

# PILBARA ENVIRONMENTAL MANAGEMENT GROUP

## NEWSLETTER NO. 8

NOVEMBER 1995

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**PILBARA ENVIRONMENTAL MANAGEMENT GROUP**  
*(ex. Pilbara Land Rehabilitation Group)*

*Minutes of Meeting held on 19th September 1995*

*Venue: Karratha College Seminar Centre*

Present: David Button - Robe River  
Greg Oliver - Woodside  
Vicki Long - Astron Environmental  
Stuart Robertson - Hamersley (Karratha)  
Neville Havelberg - Hamersley (Karratha)  
Paul Collie - Robe River  
Stephan Fritz - WAPET (Perth)  
Regina Flugge - Dampier Salt  
David Lindsay - Hamersley (Paraburdoo)  
Peter Long - Astron Environmental  
Mike Slack-Smith - Astron Environmental  
Steve Vellacott - DEP (Karratha)

Apologies: Mary Fletcher  
Stephen van Leeuwen

Meeting Chairperson: David Button  
Minutes Taken by: Vicki Long

***Excursion and Talk***

This month's excursion was co-chaired by Greg Oliver and Vicki Long at Woodside rehabilitation sites on the Burrup Peninsula.

Eight borrow pits were reviewed which had enjoyed varying degrees of success. Some interesting discussion ensued on why there was such variation. Peter Long later gave a slide show on the pipeline rehabilitation work at Urala Station. Three pipelines were considered; the Tubridgi, Griffin and Roller / Skate Gas Pipelines. The excellent recovery was of course assisted by the good rains that occurred, but appropriate techniques were noted to be vital for this type of work. Mike Slack-Smith showed a regeneration model he developed which linked rainfall and other parameters with rehabilitation success.

***Thank You Mary***

As Chairperson of the meeting, David Button tabled the resignation of Mary Fletcher from the Group. Mary was one of the initial instigators of the Group and has played a key role in keeping it operational (and inspirational!!). David proposed a vote of thanks to Mary for her enthusiasm, valued time and effort during the life of the Group to date and on behalf of all members wished her all the very best for her stint with CRA in Melbourne. We look forward

to seeing you back at the end of '96, Mary.

### ***Management Structure***

#### **(I) Group Co-Ordinator**

Since the inception of the Group, Mary has acted as a very effective Co-Ordinator. Having just tabled Mary's resignation, Dave asked for the input from members regarding the structure of the group and whether the role of Co-Ordinator should be continued. All members present agreed that a Co-Ordinator was necessary as a central point of contact, to initiate and follow-up meetings, excursions, projects etc. The present informal structure of the group was thought preferable to a more disciplined structure.

Greg nominated myself, Vicki, to take over Mary's role and although I realise it will be some task to continue as effectively and efficiently as Mary did, I agreed to do so! Please do not hesitate to contact me at any time with your suggestion, input or assistance!!

*Vicki Long, PO Box 713, Karratha 6714  
Phone : (091) 441 679 work Fax : (091) 442 638  
(091) 854 853 home*

#### **(ii) Agenda**

Responsibility for meeting agendas was discussed and it was agreed that the host for the excursion should be responsible for chairing and drawing up an agenda for the accompanying meeting. Items for the agenda should be obtained by faxing members with a "Call for Items", thus making members responsible for what their meeting will be concerned with. Members who have been earmarked previously with specific projects will also be responsible for contacting the chairperson in order that their reports can be itemised.

#### **(iii) Newsletter**

Greg suggested that, as we are all busy people, we do away with Newsletters as such. Members would be kept informed of the Groups activities by circulating the minutes of each meeting along with a synopsis of the excursion held at the time. He suggested that the leader of the excursion be responsible for producing the minutes for that circular as well as excursion notes. This would ensure responsibility for minute taking and the resulting circular would be shared among members.

Marilyn White, who currently produces the Newsletter has agreed to continue to do so for the next three issues so it was agreed that this issue should be further discussed after that time.

