

Report on Martidja Banyjima Minthi Spring
Section 18 Consultation concerning Rio Tinto
Iron Ore's Marandoo Below Water Table Mining
Project: Notes on Discussions held at Karijini
Eco Retreat, September 1st and 2nd, 2010



Above: Minthi Spring, September 1st, 2010 (Photo: Bill Day).

An Unofficial Report for Martidja Banyjima native title claimants

by

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Report on Martidja Banyjima Minthi Spring Section 18 Consultation concerning Rio Tinto Iron Ore's Marandoo Below Water Table Mining Project: Notes on Discussions held at Karijini Eco Retreat, September 1st and 2nd, 2010

An Unofficial Report to MIB by Bill Day PhD

Introduction

Rio Tinto Iron Ore (RTIO) is progressing a pre-feasibility study into the Hamersley Iron (HI) Marandoo Below Water Table Mining project at HI's Marandoo operation. Rio Tinto Iron Ore's Heritage Team, is coordinating the necessary heritage assessments and consultation with Aboriginal Traditional Owner groups. The mining footprint for the project is within the existing Marandoo mining lease. The project will involve mining below existing mining levels at Marandoo which may affect the water levels at Minthi (Minthicoondunna Spring) (DIA 8,296); however, Minthi Spring is located outside of the Marandoo mining lease. The DIA however, appear to have registered the site incorrectly and place it several kilometres north of where it is located.

RTIO intends to seek a Section 18 approval as a precautionary measure in the event that there are effects on Minthi Spring from the below water table mining. However it is not certain from the hydro geological modelling undertaken to date whether there will in fact be an impact. Furthermore, if the water levels at Minthi Springs are effected by the Marandoo project this will not occur for approximately 7 to 10 years from the start of below water table mining. However, Rio Tinto wishes to engage with the MIB group at this stage to ensure all community views on the project are taken into consideration prior to a decision being made to progress with the project.

Rio Tinto's Heritage Team invited Karijini Development Pty Ltd, on behalf of the Martu Idja Banyjima (MIB) group to record ethnographic comment on the Minthi Springs site (DIA 8,296). The report of the survey may comprise the basis for an application to the Aboriginal Cultural Material Committee under section 18 of the Aboriginal Heritage Act 1972. The survey was planned to take place with the approval of the Martu Idja Banyjima (MIB) native title claim Elders and representatives. RTIO hoped to follow up this inspection with a meeting between the MIB group and RTIO representatives where further discussion of management actions for Minthi Springs can be discussed.

The Anthropologist was required to.

- undertake a professional ethnographic inspection of the survey area, as described above and depicted on the attached map.

- document the ethnographic significance of Minthi Springs to the MIB representatives.
- prepare a survey report (with a Closed version if required by the Native Title group), which complies with the standards outlined in draft Guidelines for Aboriginal Heritage Assessment in Western Australia (February 2002) as currently used by the Department of Indigenous Affairs.

Following the meeting at the Karijini Eco Retreat and site inspection on September 1st and 2nd, 2010, the ACHM anthropologist Andrew Morley produced a Preliminary Advice report with the following recommendations:

- A combined community meeting is held at which members of Martidja Banyjima, Innawonga and Eastern Guruma could come together to discuss issues surrounding the future of *Mindthigundinna* in light of the proposed de-watering activities at Marandoo mine.
- • A further ethnographic recording survey is conducted at a later stage when appropriate senior MIB elders are available to record the songs and mythology associated with *Mindthigundinna*.

According to Morley (2010), ‘Mindthi Springs is currently recorded by DIA as Mindayi (DIA 8296); the site record, however, locates the site several kilometres north of its actual location. During the course of the site inspection, Mindthi Spring was re-located at 629700.77E / 7486467.49N. A provisional site boundary of 200 metre radius from the spring itself was agreed upon by MIB representatives undertaking the site inspection [in September 2010].’

