

# Surviving in the Pilbara

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## ABSTRACT

*The Pilbara is a large, dry, thinly populated region in the north of Western Australia known for its Aboriginal people, its landscapes, the red earth and its vast mineral deposits (iron ore in particular). Surveyors in the Pilbara often work in remote areas and weather conditions where the risk of being involved in a survival situation is higher than usual. Moxies, cyclones, bushfires, cattle and snakes – the risks are always present and cannot be taken for granted. Vehicle and equipment preparation are fundamental to surviving a crisis. However, survival is more than just remaining injury free. Survival can be as much a mental challenge as a physical one, and good mental preparation is as important as physical preparation. Surviving the Pilbara is about working in an alien environment, fitting into the lifestyle and then going home physically and mentally intact. This paper explores what survival means in the Pilbara, the survival equipment carried for an emergency and the basic procedures and policies in place. It also examines what mental challenges are faced and how people cope with their work environment. Lastly, some real scenarios are presented (some serious, some humorous) that have been encountered in some of the most stunning scenery in Australia.*

**KEYWORDS:** *Pilbara, remote surveying, survival.*

## 1 INTRODUCTION

### 1.1 Background

After 20 years as a Teacher of Surveying at TAFE, I had a desire to return to the field and be a practicing field surveyor again. Nothing though could prepare me for the journey of the last three years. As I sit here in my donga at West Pilbara Village typing these words, I reflect on the whirlwind of experience and learning that has typified this journey to date and I have to say I am very much looking forward to the journey ahead. Before I begin, I have to express a sincere thanks to TAFE for the journey and experiences I enjoyed with them and to AAM P/L for offering me a position as Senior Surveyor and affording me the opportunity for this next adventure. So here begins this part of my journey, 4,500 km from home and a 1,000 years from TAFE.

I have to stress that this paper is not meant as a definitive guide to survival techniques – there are numerous publications, videos and websites about survival available in bookstores and on the internet. This paper is about what I have experienced, seen, enjoyed and come to respect – all in a relatively short time. This paper will look at two main areas of survival, surviving the Pilbara itself and surviving the lifestyle. In both sections consideration will be given to what can harm you and what can save you.

## 1.2 Where is the Pilbara?

We often hear of the Pilbara in the press but where is it? The Pilbara is part of Western Australia (WA) and covers an area of 507,896 m<sup>2</sup> (Figure 1). There are about 50,000 people who live permanently in the Pilbara but FIFO (Fly In - Fly Out) workers can take this population to 85,000 or more (GA, 2013). It is also home to about 17% of the world's iron ore recourse, 97% of Australia's iron ore reserves (GA, 2013) and currently for two weeks out of three it is part-time home to me.



Figure 1: Regions of WA.

## 1.3 West Pilbara Village

My part-time home at the moment is the West Pilbara Village (WPV), about 100 km from Tom Price WA. This is where I live in a 'donga' (a temporary, usually transportable, dwelling), eat in the 'dry mess' and occasionally drink in the 'wet mess'.

WPV is one of a number of villages within the Brockman mines precinct (Brockman 4, 2 and Nammuldi) including WPV (formerly Brockman 4 Village), Brockman, Boolgeeda, Weelamurra and Jerriwah villages. These villages are of a high standard to ensure employees enjoy a quality lifestyle while they are away from home. Villages typically have a swimming pool, sporting courts (used for tennis, soccer, volleyball, lawn bowls and other sports) and a wet mess. Employees have their own air-conditioned accommodation units, with en-suite bathrooms, television, telephone and internet connection. Employees' units are cleaned twice a week. Meals are provided in mess facilities – main meals include a selection of hot and cold dishes, and healthy low-fat options are always available (Rio Tinto, 2014).

## 2 SURVIVING THE PILBARA

### 2.1 What Does FIFO Mean?

FIFO stands for ‘Fly In - Fly Out’ and each swing as we ‘fly in’ there is an unspoken understanding that we should ‘fly out’ in the same state of wellbeing (physically and mentally) as we arrived. Survival is more than just words; it is core to our work practices and ethics. There are a number of considerations to survival and depending upon the circumstance the relevance of these considerations can vary. The following list is not in any particular order, e.g. snakes can be a serious consideration when we are doing remote surveying but have less of an impact on the surveying work we do within the mines. Water is plentiful within our current work environment but is arguably the most critical consideration in other circumstances.

