MIZEN HEAD

Background information:

Mine District: West Cork

Mine Name: Mizen Head

Alternative Names:
Cloghane

Elements of interest:
Cu

Project Prefix: MIZ

County:
Cork

Townland:
Cloghane

Grid Reference:
E74636, N23620

Geology and Mineralization

The Cu-Ba mines of West Cork are hosted by the Old Red Sandstone succession of the Munster Basin. The sediments of the Munster Basin were deposited in a half graben and subsequently uplifted and folded into eastnortheast-trending anticlines that now comprise the rugged peninsulas of the southwest corner of the island. The Mizen Head deposit is hosted by the Toe Head Formation but little is known about this deposit.

Production and Mining History

Mizen Head was reportedly worked by Colonel Hall in the early 19th century from an adit driven in the base of the cliff but its main fame, or infamy, was as a bubble mining company (Cowman and Reilly 1988). The Mizen Head Mining Company issued shares in an unproven prospect in what amounted to a scheme to raise cash from investors fraudulently. The venture ran from 1853 to 1854 and only 7 tons of poor quality copper ore were raised, to a value of £72.

Site Description and Environmental Setting

There is little trace of mining activity at Mizen Head. A small stope in the cliff face (O'Sullivan 2006) may be the remains of Colonel Hall's early 19th-century workings (Fig. 1). A shaft above it, south of the Mizen Head visitor centre, has not been explored but is apparently not linked to the stope (O'Sullivan 2006). Over 300m east is the main site of the mid-19th century operations. There is now no trace of the two shafts marked on the map – both were apparently filled in the 1960s (Fig. 1). The remains of the dressing floor (photo,

above right) include pea-sized waste as well as a small extent of cobbled floor. There are also the remains of a walled structure, apparently a mine building. The land in the area is used exclusively for grazing, mainly of cattle. The nearby visitor centre and lighthouse are important attractions for visitors in the region.

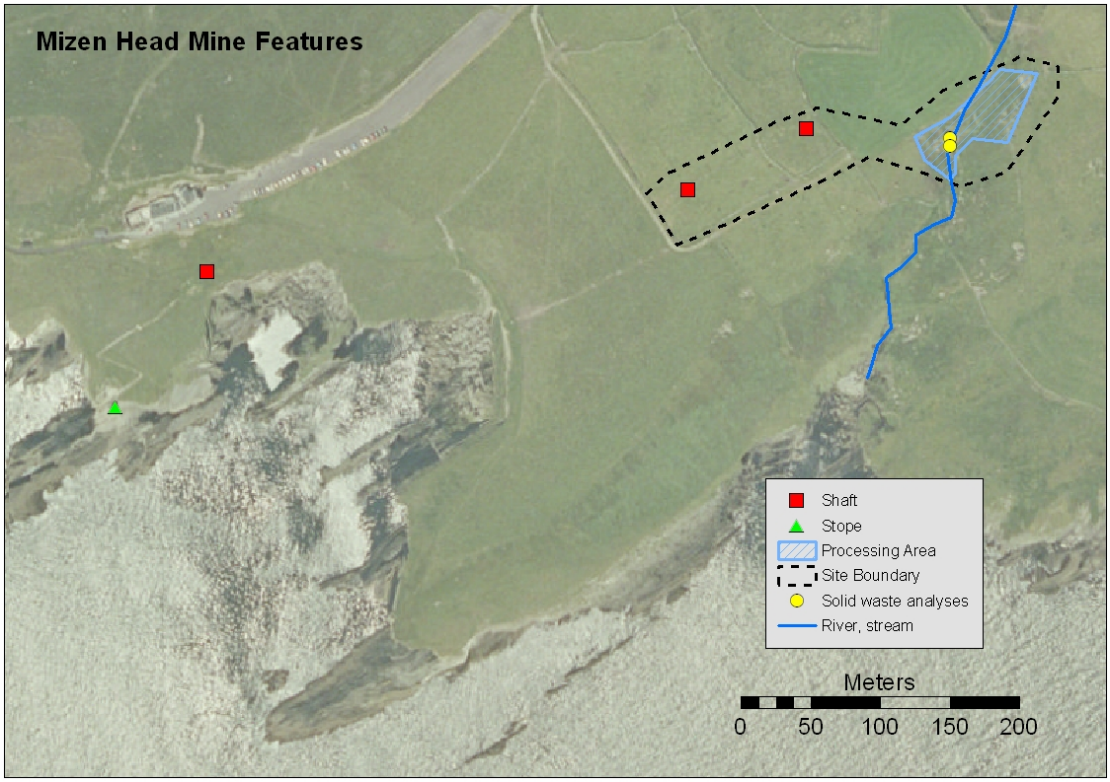

Fig 1 Mizen Head: Mine Features

Geochemical assessment

1. Surface water

No surface water samples were taken. Access to the river was difficult and there was no evidence of any run-off or discharge to it.

2. Groundwater

No groundwater samples were taken.

3. Stream sediments

No stream sediment samples were taken.

4. Solid waste

The exposed mine waste at Mizen Head is extremely limited in scale, with an area of 147 m^2 and an assumed volume of 73 m^3. Only two solid waste analyses were made on the dressing floor. Table 1 summarizes the data. Some enrichment in Cu and Ba is apparent, as well as above-background concentrations of Pb, As and Sb. The As concentration exceeds the ATSDR minimum reference level in soil for a child (20 mg/kg) but is well below soil guideline values for industrial sites. The concentrations of other elements measured do not exceed soil guideline values for industrial sites or ATSDR minimum reference limits for adults.

Table 1 Solid waste XRF analyses, Mizen Head

mg/kg	Cu	Ba	Pb	As	Sb
SP01.1	1979	1029	236	109	130
SP01.2	507	693	94	61	157

5. HMS-IRC Site Score

The HMS-IRC Site Score for Mizen Head is 2. Though very low, the score is higher than some other sites in West Cork, such as Crookhaven, that have more extensive solid waste heaps. The reason for the higher score is the proximity of the site to a stream, giving rise to a high surface water pathway score because of the potential to contaminate the stream. Otherwise, the pathway scores are low, reflecting the small area and volume of waste as well as the low measured concentrations of metals, particularly of high-relative toxicity elements such as Pb and As.

Table 1 HMS-IRC Site Score, Mizen Head

Waste	Dressing Floor
1. Hazard Score	11
2. Pathway Score	
Groundwater	0.44
Surface Water	1.80
Air	0.0
Direct Contact	0.0
Direct Contact (Livestock)	
3. Site Score	**2**

6. Geochemical overview and conclusions

The very small amount of solid waste exposed at Mizen Head has low concentrations of most elements except for Cu (max 1979 mg/kg). None represent any significant risk to human or animal health. The proximity of the site to a stream indicates the possibility of some contamination of the aquatic ecosystem. However, the site is close to the cliff edge where the stream terminates so the scope for contamination is limited.

References

Cowman, D. and Reilly, T.A. (1988) The Abandoned Mines of West Carbery. Promoters, Adventurers and Miners. *The Geological Survey of Ireland.*

O'Sullivan, P. (2006) The mines of Sheeps Head and Mizen Head peninsula, County Cork. Journal Mining Heritage Trust of Ireland, 6, 23-36.