Previous ethnographic surveys and reports

Numerous heritage surveys were conducted prior to establishment of the Marandoo Mine and Rail Line (eg. Palmer 1975, 1980a, 1980b, Green and Rumley 1991 and Quartermaine 1991a, 1991b). Bill Day also conducted an ethnographic heritage survey for Hamersley Iron’s Finch Siding and Bore Fields (Day 2004). The Bore Fields lie within the area of influence of two significant Aboriginal ceremonial and mythological sites – Bunaruna Munda/Boonuruna and Minthayi Springs.

In 2004, Bill Day made five recommendations (Day 2004). They were as follows:

- The proposed works at Jabiru Siding, water bore and Construction Camp proceed.

- Before the Finch Siding developments proceed, Gumala Aboriginal Corporation should be provided with more detailed information regarding proposed water usage from Finch Bore.
- The effects of water extraction on nearby Minthayi Springs should be regularly monitored and the results made available to the native title claimants.
- Minthayi Springs and sites along the Railway Corridor should remain accessible to Indigenous people.
- Modified Trees One and Two should be preserved if possible.

Veth (1989a; 1989b; 1993) has argued that the nature and permanency of water sources was an influential factor in determining the likelihood of finding artefacts and sites. Veth (1989a; 1989b; 1993; 1996) developed a settlement/subsistence model following research in the Western Desert, which may be applicable to other arid and semi-arid regions of Australia. He observed that there was a deliberate strategy, among Aboriginal people in the region, of targeting networks of ephemeral water sources, and conserving a few larger and more permanent water sources to last in the later summer months (Veth 1993). This settlement pattern produced an initial period of high residential mobility followed by more extended periods of reliance on a few permanent water sources and a corresponding decrease in residential mobility.

Veth (1989a) observed that sites located adjacent to permanent water sources tended to be larger in size, with a greater number of artefacts and at higher densities than sites at semi-permanent and ephemeral water sources [my emphasis]. These sites (at permanent water sources) generally had a greater proportion of artefacts than that found at semi-permanent and ephemeral water sites (Veth 1989b).

Mindayi (Minthi/Mindi) Springs is a permanent spring located just to the south of the Finch Bore Fields on the southern side of the railway bridge over Turee Creek. The spring is listed as a mythological site on the permanent register of Aboriginal sites (ID 8296/P04348) (see Photos 1 and 2). Inquiries to the Department of Indigenous Affairs show that Minthi is a closed file which can only be accessed with permission from the informants. However, while the author of this report was employed by Gumala Aboriginal Corporation from 2003 – 2006, authority was given to copy the Mindayi file at DIA by a relative of Jerry Wing, who registered the site.

Previous ethnographic research includes O'Connor's (1995) original survey of the Marandoo Railway corridor and a more recent survey covering a portion of the corridor by O'Connor (2000) for the proposed West Angelas rail line. McDonald (2001, 2003) undertook ethnographic surveys in

relation to the Marandoo Railway Corridor exploration drilling (1999), the Tom Price to Yandicoogina Powerline (2001) and the Juna Downs Exploration Drilling Program (2002).

The Karijini National Park, which adjoins the railway corridor to the north and the south, is imbued with spiritual significance for Banyjima people. Day (2004) discusses the ‘sphere of influence’ from powerful ceremonial and mythological sites like Minthayi and Bunaruna/Boonuruna,¹ or Mount Bruce on maps (site ID 540). For example the late Banyjima Elder, Horace Parker said:

Another one – *ngarmarda* – He can go for miles, thousand miles he can kill a man. Long as he got the name. *Ngarmarda* that one. Right through the ranges *yurlu Karijini bunuru yurlu old fellangali*, old people *jinangu* [dangerous places in Karijini country where the old people walked] (KAC).

There is a belief that spiritual powers extend their influence underground. According to Brandenstein (1991:102) ‘the power of the human-like *narlu* of the Hamersley Ranges is believed to ‘stretch for miles’ underground, as does the *walu* guardian of permanent waterholes’.

Palmer (1978b) used the term ‘sphere of influence’ in his evidence to the Mining Warden in the Noonkanbah case. According to Hawke and Gallagher (1989:119), Professor Ronald Berndt also prepared a discussion paper for the Aboriginal Cultural Materials Committee (ACMC) which addressed the question of spheres of influence, ‘buffer zones’ and ‘complexes’ of sacred sites ‘where the land between neighbouring sites was part of a whole’ (Hawke and Gallagher 1989:119). Bindon’s report to the WA Museum confirmed the concept of a ‘sphere of influence’ around significant sites which includes the substrata of the earth (Bindon 1979).

