City of Greater Bendigo: Marong Heritage Study Mining Sites

FREDERICK THE GREAT CYANIDE WORKS

Other Names

Location 500 metres south of the junction of Three Chain Road/Sebastian Township Road, Frederick the Great Reef, Sebastian

Map Reference Raywood 1:25,000 - BV482.456

Victorian Heritage Register	No
National Estate Register	No
Planning Scheme	No

Description Constructed on the southern end of a large tailing dump are two lines of brick cyanide vats. Each line contains 3 vats. Some of the vats still retain the central pillar for the support of agitating devices. The wooden agitating arms (bush timber construction) still survive for some of the vats. There is a tip dray in the vicinity.

History Period of activity: c1933-1943

Thematic Context Mining

Comparative Examples There are five other cyanide works sites within the study area. These are: Devonshire Sand, Gold Dumps (Moon Reef), Old Tom Reef, Shamrock and Wilson's Hill. All are from the 1930's period of mining on Bendigo and therefore relate to the second phase of cyaniding in Victoria. There are no sites in the study area which belong to the first phase of cyaniding, prior to 1914. The Frederick the Great site is the most intact of these.

Statement of Significance The sites displays relatively intact artefacts for a large scale cyaniding operation (criterion B) which has considerable potential to educate and illustrate the cyaniding process (criterion C). The site represents the last phase of mining at the Frederick the Great mine and was instrumental in maintaining the economy of Sebastian during the 1930s (criterion A).

Level of Significance National Estate

Recommendation The site should be protected by inclusion in the Schedule to the Heritage Overlay Table in the City of Greater Bendigo Planning Scheme, by registration with both the Victorian Heritage Council and the Australian Heritage Council, and in accordance with the general principles of the conservation policy for mining sites. The site should be purchased by the Victorian Government.

Heritage Boundaries The site is bounded by Sebastian Road on the south, Three Chain Road on the west, the access road to the north and the pipe track from the Sebastian reservoir on the east.

References

1. Department of Mines, Victoria. Annual Report including gold and mineral statistics for the year.
2. F. Robbins, "The Sebastian Gold-Rush." The Journal of the Bendigo Field Naturalist Club, September 1972.

3. Victoria, Department of Mines. Annual Report including gold and mineral statistics and boring records for the year.
4. Annual Report of the Secretary for Mines, Victoria.
5. Annual Report of the Secretary for Mines and Water Supply, Victoria.
6. Victoria, Department of Mines, Gold and mineral statistics for the year.
7. Department of Mines, Annual report including statistics relating to the mining industry.
8. “The cyanide process.” The Bendigo Advertiser, Friday, 9 July 1897, p2, col.7.
9. Mining and Geological Journal, January 1939.

Notes

Assessed by David Bannear in February 1992 and reviewed by Peter Milner in June 1998

Chronology

1937 Approximately 30 cyanide plants, employing in all about 300 men, have been operating at Bendigo, Eaglehawk, Huntly, Fosterville, and Sebastian. [1]

At Sebastian, adjoining the enormous sand heap previously described, is another slum heap with the remains of six huge brick-lined cyanide vats. Each vat has a central pillar and axle on which balanced a long wooden log. Mr Fred Lance of Sebastian, who is now 76 years old, worked there in the 1930's before the central pillars were there. He did not know of their existence. Apparently, the finer slums needed agitation, and this was achieved by a horse being attached to one end of the log and walking around the path provided, while the agitating equipment, attached to the other end of the log, was dragged around in the vat. Judging by the old steel and wooden harrows lying directly nearby, these were the rakes that stirred up the slum in the vats so that the cyanide solution could penetrate and dissolve the gold more rapidly. This second cyaniding operation was carried out by Jimmy Doran round about 1933 to 1937. [2]

1941 Sebastian Cyaniders Limited: 27ozs obtained from 10 tons of slag at the Government battery, Bendigo [3]

1942 Sebastian Cyaniders Limited: 1.5ozs obtained from 2 tons of slag at the Government battery, Bendigo [3]

1943 Sebastian Cyaniders Limited: 11ozs obtained from 4 tons of slag at the Government battery, Bendigo [3]

Tailings treatment, principally by cyaniding, in Victoria

1893 5291ozs 2dwt 2 grains of gold obtained from 43,521 tons of tailings by undisclosed processes. [4.12]

1894 2097ozs 14dwt 6 grains of gold obtained from 53,849 tons of tailings by undisclosed processes. [4.14]

1895 5380ozs 8dwt 14 grains of gold obtained from 62,319 tons of tailings by undisclosed processes. [5.10]

1896 8822ozs 15dwt of gold obtained from 115,702.5 tons of tailings by undisclosed processes, but with cyaniding now on the increase. [5.11]