### ***Funding the Group***

Dave raised the issue of responsibility for funding the Group's activities (postage, facsimile, meeting venue costs etc). A discussion ensued and it was unanimously agreed that an annual

subscription should be paid. Subscription rates were considered remembering that some company's have several active members, any very large incomes while other companies are much smaller and may be little more than "one man bands". The overall budget for our organisation need not be large, however, the figure of \$ 1000 being thought appropriate. Firstly, Corporate Membership at \$100 and secondly, Individual Membership at \$20. This was felt to be adequate to raise the cash needed for venue hire and postage. (Insurance was discussed. Members were of the opinion that their individual employers would be responsible for insurance of visitors when on their respective sites. High insurance premiums and the necessity to incorporate would thus be avoided.) A vote was proposed and all members were in favour. Annual subscriptions will be due in January 1996 or at the next meeting. Cheques should be made to "PILBARA ENVIRONMENTAL MANAGEMENT GROUP" and forwarded to myself.

#### ***Sub-Committee***

Steve Vellacott suggested that a sub-committee be formed to help the Co-ordinator when necessary. Dave Button, Regina Flugge and Steve volunteered to stand on the committee.

#### ***Seed Viability Testing***

Steve van Leeuwin will write a short up-date for the next Newsletter.

#### ***Plant Identification Course***

I am happy to hold the course early in 1996 if there are interested members and providing I receive some input as to what you wish to learn from the course. The last course covered basic botany, collecting techniques, learning to use a glossary and keys. I need to know what other aspects you would like me to cover.

#### ***PLRG/PEMG whats in a Name??***

Regina reminded us that last meeting we discussed changing the name of the Group to Pilbara Environmental Management Group. This had previously been discussed with the thought that the group needs to broaden its scope to cover other aspects of resource environmental management. This gives more scope for excursions, talks, ideas and discussion and should result in a wider membership.

A vote was proposed that the group change its name from Pilbara Land Rehabilitation Group to Pilbara Environmental Management Group. All present were in favour. Therefore, the group is now ***PILBARA ENVIRONMENTAL MANAGEMENT GROUP (PEMG)***.

## ***Other Business***

### **Prospective New Members**

It was decided Vicki should compile a list of "prospective"! new members (Lynas Gold, Newcrest etc) to send newsletters to. Any suggestions or contacts would be appreciated.

### **Environmental Awards**

Hammersley Iron recently received an Environmental Award from DOME for their rehabilitation work, most of which Stuart Robertson was very involved with. We look forward to his article detailing the work next Newsletter.

Astron Environmental recently received an award from BHP Petroleum for the design and management of the Serrurier Island seismic operation for which BHPP won the DOME Environmental Excellence Award. Peter or Vicki will prepare a talk on this subject for a future meeting.

### **AMIRA Spinifex Research Project**

Hammersley Iron and Robe River are among the sponsors for this three year project. Field trials will be carried out in various areas of the Pilbara and at Mt Isa. A range of soil types and other ecological variables (fire etc) will be tested. John Fox from Curtin and his assistant have already visited the Pilbara with a view to establishing sites.

### **Stephan Fritz**

Only someone like Stephan would be noteworthy enough to be included exclusively in this section of the minutes!! Why? Because he has decided to try the grass (or spinifex as the case may be) on the other side of the fence and he wants you all to have some sympathy!! Yes, Stephan is no longer with CALM - he has recently taken over Marilyn White's position at WAPET (and is totally confused!!)

### ***NEXT MEETING***

**MARK IN YOUR NEW DIARY NOW - 2ND WEEK IN FEBRUARY - WEDNESDAY  
8th (to be confirmed)**

We will have an indoor presentation which will tentatively be hosted by BHP in Port Hedland. Steve suggested that BHP may be willing to explain their new hydrocarbon and dust management program. Vicki suggested that a talk relating the environmental issues associated with the DIR plant would be also appropriate seeing as the Pilbara may be the home of a possible 3 such plants in the next few years.

At this stage Peter Smith of BHP has agreed to give a presentation on both of the above issues. Scheduling of dates may alter a little but a flier will be circulated in plenty of time to inform members of what promises to be a very interesting meeting.

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## *So What Happened to the August Newsletter??*

You may all remember when I took on the Newsletter Coordination job that I said I was going to put out a newsletter every three months i.e. four per year. Well here we are in November with only the second newsletter for the year.

There are two reasons for missing out the August newsletter :

1. I was in the middle of changing jobs and wasn't very organised;
2. I didn't have anything to organise anyway!!

Please, please, please try and find time in your busy schedules to dig around and find that interesting bit of information, or to write up a short article which may be interest to your fellow PEMG members.

Remember, the purpose of the group is to promote communication between environmental practitioners. While meetings are one way of doing it, the newsletter is the other for those in-between-meeting times.