DIA Sites in the vicinity of Minthi Springs are listed in Table 1, below:

DIA Site ID	Site Name	Site Type
540	Boonuruna	Mythological
541	Malgari	Mythological
543	Bundarrie	Camp
544	Mintarkarina	Mythological/skeletal remains
746	Modified tree	
8296	Mindayi	Mythological
8345	Bunaruna Munda	Ceremonial/mythological [excluded from Marandoo Act]
6255	Thoongari Valley	Excluded from Marandoo Act

¹ For a discussion of this site see Palmer 1980; McDonald 2001; Lantzke, Prince and Campbell-Smith 1994.

10830	Black Dingo Gorge	Engravings
10831	Mt Bruce Rockhole	Artefacts/Scatter/grinding patches/grooves
11270	Milli Mill Springs	Engravings
11270	Crossing Springs	
11597	Marandoo South-West	Ceremonial, ehgravings, artefacts/scatter/grinding patches/grooves
11911	Marandoo Rock Shelter	
11912	Grimace Gulch	Artefacts/scatter/grinding patches/grooves
11991	Bandjima Pool	Artefacts/scatter
11992	Bandjima Pool	Man-made structure/Artefacts/scatter
21603	Mount Bruce	Sacred are/ceremonial/initiated males only

Table 1: DIA registered sites in the vicinity of Minthi Springs (excluding artefact scatter sites).

The Banyjima people

The Banyjima people recognise two linguistic groups; the ‘Bottom End’ or Bantikura Banyjima (MIB) and ‘Top End’ or Milyuranpa Banyjima. Alan Dench (1991:126) noted, ‘...two named dialects of Panyjima were originally spoken on the Hamersley Range. The Pantikura dialect was spoken on the higher plateaus of the Hamersley Range, while the Mijaranypa dialect was spoken in lower areas.’ Dench adds that his informants spoke the ‘Pantikura dialect’ of the Banyjima language.²

Unpublished field notes collected by O’Grady in 1958 comment:

Bailko-Pandjima / paYku / and / panYtYima /, numbered 490 and 491 respectively, are dialects of a single language, sharing 79 percent of their basic vocabulary. Bailko is located at 22°S and 120°E, and Pandjima borders it on the west. Padjima itself occurs in two sub dialects, Dugur / tukur /, the northeastern, and Milyaranba / milYaranpa/, the southwestern. (O’Grady et al 1966:84)

McDonald (2001:10) notes that ‘the precise boundary [between Banyjima and Gurama] continues to be contested.’ Olive (1997:75) and Brehaut and Vitenbergs (2001:9) suggest Minthayi (Minthi/Mindi) is on the boundary between Banyjima and Gurama country. A Gurama elder, the late Peter Stevens, said: ‘Minthayi, they reckon that’s been a big Law ground, too - that’s the centre for the Yinawangka, Panyjima, Guruma and all. They all met there’ (Brehaut and Vitenbergs 2001:9). However, a Banyjima woman, Alice Smith (2002:211), describes Banyjima territory extending further west over the old Mount Bruce station: ‘My grandmother, Kujibangu, she had two

² Dench (1980-2:119) notes: ‘I am indebted to Percy Tucker and Herbert Parker...’

sons and one daughter with her first husband. He was a Banyjima man from Mount Bruce. It's an old station: Birdibirdi, they called it, and whitefella name used to be Dignam.'

