

The Karara Iron Ore Trains and Karara Branch - 10 Years of Operation

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Background to the Karara Mine and Operations

The Karara iron ore project changed the Geraldton region train operations forever. A bold statement but it was the works that took place in relation to that project that have had a significant and lasting impact.

Iron ore trains in the Geraldton region have played a part in the use of rail in the area for over 50 years. Initially, Western Mining operated a mine at Koolanooka (Just north of Morawa) from 1966 to 1974. A short branch (19 km) was built from Tilley Junction to the mine at Koolanooka which was known as Westmine. After the mine closed the line remained in place until the early 1980's when it was lifted.

Twenty years later Mount Gibson Mining was the next company to open a mine, at Talling Peak in 2003 (approximately 50 kilometres north of Mullewa). Trucks delivered iron ore to a new siding 2.8 km west of the town of Mullewa, called Ruvadini siding and located on a short branch of just a couple of kilometres long. It started as a low-cost operation with the first train running on 19 January 2004 using a range of wagons sourced from various parts of the then Australian Railroad Group operations, some of the wagons were used previously on the Koolanooka operation. As operations increased the train was built up to 60 wagons hauled by a mix of ARG locos. As the operation expanded Mount Gibson purchased 34 hoppers (17 pairs) of MHAF class wagons and introduced Chinese built wagons to the network. Ultimately two double headed 60 wagon consists ran, which operated two return trips a day (four loaded trains) between Ruvadini and Geraldton Port. ARG transferred locomotives from Queensland to assist in the haulage task.

Mount Gibson then opened a second mine at Extension Hill located 85 km southeast of the town of Perenjori. The iron ore was trucked to a siding just south of Perenjori. Trains started running on 12 December 2011. These trains required a significant importation of new AHCF hopper wagons in several batches and the fleet ultimately consisted of 236 hoppers set up in fixed pairs (118). The Perenjori iron ore trains ran with 90 wagons (45 pairs) and required three locomotives on the front.

A further train also ran from February to July 2015 using the Extension Hill loading point and wagons/ locos with ore from the Top Iron mine at Mummaloo, north of Mount Gibson's Extension Hill mine.

During the same period as the initial Mount Gibson operations Midwest Corporation (later Sinosteel) reopened the Koolanooka mine, a set of wagons were purchased for the operation along with a new siding at Tilley (just south of the old Tilley Junction). Unfortunately, the operation at that time utilised road haulage and the new wagons were stored until Mount Gibson trains made use of them on occasions.

One might be left wondering what all of this has to do with the Karara operations. The Karara Iron ore mine was to be a new operation with magnetite iron ore, however in its raw form magnetite ore is of a lower grade than the more common hematite ore. To lift the quality magnetite iron ore is often processed and concentrated and exported at iron ore grades above conventional hematite iron ore.

The Karara magnetite is processed at the mine and does not look like "conventional" iron ore which is reddish brown (or variations thereto), the Karara magnetite is black and looks like crushed coal and is in a coarse powder form.

Australian company Gindalbie Metals and Chinese Steel maker Ansteel were a joint venture in the proposed magnetite mining and processing operation east of Morawa. The company was called Karara Mining Ltd (KML). In order to rail their product to Geraldton Port a new railway was needed and was constructed from just north of the town of Morawa (a new Tilley Junction) then 74 kilometres eastwards to the Karara mine.

The production of magnetite was set at 8 million tonnes a year. Brookfield Rail (now Arc Infrastructure) and the Karara partners came to a contractual arrangement that saw the existing railways from Geraldton to Mullewa (via Narngulu) and Mullewa to the new junction at Tilley (just north of Morawa) totally transformed.

Construction of the Tilley to Karara Railway and the Midwest Rail Upgrade

Karara Mining Ltd would be responsible for the construction of the Karara Branch whilst Brookfield would be responsible for the reconstruction/upgrade of the Tilley to Mullewa then through to Geraldton Port sections. The scale of the work was substantial, and the Brookfield component was to cost \$500 million and the Tilley to Karara section would cost KML \$100 million.

Left (page 44): ACN4169 and ACN4141 on 7763 loaded KML iron ore train to Geraldton Port at Greenough River, Eradu on Saturday 21 September 2013.

Below: ACN4144 and ACN4146 with rear DPU Loco ACN4150 on 1765 loaded Karara iron ore to Geraldton Port seen at the 11.9 km point on the Karara branch at Koolanooka on Sunday 16 July 2023.



The Brookfield work was split into two sections, Narngulu to Mullewa and Mullewa to Tilley Junction. The Narngulu to Mullewa section also had CTC signaling installed.

The Karara line was built using Macmahon as contractors and as construction progressed South Spur Rail Services (then operating as Green Trains) supplied two K class English Electric locomotives to assist in the construction of the Karara Railway. This was unusual as the Karara Railway was to be 3ft 6in (as was the rest of the Geraldton network) and of course the K's were standard gauge. RailCorp NDFB Ballast wagons began to arrive at Bellevue near Midland in Western Australia in April 2011 and were transferred to the Karara Railway (a number were seen on the Great Northern Highway at Miling on trucks on 2 May 2011). K205 and K206 departed Forrestfield on trucks on 8 May 2011 to join the wagons.