### 2.2 What Can Harm You?

As mentioned, the following are not in any particular order, but all of these items are not to be taken lightly.

#### 2.2.1 Moxies (and Vehicles in General)

Vehicle interactions are an issue on sites and therefore there is a lot of planning that goes into keeping light vehicles (LV) separated from heavy mining equipment (HME), but unfortunately incidents do occur. Minor incidents can involve LV’s being on a HME haul road when not permitted. Major incidents can involve vehicle collisions ranging from panel damage to complete destruction of vehicles and loss of life. When an HME collides with an LV you can imagine who comes off the best.

Figure 2 shows what happened when BHP *deliberately* ran over an LV to highlight the fact that your chances of surviving such an incident are extremely slim (pardon the pun). The dump truck in question was empty; the impact would have been far more significant if the dump truck had been full.



Figure 2: (a) Dump truck impacting on a light vehicle and (b) the aftermath (Mining Mayhem, 2010).

Moxies (articulated dump trucks originally manufactured by Moxy Engineering in Norway but now typically used to refer to any articulated vehicle) and dump trucks have similar issues with visibility. Only once you have sat in the cab, you realise how limited the view actually is. Figure 3 shows a diagram of the areas (in grey) where a truck driver cannot see a 6’ tall worker.

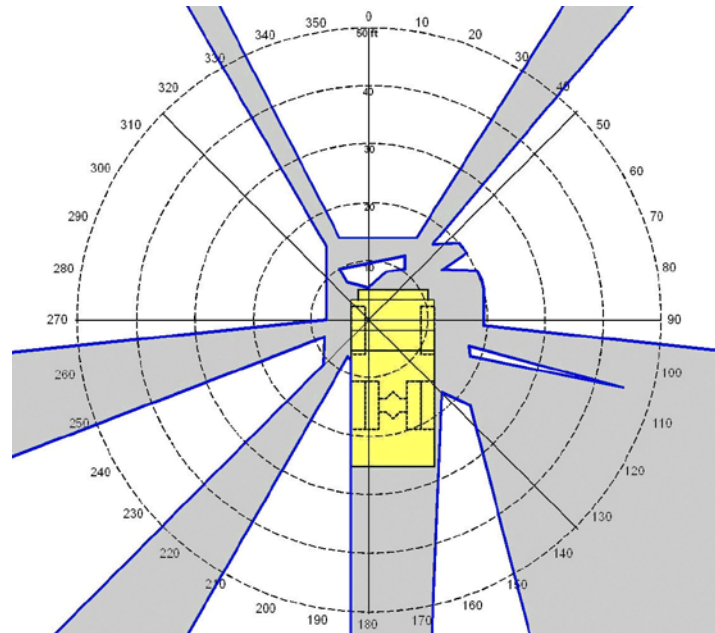


Figure 3: Dump truck blind spots (Office of Mine Safety and Health Research, 2012).

### 2.2.2 Cyclones

Cyclones are an ever present risk to the Pilbara, particularly along the coastal regions. According to BoM (2014), the Pilbara coast experiences more cyclones than any other part of Australia. Since 1910 there have been 48 cyclones that have caused damaging wind gusts in excess of 90 km/h in the Karratha, Dampier and Roebourne region. On average, this equates to about one cyclone every two years. About half of these have an impact equivalent to a category one cyclone. Ten of these (i.e. 1925, 1939, 1945, 1954, *Shirley* 1966, *Sheila-Sophie* 1971, *Trixie* 1975, *Chloe* 1984, *Orson* 1989 and *John* 1999) have caused very destructive wind gusts in excess of 170 km/h. Along the central Pilbara coast, the cyclone season runs from mid December to April peaking in February and March.