Tindale (1954, 1974) and Dench (1991) appear to confirm a more westerly boundary.³ Tindale (1954) refers to an interview at Mount Florance with a Banyjima (Pandjima) man who described the Banyjima territory:

The gorge leading to Hamersley station from the lower end of Coolawanyah station divides the Pandjima (page 628) from the Kurama, their western neighbours. The southern boundary is the top edge of the northern scarp face of the Hamersley Ranges; they did not go down into the gorges except when they were driven by shortage of water in droughts. There were refuge pools on the south branch of the Fortescue River, at Dale Gorge and at Mandjima (or Munjina Creek of maps). To the north east their boundary extended along the Hamersley scarp to the range across the Fortescue River (South Branch) from Kudaidari (Goodiadarrie) Hills. Mandjina (Munjina of maps) Pool was a Pandjima water. They went east to the headwaters of Janikudjina (Yandicoogina of maps) creek. On the south they visited Juno (Juna) Downs Station, Perry's Camp. Their S.W. boundary fell just east of Mt Samson. Milimili (Milli Milli Spring) was a Pandjima water, 'very permanent'. At Juna Downs and along the Turee Creek, they met the Inawongga, also said as Inawonga. East of them he knew of the Ngarla or Ngarlawongga... (Tindale 1953).

Norman Tindale (1974:255) later described the Banyjima territory as:

Upper plateau of the Hamersley Range south of the Fortescue River; east to Weediwolli [sic] Creek near Marillana; south to Rocklea, on the upper branches of Turee Creek east to the Kunderong Range. In the later years under pressure from the Kurama, they moved eastward to Yandicoogina and the Ophthalmia Range forcing the Niabali eastward. They also shifted south to Turee and Prairie Downs driving out the Mandara tribe, now virtually extinct ['Punduwana], a native place not yet located, was their main refuge water in very dry times; other refuges were in Dales Gorge and at ['Mandjima] (Mungina Creek on maps).

According to Brown (1987:14):

At the eastern end on the plateau were the Niabali and the central plateau was Pandjima territory. The boundary between the two groups lay west of Weeli Wolli Creek. Brandenstein (1967:2) notes that this was also a linguistic boundary, as Niabali is the westernmost member of the large Western desert group of languages, and Pandjima belongs to the Plibara Tablelands linguistic group. Recent information indicates that this boundary area was transitional rather than clearly demarcated, and that both bordering groups recognised a joint ownership of the [Weeli Wolli] area and its resources.

³ Dench (1991) includes a sketch map showing the town of Tom Price within Banyjima boundaries.

However, during the meetings described in this report, the MIB claimants emphasised that Minthi Spring was not within the MIB native title claim, although the Banyjima people had a historical and cultural interest in the site.

MIB Meeting at the Karijini Eco Retreat, September 1st

Wednesday September 1st.

Attendance: Maitland Parker, Guy Parker, Slim Parker, Tim Parker, Margaret Parker, Sue Parker, Margaret Laphorne, Elizabeth Downton, Patricia Parker, Nerelle Parker, Quinton Parker, Latonya Parker, Terry Mills, Debbie Dunn, 2 children, Gavin Martin (RTIO), Rick Callaghan, Bill Day.

(From notes taken by Bill Day. Note: the following notes are only an approximation of what was said and cannot be guaranteed as accurate).

Slim Parker opened the meeting. RTIO want to mine below the water table, must consult, need for Section 18 Application, is paying for a two day meeting. Andrew Morley from Australian Cultural Heritage Management (ACHM) to write the report of site inspection and meeting. The site Minthi Springs has been determined within the Eastern Gurama native title decision.

Discussion of 1991-92 Marandoo dispute followed.

Discusses new RTIO camp – the camp was supposed to be hidden but can be seen from the road.

Minthi Spring was a picnic area, it is not a law ground or prohibited area. We all should be there for a combined meeting. Are the eastern Gurama fully aware?

RTIO want consent for a S18 – don't know who else they are consulting.

Margaret Parker: We should negotiate the release of Windell Block.

Tim Parker: What is going to happen here with dewatering? It is going to affect us?

Maitland Parker: RTIO should invite 6 people from each country [native title claims]. All our country is drying up because of mining.

Tim Parker: The night spring in Yampire has dried up, everything is dead.

Discussion on water – water levels dropping.

Debbie Dunn: Has the National Park got people who know about water, so we can see if we are saying the same thing?.

Sue Parker: Do we want an independent hydrologist? The Environment Protection Authority needs to conduct a consultation process. Has RTIO consulted others and have they consented? We don't know. How do we know if rare and endangered species will be destroyed?

Slim: My position is that we today cannot give a full endorsement of a Section 18.

