CS-3 Well Log Curve Naming

Revised: April 2006

1.0 PURPOSE

1.1 To be able to uniquely and rigorously identify and catalogue well log curves.

1.2 To allow searching for well log curves by Generic Type.

1.3 To be able to automatically assign a Business Value to known curves.

1.4 To be able to determine the behaviour of curve loading scripts.

2.0 STANDARD

2.1 **Introduction -** Since the development of wireline logging tools for formation evaluation began in the 1920's there have been a staggering number of logging tools produced. There has long been a need to catalogue the known mnemonics of curves produced by these logging tools so as to facilitate searches of corporate and National data repositories of well log data. Sourcing of information from the logging companies has been a particular problem in the past and there have been a number of industry initiatives such as PWLS which have addressed this issue with some success. In order to manage the CDA DataStore, a further development of these industry approaches to deal with specific data issues to do with well log curve storage was required.

2.2 **Curve Filter –** Previous versions of the CS-3 standard have been in use on the CDA DataStore for much of the last 10 years. The primary purpose was to control the behaviour of curve loading scripts and to determine which curves were loaded Online and which were loaded as Archive. The last update to the curve filter was in 2000 and identified approx. 4500 mnemonics. It became apparent by reviewing the published work of PWLS and others that a very large number of curve mnemonics were not recognised by the existing filter and these unknown curves were thus automatically diverted to Archive storage when loaded to the CDA DataStore. This new revision identifies over 50,000 curve mnemonics with a correspondingly much higher success rate in correct attribution of loaded curves.

2.3 **Generic Curve Types –** The list of Generic Curve Types has been expanded upon so that 13 types are now differentiated. Every curve mnemonic now identified is classified into one of these groups to enable improved searching. The actual choice of group for any particular curve is subjective. Previous schemes have attempted to

classify curves either by tool type or by what the tool is measuring. CDA have taken a more practical approach by taking elements from both of these classification schemes to produce a classification that a non-expert would be able to use. This may lead to some technically speaking 'spurious' classifications but it does provide a good 'initial filter' for the non-petrophysicist. The groups are as follows:

CS-3 Code	Description
CURVE_CAL	Caliper
CURVE_DEN	Density
CURVE_INC	Inclinometry
CURVE_NEUTRON	Neutron
CURVE_NGR	Natural Gamma Ray
CURVE_NMR	Nuclear Magnetic Resonance
CURVE_OTHER	Not specified elsewhere
CURVE_QUARANTINE	Not yet defined
CURVE_RES	Resistivity
CURVE_SON	Acoustic, sonic
CURVE_SP	Spontaneous potential
CURVE_TEMP	Temperature
CURVE_TIME	Time

2.4 **Business Value –** The proposed business value is given for each known curve. There are three values, High (HBV), Low (LBV) or Quarantine. The allocation of these values was based primarily on the Generic Curve Type. For example all CURVE_OTHER were allocated as LBV whereas all CURVE_RES were allocated as HBV. The Business Value was then amended manually in some cases to resolve certain inconsistencies and also to accommodate the Business Value settings of the previous version of CS-3. In the CDA DataStore, the Business Value attribute determines whether a curve is stored Online (HBV) or Archive (LBV).

2.5 **Quarantined curves -** A new feature of the curve filter is the treatment of unknown mnemonics. Any unknown curves are designated as Quarantined (and given the CS-3 code CURVE_QUARANTINE) so that they can be easily identified and treated separately by periodic intervention as new information comes to light. In the CDA DataStore quarantined curves are treated as LBV and stored as Archive.

3.0 CS-3 Curve Mnemonics look-up table

3.1 The attached Excel spreadsheet contains the complete CS-3 attribution of all the curve mnemonics known at the time of publication. This will be updated regularly and dated. Previous versions will be available from CDA on request if auditing is required. This table may be applied as a loading script to determine various attributes within curve catalogues.

3.2 The current version is:

CS3 Curve Mnemonics LU (25_04_06).xls

3.3 The attributes (column headings) are detailed below:

Mnemonic
The curve mnemonic as derived from the data.
Logging Contractor
Short code for the Logging Contractor (if known). The uniqueness of a curve mnemonic is only guaranteed if the logging contractor attribute is also known.
CS-3 code
Generic curve type.
Description
A text description of the curve based on the tool type and what it is used to measure.
Property (Classification)
The physical property that is being measured.
Unit Quantity (Unit Class)
The unit class that is being measured.
Business Value
High, Low or Quarantine.