If you are on site, there is a system of cyclone warnings similar to the one depicted in Figure 4 (note that warning systems can vary from site to site). Depending on timing, you may be demobilised or have to remain on site. On site you will have to tie down equipment, make safe vehicles etc. If the warning is about to reach ‘red alert’, you take your survival pack (including food, water, *no alcohol*) and remain in your donga until the ‘all clear’ is given.



Figure 4: Cyclone alert levels (Shire of Derby / West Kimberley, 2014).

### **2.2.3 Bushfires**

In summer, there is an increased risk of bushfires (Figure 5). Late October to mid November 2013 saw a number of dry lightning strikes in the Pilbara around the Brockman mines. Spectacular and yet a minor inconvenience mostly. Other sites were not so fortunate, e.g. bushfires caused considerable disruption at Cloudbreak (FMG site) where 1,500 people had to be evacuated on 25 October 2013 (ABC News, 2013).



Figure 5: Bushfire adjacent to Brockman 2 to Brockman 4 road.

Bushfires tend to be fast moving and spectacular, and our role is to monitor the radios and follow directions as required. Water carts are kept fuelled and full in case they are required, but the actual fire fighting is the domain of our emergency services.

### **2.2.4 Cattle**

Many mining sites are within pastoral leases and cattle can be an issue for drivers. All our vehicles have bull bars fitted and driver training includes strategies for dealing with cattle (and other animals). Nonetheless, they can be unpredictable, particularly when there are calves involved. In more remote areas some of the cattle have not even seen people, so cattle should be treated with caution. The bull shown in Figure 6 was standing amongst bushes as we pulled up to take a comfort break, and it was so still that it was not even seen until we had started to get out of the truck. Needless to say that we chose to move on!



Figure 6: Wild bull.

### **2.2.5 Snakes**

An ever present danger in the Pilbara is snakes. Among others, taipans, king browns, western browns and death adders share our work space. Our training includes first aid and our crews have bite and first aid kits in the vehicles at all times. In a recent toolbox meeting, we were

presented with various scenarios regarding snakes and bites and as a consequence our team focused training on the first critical 5 minutes after a bite. Along with refresher training regarding first aid and snake bites, our team also now carry a radio and constriction (snake bite) bandage whenever away from the vehicle. What really brought home the need for being careful and vigilant was the discovery that the bike and walking track from WPV to the adjacent Brockman 4 mine (a distance of about 10 km) has sign posts every 500 m and each sign post has a bite kit attached – just in case (Figure 7).



Figure 7: Distance marker with attached bite kit.

### 2.2.6 Dehydration

Working a 12-hour shift in 40+°C heat is stressful. Doing so without water is suicidal. All vehicles carry water for daily use and in case of emergencies (10-20 litres per person per day), and at both the villages' and the work sites' water and ice are plentiful. As well as the water containers in the vehicles, all our team have 2- or 3-litre camelbacks and hydration is a regular topic at our toolbox meetings. We look after our mates in the field, and back at the offices and workplaces we have constant reminders about hydration. A common check point is for staff to monitor the colour of their urine. You cannot go to any toilet on site without seeing a urine colour chart (Figure 8).

## AM I HYDRATED?

### Urine Color Chart

1		If your urine matches these colors, you are drinking enough fluids
2		Drink more water to get the ideal color in Shade 1 and 2.
3		Dehydrated
4		You may suffer from cramps and heat-related problems
5		Health risk! Drink more water.
6		Health risk! Drink more water.
7		Health risk! Drink more water.
8		Health risk! Drink more water.

Figure 8: Hydration sign.

If that is not enough, there are also random hydration tests for all workers. Training and information regarding hydration is common. Good, filtered water is plentiful, ice is readily available, water containers are free and camelbacks are part of most companies' Personal Protective Equipment (PPE). There is really no excuse for allowing yourself to become dehydrated.

