Drawing 7.3/3 Location of Benwerrin Mine on topographical map 7621-2-2 Boonah. Copyright State of Victoria, Department of Sustainability and Environment
fuels. However the low coal reserves of about 100,000 tons did not justify other than a low investment in mining plant. The resulting low level of output spread over more than 50 years of intermittent operation had no significant effect on employment or on the replacement of other fuels.

The mine was evidently not maintained in operational readiness to respond to the shortages in black coal supplies from NSW to Victoria in various times through to the 1950s.

**Social Significance**

The low and intermittent output from this mining operation had no significant long term social significance in the Otways region or further afield.

**Mine Infrastructure Features**

Anecdotal information suggests that the mine site is still identifiable in thick overgrowth at the end of a rough track, located on the Boonah Map co-ordinates stated above.

Railway line location is reputedly still identifiable in small cuttings.

Benwerrin to Deans Marsh rail terminal.

**References**


Whitelaw, OAL, *Progress Report*, No.12, Mines Department, 1900

Millard, R, *The Dean’s Marsh Story*, 1985

Thomas, DE and Baragwanath, W *Geology of the Brown Coals Of Victoria*, Mines Department, 1949–1951

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**7.4 Deans Marsh Mine**

**[Bambra: Globrite Colliery]**

**Map Reference:** 7621-2-2 Boonah at 7540, 57460 approx

**Municipality:** Surf Coast Shire

**Land Use/Status:** Private

**Site History**

The Deans Marsh mine, in some references known as the Bambra Mine, was located about two miles north-easterly from the township of Deans Marsh in the Parish of Bambra, operating in a seam about 30 feet thick with coal surface about 60 feet below ground surface. The deposit was found during drilling by the Mines Department in 1922. The mine site can be observed on the south side of Parkers Road by turning east at Mackey’s Corner on the Deans Marsh-Winchelsea Road about 1.2 kilometres north east from the township of Deans Marsh.

(It appears that there was another mine called the Bambra Coal Mine which was operated by B.G. Nicholls & Company in the 1920s, about which I have not ascertained further information. Herman, H (1922), p.7, uses the nomenclature Deans Marsh for operations of the Great Western Colliery in 1901–1903. It appears that the location of this operation of the Great Western Colliery was at Benwerrin some ten kilometres south east of the Deans Marsh township, the Deans Marsh mine not commencing until decades later. (See Thomas and Baragwanath.)

The first mining of the Deans Marsh deposit occurred in 1947 when coal and briquette supplies to private industry and households was in extremely short supply with no signs of relief in the near future. Initial mining was via a shaft about 100 feet deep just near bore Number 10. A few hundred tons were mined and sold to the Geelong woollen mills. The Globrite Colliery Company took over operation of the mine and installed a declined adit in 1950 to intersect the seam. The mine was then worked via a series of drives excavating 736 tons in 1950 and thence at a weekly output of 50 to 60 tons. (See Drawings 7.4/1 and 7.4/2 for the location of bores, shaft, adit and tunnels and the mine location and cross section.)
Drawing 7.4/1 Deans Marsh Mine: location of bores and shaft (copied from Thomas and Baragwanath (1949–51), Part 3, p. 23).

Drawing 7.4/3 Otway Basin configuration and location of brown coal mines (after Kenny J (1976), Fig. 7.2, copied from Gloe, CS (1984), p.83). Copyright State Electricity Commission of Victoria.
Photo 7.4/1 Globrite Colliery at Deans Marsh (Bambra) – outloading plant.

Drawing 7.4/4 Locality of Deans Marsh from topographical map 7621-2-2 Boonah. Copyright State of Victoria, Department of Sustainability and Environment.
The coal in-situ had a moisture content of about 55 per cent and a dry basis ash content of about 9.5 per cent.

Information on any further operations after 1950 has not been ascertained in this study. The mine probably shut down by the mid 1950s.

**Assessment of Heritage Significance**

**Historical Significance**

The discovery of coal in the Deans Marsh area was followed by at least 50 years the closer settlement of the area and the establishment of grazing, and timber milling as the major land utilisation features of the area.

Mining of the coal was deferred for 25 years after discovery of the deposit was well known. The small mining operation was initiated in 1947 by local entrepreneurs to take opportunity from the dire postwar fuel shortages that were restricting economic recovery in Victoria. No significant additions or amendments to local public infrastructure were required to facilitate the mining or coal transport operations. No specific innovation in the mining or transport operations or the utilisation of the coal was involved.

**Social Significance**

The mining and transport activity involved a short term increase in employment in general from the local population, but did not involve any significant population increase or influx of post-war migrants.

In effect the Deans Marsh mining operation had a small beneficial social impact on the local community in assisting to defer population movement to larger urban communities.

**Mine Infrastructure Features**

Site remains of shaft and adit.

**References**

Millard, R, The Dean’s Marsh Story, 1985

Thomas, DE and Baragwanath, W Geology of the Brown Coals Of Victoria, Part 3, 1949-51

**7.5 Wensleydale**

**Map Reference:** 7621-2-1 Bambra 7600, 57520

**Municipality:** Surf Coast Shire

**Land Use/Status:** Private and State

**Site History**

The brown coal mine at Wensleydale was located on the south side of Coal Mine Road about 1.5 kilometres east from the Winchelsea to Lorne Road from a turn-off about nine kilometres south of Winchelsea. The mine site was about 25 miles west of Geelong. (Between different references, the mine had varied names such as Winchelsea South, Wensleydale, Wensley Brae, Wensleybrae and Wensley Bray, the latter three variations being derived from the name of the mining company venture associated with the mine. The Mines Department documents in general adopted Wensley Bray, near Wensleydale, Parish of Yan Yan Gurt.)

The coal deposit had an in-situ moisture content of about 51 per cent with ash content on a dry basis of about 3.3 per cent and a net wet specific energy of about 11.1 MJ/kg.276

As can be interpreted from Drawing 7.5/1, thickness of the coal deposit was up to 40 metres.

Scattered deposits of brown coal had been found and some mining thereof had occurred in the Otway Basin and Ranges in the 1800s. However, it was not ‘until a year or two prior to 1920’, (Houghton, N (1982), p.13, indicates the discovery at about 1913–1914), that two residents of the Winchelsea Shire found the coal deposit some five to six miles south of Winchelsea township.

The Wensleydale mine was opened in 1921 by the Western District Coal Mines Pty Ltd with the main activity being testing of the deposit. Boring indicated a minable coal reserve of about four million tons with an average of 15 feet of overburden. The Fyansford Cement Works at Geelong showed interest in a local coal supply to replace unreliable supplies from NSW. Shortly after, the Otway Coal Company Ltd. took over operation of the mine intending to mine as an open cut.277

(Herman, H (1952), p.49, Table 11, mentions the mine as consisting of both an open cut and small tunnel workings.)
Photo 7.5/1 Wensleydale Open Cut (copy from Thomas and Baragwanath (1949–1951), Part 3, p.20).

Photo 7.5/1 attached hereto shows an adit to the coal seam within the open cut, during early overburden removal. The coal was initially extracted by means of shafts and drives while overburden removal proceeded. One anecdotal source conjectured there was a smaller mine initially opened at the north of the open cut. Photos in the publication by Houghton, N (1982) do not show any other initial coal operations except from the initial adit.)

Overburden excavation was by a Ruston Proctor three and a half cubic yard shovel acquired from the Yallourn Open Cut, outloading via 30 inch haulage to an elevated pivoting discharge conveyor. Coal deliveries commenced in 1923, initially by road trucks mainly to Geelong industries.

Subsequently from 1925, coal was routed through a five storey screening plant to buckets on an aerial ropeway three and a half miles across country to coal hoppers at the Otway Coal Company siding, a special purpose siding about 400 hundred yards north of the Moriac to Wensleydale rail terminus at Wensleydale.278 (The Moriac-Wensleydale rail line had been installed about 11 miles in length in 1890, mainly to carry timber and gravel to Geelong for further transfer on the VR rail system. It had a chequered history, with timber and gravel haulage deceasing over the years to closure of the branch line in 1948279.)

Along the north west boundary of the open cut, the coal was 110 feet thick with 15 to 20 feet of overburden, with the coal
Coal was blasted from the face, loaded by diesel shovel into three cubic yard tramway trucks hauled by horse and then winched up to a crushing and screening plant where road trucks were loaded. In August 1943, with fuel shortages severe throughout Victoria, a new company, the Wensley Brae Coal Company, acquired the mining right, commenced dewatering of the open cut and implemented coal deliveries by road trucks predominantly on a six mile haul to Winchelsea railway station on the Geelong-Colac main line. The rail line through Wensleydale siding had closed prior to renewal of the mine operation. Hence the aerial ropeway was no longer used. The Ruston shovel continued in use on overburden excavation which was hauled by road trucks to an external dump. The Wensley Brae Coal Company managed and operated the open cut from 1943 until 1948, reaching annual output exceeding 35,000 tons. Approximately 100,000 tons in total was excavated by this company with weekly output reaching 1,272 tons and averaging over 600 tons weekly in its last year of operation.
Drawing 7.5/3 Route of aerial ropeway from the mine to the Moriac to Wensleydale VR rail line (copy from Houghton (1985), p8). Copyright Norm Houghton.


Photo 7.5/2 Wensley Bray brown coal mine at 1948 (from Swift (1948)).
deliveries were by rail to Melbourne, by rail and road to Geelong and the Western District including Warrnambool.285

In 1948, Roche Brothers, Pty Ltd, a well established earth moving company, was contracted by the Wensley Brae Coal Company to upgrade the mining and haulage operation to a higher output level. Coal demand was high and Roche Brothers commenced their operation on 1 July 1948 introducing higher capacity excavation and haulage plant. In 1949, the open cut output was 124,846 tons per annum.286 In 1950, output had reached 145,760 tons.287

‘During the period that Roche Brothers were operating the mine, the Victorian Government purchased the mine and entered into an agreement with Roche Brothers to work the mine for a period of five years and in that time to produce a minimum quantity of one million tons, on which a royalty was to be paid (by Roche Brothers) to compensate the Government for its outlay.’288

‘Peak production reached just over 10,000 tons weekly and up to 200 men (in all roles) were employed. The road from the mine to Winchelsea had extensive upgrading, new bridges – the Karngun Bridges – had to be erected over the Barwon River and special train loading facilities were provided at Winchelsea rail station. Coal was railed to Geelong, Melbourne, Ballarat, Bendigo, and large Western District centres.289 Note that the peak production quoted by Gregory (1985) appears much higher than the average weekly production in the peak year of operation. At 1949, the (economically minable) coal reserves were estimated as about 3.75 million tons.290 By March 1951, Roche Brothers had extensively mechanised the operations, which were exceeding 3,000 tons output per week.291

By March 1952, the mine was taken over by Winchelsea Coal Pty Ltd but continued with Roche Brothers as the operators. A new open cut was commenced to the north east of the existing operation. By March 1953, all operations had ceased in the old open cut and the new open cut was operating with a new crusher and conveyor system. From 1954 to 1957, output averaged over 370,000 tons per year before progressively decreasing to 1959 when the mine at Wensleydale closed down, with its customers and much of its equipment transferred to a new open cut at Anglesea, owned and operated by Roche Brothers.

By 1959, when operations at the Wensleydale mine ceased, demand for raw brown coal from Wensleydale had fallen considerably as post war electricity generation expansion and increasing briquette supply moved towards satisfying industrial and domestic fuel requirements throughout the State. Additionally, coal reserves at the Wensleydale Mine were low. In the 1950s, extensive deposits of brown coal had been found at Anglesea which could be more efficiently mined than at the dwindling coal reserves at Wensleydale.

In 1958, Roche Brothers shifted their brown coal mining operations from Wensleydale to Anglesea, about 12 miles to the east, maintaining their coal supplies during the transition, their main market being the Geelong Power Station. (Geelong A Station 12 megawatts (1930–1966); B Station 35 megawatts (1954–1971)). Other customers in the late 1950s were spread from the Nestle factory at Dennington through Geelong and as far east as industry at Altona.

The Wensleydale Mine site still remains visible with little or no land restoration having been carried out and some remnants of mine infrastructure still evident at 2004.
Drawing 7.5/5  Wensley Bray Brown Coal Mine bore locations (from Knight (1949)).
Drawing 7.5/6 Locality of Wensley Bray Mine from Topographical Map 7621-2-1 Bambra. Copyright State of Victoria, Department of Sustainability and Environment.
Assessment of Heritage Significance

Historical Significance

The Wensleydale coal deposit was probably that reported by James Bonwick in 1858 (see Section 7.2). The deposit was rediscovered in 1913 but was not mined until 1921, when post World War One industrial recovery was being hampered by shortages of coal while awaiting the introduction of briquettes from the embryo Yallourn project. From 1923 to 1935, the mine provided a vital source of hard fuel to industry in the Geelong area. By 1935, briquette pricing and availability from Yallourn offered advantages to industry throughout Victoria leading to closure of the Wensleydale mine.