Eddie McDonald, Nic Green and others have reported. Judith Watson, a Minister from WA Parliament came out.

If Eastern Gurama have ticked off, RTIO don't have to consult with us. I know a lot have already signed off. The ethnography has been done many times.

Motion proposed – RTIO to fund a community meeting of all interested Aboriginal groups with regard to the impact on Minthi Springs and Karijini of future acts below water table at Marandoo.

Motion passed.

A hydrologist from Dept. of Environment and Conservation to be involved at a community meeting.

Guy Parker: We need The Manager [Trevor Parker] to record the song for the site. BT is at a meeting in Perth. We have to bring together the old people, the Wardilba people. The song comes down from [Yampire]. We went to Iron Ore Holdings (IOH) with the song.

Maitland Parker: that's not our country. They've got a story, let them bring it out. Why should we come. We've got the Wardilba story and yet we have to open it up to them. The ethnography for MIB should not go to any other group. Why use our stories?

Guy: MIB should get the best of what our old people hand down to us. Keep it for our own evidence and hand it down to young generation. Remember we did the Yandi Land Use Agreement and the government wanted our information.

Slim: Re the time frame, if we can't make the decision as a Working Group, we ask for the right people.

Guy: An ethnographic survey will not be conducted until we have got the right people.

Tim: They are two different things.

Meeting adjourned to the Turee Creek after lunch.

Gavin: Mining to remain in lease now going deep to the next phase – doing all the studies to see what can be done and what are the effects. Tomorrow we will have a botanist. The hydro-geological assessment has been done – will present information from Project Study manager tomorrow.

Mining below the water table – the only effect on Minthi Spring maybe will be in 7 to 10 years.

RTIO does not want to come and talk in 7 years after a problem arises. Want to talk now rather than when there is already a mine. Rather than back tracking. Are there any thoughts on what RTIO can do?

GP: The railway corridor may include Minthi Spring.

Gavin: This project is a 'discrete project'. This is the only place that might be affected because it is connected to lower aquifer. RTIO want to make sure they have done the right thing by heritage. RTIO would apply for a 'Precautionary S. 18' It wouldn't go outside the lease, A Precautionary Section 18 might lock RTIO into conditions

We want to let you know now and work out with you and other groups to find out what you think about it.

Guy: Discusses 'World's best practice'

Gavin: RTIO don't want to be vulnerable. They want to understand [your position], get a current update. What solutions could there be? eg trickle water into the spring.

Other offsets – set up a Trust to be used for conservation projects.

Slim: How far is RTIO thinking about the Trust?

Gavin: Haven't thought through, trying solutions. Only would be contemplated if there is an effect on the Spring.

Guy: Hydrologist wouldn't know the heritage and cultural aspect.

Slim to Gavin: Who have you spoken to about this?

Gavin: You (MIB) are the first. IB will be next week in Roebourne and in a couple of weeks we will be talking to Eastern Gurama.

Slim: Doesn't matter if environment or culture studies indicate that Minthi may be impacted. But in terms of RTIO projects in the vicinity, what are the immediate or long term effects, if you can't give us that, we are in the dark.

Gavin: As far as I know we are in the early stages.

Slim: Discussions with Department of Environment and Conservation.

Gavin: This is a good example where we can bring cultural and environment together. What are your views?

Slim: As far as EPA – do you have environmental approval?

Gavin: There has there been an independent assessment. There are some artefact scatters and a 50 metre radius around the site.

GP: There is the scientific way and a mythological understanding.

SP: What right does RTIO have over land outside the rail corridor?

Gavin: There are exploration tenements.

GP: What about Windell Block?

Gavin: Next time we will show you our 30 mine plans

GP: Remember three years ago when people were saying that Marandoo was closing? Things change.

Gavin: The last thing we want is a big uproar when the mine starts.

SP: Within mining lease tenement, RTIO have approval from EPA, do you have a cultural heritage agreement?

Gavin: Marandoo mining lease is outside the Aboriginal Heritage Act. We would like to have in place mitigation under S.18. - Marandoo Act overrides the Aboriginal Heritage Act.

But Marandoo Act does not apply if our work affects areas outside the lease.

