COUNTY: DEVON SITE NAME: MELDON APLITE QUARRY

DISTRICT: WEST DEVON

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act, 1981, (as amended).

Local Planning Authority: DEVON COUNTY COUNCIL, Dartmoor National Park Authority

National Grid Reference: SX 566919 Area: 20.8 (ha.) 57.4 (ac.)

Ordnance Survey Sheet 1:50,000: 191 1:10,000: SX 59 SE

Date Notified (Under 1949 Act): 1964 Date of Last Revision: 1976

Date Notified (Under 1981 Act): 1986 Date of Last Revision: –

Other Information:
Within Dartmoor National Park. Boundary amended by extension.

Description and Reasons for Notification:
This site consists of two quarries in the Meldon Aplite with an associated suite of very rare minerals. In the southern quarry the aplite, mainly within hornfelsed shalves and tuffs, is about 20m thick. In the upper level of the quarry it splits into several smaller dykes. Mineralisation along joints through both the aplite and the tuffs consists mainly of fluorite (calcium fluoride). Local pegmatite segregations contain most of the interesting minerals. In the northern quarry the aplite comprises several dykes up to 2m in width, with many offshoots into the cherts and shales. Contacts with these rocks are often mineralised and these can be clearly seen in both quarries.

The aplite is lithium-beryllium rich, and this is reflected in the mineralogy. Petalite (a lithium-aluminium silicate) may be found in perthite veins and occasionally as disseminations in the aplite up to 30% by volume. Lepidolite mica is common and other lithium rich phases include spodumene, montebrasite, amblygonite, and lithium-rich pink and green tourmalines. Beryllium is represented by beryl, chrysoberyl, beryllonite, milarite, eudidymite, bavenite and rhodizite. The last named also contains caesium and boron. The only other known caesium mineral, pollucite, is also in the aplite, while boron is also present in axinite, tourmaline, datolite and priceite. Many of the minerals listed above are unknown elsewhere in Britain and only known from a few localities in the world. Columbite has also been recorded from Meldon. However, the more common minerals such as feldspar, muscovite, apatite and topaz are also of interest in the more pegmatitic parts of the dyke, while prehnite occurs in some veins and cordierite in the surrounding shales.

The Meldop Aplite Quarries are world famous for the variety of rare granitic minerals they contain.

Red-a-Ven, an old copper trial mine in the Meldon Chert Formation, has a sulphide-rich chert bed about 0.75m wide, containing abundant pyrrhotite with arsenopyrite and chalcopyrite, which outcrops in the Red-a-Ven Brook below the mine dumps. It is associated with narrow bands of wollastonite hornfels (scarns) containing tin-bearing garnets and the rare tine silicate mineral malayaite. The garnets are of two types, both the andradite and grossularite are tin-bearing, but the amount present varies depending on the presence or absence of malayaite in the same rock. Other minerals of interest are scheelite, helite, axinite, datolite,

danburite, lollingite, bornite, molybdenite, pyroxenes, and good specimens of green idocrase.

The dumps at Red-a-Ven yield interesting specimens of sulphide bearing scarns and cherts in which the associated tin-tungsten mineralisation is represented by unusual silicates. Malayaite is only known from one other locality in the world and tin-bearing garnets are also very unusual. The site is important for research on the genesis and metallurgical benefication of ore-bearing scarns. In addition, interesting specimens of fairly rare calc-silicate minerals can be collected.