The mine plant was decimated by fire and disposal in the late 1930s but was reactivated from 1943 to alleviate critical hard fuel shortages in Victoria during and after World War Two.

Output from the mine was increased significantly from 1948 with a change to contract operation and the post war availability of new plant and a revised open cut operation. Ownership of the mine was taken over by the State Government in the early 1950s to ensure continuity of supply and the contract operation.

The mine continued in operation until 1959 by which time increased electricity generation and briquette supply were available for industry throughout Victoria. At 1959, continuity of brown coal supply to existing customers of the Wensleydale mine was transferred to supply from the larger coal deposit at Anglesea some 12 miles east of Wensleydale with the mine owned and operated privately.

The Wensleydale mine was of high significance in assisting with fuel supply to industry particularly during both World Wars and the industrial reconstruction therefrom.

Scientific Significance

The Wensleydale coal had slightly lower moisture and ash than coal from Yallourn North Open Cut (see Tables 7.3.1 and 7.3.2). Its utilisation from commencement of mining in 1921 did not suffer the problems emanating from the discovery at about the same time that the coal from new Yallourn Open Cut had significantly higher moisture content than from the well tested Yallourn North Open Cut.
Hence, potential users of the Wensleydale coal relied on the background of testing and evaluation carried out on the Yallourn area coals.

**Economic Significance**

Owners of the Wensleydale mine were generally price takers, retiring from competition except in periods of hard fuel shortages. Although longer term contracts were gained for supply to Geelong Power Station, and Nestle at Warnambool, the State Government found it expedient to purchase the mine to ensure continuity of supply.

In the 1920s and 1930s, the mine used contemporary plant including an in-pit crusher and aerial ropeway to a VR rail siding. Utilisation of the VR system presented opportunity for deliveries throughout the VR network and the retention of the branch line from Moriac for continued cartage of timber and gravel from the Otways.

From 1947, output progressively increased annually due to modernised plant and opening of a new open cut offering reduced mining costs.

The Wensleydale mine over its almost 40 years of somewhat intermittent operation provided significant alternative employment to that in the farming and timber industries in the Otways. Infrastructure improvement associated with road haulage of the coal to new outloading facilities to the VR main line at Winchelsea provided substantial benefit to the local community and the tourist industry.

**Social Significance**

The Wensleydale mine offered employment opportunities not only for former miners, but also for the local workforce who could rapidly convert their skills particularly to the road haulage and open cut operations.

The contractor operating the mine from 1948 was able to offer steady employment beyond the life of the Wensleydale mine through a well managed transition of continued coal supply from the new Anglesea mine.

**Mine Infrastructure Features**

- Site of Open Cut.
- Site of underground mine shaft.
- Machinery remnants at mine site.
- Route of overhead ropeway to Wensleydale siding.
- Site of Wensleydale siding.
- The Karngun Bridges.
- The Winchelsea Station coal outloading site and facilities.

**References**

Gloe, CS, Geology of Brown Coal Deposits, Monograph No.11, AusIMM, 1984


Herman, H, Brown Coal, SECV, 1952


Mining and Geological Journal, March 1947 to September 1955

Annual Reports, Mines Department, 1947 to 1959


Thomas, DE and Baragwanath, W Geology of the Brown Coals of Victoria, Mining and Geological Journal, 1949–1951
7.6 Anglesea Open Cut

Map Reference: 7721-3-2: Anglesea 7530, 57465
Municipality: Surf Coast Shire
Land Use/Status: private

Site History

In 1899, "to the North West of the settlement (of Anglesea), the Wensleydale Prospecting Company was actively engaged in the search for coal with most favourable reports from geologists being supplied to the press." 292

"About the beginning of the century, four shafts were sunk on the foreshore between Devils Elbow and Coal Mine Creek in search for coal. Coal was found but deteriorated on exposure in air and was deemed not to be a commercial proposition." 293

Coal mining had been commenced at this time at Benwerrin some ten miles from Anglesea in a brown coal deposit of high calorific value but the operation was struggling to survive due to remoteness from market centres. Numerous coal mining ventures commenced from the 1890s in various locations in Victoria as a result of unreliable black coal supplies from NSW and with optimism of Victorian Government support. Mining of the Anglesea coal deposit as known at 1950 did not appear to offer significant advantages over other brown coal mines already in operation.

As an outcome of the small and decreasing coal reserves at the Wensleydale and Deans Marsh mines in the early 1950s, the Mines Department began exploratory drilling initially to the south west of Deans Marsh but subsequently more intensively to the east where a large brown coal field was progressively delineated near the township of Anglesea. JL Knight 294 states that from 1955 'drilling was undertaken by Roche Brothers under the geological and technical guidance of the Mines Department progressively at Wensleydale, Breakfast Creek, Deans Marsh, Bambra, Murroon, Gum Flat and surrounding districts in areas known to have brown coal deposits and then at Anglesea.' Two hundred and seventy bores in a concentrated area of about two square miles (north west of Anglesea) identified a substantial brown coal deposit. 295 (See Drawing 7.6/1.)

Gloe (1984) locates the Anglesea coalfield geologically as being in the north east corner of the Otway Basin. He states that the coalfield "contains a number of coal seams in a coal measure sequence of about 140 metre thickness. The seams have been divided into an upper and a lower group. The upper group containing the main upper group seam of 24 to 36 metres thickness is overlain by 12 to 30 metres of overburden in the present area of open cut operations. Total brown coal reserves are estimated at 160 million tons of which 70 million tons belong to the main upper seam now being mined. Roche Brothers commenced open cut mining operations on the Anglesea deposit in 1959. The mine location is about three kilometres north west of Anglesea township, which is about 40 kilometres south west of Geelong. Coal supply from their Anglesea operations took over from that previously supplied from the Wensleydale Mine. Customers for this raw brown coal included "the small powerhouse at North Geelong to which they trucked coal", and 'a small paper factory operated by APPM at Ballarat'. 297 "Roche Brothers also had hopes for supply to a proposed petrochemical plant or a chlorine plant using Geelong salt and brown coal. A German firm had also expressed interest in producing carbide from the Anglesea brown coal." 298

In the late 1950s, the Western Mining Corporation (WMC), at that time investigating extensive bauxite reserves in the Darling Ranges near Perth in Western Australia, developed a concept of an aluminium smelter at a deep water jetty at Point Henry, about three miles from Geelong, with feedstock alumina shipped from Western Australia. The concept envisaged the smelter would be supplied with base load electricity from a new generating station located at Anglesea and fuelled from the brown coal adjacent thereto.

In 1960, recent drilling undertaken for WMC in the Anglesea area had revealed a more economical mining area adjacent to that being operated by Roche Brothers. Assessments by WMC showed a coal deposit of about 200 million tons compared with that of about 30 million tons as assessed by Roche Brothers. 299 At 2004, Alcoa quotes that 'drilling surveys indicate proven reserves of approximately 120 million tonnes in two distinct seams north of the township'. 300

In 1961, WMC bought out the mining rights and mining activity of Roche Brothers at Anglesea. In late 1961, Victorian Government legislation was passed which gave Alcoa of Australia Pty Ltd, of which WMC was a substantial shareholder
among other things, a 50 year exclusive right to explore and mine over some 7,350 hectares of leasehold land to the north west of Anglesea, including the area being mined by Roche Brothers. Agreement was reached on the terms of electricity interconnection between the power station at Anglesea and the SECV system. The smelter at Point Henry came on stream on 4 April 1963. The power station at Anglesea was officially opened on 20 March 1969, the base load electricity for the smelter being supplied exclusively from the SECV network until that time.

The enhanced drilling program for WMC had revealed that the original mining by Roche Brothers was in a lower seam to the west of the main upper seam. WMC developed a mine plan to mine 50 million tons of brown coal from a new open cut in the main seam and to cease mining of the lower seam.
The second open cut at Anglesea was not distinguished in name from the first mine and retained the name of the Anglesea Open Cut. Colloquially, the first open cut appears to now be referred to as the ‘Old Roche Brothers Open Cut’.

The new mine was opened adjacent to and expanding away from the power station site. Overburden removal was carried out by contractors until 1994, usually engaged on five year contracts. Backfilling of the old Roche Brothers open cut was used to minimise external dumps at ground surface.

*Drawing 7.6/2 Locality of the Anglesea Mine from Topographical Map 7721-111 SE. Copyright State of Victoria, Department of Sustainability and Environment.*
and to facilitate rehabilitation of the old open cut. In general, backfilling had power station ash placed in the bottom of the worked out mining areas, superimposed with the sand and clay overburden. Final landscaping used sandy topsoil and its buried seeds recovered from stockpiles. Dumping of the overburden was also used to build power station ash ponds and area levee banks. From 1979, backfilling of the new open cut became feasible as the coal mine expanded. Plant used by the contractors included conveyors (generally reconditioned plant from the SECV Latrobe Valley mines) and a range of conventional earth moving equipment including scrapers, bucket excavators and haul trucks. At the new open cut ‘the overburden to coal ratio averages around 2.5:1 with an average coal thickness of 27 metres.’ The mine operation does not require the use of explosives.

From 1996, after cessation of overburden removal for about two years during a downturn in coal requirements from Anglesea Power Station with a world glut in aluminium supply, overburden removal has been carried out by Alcoa personnel as a ‘just in time’ operation to minimise coal exposure in endeavours for improved economy and environmental control balanced against security of coal supply to the power station. Plant engaged on overburden removal included two shovel excavators and three 60 tonne trucks. Overburden removal currently averages about 1.8 million cubic metres per year.

The coal mining operation has been undertaken by Alcoa personnel from 1961 using shovel excavators and trucks. For several years a small bucket-wheel excavator (O & K Sh 250) was used on coal excavation but was subsequently transferred to New Zealand. In the first part year of operation in 1959, coal output at Anglesea was 169,049 tons (at the Wensleydale Mine in 1959, its last part year of operation, output was 141,066 tons). However coal demand rapidly fell away: at 1961 to 57,747 tons; at 1968 to 14,361 tons. The Alcoa Power Station, a single unit station operating at about 160 megawatts, was officially opened in March 1969, having commenced testing and using coal from early 1961. Coal demand rapidly rose to over 1.1 million tons per year within two years. At 2004, the Anglesea mine continues to mine about 1.1 million tonnes per year of brown coal.

A long term coal stockpile of about 20,000 tonnes is kept undisturbed on site at the power station as a contingency against disruption in coal supply from the open cut. An operational coal stockpile of up to 4000 tonnes is used for daily variations in coal supply and usage. At 2004, coal delivery is exclusively to Anglesea Power Station. Expansion of the smelting facilities at Point Henry which occurred in the 1960s and 1970s was substantially higher than envisaged at 1961, such that from 1990 nearly 60 per cent of electricity used at Point Henry has been provided from the (previously SECV) Latrobe Valley base load power stations.304 No additional generating plant was added by Alcoa to the initial Anglesea Power Station.

An extensive ongoing rehabilitation program of the site, under way since 1971, is outlined in Rolland, C (1992), pp.133–137. Power station ash is settled and dried out in a twin cell arrangement. Settled ash is then placed in the overburden dump progressively being deposited in the worked out area of the open cut.

At 2004, an area of approximately 6,600 hectares (i.e. approximately 90 per cent of the mining lease area) has been declared under the National Estate with conservation co-managed by Alcoa and Victorian Government agencies to detailed strategies developed through consultation with a wide range of community groups. About 91 per cent of the land leased by Alcoa will not be disturbed by the mining and power station operations and is known as the ‘Land for Conservation.’ This land not now intended for mining operations by Alcoa is managed as the Anglesea Heath, a major objective being preservation of the native vegetation and habitat.

An investigation and report by Holdgate (1974), emanating from consideration of ground water drilling investigations in the Otways area in 1970–71, indicated the possibility of significant additional coal reserves at the south west of the Alcoa mineral lease. ‘At least one bore penetrated coal seams of greater than 60 feet in thickness.’ This same report indicated that ‘drilling immediately to the west of the Deans Marsh–Wensleydale area did not reveal any economic coal deposits’.308

At 2004, the Anglesea Mine was the only brown or black coal mine in operation west of the Latrobe Valley in Victoria. Since the commencement of mining operations in 1959, approximately 37 million tonnes of coal and 67 million cubic metres of overburden have been excavated from the Anglesea mine.
Assessment of Heritage Significance

Historical Significance
The Anglesea Mine, opened in the late 1950s, is the latest of a number of mining ventures undertaken by private industry to utilise the scattered brown coal deposits in the Otways area at the west of Geelong and Melbourne. It was the only brown coal mine operating from the 1960s in the Otways area.

