The following snapshots explain the SEGY file structure:

1. EBCDIC Header

```
C01 DATA FORMAT: SEGY FORMAT 2 (32-bit integer)
C02 ACQUISITION SITE: Hoadley_2012
C03 ACQUISITION DATE: 2012-09-18
C04 ACQUISITION TIME: 08:37:10.000
C05 GEOPHYSICAL CONTRACTOR: ESG CANADA
C06 SAMPLE INTERVAL, RECORD LENGTH: 250 MICROSECONDS, 5000.25 MILLISECONDS
C07 NUMBER OF SAMPLE POINTS  20001
C08 DISTANCE UNITS = METERS
C09 SEGY X-Coordinate = North, SEGY Y-Coordinate = East
C10 TraceHdr 53-56 - Receiver depth (mult. by scalar in bytes 69-70)
C11 TraceHdr 81-84 - Receiver Northing coord(mult. by scalar in bytes 71-72)
C12 TraceHdr 85-88 - Receiver Easting coord(mult. by scalar in bytes 71-72)
C13 TraceHdr 105-106 - Millisec value of event time stamp
C14 TraceHdr 109-110 - Zero time offset from trigger point (ms)
C15 TraceHdr 121-122 - Instrument gain (dB)
C16 TraceHdr 169-170 - Trace weighting factor(2^(-N) volts for least sig bit)
C17 TraceHdr 181-184 - P-wave arrival (microseconds)
C18 TraceHdr 185-188 - S-wave arrival (microseconds)
C19 TraceHdr 203-204 - Trace value measurement units (2=volts)
C20 TraceHdr 205-210 - Transduction constant (sensitivity multiplier)
C21 The constant is encoded with the mantissa as a 4-byte integer(205-208),
C22 and a 2-byte integer (209-210), which is the power of ten exponent
C23 TraceHdr 211-212 - Sensor physical units (6=m/s, 7 = m/s^2)
C24 TraceHdr 233-234 - Sensor Axis Azimuth (10th of degrees)
C25 TraceHdr 235-236 - Sensor Axis Dip (10th of degrees)
C26
C27
C28
C29
C30
C31
C32
C33
C34
C35
C36
C37
C38
C39
C40 END EBCDIC
```

2. Trace Header

Value	Description	Bytes
	Trace index	
	* Trace sequence number within line	1- 4
	Trace sequence number within reel	5- 8
	* FFID - Original field record number	9- 12
	* Trace number within field record	13- 16
	SP - Energy source point number	17- 20
	CDP ensemble number	21- 24
	Trace number	25- 28
	* Trace identification code	29- 30
	Number of vertically summed traces	31- 32
	Number of horizontally stacked traces	33- 34
	Data use (1-production, 2-test)	35- 36
	Distance from source point to receiv grp	37- 40
	Receiver group elevation	41- 44
	Surface elevation at source	45- 48
	Source depth below surface	49- 52
	Datum elevation at receiver group	53- 56
	Datum elevation at source	57- 60
	Water depth at source	61- 64
	Water depth at group	65- 68
	Scaler to all elevations & depths	69- 70
	Scaler to all coordinates	71- 72
	Source X coordinate	73- 76
	Source Y coordinate	77- 80
	Group X coordinate	81- 84
	Group Y coordinate	85- 88
	Coordinate units (1-lenm/ft 2-secarc)	89- 90
	Weathering velocity	91- 92
	Subweathering velocity	93- 94
	Uphole time at source	95- 96
	Uphole time at group	97- 98
	Source static correction	99-100
	Group static correction	101-102
	Total static applied	103-104
	Lag time A	105-106
	Lag time B	107-108
	Delay Recording time	109-110
	Mute time start	111-112
	Mute time end	113-114
	* Number of samples in this trace	115-116
	* Sample interval in ms for this trace	117-118
	Gain type of field instruments	119-120
	Instrument gain	121-122
	Instrument gain constant	123-124
	Correlated (1-yes / 2-no)	125-126
	Sweep frequency at start	127-128
	Sweep frequency at end	129-130
	Sweep lenth in ms	131-132
	Sweep type 1-lin,2-parabol,2-exp,4-ohter	133-134
	Sweep trace taper length at start in ms	135-136
	Sweep trace taper length at end in ms	137-138
	Taper type 1-lin,2-cos2,3-other	139-140
	Alias filter frequency, if used	141-142
	Alias filter slope	143-144
	Low cut frequency, if used	149-150
	High cut frequency, if used	151-152
	Low cut slope	153-154
	High cut slope	155-156
	Year data recorded	157-158
	Day of year	159-160
	Hour of day	161-162
	Minute of hour	163-164
	Second of minute	165-166
	Time basis code 1-local,2-GMT,3-other	167-168
	Trace weighting factor	169-170
	Geophone group number of roll sw pos 1	171-172
	Geophone group number of trace # 1	173-174
	Geophone group number of last trace	175-176
	Gap size (total # of groups dropped)	177-178
	Overtravel assoc w taper of beg/end line	179-180
	+ CDP X	181-184
	+ CDP Y	185-188
	+ Inline Number	189-192
	+ Crossline Number	193-196
	+ Shot Point Number	197-200
	+ Shot Point Scalar	201-202
	+ Trace value measurement unit	203-204