Have a look around now and pop something in the mail to me at the address on the front of this newsletter. Many thanks to those people who have contributed to this newsletter.

*Marilyn White - Ed*

## *Environmental Management Conference*

The Environmental Institute of Australia recently distributed a brochure advertising a three day conference/workshop/seminar program to its members. For those of you who are not members here are brief details of the program:

Date: 27, 28 and 29 November 1995  
 Location: The Regent Hotel, Sydney  
 What: Day 1 Conference - An update on Environmental Management Issues  
 Day 2 Workshop - Successfully implementing and Environmental Management System  
 Day 3 Environmental Performance Management

The program will address how the government will utilise ISO 14000, how extensive the national Pollutant Inventory provisions will be, consistency of State legislation (getting it), certifying your organisations EMS to ISO 14000 and integrating your EMS with other Management Systems.

If this sounds like something you should find out more about and you would like further details please contact me (Marilyn White) on (09) 263 6103 and I will fax you full details of the conference.

*Thanks to Steve and Kerry at the DEP in Karratha for sending this to me*

*You may remember that May's newsletter contained an article about pumping iron into the Pacific Ocean as an experiment to see if it would promote algae growth and prevent global warming. Well, the follow-up experiment mentioned in that article has been conducted with the following results.....*

***Iron Soup Feeds Algal Appetite for Carbon Dioxide***  
***Fred Pearce***

It was the experiment that many of the scientists taking part hoped would fail. Marine biologists this month produced a 'stupendous' growth of marine algae by pouring iron into part of the Pacific Ocean. As the algae grew, they consumed large amounts of carbon dioxide from the ocean, 'drawing down' CO<sub>2</sub> from the atmosphere to replace what they consumed. A tonne of iron, in a soup of seawater and iron sulphate, may have extracted up to 10 000 tonnes of carbon from the air.

According to Andrew Watson of the Plymouth Marine Laboratory, one of the leading researchers on the experiment, the scientist fear that the result will encourage 'eco-engineers' who believe the worked can counter global warming by repeating the experiment on a vast scale. Iron is probably the limiting factor in the growth of algae in many parts of the ocean.

The joint British-US experiment 'fertilised' with iron a patch of ocean several kilometres across, between Tahiti and the Galapagos Islands. "There was a stupendous effect on the algae, and a dramatic CO<sub>2</sub> drawdown" says Watson, who returned from the south Pacific at the weekend.

The result, first predicted in 1988 by the late John Martin of Moss Landing Marine Laboratories in California, was unexpected because a similar experiment two years ago failed. Then, according to the leader of both expeditions, Kenneth Coale, also of Moss Landing, small algal blooms did form but they faltered after three days when animal plankton began rapidly eating the plant bloom. Also, much of the iron and the bloom may have sunk. As a result, the experiment failed to absorb much carbon dioxide from the atmosphere.

After the first experiment, Watson and his colleagues said their results did not support the idea that iron fertilisation would have any significant effect on the amount of CO<sub>2</sub> in the atmosphere. The new results turn that conclusion on its head. "We don't yet know why this year's experiment succeeded where last year's failed," says Watson. A likely reason is that the algae in the ocean this summer were different. "Diatoms benefit most from iron, so it may be there were more diatoms this time. But until our analysis of samples is complete we will not know."

The second experiment applied a second dose of 'iron soup' three days after the first - roughly when the first experiment faltered. This, too, might have made the difference, says Watson.

Joy at the success of the experiment has been tempered by the fear that opponents of action to curb emissions of greenhouse gases may use the results to suggest that dosing the oceans with iron may be a cheap and easy 'technical fix' for global warming.

"Everybody involved in the experiment is worried about how eco-engineers will use these results," says Watson. "Many people were pleased last year when the first attempt failed".

*Taken from New Scientist, 1 July 1995, p. 5 Many thanks to Peter Long for sending this article to me.*

## ABANDONMENT OF EXPLORATION DRILLHOLES CAPPING DRILL HOLES

The aim of this pamphlet is to raise the mining and exploration industry's awareness of the reason why it is important to ensure that ALL holes drilled for the purpose of exploration are capped, filled or otherwise made safe at the completion of exploration programmes, and provide a guide on how this may be done.

This is a requirement of the Mining Act as well as a separate condition on all new mining, exploration and prospecting tenements.

