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1. INTRODUCTION

Coal licence No. 4 was applied for on 14/9/83 by W.A. Jettner and was granted on 26/1/84. It came into effect on 1/7/84 and so is now in its second year of tenure. This report gives details of the work done on the licence in this year.

Coal licence No. 4 was applied for with the intention of exploring for peat for use as an energy source and/or for use in the agricultural industry.

Such a deposit was subsequently located and the Department of Mines and Energy notified in my last annual report.

Recently application has been made for the granting of two coal leases to cover part of the deposit and these are currently awaiting processing by the Department of Mines and Energy.

2. LOCATION AND ACCESS

Coal Licence No. 4 is located near the mouth of the Finnis River at Fog Bay. It is located in the south west corner of Finnis River Station (PL 689) the owners of which are Terri and Co Pty Ltd. The licence covers that portion of land containing 143 sq.km. and is described as follows;

Commencing at the intersection of latitude 12°46' and longitude 130°28', thence proceeding to the intersection of latitude 12°46' with longitude 130°22', thence proceeding to the intersection of latitude 12°53' with longitude 130°22', thence proceeding to the intersection of longitude 130°22' with the northern boundary of Wagait Reserve R1080 thence easterly along the said boundary to its intersection with longitude 130°28', thence proceeding to the intersection of latitude 12°46' with longitude 130°22'.

Access to the licence is via the Finnis River Station access road thence on a large cleared road that heads westward to Fog Bay. From this road another road heads off in a southwestly direction to the licence. Access rights have been given to the licence holder by the landowners providing that the property of the station is respected.
Figure 1 Location Map showing location of Coal Licence No 4.
3. DESCRIPTION

The licence covers an area over and around the area known locally as Mullock Swamp. This swamp is located over what appears to be a fault controlled basinal structure that occupies a position between a series of low quartzite hills. The swamp covers an area of approximately 20 sq. km. and varies in depth from 30 cm at its edges to an unknown depth at its deepest point, known to be in excess of 3m.

The swamp is covered by reeds and this is what the underlying peat has been derived from. The swamp holds water on its surface for over 9 months of each year. The water level gradually receeds from about June or later depending on the wet season.

4. GEOLOGY

The geology as outcrops in the area consists of the Depot Creek Sandstone Member on the western edge of the swamp. The rest of the area as defined by the NTGS consists of Tertiary mottled laterite derived from and containing rare outcrops of the Early Cretaceous Bathurst Island Formation. Contained in topographic lows are Quaternary silts and alluvium from the recent weathering cycle.

The peat is contained in a topographic low mapped as clay, mud, silt and seasonally inundated black soil plain.

The peat is derived from the reeds that grow on its surface, die and are not removed by the action of water. They subsequently become trapped by the growing reeds and are found insitu. On the edge of the swamp the peat is of poor quality but rapidly becomes better as it becomes deeper.

5. PREVIOUS INVESTIGATIONS

Results and investigations that were carried out prior to the current exploration year on CL 4 are contained in the annual report on Coal Licence No. 4 for the first exploration year and the reader is referred to this report for more information.
Figure 2: Geological Map of CL4 and Surrounds
6. WORK DONE IN YEAR 2

The main objective of the work program for this year was the obtaining of a bulk sample for research purposes. These include:

a) To establish the commercial viability of producing a good quality peat product for the local market.
b) To establish a practical extraction method.
c) To prove the viability or otherwise of the extraction method and subsequent transportation to Darwin, and
d) To examine the environmental impact of the extraction process.

These purposes were deemed to be important enough to warrant the expense of the removal of a bulk sample. This was because, unlike the usual commodities associated with the mining industry, (i.e. gold, tin, silver, etc.), this was a commodity that needed to be sold directly to the public and not a marketing organisation and so had no guaranteed market. To this end permission to remove a bulk sample was applied for and received and the operation was undertaken in two stages. In the first stage a sample of 725 m$^3$ was removed and transported to Darwin at the following rates:

- **Excavation** $\approx$ $\$50.00/$hr. $\approx$ $\$7.00/m^3$
- **Loading** $\$3.00/m^3$
- **Transport** $\$18.00/m^3$
- **Total** $\$28.00/m^3$ (approx.)

$725 m^3$ $\times$ $\$19,940.00$

In the second stage a sample of size 629 m$^3$ was removed at the following rates:

- **Excavation** $\approx$ $\$7.00/m^3$
- **Loading** $\$4.00/m^3$
- **Transport** $\$30.00/m^3$
- **Total** $\$41.00/m^3$

$629 m^3$ $\times$ $\$25,789.00$
As can be seen from the figures on the previous page, the rates for the two stages were quite different, this was due to two different contractors being engaged for the loading and transport in the stages. The first stage loading and transport was undertaken by N.A.H. whilst the second stage was done by Cecon. The excavation in both cases was done by a small local company using two bobcats.

In order to get this operation done as cheaply to me as possible, I decided to allow Tropigro, a Darwin based gardening products wholesaler to remove the bulk sample to allow them to see the quality and quantity available as well as to carry the financial burden on something I could not afford to do at the time. This was also good for me as they are the largest gardening suppliers in Darwin and the only ones who manufacture their own brand here.

As can be seen from the above expenditure, the amount spent on the licence considerably exceeds the covenant placed in the licence application.

7. DISCUSSION OF RESULTS

In conclusion it has been established that the peat can be removed safely and economically from the swamp using bobcats. This means that no permanent structures such as dam walls and drainage channels need to be constructed in the near future to satisfy the local market.

It can also be economically transported to Darwin if the right carrier is selected.

Environmentally the regeneration rate is very good, on a recent trip to the site of extraction self-regeneration was seen to be progressing very well.

There has been no concerted marketing effort undertaken as yet by Tropigro, with only limited advertising and word of mouth but results have been good. Tropigro have incorporated the peat into their potting mixes and it has done duty in the mixes at the new Performing Arts Centre.
It is envisaged that we can end up with a good quality peat product on the local market at about half of the price that peat can be currently landed in Darwin. This will hopefully increase the proportion of people that currently use peat. The availability of a peat at this price can only do good for the local economy.

With the success of the bulk sample two coal leases were pegged at the earliest opportunity this year and I am currently waiting for the leases to be granted, then contracts will be let and the operation commenced.

PROPOSED PROGRAM FOR 1986/87.

With the granting of the two coal leases currently under application it is anticipated that the bulk of the work will be done on these in future years. Even so, I plan to spent an amount that will exceed $1500.00 on the remainder of the coal licence in the next exploration year. This amount will be spent on further orebody delineation. To do this we will undertake to survey the depth of the peat at regular intervals throughout the remainder of the swamp.