The mine was sited on the largest deposit of brown coal discovered to date in the Otways.

The mine was an integrated component of a large production complex which permitted the mining and processing within Australia of large scale bauxite deposits in Western Australia and the transport to Victoria of alumina for secondary processing. The mine provided the fuel source to a tied base load power station the low cost of a reliable supply of electricity from which was the prime reason for the siting of the aluminium plant in Victoria.

The availability of an adequate coal resource and the assessment of favourable mining costs facilitated development of the concept of the integrated aluminium complex by an Australian mining group and its adoption, leading to the formation of Alcoa of Australia as a significant aluminium supplier on the world scene. In the mid 1990s, further amalgamation occurred with the formation of a global alliance Alcoa World Alumina, the world’s largest alumina producer, in which WMC, the initiator of the Anglesea mine and power station integrated development, was a 40 per cent stakeholder.

Scientific Significance
The Anglesea mine used conventional earth moving, excavation and transport equipment tailored to meet a very constant level of coal demand from 1969 onward.

Economic Significance
The Anglesea mine provided an economic opportunity for the establishment of a large scale aluminium production complex and associated aluminium by-products plants in competition with other proposals for the establishment globally of other plants with similar production objectives.

Social significance
The Anglesea Mine, located immediately adjacent to a pristine ocean-side holiday resort township of about 1,000 off-peak population, with its associated power station, has provided a stable source of employment for the Anglesea area for over 40 years to date. At 2004, the integrated mine and power station had “a permanent work force of 109 people” but is part of the wider workforce and service/supply industry tied to the Point Henry Smelter and the Geelong area community.

Effective restoration of mining areas has been a feature of the community liaison practised as a responsibility of the mine management and Alcoa corporate policy. A high level of community acceptance has been a commendable outcome of the environmentally sensitive operation of this mine in close proximity to the township of Anglesea.

Mine Infrastructure Features
Mining area progressive rehabilitation.
Ash pond twin cell installation.

References
Foran, B, Australia’s Aluminium Since 1963, Alcoa World Alumina Australia, 2004
Gloe, CS, Geology of Brown Coal Deposits, Monograph No. 11, AusIMM, 1984
Holdgate, GR, Brown Coal Prospects in the area of the Otway Ranges, Mines Department, 1974
Knight, JL, Preliminary Report on Structure of the Anglesea Coalfield, Mines Department, July 1960
Rolland, C, The Ongoing Rehabilitation of the Anglesea Brown Coal Mine, Rehabilitate Victoria, Aus IMM, November 1992
8.1 Altona/Werribee Mines

Map Reference: 7822-2-4 Sunshine Zone 55
3076, 58066 (At south of Harrington Square)
3073, 58066 (Hosies Shaft approximately)

Municipality: City of Hobsons Bay

Land Use/Status: Private

Site History

‘The Port Phillip Basin, the major portion of which covers the area from Melbourne to Bacchus Marsh and southwards to Geelong, contains an extensive deposit of brown coal mostly covered by thick flows of Newer Basalt.’ In the Altona to Newport/Williamstown area this deposit is known as the Altona Seam and is up to 25 metres thick. In 1881/1882, the Williamstown Coal Prospecting Company sank two bores on the South Newport estate finding water and seams of brown coal. This find apparently attracted little interest at the time. Brown Coal was found at Werribee in March 1889 and analysed by the Mines Department. The earliest recorded extraction of coal from the Altona Seam was from a shaft sunk by J.S. Hosie in 1890 (S Priestly says 1892) at a location a few hundred metres west of the present VR rail terminus in Westonia. (Melway 54C10), Hosie had persuaded an Altona Syndicate to search for thicker brown coal seam(s) to the west of Kororoit Creek as a logical outcome of test drilling at the east of this creek indicating thickening of seams to the west. An unrecorded amount of brown coal for ‘marketing purposes’ was extracted before the shaft was accidentally flooded with ingress of ‘underlying artesian’ water.

In April 1894, the Mines Department sunk two bores to the base of the coal in the present Altona town area, revealing a thick coal seam under basalt. About 1894, The Trust and Agency Company of Australia took over the financing of Hosie’s endeavours.

In 1894, (S Priestly says 1899) Hosie sank a second shaft ten feet by five feet to a seam 73 feet thick at 333 feet below surface. This shaft (located in the vicinity of the present Harrington Square) was a few hundred metres east of the first shaft. The operators had a proposal to install boilers underground with electric generating plant at the surface. The mine remained inactive waiting on economic opportunities.

In 1905 the Victorian Electric Light Heat and Power Distribution Company took an option on the Altona mine. RAF Murray, formerly Mines Department geologist, was a director of this company which negotiated strongly with municipal councils for exclusive rights to supply electric power, intending to use the Altona mine as its power source.

In 1905, mining resumed from the shaft, with a renewed poppet head and larger pumping plant. Reputedly, mining was on a three-shifts-per-day basis, with a workforce of about one hundred men. (Mines Department records or reports do not appear to refer to this operation or to include its output in Mines Department statistics.)

In 1906, an American firm, (Bewick, Moreing & Company), with Herbert Hoover intended as mining consultant, acquired the lease and sank another shaft somewhat south of the previous shaft. No production from this shaft has been ascertained in this study. At 1907, a proposal emanated from an Iron and Steel Company to use Altona coal at site with iron ore from Tasmania. This proposal did not proceed but was indicative of the interest shown by private groups in the potential of this coal resource close to the Melbourne metropolitan area.

In 1908, the Melbourne and Altona Collieries NL was formed and enlarged the previous shaft to a nominal 15 feet diameter, actually a twelve-sided polygon, to a depth of 355 feet. The
VR rail line was extended about one and a half kilometres from Pier Street to the shaft site. This mine first produced coal in 1910 at about 600 tons in its first production year with considerable pumping involved.

In 1909, the establishment of the State Coal Mine on the Powlett River Coalfields was an indication of trends in Government thinking on the role of State Enterprises in the supply of essential services. In 1912, a British and American Syndicate proposed to build a power station at Altona involving takeover of the mine and the Altona coal resource and having a monopoly to provide electric power and lighting to all of Melbourne and its suburbs. CH Merz, a consultant to this syndicate, estimated that with the sinking of a second shaft an output of 3,000 tons per day could be achieved. The State Government had divided opinions on the granting of a monopoly and in 1913 invited tenders from private companies to supply 5,000 to 25,000 kilowatts for railway electrification in order to release power for Melbourne consumers from Newport Power Station, then under construction.

However, Government decisions on State enterprise or private monopoly development of the Altona Coal resource had not been reached by the outbreak of World War One in August 1914 and was put on hold. For about five years, the Altona shaft operation limped along with the high cost of its underground operation being a disadvantage to gaining inroads to purchasing by established merchants with existing contracts for black coal supplies. Skeleton manning of the mine throughout the war permitted continued pumping but little production. At 1918, the Colliery Syndicate was confident that production would resume although it appeared that electric power generation would be reserved for public enterprise. Their concept at 1918 turned to utilisation of the Altona Coal for briquetting (and some other by products with only a low coal supply requirement). However by 1919, the Altona briquetting opportunity dissipated with the Government intention to initiate a government briquetting operation in the Latrobe Valley.

Total recorded production from 1910 to 1919, when the mine ceased operation, was 31,160 tons. It is probable that the total production from the Altona shafts from the mid to late 1890s was significantly higher than this recorded figure if production pre-1910 is added, and taking into account the estimate stated by S Priestly of 75,000 tons from 1910 to 1919.
In 1927, with the SECV struggling to meet growing demand for electricity and briquettes, the Altona Collieries Company revived proposals for utilising the Altona Coal for briquettes, for electricity generation at site with cooling water available from the adjacent bay, and for conversion to gas and oil.\textsuperscript{321}

In 1928, the Altona Bay Estates Company, which in 1915 had taken over a large portion of land previously intended for coal mining and in 1920 took over further land holdings in the Altona Bay area, sank three bores within a few hundred metres of the second shaft, each bore intersecting a coal seam 62 to 77 feet thick and an overlying basalt deposit of 50 to 172 feet thick. A new shaft to the northwest of the previous production shaft was sunk by this company in 1928 to obtain coal for experimental purposes. However, all work ceased in 1931 after extraction of a minor undisclosed quantity of coal.\textsuperscript{322} (The numbering of shafts and bores varies in different references. The depiction shown in Drawings 8.1/1 and 2 as copied from Thomas and Baragwanath (1950), Part 3, p.13 appears the most valid. This shows the 1928 shaft as the Number Two shaft approximately 200 feet northwest of the Number One shaft which was the production shaft sunk by Hosie in 1894 and enlarged in 1908.)

In early 1928, test bores by a new syndicate were drilled in the Galvin area about one mile west of the second shaft location, with the objective of mining in a new lease area to produce electricity at site and sell in bulk to the SECV. A thick coal seam was found in each bore. A shaft was sunk and some equipment utilised from the old Altona shafts. By May 1930, coal was being extracted. However the mine experienced difficulty and high costs in keeping the workings free from sub-astresian water and closed their operation in 1931 with a total production reported of 600 tons. The company offered their mining rights to the SECV in 1932 and again in 1940 but the offer was not taken up by the SECV.

Mines Department records as stated by H Herman assert: "Nearly all the brown coal excavated in Victoria from 1911 to 1916 came from the Altona mine" which mined about 26,000 tons in that period. Approximately 5,000 tons were mined after 1916 until closure of the mine in 1919.\textsuperscript{323}
Assessment of Heritage Significance

Historical Significance
Brown Coal at Altona was found in 1881/82 and mined in 1890/92. This mine was the nearest coal mine to the centre of Melbourne. The proximity to the metropolitan area presented opportunity for generation of electricity without long distance transmission, the techniques of which were not available until about 1905–1910. The deposit attracted considerable interest from private consortia seeking to gain rights to the generation of electricity and its distribution throughout the Metropolitan area. This interest by private consortia was pursued vigorously in the State political arena through to the establishment of the SECV in 1920. Through to the 1940s, private interests continued to advocate utilisation of this coal instead of continued expansion of the SECV power and briquette production in the Latrobe Valley.

Scientific Significance
Extensive scientific analysis was undertaken by private interests from Great Britain and Germany, particularly between 1900 and 1915. An outcome of the Royal Commission on Brown Coal (1899–1901) was greater sponsorship by Government of scientific investigations in Britain and Germany into brown coal utilisation, with coal from Altona and from Gippsland being evaluated with priority.

Economic Significance
Utilisation of the Altona Coal Deposit extending to Werribee did not meet economic expectations. Although the underground mining of the seam was feasible and comparable in cost per tonne as mined with that for black coal from NSW and Wonthaggi, the lower calorific value resulted in much higher utilisation costs.

From the late 1940s when mobile excavating and haulage plant became available with ever increasing capacity, those brown coal deposits such as in the Latrobe Valley suitable for excavation by open cut gained significant mining cost advantages compared with underground brown coal mining. Although the Altona deposit remains largely unexploited, its close proximity to the continually expanding suburban infrastructure appears to now be of significant disadvantage to its prospects for future mining.

Social Significance
The availability of this coal deposit close to the metropolitan area was of high social significance immediately after the formation of Victoria as a State of the Commonwealth. Failure of the strenuous endeavours of private industry to gain State Government support for utilisation of the deposit by private enterprise was to some extent reflected in State Government decisions to implement Public Authority management of its State Coal Mine, its electricity generation and transmission system, its tramways and many other public utilities.

The prospects of a mine underground the expanding outer suburban area appeared to raise as much concern as support, with misgivings of the local community tending to offset potential social benefits to the wider Melbourne area.

Mine Infrastructure Features
Harrington Square Area.
Galvin Rail Siding Area.

References
Australian Mining Standard, 15 August 1912
Gloe, CS, Geology of Brown Coal Deposits, Monograph No.11, AusIMM, 1984
Herman, H, Brown Coals Of Victoria, Bulletin No.45, AusIMM, Geological Survey of Victoria, 1922
Herman, H, Brown Coal, SECV, 1952
Knight, JL, Brown Coal in the Melbourne Area, Mines Department (unpublished), March 1960
Annual Report, Mines Department, 1889
Priestly, S, Altona: A Long View, City of Altona, 1988
Thomas, DE and Baragwanath, W Geology of the Brown Coals Of Victoria, Vols 1–4, 1949–1951
8.2 Williamstown to Mornington
Brown Coal Discoveries

Map Reference: 7822-2-4 Sunshine 3129, 58086
Shaft of 1894
7822-2-1 Maribynong 3154, 58121
Bore at Yarraville
7921-4-3 Frankston 3276, 57686
Outcrop at Schnapper Point

Municipality: Various
Land Use/Status: Private & Public

Site History

In 1881/1882, the Williamstown Coal Prospecting Company sank two bores on the South Newport estate finding water and seams of brown coal. This find apparently attracted little interest at the time.