### **2.2.7 Flash Floods**

Storms are sudden and often very spectacular in the Pilbara, and flash flooding is also a real risk. Driver training includes dealing with flood water and there are rules regarding how deep water can be and still be able to be safely crossed. This was brought home to me when I was involved first-hand in a flood event. In February 2013, a particularly sudden downpour turned the road between Brockman 2 (our workplace) and WPV into a quagmire and at one point, due to a flooded creek crossing, we were unable to proceed or turn back. We parked up on high ground, walked down and assessed the flooded river crossing. Deciding that it was impassable, we contacted emergency services and prepared to wait it out. Another vehicle arrived and the driver decided that his vehicle, being heavier and larger than ours, would make it through the flooded creek crossing. We watched the other vehicle cross the first of two adjacent crossings then as it rounded the bend for the second crossing we lost sight of it. An hour or so later we were rescued by a front end loader that drove through the flooded creek and took us to safety (Figure 9).



Figure 9: The rescue vehicle.

We considered that it was fortunate that the front end loader was nearby. Only after we had safely crossed the creek, we discovered that the front end loader had been there as part of an emergency to rescue the driver previously mentioned. The second crossing (out of sight to us) was more significant and the driver and passenger had to be rescued from their overturned vehicle that had been swept downstream.

### **2.2.8 Stupidity**

Probably the greatest threat on site is people's own stupidity. In the previous example, the driver should not have proceeded (Figure 10).



Figure 10: (a) Vehicle washed downstream and (b) same vehicle 12 hours later.

## 2.3 What Can Save You?

There are a number of risks to your survival in the Pilbara, and there are a number of things that can be done to safeguard yourself.

### 2.3.1 Preparation

Having in place the training and resources needed to survive are paramount. The following list is the training undertaken in the last 12 months as part of working in the Pilbara:

- First Aid certificate (refresher).
- Operate and maintain a 4WD vehicle.
- Operate a 4WD in rugged terrain.
- Defensive driving on gravel roads.
- Sect. 44 training.
- Lock holders.
- Isolation Officer.
- Medicals (4).
- Drug and alcohol test.
- Roy Hill induction.
- Rio Tinto rail access.
- Lycopodium induction.
- Rio Tinto induction.
- Site-specific inductions.
- Fire certificate.
- Drivers licence.
- Isolation theory.

### 2.3.2 Procedures, Notices and Warnings

There are procedures for just about everything. The procedures are simple and designed to minimise risk, maximise outcomes and keep people safe. The procedures can include Standard Work Practices (SWPs), which outline the safe practices relating to a particular task and form a guide for work procedures. Notices are regularly sent out to notify staff about road changes, movement of heavy loads, works in progress that impact on day-to-day activities, energisation of plant or buildings, etc.



Being on a mine site also brings special notices regarding ongoing production of iron ore. The most common are blast notices, which indicate when and where blasts are to occur and the associated exclusion zones. Blasts are almost a daily occurrence at mine sites, and a blast notice is issued on the day before the blast. These notices inform us about the time, location and nature of the blast and clearly indicate the exclusion zones (Figure 11).