09.07.1897 From the Herald we learn that the Minister of Mines has received from Mr Stone, the departmental assayer, a report on 2 tons of tailings sent to him from Axedale for cyanide experiment. Mr Stone says the lot was treated in four half ton parcels, and the results showed that the best results were secured in each successive parcel, the causes of the loss of gold and consumption being gradually found out and overcome, until in the final parcel an extraction of 74.6 per cent of the gold was obtained for a consumption of 0.53 pounds of cyanide per ton; or a cost of one shilling 4 pence for chemicals, including caustic soda. The value of the gold recovered being 7 shillings 9 pence per ton, the profit was then 6 shillings 5 pence per ton to cover cost and handling and depreciation of plant. ... Some interesting hints are added by Mr Stone, as well as a table, and the whole report is to be printed for the information of the mining community. [8]

1897 15,717ozs 4dwt of gold obtained from 161,723 tons of tailings, mostly by cyaniding. [5.10]

1898 17,845ozs 1dwt of gold obtained from 351,067 tons of tailings, mostly by cyaniding. [5.11]

1899 17,412ozs 13dwt of gold obtained from 359,848 tons of tailings by

cyaniding. [5.11]
□1900□28,741ozs 16dwt of gold obtained from 283,532 tons of tailings by cyaniding. [5.10]
□1901□41,990ozs 10dwt of gold obtained from 482,278 tons of tailings by cyaniding. [5.11]
□1902□43,302ozs 15dwt of gold obtained from 504,212 tons of tailings by cyaniding. [5.14]
□1903□35,839ozs of gold obtained from 444,897 tons of tailings by cyaniding. [5.16]
□1904□48,035ozs 16dwt of gold obtained from 644,925 tons of tailings by cyaniding. [5.18]
□1905□45,221ozs 4dwt of gold obtained from 626,745 tons of tailings by cyaniding. [5.20]
□1906□44,495ozs 15dwt of gold obtained from 665,785 tons of tailings by cyaniding. [5.18]
□1907□65,961ozs of gold obtained from 983,034 tons of tailings by cyaniding. [4.17]
□1908□77,245ozs of gold obtained from 1,225,768 tons of tailings by cyaniding. [4.15]
□1909□75,429ozs of gold obtained from 1,257,338 tons of tailings by cyaniding. [4.18]
□1910□68,583ozs of gold obtained from 1,177,232 tons of tailings by cyaniding. [4.18]
□1911□59,986ozs of gold obtained from 1,102,956 tons of tailings by cyaniding. [4.20]
□1912□55,740ozs of gold obtained from 881,306 tons of tailings by cyaniding. [4.18]
□1913□45,397ozs of gold obtained from 692,256 tons of tailings by cyaniding. [4.17]
□1914□39,920ozs of gold obtained from 607,260 tons of tailings by cyaniding. [4.16]
□1915□21,511ozs of gold obtained from 317,636 tons of tailings by cyaniding. [4.12]
□1916□14,635ozs of gold obtained from 203,016 tons of tailings by cyaniding. [4.5]
□1917□8930ozs of gold obtained from 127,012 tons of tailings by cyaniding. There were 66 cyanide plants in operation during the year. [4.3]
□1918□4420ozs of gold obtained from 45,600 tons of tailings by cyaniding. There were 34 cyanide plants in operation during the year. [4.3]
□1919□4198ozs of gold obtained from 43,000 tons of tailings by cyaniding. [6.4]
□1920□4226ozs of gold obtained from 37,596 tons of tailings by cyaniding. [6.4]
□1921□5326ozs of gold obtained from 39,937 tons of tailings by cyaniding. There were 20 cyanide plants in operation during the year. [6.3]
□1922□5847ozs of gold obtained from 41,163 tons of tailings by cyaniding. There were 12 cyanide plants in operation during the year. [6.3]
□1923□3415ozs of gold obtained from 18,644 tons of tailings by cyaniding. There were 14 cyanide plants in operation during the year. [6.3]
□1924□2052ozs of gold obtained from 12,108 tons of tailings by cyaniding. There were 14 cyanide plants in operation during the year. [6.3]
□1925□971ozs of gold obtained from 8344 tons of tailings by cyaniding. There were 14 cyanide plants in operation during the year. [6.3]
□1926□1323ozs of gold obtained from 7748 tons of tailings by cyaniding. There were 7 cyanide plants in operation during the year. [6.3]
□1927□1672ozs of gold obtained from 11,060 tons of tailings by cyaniding. There were 8 cyanide plants in operation during the year. [6.3]
□1928□1199ozs of gold obtained from 6397 tons of tailings by cyaniding. There were 8 cyanide plants in operation during the year. [6.3]
□1929□772ozs of gold obtained from 4047 tons of tailings by cyaniding. There were 10 cyanide plants in operation during the year. [6.3]
□1930□There were no reports of gold being obtained from tailings by cyaniding during the year. There were no reports of cyanide plants in operation during the