Maitland: Proper name is Minthi Coondina. Serpent Warlu He flows through Marillana Creek across the country and goes through Yampire Gorge, Joffre to here. People walk through Turee Creek through Gulgatha gap.

Only three men Jerry Wing, Norman James and Bill Cox knew about this place.

Elizabeth Downton: Warlu with horse's head with a star shape on its head. Bimbuna place.

MIB Meeting at Karijini Eco Retreat, September 2nd

Meeting resumed 10.30 a.m.

SP: opens meeting

Gavin: Intro – the concern is not only Minthi but also gorges.

Project overview. Play DVD with commentary.

Specifically about Minthi – how to mitigate against the effects of below water table mining and how to achieve a precautionary S.18?

Pat: Mine operating since 1994. It is to go below the water table. The pit will be a bit wider but still needs other approvals. It is the same ore body and the pit will be about the same length. Marandoo Phase 2. Investigations show that the higher aquifer will not be impacted. The excess water could be used at Tom Price and to top up the southern Fortescue Bore field and agriculture project, pastoral station, cattle feed, etc.

A layer of clay protects the upper aquifer. Not proposing to do anything before 2012. The new residential village is also for the railway duplication work.

Question: If the water is being pumped out, how can it stay the same, as you say it will?

Margaret Parker: We can see the country getting dry. It is affecting the country and wildlife.

Pat: RTIO had to do extra investigations to satisfy the EPA. Wayne will discuss the results.

Slim: To clarify, Marandoo Act doesn't allow going beneath the water table.

Pat: Marandoo Act allows but State agreement doesn't cover this. RTIO doesn't step outside the mining lease.

Wayne: EPA made a request for independent experts. Couldn't get any of the experts [hydrologists] up today. Others wanted more on impacts. Phillip Commander did review. He is well respected. Have done tests, 72 days, 120 days. Internal draining to Coolibah flats, that is why the trees grow there. Every 3 -4 years the run off resupplies the aquifer.

Tests of the clay are consistent.

Calcrete retains moisture, as well the tertiary clay system has been over 1,000,000 years (impermeable). Lower Wittenoom dolomite.

Next expert was Frank Batini of CALM who studied the coolibah trees zones and the aquifer – it is saturated, but can go up and down by 10 metres. There is a mound. It is like a diaphragm that rises and falls. The coolibah trees are resilient to this because their roots go down a long way.

Key conclusions – magnitude is well within the natural variations. The tree root growth can keep up with falls in the water mound.

Tim Eckersley review - Both conclude that there will be no adverse impacts, and the magnitude of change is acceptable.

Also gathering ‘base line’ information. ‘Trigger levels’ for soil moisture, water levels, tree health, context (local or regional)

Pat: We are confident we will not get it wrong but nothing is guaranteed. Confident that it won’t affect the coolabahs.

Terry Mills: Concerned that mining will break the ‘impermeable layer’ of clay.

Pat: Drill holes are sealed – correct to say when we mine we go through the layer of clay but it is the edge of bowl.

Question: Where is Minthi Spring water coming from?

Slim: You take the water out from under the clay, the clay will give way.

Wayne: It is solid ground that contains water between the particles. We are going to back-fill the mine – planned to last 25 years. There is a layer of water in the rock so that when the water is pumped out it still leaves the solid rock. Hope Downs is pumping 35 gigalitres per annum.

Margaret Parker: Why are new sink holes appearing in the last 10 years?

Wayne: Concern about sink holes – pretty hard to deny, not connected to ground water extraction. Calcium carbonate rock is dissolved by rainfall. Marandoo doesn’t have the same level of carbonate – it starts along Karijini Drive.

Guy: The sinkhole near Weeli Wolli is actually a sacred site.

Wayne: RTIO can’t allow sink holes because of the rail line.

Guy: You are going to create sink holes. What will be your preventative measures?

Wayne: Sink holes on bore fields...

Guy: There are effects. RTIO supplies water to Tom Price...

Answer: We will pump water back into aquifer.

There isn’t any physical means for Marandoo to connect to the gorges. Water chemistry is different. However, Hamersley Gorge is connected. East as far as Minthi the draw-downs are not expected to reach that far – the water is connected.

