### WITS\_WITSML Record 8 Logging While Drilling (LWD) and Formation Evaluation (FE)

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| **WITS Record ID:** 08 | **Logical Record Type:** 158 | **Auto/Manual:** Automatic |
| **Trigger:** [TIME], [DEPTH] or [TIME/DEPTH] Transmit at specified time interval (secs), depth interval (feet or meters) based on hole depth when drilling new hole or making a new pass, or a combination of these. | | |
| **Data Source:** Data acquired in real-time and computed over the trigger interval. Record transmitted and computations reset when triggering interval occurs. If data is DEPTH-triggered, then only on-bottom data is included in computations. Depths of MWD sensors transmitted in the record are the depths for the last valid reading for that sensor. Record is not sent if not circulating or tool is not operating. | | |
| **Data Typology:** Reference (Ref), Date\_Time\_Stamp(Dts), Real-time-Measure (Rtm), Real-time-Signal (Rts), Limit (Lim), Set-Point (Spt), Calculation (Cal), Distribution (Dis), Command (Com), Parameter (Par), Synthetic Value (Syn), Alarm (Alm), Interpreted (Int), Modeled (Mod), Observed (Obs), Code (Cod), Count (Cnt), Cumulative (Cml), Status (Sta), Expected (Exp), Estimated (Est), Downhole Measurement (Dhm) | | |
| **Data Field Types:** A = Alphanumeric String, L = 32 bit 2's complement signed integer, S = 16 bit 2's complement signed integer, F = 32 bit IEEE single precision floating point, E = Engineering, B = Boolean (1 if True and 0 if False), D = Date, T = Time, V = Variant, IL = Integer List, FL = Float List, EL = Engineering List, TL = Text List | | |
| **Reserved Characters:** Comma (,) - Separates Fields, Semi Colon (;) - Separates Items in a Standard Record, Colon (:) - Separates items in Date and Time Fields, Ampersand (&) - Separates items in a List | | |
| **Data Mnemonic Abbreviations:** Raw (Raw), Average (Avg), Max (Max), Min (Min), Mean (Men), Root-Mean-Square (Rms), Percent (Pct), Error (Err), Correlation (Cor), Probability (Prob), Variance (Var), Spread (Spd), Mean-Absolute-Deviation (Mad), Ratio (Rat), Standard Deviation (Std), Mode (Mod), Weighted Mean (Wtm), Dispersion (Dis), Product (Pro), Sum (Sum), Cumulative Sum (Csm), Corrected (Cor), Adjusted (Adj), Instantaneous (Ins), State (Sta), Observed (Obs), Expected (Exp), Observed-Cumulative (ObC), Expected-Cumulative (ExC), Total (Tot), Reported (Rep), Interpolated (Itp), Period (Per), Currency (Cur) | | |

| WITS  Record / Item | Operator Description  [WITS Description] | STD WITS Long Mnemonic | Operator Mnemonic for WITSML & OSIsoft PI & ODA | Field Type | Length | Typology | Transmit Units (FPS) | Transmit Units (Metric) | | Data System Type |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0801 | Well Identifier | WELLID | WELLID | A | 16 | Ref | ~~~ | ~~~ | Unique Well ID | |
| 0802 | Sidetrack/Hole Sect No. | STKNUM | STKNUM | S | 2 | Ref | ~~~ | ~~~ | Unique Wellbore ID | |
| 0803 | Record Identifier | RECID | RECID | S | 2 | Ref | ~~~ | ~~~ | Identification | |
| 0804 | Sequence Identifier | SEQID | SEQID | L | 4 | Ref | ~~~ | ~~~ | Identification | |