The reasons for this are firstly, public safety. An exploration hole left open has the potential to erode at the collar and below the surface of the ground, creating an extremely hazardous situation if the hole subsides. Therefore, an open drill hole or the resultant collapsed hole are perilously dangerous to both people and stock.

The second important reason for capping or filling exploration holes is that if left open, they act as "pit traps" for small native fauna. Pit trapping is a technique used by biologists for monitoring fauna populations. Studies have shown that this technique of setting shallow traps, can produce vast numbers of animals which are recorded and released. Exploration holes left open act in the same way, however, nobody returns each morning to release the trapped animals. Therefore, to ensure that native fauna populations are not markedly reduced, exploration holes need to be capped or backfilled.

It is the Department of Minerals and Energy's policy to require that all mining and exploration companies carry out these actions in their exploration programmes. Therefore, staff of the Mining Operations Division will be paying close attention to

this aspect of exploration programmes.

### METHODS

Techniques to make exploration holes safe vary according to the type of drilling program.

For example, holes without artificial collars are required to be plugged to at least three metres depth and then backfilled with drill fines and compacted to ensure safety. If the collar is cased with steel or PVC casing, then capping at ground level may be appropriate.

At all times, the erosion potential of the site must be considered when deciding on the most appropriate technique for making exploration holes safe.

Another important point to consider when conducting exploration programs is that when groundwater is intersected special attention must be given to preserving aquifers.

Often perched ground water and aquifers of different quality water are intersected in drilling programs. It is essential that any holes which interconnect aquifers or allow ground water to drain to lower strata, be appropriately plugged.

This can be achieved with cement grouting or other appropriate techniques. The preservation of ground water should be important to all concerned.

A number of proprietary items are available to cap (or plug) mineral exploration drill-holes. These include "octopus" plugs which are pushed down the hole and which have flexible "wings" which attach to the wall of the drill-hole. A PVC cap can be placed over a short length of PVC drain pipe used as a surface casing or collar, but this is considered to be a temporary measure only.

Some companies construct their own plugging devices such as a

steel plate with a peg in the centre of the plate. The plate is then placed over the end of the PVC or steel casing. Weak concrete can also be used to plug the hole.

In all possible cases, the plugs should be installed below ground level and the surface hole backfilled to the depth of the plug.

The techniques briefly described above each have their own challenges to maintain the integrity of the plugged or capped drill-hole. The plug may collapse which results in egress of runoff water, subsequent erosion and a danger to fauna and the public or land user.

Erosion can also occur around the casing if it is not sealed around the cap which may result in collapse of the walls, a large hole may develop resulting in adverse environmental and safety impacts.

A useful plugging technique has been developed at the Kambalda Nickel Operations (KNO) of Western Mining Corporation. The "KNO" plug is shown in the attached diagram.