As can be gathered the Karara Railway was constructed as a standard gauge railway with dual gauge concrete sleepers and 60 kg/metre rail but on completion was regauged to 1067mm (3ft 6in). Brookfield also laid dual gauge concrete sleepers from Tilley Junction all the way to Narngulu, 60kg rail was used on the Mullewa to Tilley Railway and 50kg rail on the Narngulu to Mullewa Railway. KML's joint owners Ansteel supplied the 60kg rail.

The actual construction and reconstruction that came with multiple infrastructure trains is a story in its own right. It necessitated significant train operations which stretched the narrow-gauge infrastructure rolling stock resources and explains why a different infrastructure train solution was used by Karara.

The Tilley to Karara Railway

This railway basically runs in a west-east direction from Tilley Junction then 74km to the start of the balloon loop at the Karara mine site. The railway is privately owned with train control contracted to Arc Infrastructure and train operations to Aurizon. KML maintains the line. There is a Movement Authority (non-crossing point) at a location called Ansteel at the 22 km point and a crossing loop at Gindalbie located at the 54 km Point.

If you plan to visit the railway, please note access is limited, a large proportion of the level crossings are private and as it's orientated in a west-east direction (the adjacent Mungada Road runs parallel to the line but on the south side) the sun is normally on the north side of the line requiring a level crossing to get to the north side. Mungada Road provides access to the mine and the adjoining Karara Rangeland Park. Karara Mining do patrol the railway regularly.



Train Operations.

The Karara mine itself initially commenced mining conventional hematite iron ore at satellite sites then at the main pit. Train operations commenced using the previously stored Midwest Corporation (by then Sinosteel Midwest) KHBF iron ore hopper set with the first train arriving into Geraldton Port on 29 March 2011 (it was loaded the previous day at the former Midwest Corporation Tilley siding loading facility). These early operations were done in conjunction with Sinosteel Midwest/KML).

The first trains initially used a single loco on a short consist but from 4 April 2011 the train became a double headed 60 wagon operation. The train operated from Tilley until 16 December 2011, then from 3 January 2012 the train started to run from a new loading point at Mingenew on the former Midland Railway.

Track upgrade works were taking place on the Narngulu to Tilley section and the change of loading location assisted in providing longer track work upgrade windows.

KML ordered new 211 AOJF and AOKF open wagons pairs (the wagons are understood to be based on the Queensland GSZY type). This gave 422 hoppers (the fixed pairs could be used at a new rotary dumper installed by KML at Geraldton Port) The wagons arrived between April and August 2012. The new wagons initially were loaded at Tilley siding during 2012 carting conventional hematite iron ore, the trains then ran from the mine when the new line opened. The first Magnetite ore was moved in December 2012.

Train services ramped up during the early part of 2013 using what became the standard train of 100 wagons with two 'ACN' locos on the front and one ACN in DPU mode at the back, ultimately ramping up to four sets being

operated. However during this period, to meet contractual operations some triple DFZ hauled trains also ran from the Mount Gibson Perenjori loading point to Geraldton Port using the new Karara wagons.

Aurizon built a new locomotive depot and yard at Narngulu East as part of the Karara project. The existing Narngulu Loco and wagon depot saw the locomotive servicing tracks converted to an extended wagon repair facility and new crew facilities/ book on point. Aurizon uses the "older" Narngulu as its operations base/offices, now officially known as Narngulu West. 20 new ACN (4100 class from Queensland) were transported by road to Perth and 15 were allocated to the new Narngulu East depot, the other five ACN's being based at Picton, near Bunbury.

10 years later (2023), there are still four Karara iron ore sets running with 100-104 hoppers with three Aurizon ACN locos (two at the front and a single DPU ACN loco at the back). Narngulu East normally has an allocation of 15-16 ACN locos. Generally, magnetite iron ore is hauled but during 2023 Sinsosteel has worked with Karara to enable their hematite iron ore to be transported utilising the Karara fleet.

What is noticeable is that the once light grey painted hopper wagons are now "magnetite" black. Magnetite also tends to coat the locomotives with a dusting of black as well. During 2022-23 KML are seeking environmental approval for mine life extensions to extend the life of the mine for 30+ years.

The journey from mine to Port does "test" the locomotives on some sections and although running can be at 80km/h, some locations with steeper grades can see train speeds drop down to as low as 15km/h. All in all, the Karara trains do offer some different opportunities for photographs in the Geraldton-Midwest area.

Below: ACN4175, ACN4151 and ACN4170 on 4763 loaded Karara iron ore to Geraldton Port on the Greenough River Bridge at Eradu on Wednesday 12 January 2022. Sometimes failures necessitated a third loco on the front. The photo also shows the work worn condition nearly 10 years on.

Above right (page 47): DFZ2403, DFZ2401 and DFZ2402 at Perenjori on Saturday 27 April 2013 with a loaded iron ore train from the Mount Gibson Perenjori siding bound for Geraldton Port. The ore was trucked to Perenjori siding from the Mount Gibson mine at Extension Hill, 85km distant.

Below right (page 47): ACN4170, ACN4169 and DPU ACN4141 on 7763 loaded KML iron ore Karara to Geraldton Port at Bringoo on Saturday 28 September 2013.