| 0805 | Date | DATE | DATE | L | 4 | Dts | ~~~ | ~~~ | Date | |
| 0806 | Time | TIME | TIME | L | 4 | Dts | ~~~ | ~~~ | Time | |
| 0807 | Activity Code | ACTCOD | ACTCOD | S | 2 | Cod | ~~~ | ~~~ | Rig Activity Code | |
| 0808 | Depth Hole (meas) | DMEA | DEPTH | F | 4 | Obs | ft | m | Depth | |
| 0809 | Depth Hole (vert) | DVER | VDEPTH | F | 4 | Cal | ft | m | Depth | |
| 0810 | Depth Bit (meas) | DBTM | BITDEP | F | 4 | Obs | ft | m | Depth | |
| 0811 | Depth Bit (vert) | DBTV | VBITDEP | F | 4 | Cal | ft | m | Depth | |
| 0812 | Pass Number | PASS |  | S | 2 | Cnt |  |  | BHA Run Number | |
| 0813 | Resistivity Sensor Depth  [Depth Resis 1 sensor (meas)] | DR1M | DPRDEP | F | 4 | Dhm | ft | m | Resistivity | |
| 0814 | Resistivity Sensor TVD  [Depth Resis 1 sensor (vert)] | DR1V | DPRVDEP | F | 4 | Dhm | ft | m | Resistivity | |
| 0815 | Resistivity Shallow  [Resis 1 reading] | MR1 | resc01 | F | 4 | Dhm | ohm.m | ohm.m | Resistivity | |
| 0816 | Resistivity Deep  [Resis 1 (borehole corr)] | MR1C | resc02 | F | 4 | Dhm | ohm.m | ohm.m | Resistivity | |
| 0817 | Resistivity 2 Sensor Depth  [Depth Resis 2 sensor (meas)] | DR2M | MPRDEP | F | 4 | Dhm | ft | m | Resistivity | |
| 0818 | Resistivity 2 Sensor TVD  [Depth Resis 2 sensor (vert)] | DR2V | MPRVDEP | F | 4 | Dhm | ft | m | Resistivity | |
| 0819 | Resistivity 2 Shallow  [Resis 2 reading] | MR2 | resc03 | F | 4 | Dhm | ohm.m | ohm.m | Resistivity | |
| 0820 | Resistivity 2 Deep  [Resis 2 (borehole corr)] | MR2C | resc04 | F | 4 | Dhm | ohm.m | ohm.m | Resistivity | |
| 0821 | Gamma 1 Sensor Depth  [Depth G.Ray 1 sensor(meas)] | DG1M | GAM1DEP | F | 4 | Dhm | ft | m | Gamma Ray | |
| 0822 | Gamma 1 Sensor TVD  [Depth G.Ray 1 sensor(vert)] | DGIV | GAM1VDEP | F | 4 | Dhm | ft | m | Gamma Ray | |
| 0823 | Gamma Sensor 1  [Gamma Ray 1 reading] | MG1 | grc01 | F | 4 | Dhm | gAPI | gAPI | Gamma Ray | |
| 0824 | Gamma Sensor 1 Corrected  [Gamma Ray 1(borehole corr)] | MG1C | grc01C | F | 4 | Dhm | gAPI | gAPI | Gamma Ray | |
| 0825 | Gamma 2 Sensor Depth  [Depth G.Ray 2 sensor(meas)] | DG2M | GAM2DEP | F | 4 | Dhm | ft | m | Gamma Ray | |
| 0826 | Gamma 2 Sensor TVD  [Depth G.Ray 2 sensor(vert)] | DG2V | GAM2VDEP | F | 4 | Dhm | ft | m | Gamma Ray | |
| 0827 | Gamma Sensor 2  [Gamma Ray 2 reading] | MG2 | grc02 | F | 4 | Dhm | gAPI | gAPI | Gamma Ray | |
| 0828 | Gamma Sensor 3  [Gamma Ray 2(borehole corr)] | MG2C | grc03 | F | 4 | Dhm | gAPI | gAPI | Gamma Ray | |
| 0829 | Neutron Sensor Depth  [Depth Por 1 sensor (meas)] | DP1M | MNPDEP | F | 4 | Dhm | ft | m | Porosity | |
| 0830 | Neutron Sensor TVD  [Depth Por 1 sensor (vert)] | DP1V | MNPVDEP | F | 4 | Dhm | ft | m | Porosity | |
| 0831 | Neutron Porosity  [Porosity Tool 1 reading] | MPO1 | npc | F | 4 | Dhm | % | % | Porosity | |
| 0832 | Depth Por 2 sensor (meas) | DEPTP2M | DP2M | F | 4 | Dhm | F | M | Porosity | |
| 0833 | Depth Por 2 sensor (vert) | DEPTP2V | DP2V | F | 4 | Dhm | F | M | Porosity | |
| 0834 | Porosity Tool 2 reading | MPO2 | MPO2 | F | 4 | Dhm | ---- | ---- | Porosity | |
| 0835 | Downhole Temperature (Annulus) [Downhole Fluid Temp (ann)] | MFTA | tempFluidAnn | F | 4 | Dhm | degF | degC | Temperature | |