In 1894, the Williamstown and Newport Coal Prospecting Company sank a shaft 225 feet deep and then bored to 311.5 feet. Five seams of brown coal from two to eight feet thick were found from 200 feet to 311.5 feet depth with interseam sediments. The location of this shaft was (approx. 3129-58086) just west of Newport Railway Workshops and just south of the Altona rail line. A bore named Number One Bore Newport located 65 feet to the north east of the shaft also found five seams of brown coal from two to fourteen feet from 198 to 293 feet depth with interseam sediments.

At Yarraville about three miles north easterly from Number One Bore Newport, a bed of brown coal eight feet thick at 221 feet depth was found. Details of these boreholes were published by the Mines Department in Progress Report Number 10, 1899.

On the Eastern shore of Port Phillip Bay, a lignite seam outcropping at eight feet thick from sea level underlying 45 feet of sands, grits, and limestone had been found at Schnapper Point, Mornington, and analysed by 1899.

By 1910, the existence of brown coal beds under basalt in the Port Phillip Sunkland was well known. H Herman in 1922 summarised as follows: ‘In the Altona area, brown coal is known to extend for a length of about 13 miles from Yarraville to Werribee. Brown Coal may continue along the western shore of Port Phillip Bay for ten or 15 miles south westerly from the mouth of the Werribee River – it may extend also for many miles to the north west – and it may also occupy a large area under Port Phillip Bay itself’. By 1910, entrepreneurs investigated and advocated mining these deposits for electricity generation, gas conversion and briquetting with perceived economic advantages of closeness to Melbourne, availability of transport and access to abundant cooling water. To 1919 various lobbies sought government support and/or monopoly to mine coal in the western fringes of the metropolitan area either to supply coal or to provide the finished byproduct of electricity, gas, briquettes or liquid fuel as a monopoly to designated markets. Through at least ten years of debate to 1919, the government finally opted for a State Enterprise to develop the brown coal resource in the Latrobe Valley to meet base load electricity demand and briquetting needs as well as to continue its operation of the State Black Coal Mine at Wonthaggi.

The geological assessment of the brown coal seams east of Altona had revealed that the coal deposit was much thinner and in split seams compared to the deposit characteristics at Altona. By 1910, the lack of commercial success in mining the thick coal seam at Altona had dissipated interest in expenditure on the thin and split seams from Williamstown northwards to Yarraville. Coal discoveries on the east shore of Port Phillip Bay created community interest but little public support for any mining of the deposit, and no commercial venture was initiated.

Thus, commercial interest in mining the brown coal deposit in the Melbourne suburban area east of Altona had dissipated by 1920. Intermittent ventures at Altona continued after 1920 as outlined in Section 8.1 of this Heritage Study.

At 1951, the eminent geologists DE Thomas and W Baragwanath suggested areas of Victoria as worthy of further drilling investigations specifically for brown coal. The nominated areas included the Port Phillip Sunkland from Bacchus Marsh and Werribee at the west to the eastern shores of Port Phillip Bay at the east. No significant drilling program eventuated except in the Bacchus Marsh area.
Assessment of Heritage Significance

**Historical Significance**

By the late 1890s, it was known that brown coal seams existed in much of the area from the eastern shores of Port Phillip Bay and west to Werribee. However most of the discoveries revealed seams less than eight feet thick, generally under basalt or limestone.

**Scientific Significance**

No specific scientific investigations on these metropolitan deposits, other than at Altona, were undertaken except for geological analysis for contribution to regional geology appraisal.

**Economic Significance**

None of the investigation bores and shafts, other than at Altona, reached a commercial mining stage. Advocacy by Thomas and Baragwanath for more extensive drilling from the 1950s was to prove regional geology rather than to pursue economic mining possibilities.

**Social Significance**

Considerable local interest was evident (see Frankston Library collection on Brown Coal) as coal discoveries accumulated from the 1880s, and vague proposals for utilisation were mooted. By 1920, the endeavours by private industry to gain Government sponsorship for development of mining and processing at Altona had not succeeded. From that time, the existence of brown coal seams in the expanding Metropolitan area had little social significance or little influence on suburban development.

**Mine Infrastructure Features**

No remains of boreholes have been ascertained.

Precise location of Schnapper Point Outcrop has not been ascertained at site.

**References**

Herman, H, *Brown Coals Of Victoria*, Bulletin No.45, Mines Department, 1922


Stirling, J "Report on the Brown Coals and Lignites of Victoria", *Progress Report*, No.10, Mines Department, 1899

Thomas, DE and Baragwanath, W *Geology of the Brown Coals Of Victoria*, Parts 1–4, 1949–51
8.3 The Parwan Brown Coal Mine
The Bacchus Marsh Coal Mine Ltd.

Map Reference: 7722-2-1 Balliang Creek, 2774, 57457 (approx. – precise location not determined)
Municipality: Shire of Moorabool
Land Use/Status: Private

Site History

Area Coal Discoveries

The existence of Brown Coal in the Bacchus Marsh area 50 kilometres west of Melbourne was first recorded in 1884 as occurring in a railway crossing of the Werribee River at the east of Bacchus Marsh. Two seams were discovered, one 24 feet thick covered by soft clays and sands 44 feet thick, the second coal seam being 20 feet thick below interseam clays of 25 feet thickness. Spasmodic discoveries followed, mainly from boring for water by landholders until a specific drilling program of six bores about 1.5 miles west of Bacchus Marsh was undertaken by the Parwan Park Estate Company during 1923–24. Each of the six bores proved a thick coal seam varying from 29 to 96 feet thick and with top of coal varying from 271 feet to 389 feet, with coal quality of about 50 per cent water and 5 to 10 per cent ash. However, no coal mining occurred in these areas until the 1940s.

The Parwan Mine

In 1923, at Balliang, several miles south of Parwan Rail Siding, a 96 feet thick seam of brown coal was found at 328 metres depth. No mining at this location occurred.

In 1927, at a location about five miles south of the Parwan Rail Siding and about two miles east of the main Bacchus Marsh to Geelong road, a brown coal seam was located by accident during boring for water by a Government drilling crew. A local land owner, MD Cock, took some coal samples for analysis which showed brown coal of good quality with a moisture content of 48 per cent and ash of 3.6 per cent to 5.4 per cent. He purchased 700 acres surrounding the bore site.

In 1929/30, a shaft eight feet six inches by four feet was sunk at this location by a private group, Messrs. Broome, Cock and Edgar. This shaft encountered hard basalt for about 200 feet, followed by hard clays and an upper coal seam 11 feet thick at 357 feet. This seam was followed by thin layers of sand and coal to 4 05 feet, below which was the main coal seam 103 feet thick to the bottom of the shaft at 510 feet. A drive was installed initially at the 465 feet level for 200 feet northeasterly into the bottom seam. This operation became known as the Parwan Mine (Drawing 8.3/1), but registered as the Parwan Colliery Pty Ltd.

The mine was not a commercial success and closed in 1930. Output from the mine has not been ascertained but would have been less than 1,000 tons from the shaft and drive. In 1930, the initial plant was sold and removed.

In 1931, after voluntary liquidation of the company following the death of MD Cock, the mine was reactivated as The Parwan Colliery Ltd. This company sought more capital to renew the operation and to provide a tramline about six miles long from the shaft to the Parwan VR rail siding. This tramline did not progress but an official reopening of the former mine took place on 11 June 1932. An enthusiastic report by GH Broome, General Manager of the State Coal Mine, assessed that the deposit at the Parwan Mine over an area of 1,250 acres contained 190 million tons from the 125 feet to 130 feet thick deposit of which 90 million tons was above ground water level. The mine was "worked steadily for a few weeks" but again had a pause in development while the company tried to obtain government action for the SECV to be prevented from selling second quality briquettes at below-cost price to the Melbourne fuel merchants.

In 1936, an attempt was made by AW Bretherton to reactivate the Parwan Mine but the venture did not reach the production stage and the plant was sold.

In 1940, Messrs. Chalmers & Jenkins reopened the mine, found only about three feet depth of water in the shaft and commenced mining on two levels, at 446 feet and 485 feet. In 1940, about 1,800 tons of coal was produced but the coal could not compete successfully with sales of briquettes from the SECV briquetting plant at Yallourn.

In 1941, the mine and its installed plant were taken over by the Bacchus Marsh Coal Mine Company which continued operation on the two previous levels from 1942. Colloquially,
the mine thence became known as the Bacchus Marsh Coal Mine. Under wartime coal shortages from NSW, a market niche had opened for this new company. At early 1944, mining was continuing in the lower seam only, with six faces opened up. However, on 23 March 1944, fire broke out in pyrite-bearing coal exposed to air in the underground operation. Mining then ceased while the shaft was sealed to cut off air supply. There was only one shaft from surface level used for access, haulage and ventilation. An attempt to recommence operation was aborted initially in May 1944, when it was found that the fire was still burning or had reoccurred on re-opening. From 30 May 1944, a further attempt at reactivation was initiated by driving an incline from above the blocking of the shaft to intersect the 405 feet level operation. Drawing 8.3/2 shows plan and sections of the mine at August 1945. Over 2,000 tons of coal were excavated before fire again lead to sealing off the operation. No further production occurred before the shaft was resealed on 8 November 1945. Several attempts to re-open the mine took place to 1947 but it was found that fires reactivated and that some shaft timbers had collapsed. Reworking was hampered by the need for effective ventilation without that leading to fire outbreak in the smouldering coal debris.

**Drawing 8.3/1** Bacchus Marsh Brown Coal Field showing location of the Parwan Shaft (from Thomas, Brown ‘Coal Deposits at Bacchus Marsh’, Mining and Geological Journal, September 1947, p.18).
Total production from the Parwan Mine varies in separate references. Production as stated by Thomas and Baragwanath (1950) from 1940 to 1944 totalled 12,882 tons. With the production which also occurred in the 1930s and the quantities stated by Kenny (1947) included, the total production may have been about 15,000 tons of brown coal. (Output stated by DE Thomas (1947) as 9,536 tons appears to be too low.)

**Assessment of Heritage Significance**

**Historical Significance**

The Parwan Shaft at 1930 was the first commercial mining of the extensive brown coal deposits in the Bacchus Marsh area. Although the deposit was thick enough to be worked on several levels, mining of only a low percentage of the thickness was likely, due to the associated need for roof support. It was found that underground mining costs were similar to that of NSW black coal underground mines, resulting in the Parwan venture being unable to compete on a calorific basis for sale on the open market.

The several failed attempts to obtain commercial success from the Parwan venture with its advantages of a thick unbroken coal seam and low water inflow deterred other ventures for underground mining of the widespread deposits. This occurred particularly from the 1950s when large capacity mobile excavation and haulage plant became available after World War Two to mine selected areas by open cut methods at much lower costs than by underground mining.

**Scientific Significance**

The quality of the Parwan Shaft coal was similar to that of other brown coals in Victoria which had been extensively appraised from the 1890s. No specific characteristics of the Parwan Shaft coal merited specific study unless a niche market was in prospect.

**Economic Significance**

The Parwan Shaft came into operation about the time when briquettes from Yallourn were becoming more available to general industry and the public. Coal fines from the State Coal Mine at Wonthaggi and brown coal from the Yallourn North Open Cut and from the Wensley Dale Open Cut were also in the market as competitors to the Parwan prospects. The brown coal deposit at Altona was being promoted as feedstock for briquette manufacture near the centre of consumption in Melbourne.

No niche market offering sole or specific advantage to the Parwan Shaft operation was unearthed. Any such prospects were overrun with the development of open cut mines on the Bacchus Marsh brown coal fields and elsewhere in Victoria.
Social Significance

The Parwan Shaft was located on open grazing land some six miles from the village of Bacchus Marsh. The mining activities had no significant community interaction. Employment in this mining operation was intermittent over the twenty years of its activity and would not have exceeded about ten individuals at any time.

Lack of commercial success of this mine indicated similar poor prospects at other potential mine sites widely available in the Parwan valley.

Mine Infrastructure Features

The sealed shaft may still be identifiable.

References

Brown, G ‘Coal Resources of Victoria’, Mining and Geological Journal, Vol. 3 No. 4, September 1948
‘The Parwan Coal Field’, The Bacchus Marsh Express, 15 July 1933
Thomas, DE and Baragwanath, W, Geology of the Brown Coals Of Victoria, Part 3, Mines Department, September 1950

8.4 Maddingley Brown Coal Mine
Number One at Bacchus Marsh

Map Reference: 7722-1-2 Lederderg 2734, 58255
Municipality: Shire of Moorabool
Land Use/Status: Private

Site History

The early coal discoveries in the Bacchus Marsh area have been outlined in Section 8.3.

