

SEG-Y TRACE HEADER DEFINITION FOR GEOSCIENCE AUSTRALIA LAND ARCHIVE TAPES

VERSION September 2002

REFERENCES:

LAND SEISMIC TAPE FORMATS & DISCO EXAMPLES. BMR RECORD 1991/98
SEG-Y Tape format. Barry et. al., 1975 (Geophysics)

Byte locations in ()

LINETRC (1-4)

Trace sequence number within line; numbers increase if additional reels are required on the same line.

REELTRC (5-8)

Trace sequence number within each reel; each reel starts with trace number one.

FFID (9-12)

Original field record number.

CHAN (13-16)

Channel number within original shot.

ESPNUM (17-20)

Energy Source Point Number.

Valid only for shot ordered data. For multiple shots (usually explosives) at the same location this number will be sequential.

For Vibroseis data acquired using the ARAM24 this is set equal to 1 since the ARAM24 writes the shot station here.

CDP (21-24)

CMP ensemble number.

SEQNO (25-28)

Trace number within CMP ensemble; each ensemble starts with trace number one.

TRACEID (29-30)

Trace identification code.

1 = seismic data

2 = dead

3 = dummy

4 = time break

5 = uphole

6 = sweep

7 = timing
8 = water break
9 - N = optional (N ≤ 32,767)

VSTACK (31-32)

Number of vertically summed traces yielding this trace. Used to identify number of sweeps per VP for Vibroseis data.
(1 is one trace, 2 is two summed traces etc)

FOLD (33-34)

Number of horizontally stacked traces yielding this trace.

DATAUSE (35-36)

Data use: 1 - production. 2 - test data

SOFFSET (37-40)

Distance from source point to receiver group (m).

RELEV (41-44)

Receiver group elevation; all elevations above sea level are POSITIVE (m).

SELEV (45-48)

Surface elevation at source (m).

SDEPTH (49-52)

Source depth below surface. POSITIVE (m).

RDATUM (53-56)

Datum elevation at receiver group (m). Sea level is 0 m.

SDATUM (57-60)

Datum elevation at source (m). Sea level is 0 m

WDEPTHSO (61-64)

Water depth at source (m). (not used for onshore data).

WDEPTHRC (65-68)

Water depth at group. (not used for onshore data).

ED-SCAL (69-70)

Scalar to be applied to all elevations and depths specified in bytes 41-68 to give the real value.

Scalar = 1, +/- 10, +/- 100, +/- 1,000 or +/- 10,000. If positive, scalar is used as a multiplier; if negative, scalar is used as a divisor.

CO-SCAL (71-72)

Scalar to be applied to all co-ordinates specified in bytes 73-88 to give the real value.

Scalar = 1, +/- 10, +/- 100, +/- 1,000 or +/- 10,000. If positive, scalar is used as a multiplier; if negative, scalar is used as a divisor.

SHT-X (73-76) SHT-Y (77-80) REC-X (81-84) REC-Y (85-88)

Source co-ordinate - X. If the co-ordinate units are in seconds of arc, the X values represent longitude and the Y values latitude. A positive value designates the number of seconds east of the Greenwich Meridian or north of the equator and a negative value designates the number of seconds south or west.

(Bytes 73-88 not used.)

COORUNIT (89-90)

Co-ordinate units: 1 = length (feet or metres); 2 = seconds of arc

WVEL (91-92)

Weathering velocity (m/s).

SUBWVEL (93-94)

Sub-weathering velocity (m/s).

SHUPHOLE (95-96)

Uphole time at source (ms).

RCUPHOLE (97-98)

Uphole time at group(ms).

SHSTAT (99-100)

Source static correction (ms).

RCSTAT (101-102)

Group static correction (ms).

STAPPLY (103-104)

Total static applied (ms). '0' means no statics applied

LAGTIMEA (105-106)

Lag time A. Time in ms between end of 240 byte trace identification header and time break. Positive if time break occurs after end of header, negative if time break occurs before end of header. Time break is defined as the initiation pulse which may be recorded on an auxiliary trace or as otherwise specified by the recording system.

LAGTIMEB (106-107)

Lag time B. time in ms between time break and initiation time of the energy source. May be positive or negative.

