Frequently Asked Questions

Directive 080: Well Logging

Updated July 2018

General

Q1. What are the minimum logging requirements for a single vertical or deviated well?

A1. See sections 3.3.1 and 4.3.1 of *Directive 080: Well Logging* for the minimum logging requirements.

A licensee may apply for substitution to or relief from these requirements where special circumstances warrant as per section 6 of *Directive 080*.

Q2. What are the minimum logging requirements for a single horizontal well?

A2. See sections 3.3.1 and 5.3(11) of *Directive 080* for the minimum logging requirements.

A licensee may apply for substitution to or relief from these requirements where special circumstances warrant as per section 6 of *Directive 080.*

Q3. What are the minimum logging requirements for a multiwell pad?

A3. See sections 3.3.2, 4.3.2, 5.3(11), and 5.3(12) of *Directive 080* for the minimum logging requirements.

A licensee may apply for substitution to or relief from these requirements where special circumstances warrant as per section 6 of *Directive 080.*

Q4. Under what circumstances will a well logging waiver be granted for below the surface casing interval?

A4. Section 6.1 describes the conditions under which a waiver will be granted for technical or operational circumstances.

Section 6.2 describes how to apply for a waiver based on pre-existing offset well log data.

Note: Although logging waivers may be granted on the full suite of logs for a vertical or deviated well on a multiwell pad, a gamma ray log from total depth to base surface casing on the vertical or deviated well will still be required.

Q5. Under what circumstances will a logging waiver be granted for the surface casing interval?

A5. Section 6.1 describes the conditions under which a waiver will be granted for technical or operational circumstances.

Q6. Do I need to submit a logging waiver request for the surface casing interval for a multiwell pad if requirement 4 in section 3.3.2 is fulfilled by logging the surface casing interval from a vertical observation well, licensed by the AER, on the same pad or surface facility lease?

A6. No.

Q7. What if I want to use logging services that are not listed in section 4.3.3 to determine the lithology, fluid, and porosity of the strata?

A7. A request for substitution of acceptable well log types may be submitted to the AER. See section 4.3.6 for details.

Q8. How does the AER evaluate logging waiver requests under section 6.2?

A8. AER geological staff review the request and assess the suitability, quality, and age of offset well logging data and the local geological setting, including the distribution, heterogeneity, and continuity of the strata of the interval for which the logging waiver is requested.

Well logging waivers are granted only when sufficient existing offset well log data are available to confidently interpret the lithology, fluid, and porosity of the strata at the subject well location. They are not granted based on an arbitrary distance between the subject well and the offset well(s).

Q9. What is the purpose of the well log summary report?

A9. The AER requires a record of all well logs acquired at the well to ensure that all logs taken are submitted to the AER. Licensees do not have to create or resubmit a well log summary report for corrected logs that are replacing the original deficient logs identified by the AER.

Reporting and Submission of Well Logs

Q10. Are submitted well logs disseminated to the public?

A10. Nonconfidential logs are available to the public for purchase. Confidential logs are not disseminated to the public.

Q11. Do paper copies of well logs need to be submitted?

A11. No. All well logs are to be submitted in electronic format.

Q12. Can I submit electronic well log files through the DDS system or by email?

A12. No. At this time, all well log files must be submitted on CD or DVD**.**

Q13. What are the submission format requirements for the well log data and additional data sets?

A13.

Document type	File extension
Well logs (includes FMI and spinner logs)	.tif, .las, .pdf
Well log summary report	.xls & .xlsx
Spinner survey summary	.pdf, .xlx & .xlsx, .doc & .docx, .tif
Geological reports	.pdf, .xlx & .xlsx, .doc & .docx

Q14. How do I identify a log that is a corrected resubmission of a deficient log?

A14. Put the AER-assigned reference number (e.g., R0012345) in the "other information" block of the log's file name. See section 7.4(22) for an example.

Q15. What is the maximum acceptable file name length?

A15. The maximum is 256 characters, including the extension. See section 7.3 for details.

Q16. If service companies provide additional files to support the logs (e.g., HLG file), can these files be included on the CD or DVD?

A16. Yes; however, the AER will process only the data required under *Directive 080*. Other data will not be accepted as formal submissions.

Q17. Should I submit both TIFF and PDF formats for a single raster log?

A17. No. Each raster well log is to be submitted in either TIFF or PDF format, but not both. Select the most appropriate format for the type of well log being submitted.

There is a difference in page layout. If you submit a log in TIFF, a single page has no length or width limitation, and one image can represent an individual well log.

However, there must be no gaps or blank spaces between pages, and the scale must be vertically aligned. If a log is submitted in PDF, a single page cannot be more than 200 inches long. However, a PDF may contain multiple pages.

Q18. How many characters are required for a complete unique well identifier (UWI)?

A18. A log header is required to contain a minimum 14 character UWI. The survey code (SS), which is assumed to be 1, and the leading zero in the event sequence (ES) can be excluded. Refer to *Directive 059: Well Drilling and Completion Data Filling Requirements* for details. The example below outlines a UWI, which would be written out as 02/11-36-006-05W4/2.

