

Site Name: Cwmrheidol Mine **Grid Reference: SN 730 783**

RIGS Category: Educational & Scientific

Earth Science Category: Mineralogy

1:50,000 Geological: BGS Sheet 163, Aberystwyth

RIGS Statement of Interest:

Cwmrheidol Mine is an integral part of a valuable group of three RIGS, the others being the Ystumtuen/Penrhiw West and Bwlchgwyn/Llwynteify mines on the hilltop to the north. All of these mines worked the Castell Lode, and various branches of it, for lead and zinc. The Cwmrheidol section consists of two deep drainage adits driven to drain the shaft-based mines above. Mining and milling of ores was focussed here during the 19th Century.

The Castell Lode hereabouts carries substantial amounts of marcasite, an iron sulphide which is present in the Central Wales Orefield as a regional, very late, phase of mineralisation, post-dating the economic deposits. Marcasite contamination caused ore-dressing problems at these mines, and a historical account of this is given in the RIGS notes for Ystumtuen/Penrhiw West.

Marcasite is also very unstable with respect to air and water, decomposing rapidly to form a highly acidic solution. Interaction of this solution with oxygen precipitates the iron as hydrated iron hydroxides, collectively referred to as ochre. These processes have occurred underground at Cwmrheidol with an intensity not seen elsewhere in Central Wales, the result being an exceptionally acidic and metalliferous mine-drainage and a great abundance of ochre. The discharge from Cwmrheidol Mine is, as a consequence, a major and challenging environmental problem, which has been studied by generations of students and postgraduates alike. For the environmental geochemist, there is no other site in Central Wales that offers so many challenges.

Surveyed by: J.S. Mason