

# 35<sup>TH</sup> INTERNATIONAL GEOLOGICAL CONGRESS

27 AUGUST - 4 SEPTEMBER 2016 | CAPE TOWN, SOUTH AFRICA



## OD POST 4 Zevenwacht Wine Farm and Tin Mine

**TRIP LEADER: Doug Cole**



## ITINERARY

Leave Cape Town Convention Centre and drive eastward to the suburb of Kuils River before taking the Langverwacht Road to the Zevenwacht Wine Estate, a total distance of 38 km. Leave the vehicle and walk approximately one kilometre along a track through the vineyards to reach the area of the abandoned mine adits and machinery. Participants will focus on an accessible adit named the "F shaft", where the nature and morphology of the tin-bearing lode can be examined. A filled-in shaft named the "B shaft" and another partially filled-in adit are also present and the boiler and winch that was used for hoisting the mine cage in the "B shaft" are still in place. Participants will walk back to the of the Zevenwacht Wine Estate and can enjoy the delights of the estate in the form of wine tasting, a cellar tour and a genuine South African braai (barbecue). Participants will then return by vehicle to the Cape Town Convention Centre.

The tin deposits on the Zevenwacht Wine Estate form one of several hydrothermal deposits associated with intrusion of granite and minor gabbro and diorite of the pan-African Cape Granite Suite with the deposits being concentrated in a northwest-trending zone between Somerset West and Yzerfontein. Vein-hosted mineralisation is predominant with the veins or lodes trending between northwest and north-northwest. The veins are both exogranitic being hosted by the Malmesbury Group metasediments, and endogranitic. On the Zevenwacht Wine Estate and adjacent areas, the veins are endogranitic being hosted by coarse-grained, porphyritic granite named the Spier Granite. They trend north-northwest within a 500 m-wide zone and the individual lodes are up to 3 metres wide, dip moderately (20 to 35 degrees) west or east and consist of aplite dykes and irregularly developed quartz veins. Several tin deposits were mined during the early 1900s with those on the Zevenwacht Wine Estate and adjacent areas accounting for the bulk of the production.

The purpose of the half-day excursion is to show the participants the nature and morphology of the mineralisation in an abandoned adit, the distribution of the mineralised lodes and some of the mining equipment still in place.

The aplite dykes and quartz veins formed from late magmatic hydrothermal fluids with temperatures in excess of 550°C. The ore minerals comprise cassiterite, wolframite and arsenopyrite with tourmaline, quartz and mica forming the gangue minerals. In the No. 4 Lode, which we will examine in the "F shaft" adit, the grade of tin is high, up to 51% over 2 cm, but with the highest grades being restricted to the thinnest ores. An average yield of almost 3% tin over a stoping width of one metre was reported and this compares favourably with average yields of 1 to 1.5% tin over stope widths of 1 to 2 metres for genetically-similar, endogranitic lodes in Cornwall. Ore concentrates from the No. 4 Lode in the "F shaft" contained between 19.75 and 33% W and from the results of drilling into the No. 4 Lode in 1977/1978 by Billiton Exploration S. A. Ltd.,  $WO_3$  values varied between 139 and 31 500 ppm and Sn values between 101 and 2565 ppm.

Approximately 28 tons of cassiterite concentrate and 5 tons of wolframite concentrate were exploited from the lodes between 1902 and 1919. It should be noted that the bulk of the tin production was exploited from alluvial gravels beneath the west-flowing Creek stream that is located south of the Zevenwacht Wine Estate. These gravels produced 750 tons of cassiterite concentrate between 1905 and 1956, as against 28 tons from the lodes. They occupy a palaeochannel below the Creek stream and consist of a quartz conglomerate about 1 metre thick above weathered granite and containing 0.29 to 1.78% Sn overlaid by 1.5 metres of sand with pebble layers averaging 0.16% Sn and covered with a soil, sand and clay overburden averaging 5.4 metres in thickness. The former workings have been covered or rehabilitated and can no longer be inspected.

Maximum number of participants 30 plus 1 guide.

This walking part of the excursion to the Tin mines will take about 2 hours and the whole trip including transport

and the wine estate will take about 5 hours.

Participants are advised to bring rain-proof clothing.

After the mine tour, group to depart to Zevenwacht Wine Estate to enjoy a wine tasting with the resident wine maker South African Barbeque dinner, before returning to Cape Town.

**DATE:**

4 September 2016

**Minimum Persons 8**

**Maximum Persons 30**

**COST INCLUDES:**

- 1 x Barbeque dinner, in private lapa (EXCLUDING BEVERAGES)
- Wine tasting at Zevenwacht
- Transport in private touring vehicles
- Local English speaking driver on all transfers
- Driver meals where necessary
- Entrance fees to sightseeing venues as stated in the itinerary above