



## South Wales RIGS Group Site Record

### RIGS Description

**SECTION A**

General	South Wales
<b>Site Name:</b> Cilifor Top	<b>File Number:</b> Site_RS_4
<b>RIGS Number:</b> 671	<b>Surveyed by:</b> Russell Society
<b>Grid Reference:</b> SS 5050 9250	<b>Date of Visit:</b> 30 <sup>th</sup> July 2011
<b>RIGS Category:</b> Scientific	<b>Date Registered:</b> <b>Owner:</b> Unknown
<b>Earth Science Category:</b> Mineralogical	<b>Planning Authority:</b> Swansea City Council
<b>Site Nature:</b> Grassy farmland, steep hillside, old quarry/ies	<b>Documentation prepared by:</b> Russell Society
<b>Unitary Authority:</b> Swansea City Council	<b>Documentation last revised:</b> 28 <sup>th</sup> February 2012
<b>OS 1:50,000 Sheet:</b> 159	<b>Photographic Record:</b> Attached
<b>OS 1:25,000 Explorer Sheet:</b> 164	
<b>BGS 1:50,000 Sheet:</b> E246/247	
<p><b>RIGS Statement of Interest:</b></p> <p>Cilifor Top is proposed as a RIGS on account of the occurrence of the uncommon mineral wavellite in the area around the hill.</p> <p>Wavellite has been described as an “uncommon but locally abundant mineral” (Tindle 2008). There are three such “locally abundant” localities in England and only one in Wales, namely on Gower (four key localities) with Pembrokeshire (two key localities). Within the area of the South Wales RIGS project, ie on Gower, only two of the four key classic localities are both accessible and have wavellite that can still be found. As these two occur in contrasting geological environments, both are recommended as RIGS; they are Pwlldu Bay (qv) and Cilifor Top.</p> <p>Around Cilifor Top, the wavellite occurs as typical radiating white to green aggregates, sometimes individual, sometimes <i>en masse</i>, on joint surfaces of sandstone. So far it has been found on scattered loose blocks (float) in the fields, in a quarry, and on the steep slope north-east of the Top. Only one confirmed in situ occurrence is known, although reports from the early 1900s indicate more. One old reference (North 1916) indicates that ‘the mineral (was) observed to abound in all the quarries in which the rock (was) worked to a distance of two miles from Cil Ifor Hill.’ The sandstone referred to occurs in the Millstone Grit series.”</p> <p>Although more work is needed to more definitively outline the area within which the wavellite occurs, there are sufficient outcrops so far and an interesting contrast in its geological occurrence to recommend Cilifor Top (and the surrounding area) as a RIGS.</p>	

**Geological setting/context:**

Occurrences of wavellite, which is an uncommon mineral, have been reported in the area of Cilifor Top hill over many years. These have been marked on the map (see below).

North (1916) refers to a report from 1837 (Logan, not examined) in which "There is a record of the occurrence of Wavellite at Cil Ifor Hill, near Llanrhidian, in the Gower Peninsula. The mineral was found in the joints of a 'whitish-yellow close-grained sandstone...used for building purposes,' and it is further mentioned that 'the mineral (was) observed ... to a distance of two miles from Cil Ifor Hill.'"

Several more recent occurrences have been found, occurring on sandstone joint surfaces, in loose material, either on blocks in a quarry, or on float around the top of the hillside or the steep north-east slope. Only one confirmed recent in situ occurrence is known, in sandstone, but there is potential for more and this needs further investigation.

"Cilifor Top, crowned by the prominent earthworks of an Iron Age hilltop settlement, is made up of fine-grained sandstones and thinly bedded shales, much faulted and disturbed. Wavellite occurs on joint planes as typically golden-yellow acicular radiating crystalline discs up to 10mm in diameter" (Plant and Jones 2001). The host rock is Millstone Grit.

On the site visit, a walk was made around the top part of the hill; wavellite was easily found on the joint surfaces of loose material at several localities. One small quarry was examined; although wavellite was not found in situ it was easily found in loose material close by. The wavellite found on this visit, occurring on sandstone joint surfaces, showed varying degrees of weathering.

At the other wavellite occurrence recommended for RIGS status, Pwlldu Bay, the wavellite occurs in chert in Carboniferous Limestone, a quite different host rock to the Cilifor Top wavellite.

