# CZO Metadata Worksheet

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| Data File Name | Total Gamma Ray Logs |
| Date Prepared | January 2013 |
| Descriptive Title | Application of Mount Sopris Total Gamma Logging Tool to Measure the Fracture Distributions |
| Update Frequency |  |
| Abstract | A natural gamma ray logs are indicating the concentration of thorium (Th), uranium (U), and potassium (K) in the rocks surrounding a borehole and they are measurement of the natural radioactivity of the formation. The energy of the gamma-rays (photons) differs for Th, U, and  K. Potassium emits only gamma photons of energy 1.46 MeV. Thorium emits gamma photons of a number of different energies, the highest of which is 2.62 MeV. Uranium similarly emits gamma photons of a number of different energies with 1.76 MeV as the highest energy that can be detected in a borehole. Here the values indicate total gamma ray energy and are function of well depth. |
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| Data Value Descriptions | 1. Two data sets for each wells: Down and Up 2. Down: From top of the well to bottom of the well 3. Up: From bottom of the well to top of the well 4. Depth in meters in first column and gamma radiation variations in count-per-second in the second column |
| Keywords | Natural gamma ray logging; CZMW and GP bore-wells; potassium, uranium and thorium concentration |
| Methods | Wire-line logging: The natural gamma log system consists of a gamma ray detecting probe, geophysical logging cable and a digital counter instrument. It is done by lowering the probe down the drill hole and recoding the gamma radiation variation (in count-per-second) with depth (in meters). |
| Citation | The following acknowledgment should accompany any publication or citation of these data: Logistical support and/or data were provided by the NSF-supported Shale Hills Susquehanna Critical Zone Observatory. |
| Publications |  |
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