

CHAPTER 4

SEISMIC SECTION CORRELATION WITH BOREHOLE LOGGING

The vertical resolution of the subsurface was constrained by frequency bandwidth of seismic data. The high frequency data are important for analyzed seismic section correlation with borehole logs. The borehole logging can be helpful in the correlation of seismic section. Therefore, the correlation with seismic section would be provided high degree of credit in subsurface structure and borehole logging.

In this chapter, for doing correlating, the final stack section with SVD filter was performed in the processing steps. The CDP number 1072 and 1691 were the nearest positions to the borehole logging MS-184 and MS-190 point, respectively (see Figure 1-3 in chapter 1). The geophysical logs used in this research were supported by the Electricity Generating Authority of Thailand (EGAT).

For doing correlation between seismic section with geophysical log, since the final stack section with residual static correction data was presented in time section, it must be converted to depth section. The depth conversion process was operated using root mean square velocity function obtained from velocity analysis step. The density, neutron and gamma ray logs were used to correlation with seismic depth section.

4.1 CDP 1072

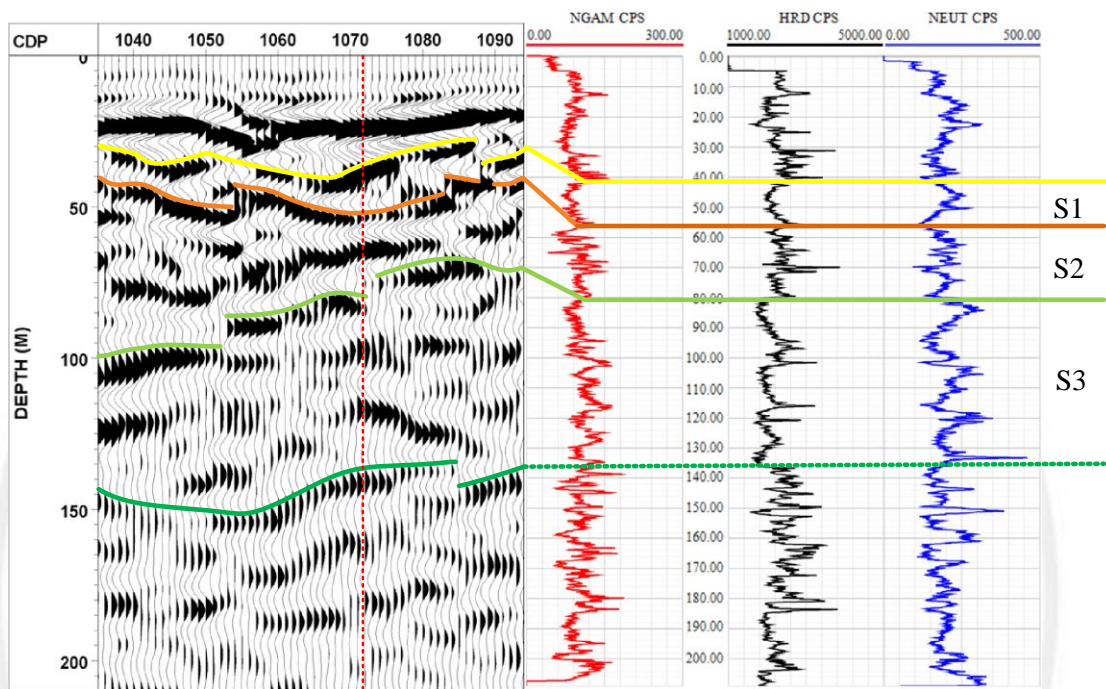


Figure 4-1. Correlation at CDP 1072. Track 1: gamma ray (NGAM) was represented from 0.00 CPS to 300.00 CPS. Track 2: high resolution density (HRD) scale ranges in value from 1000.00 CPS to 5000.00 CPS. Track 3: neutron logs (NEUT) was displayed from 0.00 CPS to 500.00 CPS.

The base of sequence boundary (dark green line) of S3 was represented by abrupt change in density and neutron values. The top of the sequence boundary (light green line) of S3 was constrained by change in density, neutron and gamma ray values. The seismic reflector at 40 meter (orange line) was indicated by changing in density, neutron and gamma ray values. The seismic reflector at 30 meter (yellow line) was picked by changing in density, neutron and gamma ray.

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4.2 CDP 1691

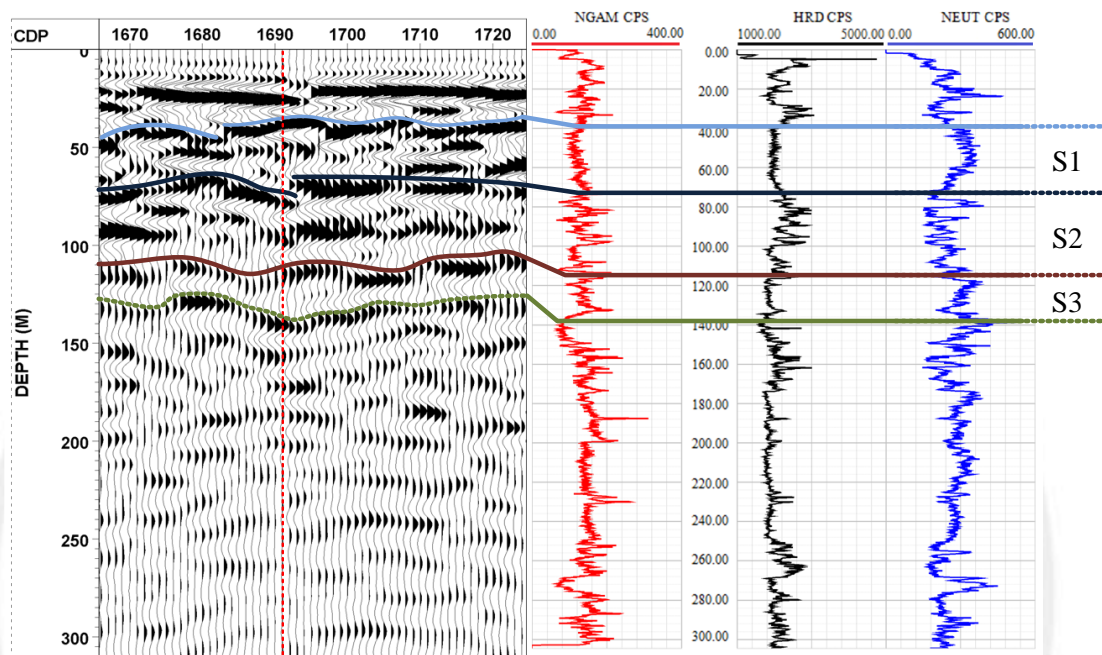


Figure 4-2. Correlation at CDP 1691. Track 1: gamma ray (NGAM) was represented from 0.00 CPS to 400.00 CPS. Track 2: high resolution density (HRD) scale ranges in value from 1000.00 CPS to 5000.00 CPS. Track 3: neutron logs (NEUT) was displayed from 0.00 CPS to 600.00 CPS.

The base of sequence boundary (olive green line) of S3 was indicated by gradually changing in density, neutron and gamma ray logs. The top of the sequence boundary of S3 (crimson line) was interpreted by abrupt change in density, neutron and gamma ray values. The top of sequence of S2 was represented by abrupt changes in density, neutron and gamma ray logs. The top of the sequence was corresponded to the seismic reflector at 70 meter (navy blue line). The seismic reflector at 40 meter (light blue line) was picked at sudden change in density and neutron.