Wavellite is a basic hydrated aluminium phosphate. Although Plant and Jones (2001) attempt to give a synopsis of how it might have formed, there has been no specific research on this mineral on Gower and further work is indicated. Its formation must be related to the formation of the Rottenstones and the decalcification of the Limestone, so a greater understanding of the wavellite should help in understanding both these other processes and the geological history of Gower.

**References:**

Geological Survey field slips (??1900s) Field slips from the original survey of sheets 246 and 247, held at the BGS office at Tongwynlais.

GREEN, D; COTTERELL, T; JONES, I; COX, D; CLEEVELY, R. 2007. Wavellite in Britain. UK Journal of Mines and Minerals, vol 28.

Russell Society. 1987. Mineral localities on the Gower Peninsula, field visit report for 25 July 1987, Russell Society Newsletter, September 1987.  
Mineralogy of Wales website (ongoing) Amgueddfa Cymru – National Museum of Wales [www.museumwales.ac.uk/en/mineralogy/database/](http://www.museumwales.ac.uk/en/mineralogy/database/)

NORTH, F J. 1916. The Minerals of Glamorgan, Trans Cardiff Nat. Soc. vol. 49 p18-51

PLANT, S. 1998. The Gower Peninsula, South Wales. Russell Society Newsletter number 32, April 1998, p21-23.

PLANT, S P and JONES, I E. 2001. Wavellite and variscite on Gower, Swansea, South Wales, J Rus Soc vol 7 pt 2, p79-81.

Russell Society (1987) Mineral localities on the Gower Peninsula, field visit report for 25 July 1987, Russell Society Newsletter, September 1987.

TINDLE, A G. 2008. Minerals of Britain and Ireland, Terra Publishing, p529-531.

**SECTION B****PRACTICAL CONSIDERATIONS:**

Please score Accessibility and Safety Red Amber or Green

**Accessibility:**

Comment: The open hilltop is readily accessible although the permission of local farmers should be sought. Some of the old quarries and steep hillside are more difficult to access - Amber.

**Safety:**

Comment: Open hilltop – Green. Quarry and steep hillside - Amber

**Conservation status:**

AONB. Cilifor Top Iron Age hillfort is a Historic Landscape Characterisation Archive under Cadw and the Glamorgan-Gwent Archaeological Trust (HCLA 066). The hillfort is also a scheduled ancient monument 301311; how much of the area comes under this designation is not known.

**OWNERSHIP/PLANNING CONTROL:**

**Owners/tenants:** Unknown

**Planning Authority:** Swansea City Council

**Planning status/constraints/opportunities:**

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**CONDITION, USE & MANAGEMENT:**

**Present use:** Open farmland in part, rest not in use.

**Site condition:** Good on the hilltop.

**Potential threats:** Ancient monument on the Top

**Site Management:** Periodic checks. Ensure any in situ occurrences are still accessible.

**SITE DEVELOPMENT:****Potential use (general):**

**Potential use (educational):** Good site for those interested in wavellite and its significance: little has been researched on this aspect of wavellite.

**Other comments:**

## Photographic Record



Cilifor Top viewed from the west



Cilifor Top viewed from north along the top



Cilifor Top view from top to north, showing the steep north-east slope



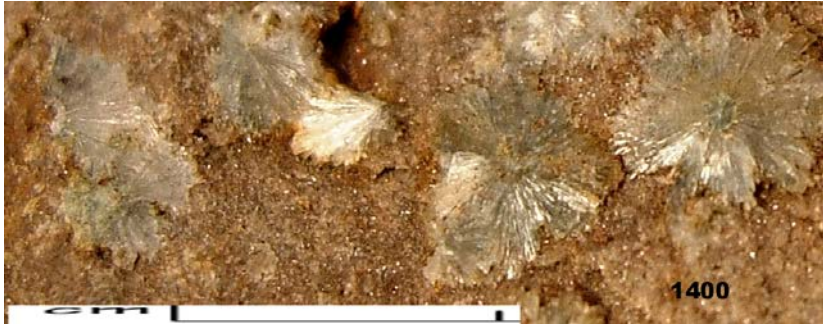
Loose block sandstone with wavellite *en masse* on joint surface



Block 13cm long, field of view on right 3cm across



Individual wavelite aggregates on loose block, field of view c5cm across



Individual wavellite aggregates on loose block, field of view 2.5cm across, probably from quarry at SS504926