Between 1942 and 1944, 28 bores were sunk in the Bacchus Marsh area to ascertain the nature and extent of the brown coal deposit at that time of war time fuel shortages being...
worked as an underground mining operation at the Parwan Shaft. The drilling information was immediately utilised.

In March 1944, the Maddingley Brown Coal Pty Ltd in an operation known as the Maddingley Brown Coal Mine, commenced mining via a tunnel into the Maddingley Hill at a location on the south side of the VR rail line about 400 metres west of the Bacchus Marsh Railway Station. At the location of the mine, the coal seam was about 70 feet thick overlain by up to about 80 feet of gravels and sands. (Both the overburden and coal decreased in thickness northwards of the VR rail line.)

At March 1945, the tunnel was 450 feet long, levelling out at 130 feet below surface. The tunnel was well timbered and opened out to a 13 foot chamber for marshalling of underground skips.

At 1946, the mine was producing a few hundred tons of coal per week; 250 tons per week was reached in 1945. In the mine the coal was loaded into skips which were hauled up the inclined tunnel and loaded into VR trucks at a siding for delivery to Melbourne and Ballarat or into road trucks for deliveries locally or to Geelong.

In 1946, the Australian Paper Manufactures Ltd, (APM), purchased an interest in the Maddingley Mine. The APM had been experiencing a serious shortage of suitable fuel for their boiler plant at their Melbourne, Fairfield and Broadford Mills. The newly strengthened mining oversight from APM had noted the disastrous continuing spontaneous combustion underground in the coal seam of the Parwan Shaft several miles south east of Bacchus Marsh. At the Maddingley Mine, the improving post war availability of larger capacity mobile excavation and haulage plant had opened the option of an open cut mining operation. In 1946, shortly after the APM involvement commenced, an open cut operation was initiated immediately south of the underground entrance. Underground mining ceased at the Maddingley Mine at the end of 1946. By January 1947, coal excavation from this open cut had fully replaced the underground mining operation. From the open cut, coal output had risen to about 1,000 tons per week with demand increasing.
In 1947, Maddingley Brown Coal Pty Ltd decided to open a second open cut about 1.5 miles to the southeast where the coal deposit had a more favourable coal to overburden ratio. The original open cut was then named the Maddingley Open Cut Number One with the new mine named as Open Cut Number Two. The Number One Open Cut continued in operation after Number Two was opened in March 1948 using the same receiving, crushing and out-loading plant. Output from the Number One Open Cut in 1947 had risen to 1,600 tons per week with total output for the year at 67,641 tons.\textsuperscript{348} By 1949, the Maddingley Open Cut Number One had almost ceased coal winning. The Number Two mine was more economic and could be readily expanded to meet continuing growth in demand. In the 1951 year, the combined production from both open cuts was 284,326 tons with 85 men employed\textsuperscript{349} but production from the Number One mine had virtually ceased.

Total output for the Maddingley Open Cut Number One was stated to be 120,000 tons,\textsuperscript{350} having reached about 2,000 tons per week.\textsuperscript{351} A reserve of coal was left at the Number One Open Cut to provide a contingency in case of problems such as earth movement, flood or fire in the Number Two Open Cut.

The Number One Open Cut was used as the overburden dumping area from Open Cut Number Two such that by the 1960s the former mine area was fully filled, with terracing of higher refill areas and reclamation effectively restoring the landscape.

At 2005, the site of the former Maddingley underground mine and the Number One Open Cut, as shown in Photo 8.4/1, is utilised as a storage area for a fertiliser and soil conditioner mixing and bagging plant using some fine crushed brown coal from Maddingley Number Two Open Cut in some of its product mixes.
Assessment of Heritage Significance

Historical Significance

The commencement of brown coal mining at the Maddingley mine in 1944 was the first commercial utilisation of the Bacchus Marsh brown coal deposit. Being immediately adjacent to the main VR rail-line offered economic and social advantages for a rail loading point somewhat remote from the village of Bacchus Marsh.

Although opened economically as an underground mine via an adit into a hillside, subsequent drilling had revealed absence of overlying basalt resulting in the mine management recognising greater economy in converting to an open cut operation. Planning and plant procurement moved rapidly to achieve implementation of the change to open cut operation within two years of opening of the underground mine. Three other mining ventures followed as open cut operations within the area.

Scientific Significance

No specific endeavours were initiated to further investigations already carried out by others into the brown coal qualities and utilisation of the Bacchus Marsh coal. The mine sought to supply run of mine coal into the fuel market rather than investing in research into specific processing.

Economic Significance

The Number One Maddingley Mine commenced operation in 1944 as the first commercial venture to utilise the brown coal deposit at Bacchus Marsh. Its operation was in an area discerned by drilling about two years previously as having a thick coal seam close to surface.

There was a serious long term shortage of fuel in Victoria (and in NSW) in the war time economy which fostered the birth of coal mines as well as the attempted reactivation of earlier mines. The early transition of Maddingley Number One mine from an underground to an open cut mine demonstrated that the Bacchus Marsh deposit could be mined economically with conventional earth moving and haulage plant and with much less risk than in small underground mines.
Social Significance

The success of the Maddingley Number One mine in gaining access to the Melbourne and regional hard fuel markets lead to the almost immediate establishment of other mines on the Bacchus Marsh Coal Field. Open cut operations and maintenance skills were readily acquired from within the local quarrying and farming community, thus offering ready availability of a suitable work force with post war employment priority. The coal mining industry at Bacchus Marsh, initiated by the Maddingley Number One Mine, added significantly to the post war economic and social stability of the Bacchus Marsh area.

Mine Infrastructure Features

The underground mining site is discernible.
The outloading station is still in existence.
The Maddingley Number One open cut area is identifiable as a backfilled and restored natural regrowth site.

References

Brown, G ‘Coal Resources of Victoria’, Mining and Geological Journal, September 1948


Moffat, G ‘New Coal handling Plant at the Maddingley Open Cut, Bacchus Marsh’, Mining and Geological Journal, September 1952


Thomas, DE and Baragwanath, W Geology of the Brown Coals Of Victoria, Part 3, Mines Department, September 1950

8.5 Maddingley Brown Coal Mine Number Two Bacchus Marsh

Map Reference: 7722 1-2 Lederderg 2740, 58236

Municipality: Shire of Moorabool

Land Use/Status: Private

Site History

The Maddingley Open Cut Number Two was commenced in March 1948. It was located about 1.5 miles south east of the Number One mine and 1.5 miles south easterly from the Bacchus Marsh Railway Station. (See Drawing 8.4/1). The operating company was Maddingley Brown Coal Pty Ltd largely (or totally) owned by APM.352 The Number Two mine was opened where a single coal seam about 125 feet thick was overlain by 20 to 30 feet of soft overburden without basalt.353 It was a more favourable site for open cut mining of the coal deposit than the Number One site.

By 1950, the Number Two mine had reached an output of over 4,000 tons per week,354 with uncrushed coal being delivered 1.5 miles over a dedicated haul road to the Maddingley Mine rail siding, where the crushing, screening and outloading plant was in place as originally commissioned for the Number One mine. In early 1952 an upgraded crushing, screening and loading plant was installed at the siding with outloading to either of two rail tracks. A receiving bin, crushing and grinding plant was installed allowing for tipping of ten tonne capacity trucks and delivery to rail or road trucks in either lump form above three inches (cobbles) or as fines below three inches. See Drawing 8.5/1 and Photo 8.5/1.

At the end of 1952, the operation from the two mines had produced over one million tons of coal at an output reaching 7,000 tons per week.355 At 1953, Maddingley Brown Coal Pty Ltd was anticipating that it could win a market for some 4,000 tons of coal per week to the new SECV Power Station at Ballarat.356 These hopes were not realised. Maddingley coal, after an initial contract for 1,000 tons per week, was used at Ballarat P.S. only at times of SECV briquette availability shortages. Subsequently in July 1955, the Ballarat P.S.

Photo 8.5/1 New Crushing and outloading plant for Maddingley Open Cut Number Two, 1952.
changed from coal/briquettes to oil, having used 114,000 tons of Maddingley coal over a two year period.)

From 1951 to 1955, the nomenclature Number Three Open Cut was used in reports referring to future expansion. At 1955, this name was no longer used, the future development being considered as an extension of the Number Two Open Cut. Maximum yearly production from the Number Two Open Cut occurred in 1954 at 504,767 tons. Output stayed above 400,000 tons through to 1967 but then fell away as natural gas made inroads to brown coal usage. By 1972 output was below 200,000 tonnes and at 1979 about 100,000 tonnes.

From the early ‘70s, the mine was operated by APM Minerals Pty Ltd. Mining plant in use included 30 tonne twin power scrapers on upper overburden removal, 2.5 cubic metre electric and diesel powered shovels and a fleet of 24 road trucks each of 12 tonne capacity on overburden removal and coal transport. The coal seam averaged 100 feet thick.

A series of six working benches arranged in steps about 16 feet high were used to remove all coal from top to bottom of the seam. This height of bench was the optimum for the excavators to load direct to the road trucks.

In the 1969 year, Maddingley Number Two output was steady at 313,319 tons for the year. For the 1954 year, output from Maddingley Number Two was 504,467 tons. This was the peak year. Output stayed above 400,000 tons through to 1967. However, by 1971, demand had fallen considerably as the availability of natural gas made inroads into brown coal and briquette usage. In 1973, APM Minerals Pty Ltd took over the operations with output at 194,715 tonnes in that year and falling further by 1975 to 147,154 tonnes and at 1979 to about 100,000 tonnes.

In 1989, ownership of the Maddingley Open Cut operation was taken over by Melbourne Quarries. At 1992, the operation was taken over by Calleja Nominees which have continued...
producing small coal quantities for the local CSR hardwood factory, for a local soil conditioning production firm, and minute quantities for product colouring in brick manufacture. The Calleja Group have financial interests in development at Loy Yang of a coal drying and power generation plant with the mooted objective of a power plant operating on Maddingley Coal. At 2005, a significant operation is continuing by Calleja Nominees utilising the worked out area of the Maddingley Open Cut Number Two as a waste disposal area for industry and the community.

At 2004, there was a brief activity to mine and deliver a small tonnage of less than 100 tonnes for coal conversion trials by a private consortium. Ample coal reserves were available for a continuation or expansion of these trials.

Maddingley Open Cut Number Two was a successful operation, mainly supplying coal by rail direct to the APM at Fairfield in the Melbourne metropolitan area. Excavation at the mine continues as a minor operation to the present time, 2005, although, from late 1993, a local firm, CSR Wood Panels, were the only significant customer, demand falling away as customers in general converted to natural gas.

The Bacchus Marsh Heritage Guide, 2003, produced by the Bacchus Marsh & District Historical Society Inc, states that the Maddingley Coal Mine is classified to be of Local Significance (GSA Heritage, Rosengren 1986, Mitchell 2000.)

Assessment of Heritage Significance

Historical Significance

The Maddingley Open Cut Number Two which commenced operation in 1948 as a transition from the Number One Open Cut was the largest and longest surviving brown coal mine in the Bacchus Marsh district. It eventually absorbed three other adjacent and smaller open cuts, utilising these for overburden disposal sites.

Supply of coal from this mine was vital to several industrial plants west of Melbourne and for about two years to the Ballarat Power Station, but particularly to the Paper Mills at Fairfield and Broadford. Ownership of the mine by the Australian Paper Mills and successors facilitated supply to the Fairfield Mill for a forty year period until natural gas supplanted brown coal as their process energy source.

A large brown coal resource still remains unmined in the Bacchus Marsh region although mostly covered by basalt and/or limestone and with overburden depth exceeding 100 feet.

Scientific Significance

As the Maddingley Open Cut Number Two was owned by its major customer, there was no specific endeavour to undertake scientific research other than to optimise quality control of its deliveries. In general there was some use of briquettes at the APM mills, from the SECV Briquette works in the Latrobe Valley, to blend with the Maddingley coal for enhanced furnace purpose, the extent of blending with this more costly fuel being determined by continuing scientific testing of the coal quality.

Economic Significance

The success of APM over a 40 year period in utilising this coal rather than other fuels demonstrated that this high moisture coal was suitable for industrial use as a fuel without a high scientific input. This had also been demonstrated by the small industrial complexes using brown coal deliveries from the Yallourn North and the Wensley Dale/Anglesea Open Cuts.