| 0836 | Downhole Temperature (Pipe) [Downhole Fluid Temp (pipe)] | MFTP | tempFluidPipe | F | 4 | Dhm | degF | degC | Temperature | |
| 0837 | Downhole Fluid Resis (ann) | MFRANN | MFRA | F | 4 | Dhm | OHMM | OHMM | Fluid Resistivity | |
| 0838 | Downhole Fluid Resis (pipe) | MFRPIPE | MFRP | F | 4 | Dhm | OHMM | OHMM | Fluid Resistivity | |
| 0839 | Density Sensor Depth  [Depth Form Density (meas)] | DFDM | MDLDEP | F | 4 | Dhm | ft | m | Density | |
| 0840 | Density Sensor TVD  [Depth Form Density (vert)] | DFDV | MDLVDEP | F | 4 | Dhm | ft | m | Density | |
| 0841 | Bulk Density  [Formation Density] | MFD | Density | F | 4 | Dhm | g/cm3 | kg/m3 | Density | |
| 0842 | Caliper Sensor Depth  [Depth Caliper (meas)] | DCLM | CALDEP | F | 4 | Dhm | ft | m | Caliper | |
| 0843 | Caliper Sensor TVD  [Depth Caliper (vert)] | DCLV | CALVDEP | F | 4 | Dhm | ft | m | Caliper | |
| 0844 | Caliper | MCLP | caliper | F | 4 | Dhm | in | mm | Caliper | |
| 0845 | Pore Pressure Grad MWD | MFPP | MFPP | F | 4 | Dhm | KGM3 | PPG | Pressure Gradient | |
| 0846 | Frac Pressure Grad MWD | MFFP | MFFP | F | 4 | Dhm | KGM3 | PPG | Pressure Gradient | |
| 0847 | Delta T  [< SPARE 1 >] | SPR1 | sonic | F | 4 | Dhm | unitless | unitless | Azimuthal Density | |
| 0848 | Azimuthal Density Left  [< SPARE 2 >] | SPR2 | densityAzLeft | F | 4 | Dhm | g/cm3 | kg/m3 | Azimuthal Density | |
| 0849 | Sonic Sensor Depth  [< SPARE 3 >] | SPR3 | SONICDEP | F | 4 | Dhm | ft | m | Sonic | |
| 0850 | Sonic Sensor TVD  [< SPARE 4 >] | SPR4 | SONICVDEP | F | 4 | Dhm | ft | m | Sonic | |
| 0851 | Azimuthal Density Right  [< SPARE 5 >] | SPR5 | densityAzRight | F | 4 | Dhm | g/cm3 | kg/m3 | Azimuthal Density | |
| 0852 | High Side Tool Face  [< SPARE 6 >] | SPR6 | gtf | F | 4 | Dhm | deg | deg | Azimuthal Density | |
| 0853 | Magnetic Tool Face  [< SPARE 7 >] | SPR7 | Mtf | F | 4 | Dhm | deg | deg | Azimuthal Density | |
| 0854 | Azimuthal Density Down  [< SPARE 8 >] | SPR8 | densityAzDown | F | 4 | Dhm | g/cm3 | kg/m3 | Azimuthal Density | |
| 0855 | Azimuthal Density Up  [< SPARE 9 >] | SPR9 | densityAzUp | F | 4 | Dhm | g/cm3 | kg/m3 | Azimuthal Density | |
| 0856 | Resistivity 3 Sensor Depth | NBRDEP | NBRDEP | F | 4 | Dhm | ft | m | Resistivity | |
| 0857 | Resistivity 3 Sensor TVD | NBRVDEP | NBRVDEP | F | 4 | Dhm | ft | m | Resistivity | |
| 0858 | Resistivity 3 Shallow | resc05 | resc05 | F | 4 | Dhm | ohm.m | ohm.m | Resistivity | |
| 0858 | Resistivity 3 Deep | resc06 | resc06 | F | 4 | Dhm | ohm.m | ohm.m | Resistivity | |
| 0860 | SPARE 1 | SPR1 | SPR1 |  |  |  | unitless | unitless | TBD | |
| 0861 | SPARE 2 | SPR2 | SPR2 |  |  |  | unitless | unitless | TBD | |
| 0862 | SPARE 3 | SPR3 | SPR3 |  |  |  | unitless | unitless | TBD | |
| 0863 | SPARE 4 | SPR4 | SPR4 |  |  |  | unitless | unitless | TBD | |
| 0864 |  |  |  |  |  |  |  |  |  | |
| 0865 |  |  |  |  |  |  |  |  |  | |
| 0866 |  |  |  |  |  |  |  |  |  | |
| 0867 |  |  |  |  |  |  |  |  |  | |
| 0868 |  |  |  |  |  |  |  |  |  | |
| 0869 |  |  |  |  |  |  |  |  |  | |
| 0870 |  |  |  |  |  |  |  |  |  | |