A break was held at this point in the discussion.

Question: Southern Fortescue water is the same water, Marandoo, Minthi all the same, what is going to happen?

Answer: Lowering the water here, transporting over there, 50 kilometres.

Question: Did you predict sink holes?

Answer: Investigations done in 1960s. We will recover southern Fortescue aquifer (re-injection) – a lot of water from Marandoo.

Slim: Is the ‘same water’ the same as ‘the same aquifer’?

Answer: Geographically separated by 50 kilometres – too far to be affected.

Slim: From a regional perspective in terms of impact MIB is the most impacted. We can’t get to Yandi now. We used to sit down there, there was water there before, but it is all ripped up now. That is the difference. We have this personal concern we have to carry. This is something RTIO doesn’t feel. It is not about you not caring, it is what the company wants.

Wayne: We are trying to understand your point of view. The Department of Water and Environment Protection look after the big picture.

Slim: RTIO have the opportunity to set the standard. They don’t understand the cultural value of water specifically. We got researchers from CSIRO to do a study looking at the value of water. There are other values.

Answer: The aim is to find ‘high level’ cultural values of water and put into a report to better inform RTIO and for future studies. We agree we don’t understand this well. Had we started this research years ago, we would have started here.

Slim: We all know as humans that water is part of everyday living not only for us *marlpa* people.

Water keeps the country alive. This is an essential part of our spiritual affiliation. Inda, warlu, serpent, snake. If there is no water, the warlu has to move, then both snake and water has got to move away. For us Hamersley Gorge goes straight down to Minthi; that is where our people meet. The people come up through Yampire Gorge and come up Turee Creek. For us to get to Minthi Spring now we have to wait for a key for the gate. We can’t get into a place that is so important to us, a place that has memories to us as children.

Guy: We don’t really want to go into great lengths about heritage and culture until we do practical stuff like an ethnographic survey.

Wayne: Need to have a Precautionary Section 18 over the spring.

Pat: Have continued to drill around Minthi Spring as we come towards the spring there is a significant head difference between the bores. The spring chemistry can be derived from bed rock. Over time as we pull water table down, it will impact the spring. In light of what Slim said, the effect can be upsetting to you. We need to know how [it will affect you]. Water could be supplied to the spring if it was required.

From a scientific point of view, I don't know how the spring emerges in that spot. It is an enigma. Perhaps the water follows a 'preferential pathway'. Maybe someone has dug a hole there in the past. I thought at first that the river might have cut through the calcrete.

Concerning climate change, RTIO predict less rain, but more intense events.

Trees take water and leave salt behind.

At Millstream the government is trying to claw back the damage done as a result of pumping.

Wayne: We have tried stygofauna trapping but found none. We don't have all the answers. We may do some measurements of the water age. At Hope Downs the water is up to 6,000 years old.

Slim: Mitigation?

Wayne: We could set up a Trust fund. Trigger levels could be in place for Minthi Springs, if there was an agreed trigger. The Trustees could agree if the trigger levels were broken (Someone from RTIO, clans, DEC or similar) We could perhaps discuss this in more detail next time around – that is what RTIO is discussing internally.

If there is an impact, what is RTIO to do to allay that impact? Difficult for RTIO because we are talking about something we don't understand. Is it acceptable to you for us to artificially feed the spring?

Wayne: There will be actively dewatering for 17 years, with the mine open for 25 years from below the water table.

Meeting closed at 2.15p.m.



Plate 1: MIB members in the dry Turee Creek at Minthi Spring (Photo: Bill Day 2010).



Plate 2: Members of the Top End Banyjima group at Minthayi Spring (behind tree) on 20th April, 2004. (Photo: Bill Day [from Day 2004]).

ACHM Recommendations (Andrew Morley 2010)

- A combined community meeting is held at which members of Martidja Banyjima, Innawonga and Eastern Guruma could come together to discuss issues surrounding the future of *Mindthigundinna* in light of the proposed de-watering activities at Marandoo mine.
- • A further ethnographic recording survey is conducted at a later stage when appropriate senior MIB elders are available to record the songs and mythology associated with *Mindthigundinna*.

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