year. [1.3]
□1931□807ozs of gold obtained from 8933 tons of tailings by cyaniding. There were 14 cyanide plants in operation during the year. [1.3]
□1932□2060ozs of gold obtained from 39,317 tons of tailings by cyaniding. There were 22 cyanide plants in operation during the year, including 5 Government plants. [1.5]
□1933□3550ozs of gold obtained from 63,565 tons of tailings by cyaniding. There were 323cyanide plants in operation during the year, including 5 Government plants. [1.5]
□1934□14,842ozs of gold obtained from 321,104 tons of tailings by cyaniding. There were 86 cyanide plants in operation during the year, including 7 Government plants. [1.20]
□1935□22,460ozs of gold obtained from 630,318 tons of tailings by cyaniding. There were 121 cyanide plants in operation during the year, including 7 Government plants. [1.24]
□1936□28,565ozs of gold obtained from 794,640 tons of tailings by cyaniding. There were 141 cyanide plants in operation during the year, including 7 Government plants. [1.29]
□1937□41,923ozs of gold obtained from 1,233,914 tons of tailings by cyaniding. There were 157 cyanide plants in operation during the year, including 7 Government plants. [1.21]
□1938□40,384ozs of gold obtained from 1,202,623 tons of tailings by cyaniding. There were 132 cyanide plants in operation during the year, including 7 Government plants. [3.32]
□1939□43,458ozs of gold obtained from 1,358,304 tons of tailings by cyaniding. There were 150 cyanide plants in operation during the year, including 7 Government plants. [3.25]
1939□Cyanide plants at Bendigo, Eaglehawk, Ironbark, Huntly, Sebastian, Fosterville and Marong are giving in most cases payable results. [9]
□1940□38,759ozs of gold obtained from 1,225,301 tons of tailings by cyaniding. There were 188 cyanide plants in operation during the year, including 7 Government plants. [3.25]
□1941□37,050ozs of gold obtained from 1,176,936 tons of tailings by cyaniding. There were 165 cyanide plants in operation during the year, including 4 Government plants. [3.23]
□1942□19,869ozs of gold obtained from 626,643 tons of tailings by cyaniding. There were 85 cyanide plants in operation during the year, including 2 Government plants. [3.20]
□1943□6626ozs of gold obtained from 78,716 tons of tailings by cyaniding. There were 36 cyanide plants in operation during the year, including 2 Government plants. [3.19]
□1944□2936ozs of gold obtained from 59,045 tons of tailings by cyaniding. There were 19 cyanide plants in operation during the year, including one Government plant. [3.19]
□1945□2442ozs of gold obtained from 47,197 tons of tailings by cyaniding. There were 22 cyanide plants in operation during the year, including one Government plant. [3.19]
□1946□8694ozs of gold obtained from 262,810 tons of tailings by cyaniding. There were 40 cyanide plants in operation during the year, and no Government plants. [3.22]
□1947□9977ozs of gold obtained from 268,893 tons of tailings by cyaniding. There were 39 cyanide plants in operation during the year, and no Government plants. [3.22]
□1948□10,746ozs of gold obtained from 376,143 tons of tailings by cyaniding. There were 30 cyanide plants in operation during the year, and no Government plants. [3.26]
□1949□10,312ozs of gold obtained from 359,577 tons of tailings by cyaniding. There were 24 cyanide plants in operation during the year, and no Government plants. [1.34]
□1950□10,834ozs of gold obtained from 468,758 tons of tailings by cyaniding. There were 27 cyanide plants in operation during the year. [7.31]

□1951□5093ozs of gold obtained from 220,625 tons of tailings by cyaniding.
□1952□1453ozs of gold obtained from 60,466 tons of tailings by cyaniding.
There were 9 cyanide plants in operation during the year. [7.27]
□1953□1025ozs of gold obtained from 15,807 tons of tailings by cyaniding.
There were 11 cyanide plants in operation during the year. [7.24]
□1954□789ozs of gold obtained from 14,677 tons of tailings by cyaniding.
There were 11 cyanide plants in operation during the year. [7.21]
□1955□764ozs of gold obtained from 13,805 tons of tailings by cyaniding.
There were 8 cyanide plants in operation during the year. [7.23]
□1956□476ozs of gold obtained from 10,785 tons of tailings by cyaniding.
There were 6 cyanide plants in operation during the year. [7.23]
□1957□523ozs of gold obtained from 11,861 tons of tailings by cyaniding.
There were 7 cyanide plants in operation during the year. [7.23]
□1958□569ozs of gold obtained from 11,150 tons of tailings by cyaniding.
There were 5 cyanide plants in operation during the year. [7.31]