Example:

SS	LE	LSD	SC	TWP	RG		M	ES
1	02	11	36	006	05	W	4	02
		Root UWI						

Q19. When submitting borehole image logs or formation microimager (FMI) logs, what level of processing/ interpretation should be submitted?

A19. The static and dynamic processed images should be submitted for borehole image or FMI logs in both 1:10 and 1:240 scales. Annotations and interpretations are optional.

Q20. Do field copies or working-copy logs have to be submitted?

A20. No. We only require final copy logs.

Q21. Do cross-section logs for multiple wells in a single log have to be submitted?

A21. No.

Q22. Do both LAS and raster logs have to be submitted?

A22. Yes, both LAS and raster logs must be submitted.

Q23. Do core gamma-ray logs have to be submitted?

A23. No.

Q24. What happens if a licensee submits an incomplete or invalid well log?

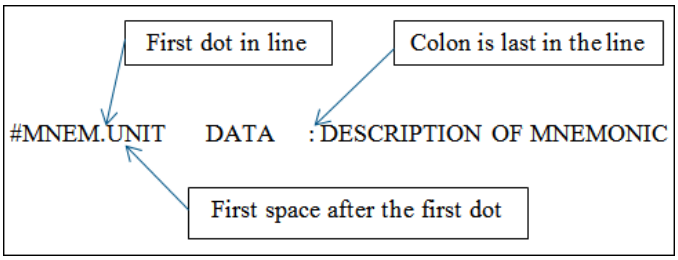
A24. The licensee is responsible for submitting complete and accurate raster and LAS data. If the licensee fails to comply, the AER will respond in accordance with its compliance assurance program and the licensee will have to submit a valid replacement log. See sections 7.6 and 7.7 for data requirements.

Q25. What is the address for well log submissions?

A25. Alberta Energy Regulator
Attention: Well Logs c/o Information Management Branch
Suite 1000, 250 – 5 Street SW
Calgary, Alberta T2P 0R4

Q26. How can I verify if the Log ASCII Standard (LAS) file meets *Directive 080* and Canadian Well Logging Society standards?

A26. You can use the table below, which provides a summary from *Directive 080* and LAS versions 2.0 and 3.0 of what is and is not permitted in an LAS file.

Section	Validation description
General formatting	Tabs cannot be used; only spaces are permitted The comment indicator (#) cannot start with spaces To identify a section, a tilde (~) must be inserted as the first character, e.g., ~Well Blank lines are not permitted The number of characters before a line feed cannot exceed 5000 File size cannot be greater than 250 MB The file must have at minimum version, well, curve, and ASCII sections The file must start with version and well sections, and end with the ASCII section The ASCII section must always be the last section in a file In LAS version 2.0, sections cannot be defined more than once in a file In LAS version 3.0, sections can be defined more than once in a file, but must follow 3.0 index suffixes In LAS version 2.0, the parameter section and the other section are optional In LAS version 3.0, the other section is not valid In LAS version 3.0, the parameter section and the user-defined data sections are optional MD logs must have a curve code of 001 TVD logs must have curve code of 960 Three-line delimiters must be used for version, well, curve, and parameter sections. Delimiters are the dot, space, and colon. The mnemonic values are read from after the first dot to before the colon. See example. 
Version section (~Version)	Version section cannot be defined more than once VERS mnemonic must be present with a value of 2.0 or 3.0 WRAP mnemonic must be present In version 3.0, WRAP value must state NO In version 3.0, DLM mnemonic must be present and valid

Section	Validation description
Well section (~Well)	Well section cannot be defined more than once First three mnemonics must be STRT, STOP, and STEP DEPTH, STRT, STOP, and STEP values must all have the same unit of measure (metric or time) STRT value must match the first depth value in ASCII section STOP value must match the last depth value in ASCII section STOP value cannot be greater than the total depth of the well STEP value must be equal to the difference of every depth in the ASCII section STEP value of zero indicates an inconsistency in the ASCII section One of the two following equations must be true: a. STRT/STEP = whole number **AND** STOP/STEP = whole number b. (STRT-STOP) / STEP = whole number NULL value must equal one of the following: a. -99999 b. -9999 c. -9999.25 d. -999.25 e. -999 f. -99.99 DATE mnemonic must exist in the well section with a valid date DATE mnemonic is defined as the run date / end log date DATE format must be defined in the mnemonic description, i.e. DD/MM/YYYY KB or GL mnemonic must be present KB or GL value must be present and valid UWI mnemonic must be present UWI value must be present and valid LIC mnemonic must be present LIC value must be present and valid UWI and LIC needs to match SRVC mnemonic must be present SRVC value must be present
Curve section (~Curve)	In version 3.0, curve section can be defined as Curve or LOG_Definition DEPT or DEPTH must be the first mnemonic TIME or ETIM must be the first mnemonic, if log is time based MD logs must be indicated by DEPTH value of 001 TVD logs must be indicated by DEPTH value of 960 DEPTH value can only be MD or TVD; it cannot be both The number of mnemonics in the curve section must equal the number of rows in the ASCII section
ASCII section (~ASCII)	ASCII section must be the last section of the file In version 3.0, ASCII can be defined as ASCII or LOG_Data DEPT or DEPTH data must be the first column in the ASCII section TIME or ETIM data must be the first column in the ASCII section, if the log is time based