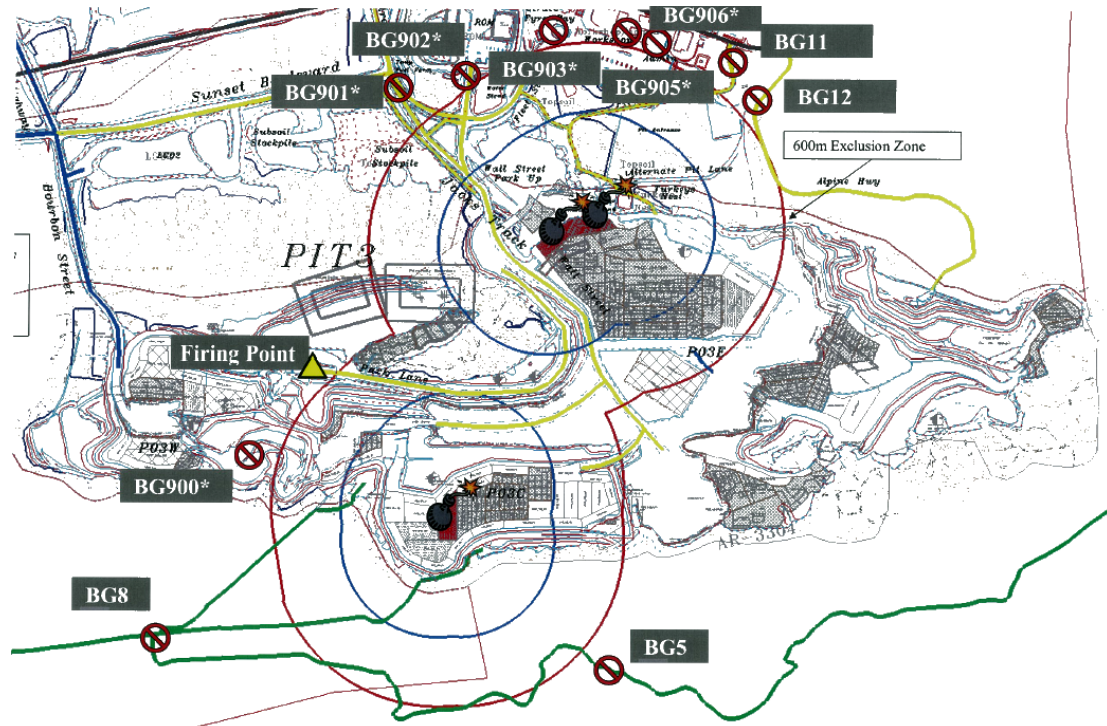


Figure 11: Blast notice example.

### 2.3.3 Equipment

The nature of our work means that we have to be self-sufficient when in the field. Along with our survey equipment, we also carry basic survival equipment. Figure 12 illustrates examples of some of the equipment we carry when working remotely.



Figure 12: Safety equipment.

All our vehicles have to be ‘mine-spec’, which means they typically are configured with the following features:

- Roll-over protection.
- Two spare tyres and associated tools.
- 2-way radios.
- Dual SRS air bags.
- ABS brakes.
- Steel tray and external ROPS (roll-over protection system).
- Mine lights.
- Two-pole battery isolator.
- Steel bull bar.
- ‘Auto On’ headlights.
- Mud tyres.
- Fire extinguisher.
- Mines flag (jockey whip).
- Seat covers.

## **2.4 Attitude**

Attitudes like “she’ll be right” and “it can’t happen to me” are dangerous and your attitude is critical. A positive and safe attitude to your work is your ultimate survival tool. As an example, accidents can happen to anyone and therefore the first thing to do when starting any job on site is to make sure you have all the correct procedures in place (and you understand them). Then do a ‘take 5’, i.e. a short, 5-minute appraisal of what the job involves, the required tools, permits, skills etc. and an assessment of the work environment. It is not fool-proof but meant to make you stop and think. A ‘take 5’ can be a great safety tool (good attitude) or a waste of time (poor attitude). It is up to you how you view it.

A positive attitude falls into three main areas:

- Yourself: Every day of your swing (2 to 3 weeks of 10-12 hours per day) brings opportunities, threats, challenges. Having a positive attitude to why you are here and what you have to achieve is fundamental.
- Your mates: Your mates watch your back. That can be as simple as asking if you have had enough to drink on a hot day or as significant as being on the lookout for the approach of heavy vehicles.
- Your family: Being 4,500 km from your family is hard. Being 4,500 km from a family member in need is devastating. How your family copes with your absence can make such a huge difference to your working life. Coping mechanisms, strategies and finding time to call your loved ones is all part of the family attitude that contributes to the FIFO lifestyle.

## **3 SURVIVING THE PILBARA LIFESTYLE**

### **3.1 What Else Does FIFO Mean?**

To put it bluntly, FIFO also stands for ‘Fit In or F!@# Off’. Just that. In a typical working week on site, I can spend up to 100+ hours with my work mates. In my week off, given my partner’s work commitments etc. I do not get to spend anywhere near that much time with her. On site, we have to be able to work together, socialise together and generally get on.

Multiply that by the number of workers on site that you come in contact with and you get some idea of how there is a need to fit in.