DELAY (107-108)

Recording delay in ms. Time between initiation time of energy source and time when recording of data samples begins. (usually used for marine deep water recording)

MUTESTRT (111-112)

Mute time : start (ms).

MUTEEND (113-114)

Mute time : end (ms).

NSAMPLES (115-116)

Number of samples in this trace.

SRATE (117-118)

Sample interval in usec for this trace.

GAINTYPE (119-120)

Gain type of field instruments: 1 - fixed, 2 - binary, 3 - floating point, 4 to n – Optional

INGCONST (121-122)

Instrument gain constant.

INITGAIN (123-124)

Instrument early or initial gain (dB).

CORRFLAG (125-126)

Correlated : 1 = yes. 2 = no (Vibroseis only)

SWEEPSRT (127-128)

Sweep frequency at start (Hz) - Vibroseis only.

SWEEPEND (129-130)

Sweep frequency at end (Hz) - Vibroseis only.

SWEEPLNG (131-132)

Sweep length in ms (Hz) - Vibroseis only.

SWEEPTYP (133-134)

Sweep type: 1 = linear (monosweep), 2 = parabolic, 3 = exponential, 4 = other (varisweep).

SWEEPSTP (135-136)

Sweep trace taper length at start in ms - Vibroseis only.

SWEEPETP (137-138)

Sweep trace taper length at end in ms - Vibroseis only.

TAPERTYP (139-140)

Taper type - Vibroseis only. 1 = linear, 2 = cos**2, 3 = other.

ALIASFIL (141-142)

Alias filter frequency (Hz), if used.

ALIASLOP (143-144)

Alias filter slope (dB/oct).

NOTCHFIL (145-146)

Notch filter frequency (Hz), if used

NOTCHSLP (147-148)

Notch filter slope (dB/oct).

LOWCUT (149-150)

Low cut filter frequency

HIGHCUT (151-152)

High cut filter frequency (Hz).

LOWCSLOP (153-154)

Low cut filter slope (dB/oct)

HICSLOP (155-156)

High cut filter slope (dB/oct)

YEAR (157-158)

Shot instant – year

DAY (159-160)

Shot instant - day

HOUR (161-162)

Shot instant - hour (24 hour clock)

MIN (163-164)

Shot instant - minute

SECOND (165-166)

Shot instant - second

TIMEBASE (167-168)

1 = local, 2 = GMT

TRWEIGHT (169-170)

Trace weighting factor : defined as $2(-N)$ volts for the least significant bit.
($N=0,1...32,767$) (not used).

RSTASWP1 (171-172)

Geophone group number of roll switch position one. (not used)

RSTATRC1 (173-174)

Geophone group number of trace number one within original field record.

RSTATRCN (175-176)

Geophone group number of last trace number within original field record.

GAPSIZE (177-178)

Gap size (total number of groups dropped)

OVERTRVL (179-180)

Overtravel associated with taper at beginning or end of line. 1 = down, 2 = up (not used)

OPTIONAL INFORMATION BYTES 181-240

CDP-STAT (183-184)

CDP station.

SHT-STAT (185-186)

Shot station.

REC-STAT (187-188)

Receiver station.

SHOT (189-190)

Shot number.

CDP-X (191-194)

CDP co-ordinate - X. Units as per bytes 73-78

CDP-Y (195-198)

CDP co-ordinate - Y.

AIRMAG (199-202)

Aeromagnetic value in nT

GRAVITY (203-206)

Bouguer Gravity value in mgal.

SHRSTAT (207-208)

Shot residual static (ms).

RCRSTAT (209-210)

Receiver residual static(ms).

CDP-ELEV (211-212)

CDP elevation (m).

DMXSHT (213-214)

Original processing demultiplexed shot number (if applicable)

SHIFT (215-216)

Time shift (ms), for transcribed data

RFR-ELEV (217-218)

Refractor elevation (m).

RFR-VEL (219-220)

Refractor velocity (m/s).

RFR-DEL (221-222)

Refractor delay (ms).

RFR-TST (223-224)

Total receiver refraction static (ms)

Bytes 225-240 used for additional optional information not listed here - refer to individual SEG-Y EBCDIC header for details.