The other open cuts on the Bacchus Marsh Coal Fields were marginally successful in selling all the coal accessible within their boundaries in the era before pricing (and convenience) with long term surety of supply of natural gas offered advantages over brown coal supply costs.
The technical success of this open cut demonstrated that the brown coal deposits of Victoria remain as a major industrial resource, with high potential economic significance where development becomes cost competitive.

Social Significance

This open cut and its coal delivery process presented diversification of and additions to employment in the Bacchus Marsh area for nearly 50 years. The location of the mine was sufficiently remote from the township such that the mining, haulage and rail outloading operations had no adverse effect on the township area.

The continuing use of the open cut as a managed waste recycling and disposal location is of continuing social benefit to the regional area.

Mine Infrastructure Features

The coal outloading station at the Bacchus Marsh rail siding is still in existence.

The rehabilitated overburden dumps in the adjacent worked out open cuts remain as unobtrusive relics of the mine operations.

The panoramas over the existing waste disposal operations are of potential tourist and heritage interest.

Mobile Plant currently involved in the waste disposal and restoration works are representative of that used for many years in the mining operation.

References

Brown, G ‘Coal Resources of Victoria’, Mining and Geological Journal, September 1948

Mining and Geological Journal, March 1948, September 1948, March 1949 and March 1950

Moffat, G ‘New Coal Handling Plant at the Maddingley Open Cut, Bacchus Marsh’, Mining and Geological Journal, September 1952


Thomas, DE and Baragwanath, W Geology of the Brown Coals Of Victoria, Parts 1–4, 1949–1951
8.6 The Star Collieries Bacchus Marsh

Map Reference: 7722-1-2 Lerderderg
Number 1 Colliery 2750, 58245
Number 2 Colliery 2747, 58229
Municipality: Shire of Moorabool
Land Use/Status: Private

Site History

These two collieries were among a group of mines which commenced operation in the 1940s in areas one to two miles to the south east of Bacchus Marsh Railway Station. Extensive drilling of about 30 bores had been carried out by the Mines Department in the early to mid 1940s which delineated a brown coal seam at depths of from 26 feet to 129 feet with overburden free of hard limestone and/or basalt. Coal seam thickness varied from about 30 feet to 98 feet. One bore revealed 98 feet of coal under 33 feet of overburden.

An open cut operation known as the Star Colliery Number One commenced site activities in mid 1946 at a location about 1.5 miles southeast of the Bacchus Marsh Railway Station and immediately south of the VR line to Melbourne. At this location about 100 feet of coal was covered by about 30 to 35 feet of soft overburden. At March 1947, the mine was excavating coal from a bed 67 feet below surface with overburden of 33 feet.

For 1947, average production was approximately 1,000 tons weekly with a peak production of 1,960 tons for one week during May 1947. Coal output for the 1947 year was 48,895 tons. At September 1948, production had averaged 1,450 tons weekly over the last three months. However the mine site was hemmed in by two other mines, and by the Parwan Creek and the Bacchus Marsh to Geelong Road. It had little room for expansion. Coal was excavated by mechanical shovels, loaded into road trucks and crushed, screened and stored in bins for delivery to customers. Proposals to haul the in-pit coal by conveyors to out-loading bins did not eventuate due to the short life ahead. Overburden was removed predominantly by dragline loading road trucks.

In 1949, overburden removal at a new open cut known as the Star Colliery Number Two commenced at a location one mile south of the Number One Colliery and on the southern side of the Parwan creek which separated the Number Two Colliery from the operational area of Maddingley Number Two Open Cut. See Drawing 8.4/1. The Star Colliery Number Two operated with a similar advantageous coal to overburden ratio as the Maddingley Number Two mine, both mining operations having been relocated southwards from their original mine. Coal production from Star Colliery Number Two commenced circa May 1950, with the Number One Colliery still producing at an average of 1,230 tons weekly (1,487 tons weekly during a coal strike in NSW).

At June 1950 the combined output from the two collieries averaged about 1500 tons per week and production to that date was stated as 209,243 tons. By September 1951, the Star Collieries Number One closed and appropriate plant was transferred to the Number 2 Colliery.

In July 1952, the Star Colliery sold their Number One worked out open cut to Maddingley Brown Coal Pty Ltd, who then gradually, from about 1957, filled this space fully to natural surface level with overburden from Maddingley Open Cut. At 2005, the existence of the earlier Star Collieries Number One Open Cut can not be readily distinguished due to the restoration of natural flora in conformity with natural flat lands of the Parwan Creek.

For the 1954 year, production was 83,244 tons and was continuing at about that level. In early 1957, a fire destroyed crushing plant and mine power station and buildings but output was resumed.

In August 1960, the Bacchus Marsh Briquetting Company Ltd took over Star Collieries with the intent to briquette crushed coal before sale. This concept evidently did not progress.

At the 1969 year, coal output had fallen somewhat to 60,071 tons with reduced demand, with a dramatic fall to 18,480 tons in the 1970 year. From 1973 when output was 1,433 tonnes, mining continued at a very low output of about 1,000 tonness annually to 1978. The Star Collieries Number Two Open Cut evidently ceased in 1979 from whence no output is shown in the Mines Department Annual reports.

A record of the total coal output from Star Collieries Number One and Number Two has not been discovered in this study.
but was probably of the order of 1.5 million tonnes from 1946 to 1976.

At 2005, the former Star Collieries Number Two Open Cut remains filled with water on the south side of the Parwan Creek and south of the Maddingley Number Two Open Cut.

Assessment of Heritage Significance

Historical Significance

The Star Collieries Number One commenced as an open cut operation in 1946 at about the same time as Maddingley Number One mine changed over from underground to open cut operation. It was a pioneer in post war management of small open cut mining activities.

This venture initiated their operation quickly after World War Two terminated. It was restricted somewhat in the availability of excavating and haulage plant. However the mine site was restricted and within three years, the venture commenced a second site about one mile to the south with greater coal reserves.

The mining operation was representative of optimum plant selection for small open cut operations at the time and achieved its move to the second site with continued use of the on-site equipment.

Scientific Significance

No specific achievements or endeavours were involved with the Star Collieries Number One and Number Two mines. A concept to manufacture briquettes was not proceeded with.

Economic Significance

The mining operation at the Star Collieries sites continued for a 30 year period providing employment at the mine sites as well as at service suppliers. With the Maddingley Number Two Open Cut progressively directing most of its output to the APM mills, the Star Collieries customer base was mainly the small industrial plants still raising steam as their power input.

Star Colliery Number Two had high economic significance in the late 1940s and in the 1950s when all other fuel sources were in short supply and before the advent of natural gas supplies.

Social Significance

The Star Collieries in combination with the other Bacchus Marsh open cut mines established a supplementary employment mode consolidating a multi-skilled workforce in the Bacchus Marsh region.

The surge in coal output in the 1940s was a significant social benefit to the Bacchus Marsh community offering employment in the era of industrial restoration after World War Two. The slow decline in coal output from the Star Colliery Number Two from the late 1960s allowed a progressive rather than instant downsizing of the workforce without major adverse social effects.

Mine Infrastructure Features

The Number One Colliery Open Cut was filled with overburden from Maddingley Number Two operations. The site has been restored to local grazing use. No mining plant remains at site. All workable plant had been reused at the Star Number Two Colliery or sold for scrap.

The Number Two Colliery Open Cut remains identifiable in its present state as partly water-filled up to the level of the adjacent Parwan Creek. No mining plant remains at site. Reusable plant had been sold progressively to the local quarrying companies or to earth moving contractors. A feature of the plant selection for this Colliery was the reusability of the excavation and haulage plant.

References

Brown, G ‘Coal Resources of Victoria’, Mining and Geological Journal, September 1948


8.7 The Lucifer Colliery, Bacchus Marsh

Map Reference: 7722-1-2 Lerderderg 2750, 58243
Municipality: Shire of Moorabool
Land Use/Status: Site History

The Lucifer Colliery was located about 200 yards south of the Star Number One Colliery and about one mile south east of the Bacchus Marsh Railway Station. See Drawing 8.3/1. At the mine site about 30 to 35 feet of soft overburden covered about 100 feet of brown coal in a single seam. The mine was opened by the Lignite Company NL in mid 1946 at about the same time as the adjoining Star Colliery Number One mine.

By mid 1947, coal output was averaging 850 tons per week with a peak of 1,143 tons achieved in one week in August 1947. In the 1947 year, annual production was 36,300 tons. The coal excavation bench was at 62 feet below surface with overburden of 30 feet. Coal was excavated by mechanical shovel, loaded into road trucks then crushed, screened, and stored in bins at ground surface. Coal analysis showed a moisture content of about 57.5 per cent and ash content of about 5.85 per cent. This quality was similar to the other mines south and east of Bacchus Marsh. It was readily acceptable for steam raising in those plants converted to usage of brown coal in the continuing post war shortages of other fuels.

From March 1948 to March 1950, coal output varied from about 580 tons to 1,000 tons weekly. By June 1950 output was averaging about 1,000 tons of coal per week with total production to that date stated as 135,583 tons. By June 1950, the Lucifer Colliery (Lignite NL) was considering sale to the Maddingley Brown Coal Pty Ltd. As collated in Sections 8.4 and 5, this latter company was at that time operating Maddingley Number Two Open Cut and was in the process of phasing out the operation of Maddingley Number One Open Cut. By March 1951, Maddingley Brown Coal Pty Ltd took over the Lucifer Colliery from the Lignite NL Company. Coal output in the 1951 year was 55,459 tons. However on 14 June 1952 the mining operation ceased, there being no feasibility to obtain more coal within the confined boundary of the mine. Maddingley Brown Coal then used the former Lucifer Open Cut to take about two thirds of Maddingley Number Two Open Cut overburden disposal over the next several years.

Total brown coal output from the lifetime of the Lucifer Open Cut was approximately 230,000 tons. At 2005, the former Lucifer Colliery has been re-blended into the natural landscape of the area.

Assessment of Heritage Significance

Historical Significance

The Lucifer Colliery had a short but active and commercially successful operational life of about six years during most of which it averaged at or above 1,000 tons of coal per week from 1947. During the early post-World War Two years of industrial regrowth, this mine significantly contributed to the supply of hard fuel in Victoria, while larger mines took longer to respond to demand.

This mine was completely worked out in six years within the small area of its operation hemmed in by adjoining mines and roads, railway and the Parwan Creek. This mine shared a short term fate with other adjacent small mines each of which left unmined coal, (in their batter systems and access roads), which could have been mined effectively in a single larger open cut mine.

The inefficiency of establishing a number of small mines on the same coal seam within a discrete confined area reduced the potential economies of scale for mining of the total resource. The concept of a single mine for effective development of a confined deposit was successful at the contemporary mines at Wensleydale, at Anglesea, at Yallourn North and at the State Coal Mine at Wonthaggi.

Scientific Significance

No specific scientific investigations were undertaken with respect to the coal mined at the Lucifer Colliery. The mine was activated quickly with a knowledge of the coal characteristics from earlier drilling and associated coal analysis of the coal resource. The mining concept appears to have been to deliver run-of-mine coal, the average quality of which was known by its customers.
Economic Significance

This mine was a small but timely contributor to the fuel needs of Victoria in the late 1940s and early 1950s. The availability of coal delivered from this mine slotted in well with the output growth of the adjacent major Maddingley Number Two Open Cut.

Social Significance

The inception of this mine coincided with the establishment of adjacent mines, each of which adopted similar mining and haulage plant for their separate operations. This similarity in development concepts resulted in a pool of mining and maintenance personnel available for transfer as the smaller mines phased out of operation with the growth of the Maddingley Number Two mine.

Effective restoration of the Lucifer site was undertaken by the Maddingley Mine after it took over the worked-out Lucifer Colliery site, and used the former open cut for overburden disposal from the Maddingley operations.

Mine Infrastructure Features

The Lucifer Colliery mine site has been restored to its former grazing use.

No mining plant remains on the former mine site.

References

Brown, G ‘Coal Resources of Victoria’, Mining and Geological Journal, September 1948


Annual Report, Mines Department, 1951


8.8 The Boxlea Colliery, Bacchus Marsh

Map Reference: 7722-1-2 Lederderg 2751, 58243

Municipality: Shire of Moorabool

Land Use/Status:

Site History

The Boxlea Colliery had commenced an underground mining operation circa 1945 via an adit driven southward from a location about 0.9 miles east of Bacchus Marsh Railway Station. In 1947, the operating company, Fuel and Chemical Industries Ltd., abandoned the underground activity and commenced overburden removal for an open cut operation on a narrow strip of land immediately opposite the Star Number One and Lucifer Collieries at about 1.2 miles south east of Bacchus Marsh Railway Station. The success of open cut operations by other companies mining the Bacchus Marsh coal deposit, the improved availability and capacity of mobile excavating and road haulage plant, and the avoidance of inherent fire danger from pyritic sands in the underground operation, were all factors favouring the concept of open cut operation at the Boxlea Colliery. Overburden removal was by carryall scrapers with dumping at the east beyond the crest of a steep hill.