Survival is about being part of the team, getting on and working together. The consequences of not getting on are obvious: safety and productivity are the corporate goals, while health, income, safety and sanity are the personal goals. Maintaining the right attitude and fitting in are the means to achieving your goals (whatever they are) in the Pilbara, and the consequences of getting it wrong have significant ramifications. The most extreme is the serious injury or potential loss of life from a major incident on site, but there are other ‘career-limiting’ consequences of not fitting in or following the rules. The euphemism is getting a ‘window seat’ – doing something wrong that gets you permanently removed from site and most likely never allowed to work on the site (or any other site of that company) again.

### **3.2 What Can Harm You?**

You can get a window seat for a multitude of reasons, some of which are outlined in this section.

#### **3.2.1 Safety**

Any breach of safety is taken seriously on site. Any deliberate breach is almost certain to get you a window seat.

#### **3.2.2 Speeding**

Most sites have a strict speeding policy, and there is no room for argument. Speed zones can change throughout work sites and you have to be aware. Running late and letting your speed creep up will get you fined on a highway and you will lose points. On a work site, you can be fined and lose your job.

#### **3.2.3 Blowing Numbers**

‘Blowing numbers’ is a euphemism for having a blood alcohol reading above zero. On most sites any number above zero is reason for a window seat. You *might* be lucky enough to work on a site that will accept 1 minor (0.01) reading, but the rule is becoming zero for most sites. For example, our team has a compulsory breathalyzer test every morning before work. You can then be subject to a random alcohol (or drug) test at any time during the day.

#### **3.2.4 Drugs**

Like alcohol, drugs and work sites do not mix. All workers typically are screened for drug and alcohol at employment, after any break of more than 30 days and at random times (and places) on site.

#### **3.2.5 Flaunting the Rules**

There are rules on site covering almost every aspect of our daily activities. There has to be order to maintain the environment that we work and live in. It is not hard to fit in for most people, but there are people who flaunt the rules. If you do, you can get a window seat, as simple as that.

### **3.2.6 Attitude**

When it all boils down to it, your attitude is what will either keep you employed or get you a window seat. Life here is not easy, but how you approach it and how you view your work is what it is all about.

### **3.3 What Can Save You?**

Staying fit and healthy is an important part of surviving the Pilbara. There are a number of strategies that people adopt to maintain a fit and healthy lifestyle.

#### **3.3.1 Health and Fitness**

My personal favourite is bike riding. There are loan bikes on site but I have brought my own mountain bike to site. The local track is 19 km from WPV to the Brockman 4 mine site. Some people ride to work, but I ride every day or so casually. Riding after work is cooler and a great way to relax and wind down. There are good gyms at every site and support staff to help you if required (Figure 13). The gym is a popular place both before and after work and again a great way to keep fit.



Figure 13: Gym facilities.

#### **3.3.2 Eating Well**

Food on site is plentiful and healthy – sometimes too plentiful. Eating well is not always easy, but again there is support available. The management staff have health and lifestyle councillors available on most sites, and there are often nutritional classes run during the weeks.



Figure 14: Typical mess facilities.

### **3.3.3 Staying Focused and Attitude**

It is often the simple thing that catches you out. With the number of kilometres we travel daily and the number of vehicles on site, vehicular accidents are common. Traffic, road conditions and wildlife can all catch you out, and there is often little or no warning. At the commencement of a shift, particularly in the morning, visibility can be compromised and you have to stay focused and alert (Figure 15).



Figure 15: The importance of staying focused.

Many injuries occur the day after arriving on site and the day before leaving for break. Staying focused is often a major part of avoiding such injuries. There are a number of strategies that can be adopted on site. For example, at the iron ore mines in South Australia returning staff are not allowed to drive in the pit on their first day back on a swing. This is one way to get staff to acclimatise to the environment.

The lead up to Christmas is also a time of increased injuries. Consequently, common toolbox presentations during this time are about staying focused and going home safe. Again, your attitude (and that of your mates and families) is your main survival tool.

## **4 CONCLUDING REMARKS**

The challenges and rewards of working in the Pilbara are great. So are the risks and threats. It is pointless trying to earn good money for yourself and your family if you get yourself injured (or worse) in the process. Survival is about preparation, attitude and having the right equipment. “Going home, safe and sound, is everyone’s goal” is not just a throwaway line, particularly in the Pilbara.

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