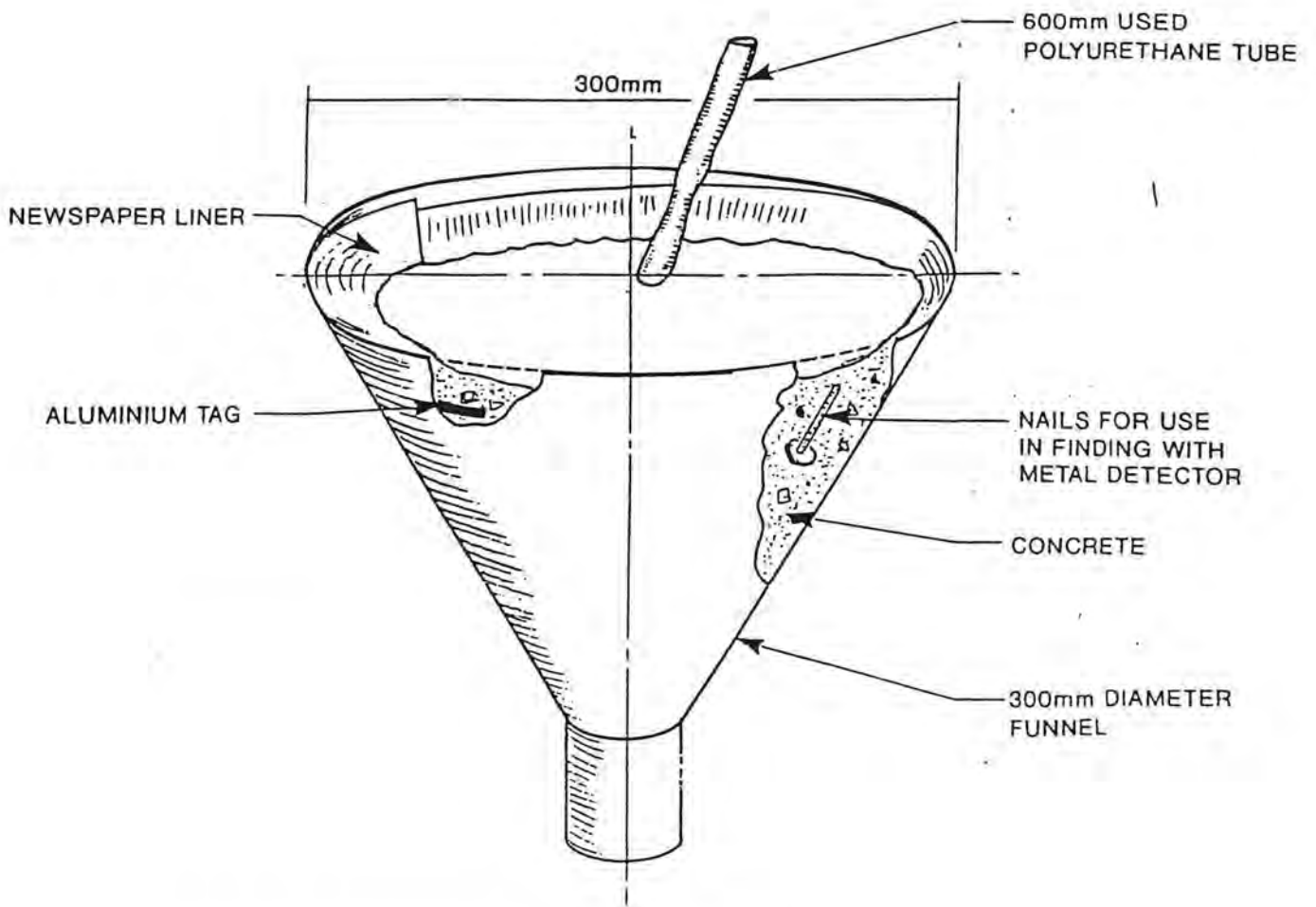
The advantages of this plug are:

- ❖ It can be constructed on-site for only a few cents for each plug;
- ❖ It fits any sized drill hole up to the maximum diameter of the plug;
- ❖ It is sited below ground and can be relocated by the tubing showing above ground or by metal detecting.

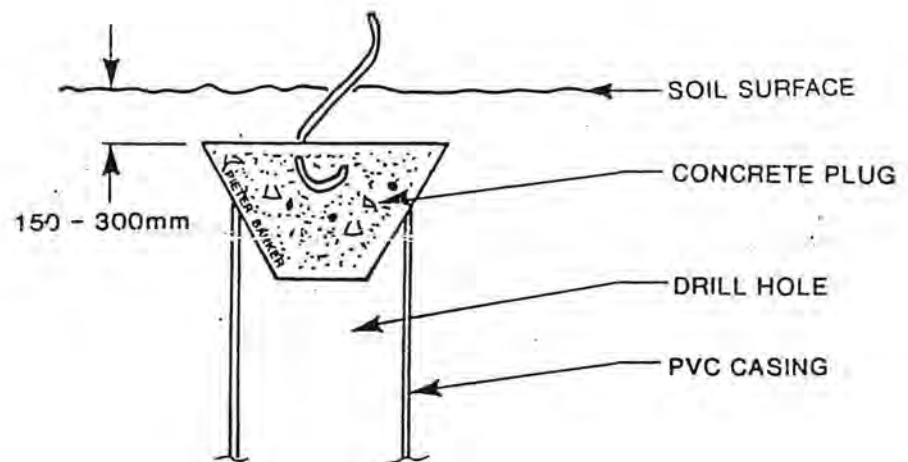
The soil above the plug can be compacted slightly to form a tight fit for the plug and when covered by soil it can be driven over quite safely.

The Department recommends the use of this plug because of its proven performance, its flexibility and versatility and its low cost for materials and installation.





GENERAL ARRANGEMENT OF CONCRETE PLUG



CONCRETE PLUG CAPPING DRILL HOLE BELOW SURFACE LEVEL