In July 1949, coal excavation from the open cut commenced under the same mining and coal seam characteristics as being mined at the two adjacent mines, the Star Colliery Number One and the Lucifer Colliery. Output was below 50 tons per week. For the first half year of 1950, output totalled 463 tons. By September 1950, the operation was taken over by the Sunshine Fuel and Brown Coal Company which continued to work the constricted area immediately south of the junction of the Geelong Road and Cummings Road. Mines Department records state that loading bins and a small crushing plant were installed by March 1952 but that no coal mining was continuing at September 1952. No further reference to this small mining operation has been found.

Mines Department statistics of output quantities for the underground and/or the open cut operations at the Boxlea...
mine have not been ascertained in this heritage study. One colloquial report states output at 1948 was 30 tons per day for use in chemical byproducts, briquettes and producer gas fuel. But these features may have been concepts rather than reality. It appears that the full depth of the coal deposit was not reached within the confined area of the Boxlea Open Cut and that the total coal output was probably of the order of 20,000 to 40,000 tons.

At 2005, the former Boxlea Open cut site remains as a water-filled hole with minimal rehabilitation having been carried out.

Assessment of Heritage Significance

Historical Significance
The initiation of the Boxlea Colliery as an adit into the coal seam followed by about one year similar action by the Maddingley Number One mine. As with the Maddingley mine, the underground venture was replaced by an open cut in 1949 as soon as mobile excavating and haulage plant became more readily available after World War Two. The Boxlea underground mine was the last of the brown coal mines in Victoria to initiate a commercial underground mine.

The open cut operations of the Boxlea mine were not a commercial success. The small site available to the mine involved a higher proportion of overburden removal to coal mined, resulting in higher costs per ton of coal extracted than was available from the Maddingley Number Two mine and the other Bacchus Mines. The commercial failure of this low output mine also illustrated the relative economies of scale in a larger mining operation.

Scientific Significance
No specific scientific endeavour was applied to the Boxlea mining operation.

Economic Significance
The Boxlea mining operation was the smallest of the mines in the Bacchus Marsh area. The commercial failure of the mine illustrated the cost disadvantages arising from a small and restricted mining site.

Social Significance
The demise of the underground operations resulted in the termination of employment opportunities as underground miners in the Bacchus Marsh area. The adverse impact of this was however offset by the adaptability of the mine workforce to the skills required in open cut activities.

Mine Infrastructure Features
The open cut site of the Boxlea Colliery remains as a water-filled hole.

No mining plant remains on site.

The location of the adit entrance has not been identified in this Coal Heritage Study.

References
Brown, G ‘Coal Resources of Victoria’, Mining and Geological Journal, September 1948


Mining and Geological Journal, September 1947, March 1948 and September 1949


9 Latrobe Valley—Brown Coal Mines

9.1 The Great Morwell Brown Coal Mine

Map Reference: 5121-1-3 Yallourn – Zone 55 – GMBCM Entrance – 4440, 57750
Davies’ Cut 4413, 57748
Municipality: City of Latrobe
Land Use/Status: Public since circa 1916

Site History

In 1873, the Mines Department recorded the discovery of lignite, by David Ryan a gold prospector, on the south side of the Latrobe River at a location about seven miles northwest of Morwell township. Some years later a small amount of coal was extracted by a miner named Davis at this location. This was probably the small and brief mining operation referred to in Mines Department records as being at the edge of the Haunted Hills and east of Moe. This coal was evidently utilised locally as no economical transport was available to send this coal outside the locality.

In 1879, The Gippsland Times printed a letter from H Godridge which stated that he had found lignite in the north bank of the Latrobe River at a location “near the foot of the Morwell River. This location was about 1.7 miles east of David Ryan’s find. In his letter, Godridge sought financial investment from private enterprise to develop this deposit at which he had already inserted a tunnel proving a thick lignite deposit.

It was not until some seven years later that Henry Playford, a stockbroker, joined with Godridge to apply for a mining lease on the north side of the Latrobe River including the site of Godridge’s initial find. Lease 773 Mining District of Gippsland, County of Tanil, over about 537 acres of crown land was granted to this syndicate on 8 August 1887.

Mining of this deposit with H Godridge as manager commenced in late 1887 at the initial site discovered by Godridge. In September 1888, it was reported that prospecting in the lease area had found the coal deposit to be up to 60 feet thick with overburden in places only 15 feet deep. On 6 October 1888, a report on a visit to the mine site was printed in The Morwell Advertiser and Weekly Chronicle describing the mining operation via tunnels up to 100 feet long into the coal face on two levels. Three shafts had been sunk into the coal from surface level but were prevented from excavation below the river level due to ingress of water and lack of pumping. This report designated the deposit as brown coal rather than lignite on the basis of a low content of woody material. The report stated that the coal was ‘especially good for glass works, iron foundries or any industry requiring great heat and was excellent for gas producing. It has been tried by the Victorian Railways and has given every satisfaction’. The report advocated that a rail line approximately three and a half miles long ‘could be connected to the Main Gippsland VR Line at about three miles west of Morwell at about 85 miles from Melbourne’.

On 26 October 1888, the Great Morwell Coal Mining Company (GMCMC) No Liability was registered with Henry Playford as Manager of the Company. There were no Gippsland directors or shareholders.

On 11 February 1889, Lease 773 was transferred to the GMCMC with John Lang the first mine manager for this company. H Godridge was no longer involved in this mining operation although in 1891 he transferred to the GMCMC the Mining Lease 1015 about one mile south of the Latrobe River, which later became part of Yallourn Open Cut. The quantity of brown coal mined before transfer of the lease to the GMCMC has not been ascertained but was probably several hundred tons all used locally, except for small quantities for testing. The first half-yearly report of the GMCMC predicted an annual output from the mine of 250,000 tons of coal with enough coal available for 100 years at this output rate.

In June 1889, an agreement was reached with the Government for construction and financing of a spur rail line to the Great Morwell Mine from the main Gippsland line, partly financed by a loan from the National Bank. The spur rail line came into service in September 1890 connecting to a mine entrance some 150 yards downstream from the initial mining operation. The coal deposit was thicker at this new location,
which was to remain as the mine entrance for the lifetime of the mine. By December 1889, a bridge over the Latrobe River at the mine entrance was also constructed specifically for rail track entry to the mine.

A report by Geological Surveyor, James Stirling, at December 1889 described the mining operation. At the first site a tunnel about 65 feet long had been driven into the coal just above river level. At the second site some 150 yards northeast of the first site, an open cut had been commenced with overburden 15 feet deep to the top of coal. By December 1889 about 600 tons of coal had been excavated with the floor level of the coal bench 30 feet above river level. Stirling estimated that the coal deposit extended under the Latrobe River and alluvial flat land to the south. (This assumption was not disproved until about 1921 when the coal seam excavated in Yallourn Open Cut at the south of the Latrobe River was found to be of a higher moisture content and from a different seam than that mined at the Great Morwell Mine.)

Overburden removal at the new mine location was transported via horse-drawn skips on a light rail system and dumped at the west of the open cut. Coal was excavated by hand and loaded into horse drawn trucks until the spur line came into service permitting loading into VR rail trucks for transport out of the mine.

It was found that run-of-mine coal crumbled significantly during delivery, storage and burning, resulting in blockages in conventional industrial grates. Some of the combustion tests carried out on air dried coal showed combustion efficiency performance nearly equivalent to NSW black coal. Both of these factors allied with deliberations of the Royal Commission on Brown Coal 1889–1991 lead to proposals by the GMCMC to undertake briquette manufacture. The Royal Commission had concluded that ‘the future of the infant brown coal industry appeared to rest on the briquetting processes. Testing in England and in Germany had demonstrated that coal from the Great Morwell Mine was highly suitable for briquetting’.

In December 1891, it was stated that the Victorian Government offered a bonus of £5000 for the first 100,000 tons of briquettes manufactured in the colony and/or a bonus of £1000 for the first plant to produce 1,000 tons of briquettes monthly over a six month period. In August 1894, JW Corbett was granted a contract to operate the mine. He continued to have an interest in the mine through to about 1912. In 1894, the delivery point in Melbourne was a storage shed at Princess Bridge Station.

A bushfire on 2 March 1895 destroyed the briquetting plant and adjacent buildings. A second plant was then installed by early 1896 but the plant continued to have production inefficiencies although the briquette quality was good.

Due mainly to inefficiencies and delayed production of the briquette plant, the Great Morwell Coal Mining Company ran into financial difficulties. The price available for brown coal as delivered to Melbourne was below expectations by May 1894. This was due to economic depression and a price war between NSW and Victorian black coal suppliers. Additionally, NSW black coal deliveries became more available with a reduction in industrial disputes in the shipping and coal mining industries. Refund from the Victorian Railways of construction costs of the spur line was delayed due to deliveries from the mine being below guarantee. Pressure from the National Bank was exerted for repayment of the loan now swollen by accumulated interest. Lack of income to meet mortgage repayments resulted in liquidation of the Company on 21 March 1899.

Coal deliveries from the mine by GMCMC from 1891 to 1898 totalled 26,091 tons and briquette production was 1549 tons. (McKay (1950), states briquette production as about 4,000 tons). See Table 9.1/1.

In August 1899, the National Bank was given title to Lease 773. This lease subsequently passed through two companies before being declared void in March 1901. In May 2001, Lease 2176 was granted to W Tulloch over the same area as the previous Lease 773. The Lease 2176 then passed through the Goldfields of Gippsland Syndicate, then to the Victorian Minerals Development Company NL, and then to the Victorian Lignite Products Company NL. Lease 2176 was declared void on 4 September 1915. (Other Mineral leases south of the Latrobe River and north of the Gippsland Railway were also taken out by the GMCMC. One of these leases, on Lot 42, was transferred to the
Coal Mining Heritage Study – Mine Sites Identification

Victorian Brown Coal Development Company by 1906 with the concept of mining for electricity generation on this site.)

No briquettes were produced after 1898. Only about 2,000 tons of coal was excavated from 1899 to 1915 when the mining lease was cancelled. Total coal excavation from the Great Morwell Mine from its inception until 1915 was about 43,000 tons including that used for briquetting.

Mining of the Great Morwell Mine by private enterprise terminated in 1915.

In 1916, during an extensive industrial strike on the NSW coalfields, the Victorian Government instructed the Mines Department to reopen the Great Morwell mine. However, the strike terminated about one week after this instruction and before mining recommenced. In June 1917, with wartime shipping shortages reducing NSW coal supplies to Victoria, the mine was again reactivated by the Mines Department on Government orders.

Initial transport of coal from the mine through 1917 was by ‘horse haulage to the main Gippsland line until the former spur line was reconditioned for loco haulage’. From 1918 coal excavation procedures were upgraded via hand excavation into one-ton skips on 24 inch gauge tracks manually hauled over trestles and tipped into VR trucks hauled singly by a horse to VR marshalling yards on the south side of the Latrobe River. See Photos 9.1/3 and 4.

At 1920, coal output had reached about 163,000 tons in that year, supplies being to the Newport Power Station as well as to a wide variety of industrial plants. Extensive testing of the Greater Morwell brown coal had occurred from 1909 as detailed investigations were made for its use for electricity production. Additionally, tests with the Greater Morwell brown coal in pulverised form and in gas producers were also carried out by various groups. A small ‘Cornish’ Boiler, consuming about seven tons per hour of raw brown coal was installed at the Great Morwell Mine in 1919 to run electric lighting and plant within the mine.

From May 1921, the Great Morwell Mine commenced coal supply to a temporary power station located south of the mine, with the function to supply electricity to the construction activities of the SECV in building the Yallourn Power Station, Briquette Works and for operation of the new Yallourn open cut mine on the south of the Latrobe River. On 1 April 1924, operation of the Great Morwell Mine was transferred to the SECV as commercial operation of the Yallourn Power Station became imminent. This transition of management of the Greater Morwell Mine from the Mines Department to the SECV occurred without reduction of brown coal supplies to the Melbourne area. The terminology ‘Old Brown Coal Mine’ was used for several years until it was officially named the Yallourn North Open Cut. Aspects of the continued operation of the Yallourn North Open Cut from 1 April 1924 are collated in Section 9.3 of this study.

Table 9.1/1 Great Morwell Brown Coal Mine Coal Output 1887 to 1898 (taken from Herman 1922).

