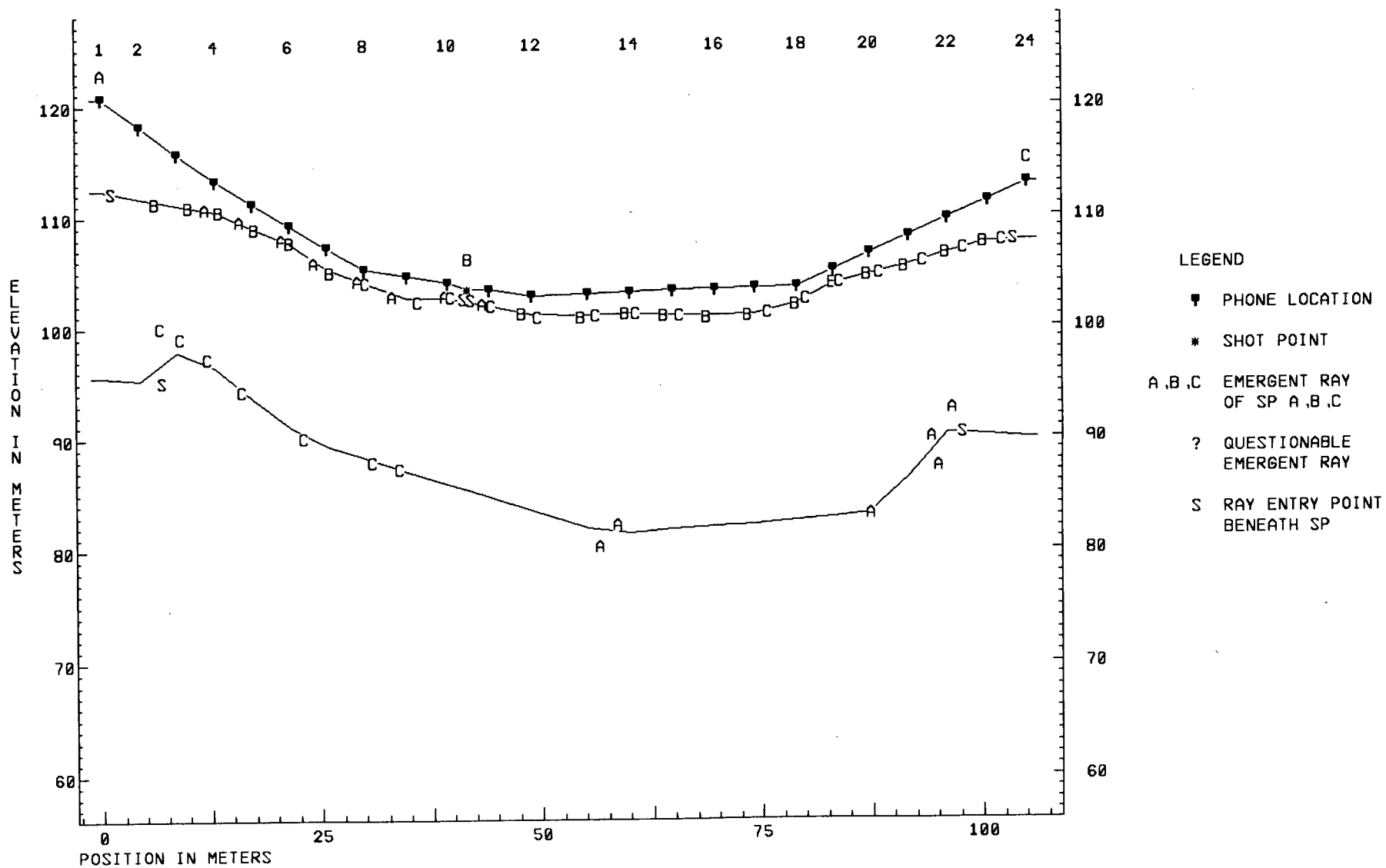
FILE 96-7.SIP
96-7

SPREAD A



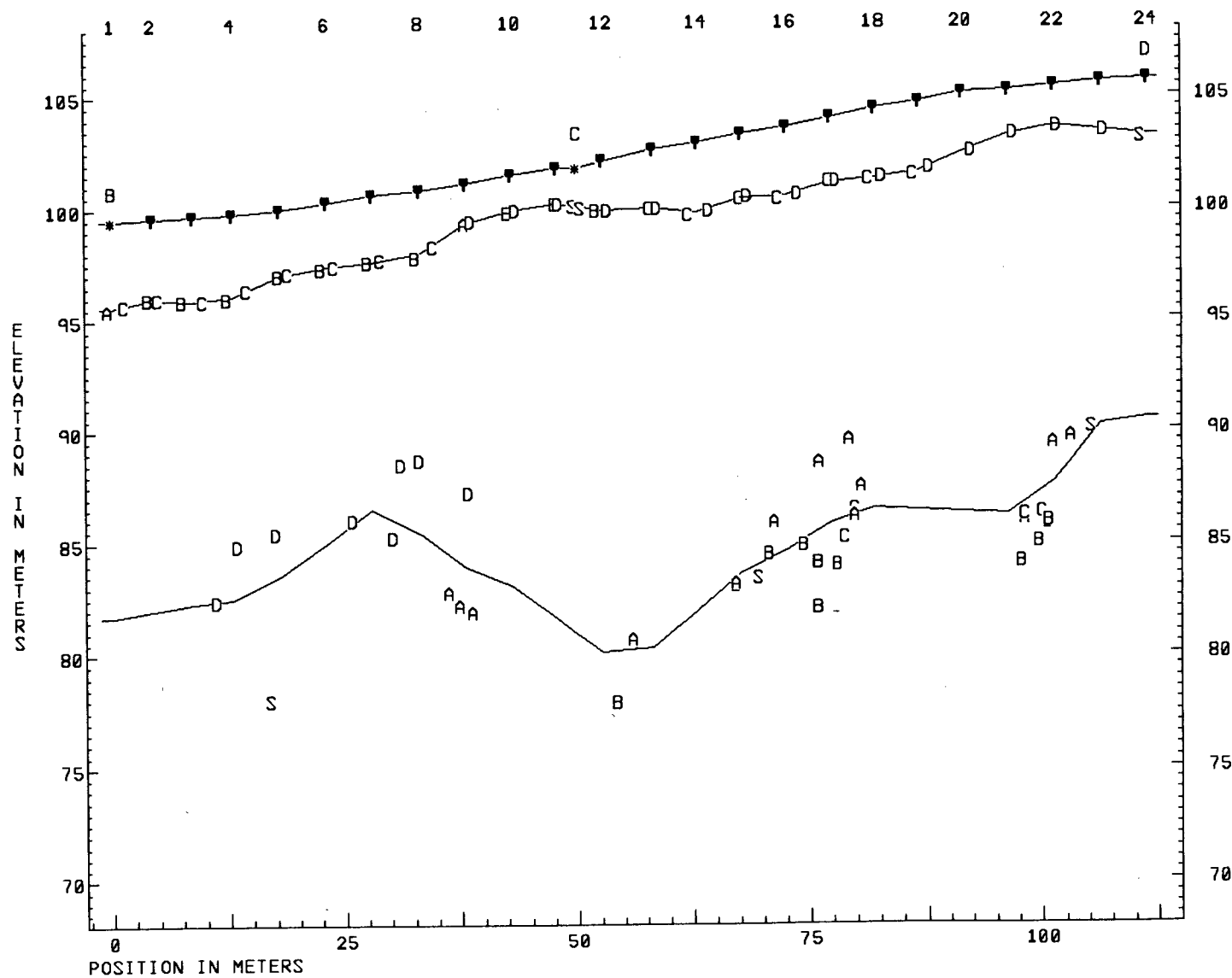
FILE 96-8.SIP
96-8

SPREAD A



FILE 96-9.SIP
96-9

SPREAD A



LEGEND

▼ PHONE LOCATION

* SHOT POINT

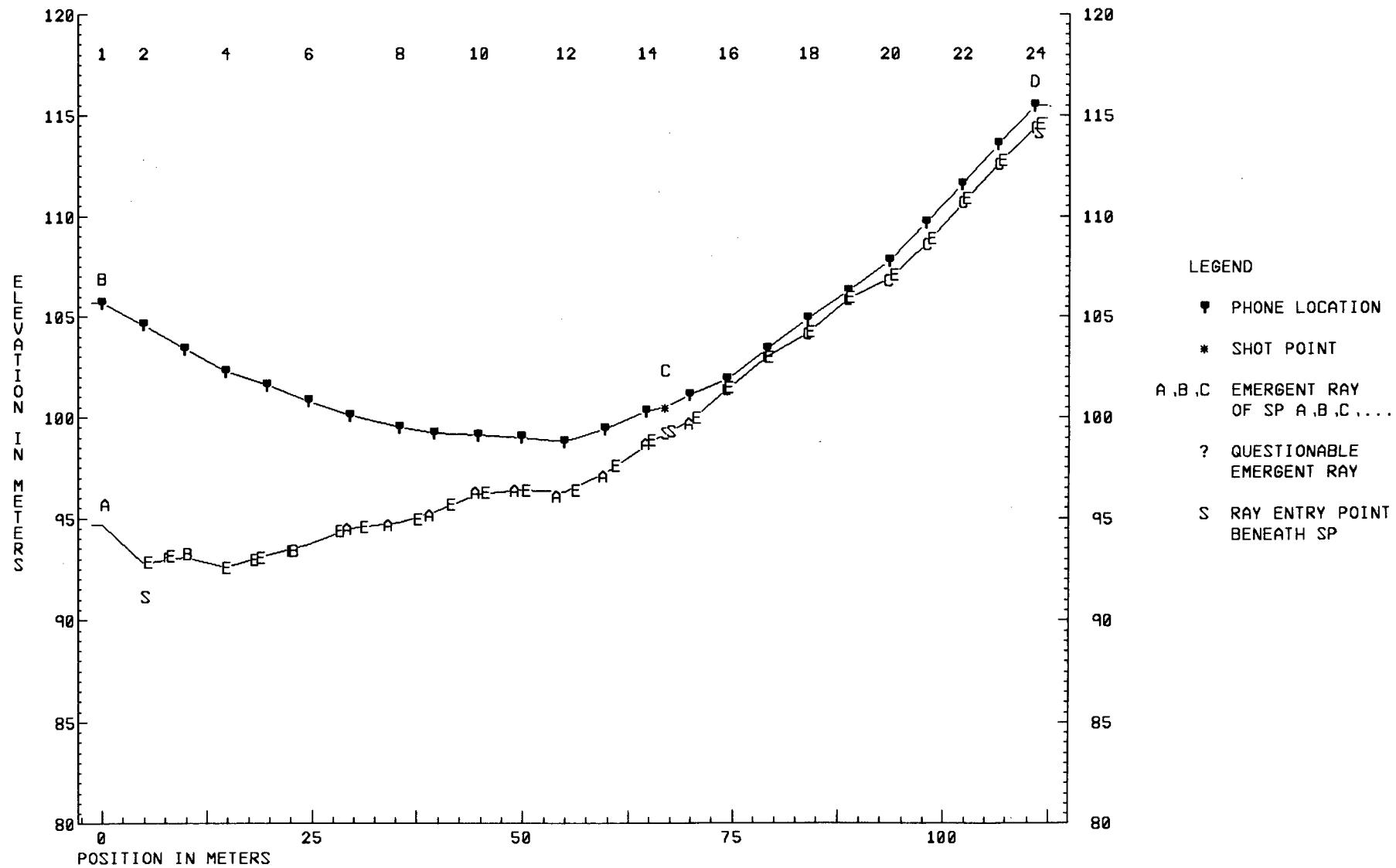
A,B,C EMERGENT RAY
OF SP A,B,C,...

? QUESTIONABLE
EMERGENT RAY

S RAY ENTRY POINT
BENEATH SP

FILE 96-10.SIP
96-10

SPREAD A



FILE 96-11.SIP
96-11

SPREAD A