<table>
<thead>
<tr>
<th>YEAR</th>
<th>GREAT MORWELL COMPANY (BROWN COAL)</th>
<th>BLACK COAL: TOTAL IMPORTS (FROM NSW)</th>
<th>BLACK COAL FROM VICTORIA</th>
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<tr>
<td>1887</td>
<td></td>
<td>554 300</td>
<td>3 357</td>
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<td>1888</td>
<td></td>
<td>623 594</td>
<td>8 573</td>
</tr>
<tr>
<td>1889</td>
<td>1 000</td>
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<td>1892</td>
<td>4 206</td>
<td>739 703</td>
<td>23 363</td>
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<td>1893</td>
<td>3 184</td>
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<td>1 804</td>
<td>544 629</td>
<td>194 227</td>
</tr>
<tr>
<td>1896</td>
<td>4 631 + 134 Briquettes</td>
<td>502 372</td>
<td>226 562</td>
</tr>
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<td>1897</td>
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<td>1898</td>
<td>2 338 + 323 Briquettes</td>
<td>562 329</td>
<td>242 860</td>
</tr>
</tbody>
</table>

Photo 9.1/3 ‘Old Brown Coal Mine’ 1920: looking south towards mine entrance.
Total coal output from 1915 until the mine operation was taken over by the SECV on 1 April 1924 was about 0.45 million tons.

**Assessment of Heritage Significance**

**Historic Significance**

The discovery of this visible thick brown coal deposit lead to a surge in coal exploration in Victoria coinciding with the extension of the Victorian Railways network rendering coal transport economically feasible to Melbourne and provincial centres throughout the State.

This mine was the second brown coal mine of high significance opened in Victoria. It was the first significant brown coal mine opened in the Latrobe Valley. At the time of commencement of mining operations by the Great Morwell Coal Mining Company, the vast extent of the tertiary coal deposits in the Latrobe Valley had been geologically interpreted, leading to a surge of applications for mining leases throughout Gippsland.

The appointment by the Government of the Victorian Royal Commission on Coal in 1889 was strongly influenced by the potential of brown coal to supplant the dependence of Victoria on black coal imports. The findings of this Commission led to government sponsorship of research into brown coal utilisation as the major energy and fuel resource of the State.

**Scientific Significance**

The development of techniques for effective combustion of this relatively high moisture coal was an ongoing feature of the scientific analysis of this coal compared with other coals including the German and British coals.

The high potential of the GMBCM resource was widely recognised as gas and electricity generation demand grew.

**Drawing. 9.1/1** Great Morwell Brown Coal Mine Extent of Open Cut 1917 (Taken from Herman (1922)).

**Drawing. 9.1/2** Sections of Latrobe Brown Coal Seam at Yallourn North (Taken from Gloe, C(1960), part of Figs 9 and 10). Copyright State Electricity Commission of Victoria.

**Photo 9.1/4** ‘Old Brown Coal Mine’ 1920: hand excavation to horse drawn skips.
rapidly from the late 1890s and the resource was open for supply. In effect, the coal was a potential feedstock for testing in a variety of conversion processes. Some of these processes and byproducts took many years of testing and research, often without commercial success at the time. Nevertheless, when the time arrived in the early 1900s for large scale utilization of brown coal in the electricity, gas and briquetting industries, the accumulated scientific knowledge was of prime benefit to the achievement of efficiency in these and associated enterprises.

No scientific innovation was applied in the mining operation of this mine. The failure of the briquetting plant to meet output objectives and consistent quality demonstrated the necessity to utilize the experience and scientific knowledge of the German brown coal industry, and to recognize that vast differences occurred in the detailed composition of and within coal seams.

**Economic Significance**

Utilization and testing of the run of mine coal from this mine showed that the brown coal resource of the State had the potential to substitute for black coal supplies.

Although this mine could be considered a commercial failure, its output as applied to testing for future applications was highly important. To a considerable extent, the commercial failure was due to the decision to negotiate the contract for supply and installation of the briquetting plant with Australian resources rather than accept expensive offers for plant.
designed and commissioned from German resources of proven capability.

The mine received little Government support, particularly from lack of influence on the Railways Department to adapt their locomotive fleet to use this coal for the overall benefit of the State economy. The Government did, however, facilitate testing and scientific investigation of the brown coal from this source expected to be representative of the recently known extensive deposits throughout Gippsland. In effect this private mining operation provided at their cost the feedstock for laboratory and pilot plant investigations, which led to the Government decision to institute the State Electricity Commission to develop the brown coal resources of the State as a public enterprise.

Operation of the mine by the Mines Department from 1917 to 1924 was of significant economic benefit to the State. Shortages of other fuels were supplemented through this period. The availability of the Great Morwell Mine with its exposed coal resource adjacent to the temporary power station at Yallourn permitted that station to have a reliable fuel supply as soon as it was constructed. The supply from the Great Morwell Mine also permitted time for adequate overburden stripping and coal face exposure at Yallourn Open Cut prior to the main Yallourn Power Station coming into service in mid-1924.

Social Significance

The 35 year period of private mining of the brown coal from the Great Morwell Mine did not achieve expected coal and briquette output. Technology for effective utilization of the coal did not exist in Australia and access to overseas practical applications was restricted by distance and international relations.

Government support to private mining enterprise was low, due partly from economic depression and partly from opposition from established coal suppliers. By 1910, private mining and energy entrepreneurs were vigorously seeking subsidies or monopolies for development of coal resources in the State for power generation. In the evaluations and debate on the philosophy of private versus government control of coal mining, the ineffectiveness of the Great Morwell Coal Mining Company and its descendants to develop their lease influenced the Government of the day to adopt a State Enterprise model for ‘Essential Services’. The State Coal Mine at Wonthaggi and the Newport Power Station were prime examples of the socialization of State resources.

On the Gippsland scene, the Great Morwell Mine with its rail access provided by the Victorian Railways influenced the establishment by the VR of branch rail lines to other coal bearing areas such as the Morwell River valley and the Narracan Creek valley. The Great Morwell spur line carried clay and timber as well as coal and briquettes; the other lines carried timber, general goods and passengers as well as coal.

A separate township, initially in the form of a conglomeration of tents, was established immediately adjacent to the Great Morwell Mine when the Mines Department took over operation of the mine in 1916. The population in the tent town and surrounding scrubby bush was less than 200 at 1918. The first store was built in 1917, a school established in a marquee in 1918 and a progress association formed in 1922. This small settlement later was called Yallourn North with a population at its peak of about 3000, the home of many migrants forming a significant part of the workforce for the SECV works and supporting service facilities.
Mine Infrastructure Features

Entry to the former Great Morwell Mine.
Foundation remains of small power plant at the Great Morwell Mine.
Location of Davis’ Cut.

References

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The Gippsland Times, 24 March 1879
McKay, RJ, History of Development of the Brown Coal Workings at Yallourn, SECV, 1950, p.4
Mineral Statistics, Mines Department, 1873, p.52
Morwell Advertiser and Weekly Chronicle, 15 September 1888 and 6 October 1888
Mining Lease 2176, Registry of Applications
Stirling, J ‘Preliminary Report on the Brown Coal Deposit at the Great Morwell Coal Mining Company’s Mine’, Quarterly Report, Mines Department, 31 December 1889, Appendix F
Half Yearly Report, The Great Morwell Coal Mining Company NL, May 1894
Final Report, Victorian Royal Commission on Coal Mining Industry, December 1891

9.2 Yallourn North Open Cut

Map Reference: 5121-1-3 Yallourn Zone 55 Mine entrance 4440, 57750
Municipality: City of Latrobe
Land Use/Status: Public

Site History

The original mine at Yallourn North situated about five miles northwest of Morwell was opened in 1887 by a private consortium. It was known as the Great Morwell Brown Coal Mine from 1888/89 and was operated consecutively by several private companies until 1915, when the mining lease was surrendered. This mine was reopened in 1916 and operated by the Mines Department until 31 March 1924, when the operation was handed over to the SECV. The mine was then known as the ‘Old Brown Coal Mine’ until about 1930 when it became known as Yallourn North Open Cut (YNOC).

Coal supply was continuous in the transition of the mine management from the Mines Department to the SECV. The history of the mine from 1 April 1924 is collated under the nomenclature of the YNOC.

Coal supply from the YNOC was initially to the temporary Yallourn Power Station until this plant was taken out of service on 1 September 1924. The new Yallourn Power Station came into service on 15 June 1924.

For the new power station, coal excavation from the YNOC was on a three shift, seven day a week basis, also supplying other industry via the VR system and by road trucks. ‘Although deliveries of Yallourn Open Cut Coal to the new Power Station commenced in August 1924, it was found necessary to burn a certain amount of Yallourn North coal in the boiler furnaces to obtain the required output.’ This quotation understates the problems which the SECV faced when it was found in about 1921 that the coal intended to be mined from the Yallourn Open Cut for the Yallourn Power Station was of a different seam with significantly higher moisture content than that at Yallourn North, on which design of the power and briquetting plant had been based. It was realised by the SECV that plant on order for the Power Station, the Briquetting Works and the
Open Cut would require supplementation and modification to reach required outputs using Yallourn Coal. The seam at Yallourn North was later described as the Latrobe Seam.

Expanding and continuing coal demand from YNOC required increased overburden removal. In 1924, horse drawn scoops were used to straighten the Latrobe River and divert it over a 1,000 feet length to provide space for overburden dumping outside the YNOC. In 1925, coal excavation on the south side of the YNOC was exhausted, and coal and overburden excavation was transferred to the west side. A new bridge over the Latrobe River was constructed at the Yallourn North Open Cut entrance. This permitted the transfer from Yallourn Open Cut of a 150B excavating shovel to replace hand excavation of overburden. Transport of overburden was now by steam locomotives hauling three cubic yard trucks to a sluice dump at the south outside the YNOC. Overburden removal was suspended in January 1928, with sufficient coal exposed to meet decreasing coal demand as Yallourn Power Station moved towards complete reliance on coal supply from its dedicated Yallourn Open Cut. The 150B shovel and overburden rolling stock were transferred to Yallourn Open Cut in 1928.

Coal supply including about 50–60 per cent to Yallourn Power Station up to 1926, was by hand excavation into one cubic yard dobbins which tipped through a crusher into 20 ton VR trucks. In 1927, the mining procedure was changed with coal excavated by hand dropping through chinaman chutes to trucks on a single floor level. Coal output exceeded 300,000 tons in each year 1927 and 1928, before declining as Yallourn Power Station moved progressively to full dependence on Yallourn Coal. Coal supply from Yallourn North to industry was also declining as briquettes from the Yallourn Briquetting Works became in greater supply to the public. On 24 August 1930, coal supply from Yallourn North to the Yallourn Power Station was suspended. On 20 September 1930, the Yallourn North Open Cut was closed down, as coal demand from industry was considered insufficient to continue the mining operation at that time.

On 26 December 1934, the YNOC was reopened in an emergency to supply coal to the Yallourn Power Station and Briquetting Works following a serious flood in the YOC. Five steam locomotives and 43 two and five cubic yard trucks were used on overburden transport with a dragline and two shovels as excavators. Coal was excavated by hand into dobbins and then tipped into 20 ton SECV coal trucks and

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Table 9.2/1 YNOC Coal Excavation Quantities 1924–1963 (from Rusden, 1968, Appendix 10, and Vines, 1989, Table 1.1/3). Copyright TRUenergy.
hauled by SECV electric locos to supply Yallourn Power Station and the Briquette Factory. A large workforce was recruited rapidly for flood recovery activities in both the YNOC and YOC. Coal output from YNOC on a three shift basis reached 3,444 tons as a daily maximum. The YNOC was again closed on 31 May 1935 after supplying 252,924 tons of coal in the five month emergency.407

On 26 March 1941, the YNOC was reopened by the SECV under Government orders in wartime conditions to prepare the mine for an output of 2,000 tons of coal per day in case of emergency. The mining operation was completely modified to meet this contingency. Overburden operation used a three and a half cubic yard coal burning shovel, with four steam locos hauling trucks to a sludge dump. Overburden excavation was suspended from May 1942 until July 1946 as exposed coal reserves were considered adequate.

The VR line was extended from the Yallourn Power Station into YNOC and a new crushing station and delivery station completed in September 1941. Coal deliveries were recommenced to public buyers and to Newport Power Station experiencing black coal shortages during the wartime conditions. Within YNOC, coal excavation was mainly by a three cubic yard shovel transferred from YOC loading to a fleet of 17 eight cubic yard Mack road trucks delivering through a crusher to the rail outloading station.

Due to difficulties in recruiting labour for the YNOC, the SECV arranged with the Country Roads Board to take over operation of YNOC from 6 January 1947. This arrangement continued until 4 April 1949 for coal winning and progressively to 11 November 1949 for overburden removal.

From 1946, plant used on overburden removal included steam and electric shovels and draglines, tractors, scoops...