

EIS 1307

AB018160

Woodsreef Asbestos Mine report for New South Wales

Department of Mineral Resources

NSW DEPT PRIMARY INDUSTRIES



AB018160



WOODSREEF ASBESTOS MINE REPORT

FOR

New South Wales
Department of Mineral Resources

T & T Metal & Asbestos Services Pty Ltd



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EIS 1307

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14th July 1999

The Assistance Director, Environment
N.S.W. Department of Mineral Resources
PO Box 536
St Leonards NSW 2065

Attention: Mr Ken Hollands

Dear Sir,

**Re: Woodsreef Mine Report: Relative to the Mill House
and Adjacent Area Remediation.**

In response to your instructions, as detailed in your Terms of Reference, for the above study, dated 12th May 1999, we have pleasure in submitting our Report for your appraisal.

We trust that we have presented this Report to your satisfaction and should you require any further information, please do not hesitate to contact this office.

Yours faithfully

NORM UHR
Queensland Manager

Report: Woodsreef Mine: Mill House Site Remediation
for
New South Wales Department of Mineral Resources, Environment

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OPENING STATEMENT

In view of recent available data on the health effects of chrysotile asbestos, and the conclusions reached from the study and assessment of the site, emphasis must be placed on the need to carry out the remediation works required in the Mill House and adjacent areas at the Woodsreef Mine, in a manner that will be totally controlled by competent people in the safest possible way.

The results of our laboratory tests show that approximately 80% of the asbestos cement sheeting tested by this Company contained chrysotile asbestos with estimates of up to 40% by volume of chrysotile fibre.

Results from medical reports indicate that the potential health hazards from chrysotile asbestos are as great as other types of asbestos and no complacency should exist as to the health hazards of this material, when contemplating removal.

With the majority of asbestos identified within the Mill House and adjacent areas being 100% pure chrysotile fibre, there must be an acceptance of the fact that a major health hazard does exist within these areas.

Responsibilities must, as a priority, be addressed and suitable actions taken to:

- a) Completely isolate the Mill House with an effective closure and not demolish it,

OR

- b) Remove all asbestos contamination before demolishing the structures.

There should be no alternatives.

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PREAMBLE

The Woodsreef Mine is situated approximately 17 kilometres east of Barraba and falls within the Barraba Shire. Extensive mining of the site to extract chrysotile asbestos was carried out between 1972 and 1983, producing approximately 550,000 tonne of asbestos fibre.

The chrysotile asbestos produced was considered to be of only medium to poor quality as the seams formed in the rock base were generally thin and produced short length fibre. The quality of this product was ideal for the production of asbestos cement sheeting, moulded asbestos products such as brake linings and asbestos cement pipes. Apart from sales to manufacturers in Australia, a considerable quantity was shipped overseas to Japan, Malaysia, Indonesia, Iran and Iraq.

Asbestos Related Diseases

Information gained from the New South Wales Dust Diseases Board and National Occupational Health and Safety Commission, indicates that high on the list of persons affected by an asbestos related illness, such as *plural plaques, asbestosis, lung cancer and mesothelioma*, are building tradespeople. It can be assumed that with the advent of the extensive use of asbestos cement products, containing chrysotile asbestos, in the housing and commercial industries and the use of electric power saws, builders were exposed to excessive respirable fibres.

Asbestos related diseases are recorded as being caused by the inhalation of respirable asbestos fibres, defined as being less than three (3) microns in diameter, length greater than five (5) microns and with a length to diameter ratio greater than three to one (3:1). These fibres are not detectable other than by the use of air monitoring pumps which supply a measured quantity of air over a prepared filter for a period of four (4) hours. The filter is then processed in a N.A.T.A. registered laboratory using the prescribed method for membrane filters, as described in *Worksafe Australia's Code of Practice for Asbestos, August 1988*.

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The four (4) prominent diseases attributed to asbestos exposure, being, *mesothelioma, lung cancer, asbestosis, and plural fibrosis and plaques*, are well documented.

The National Institute of Occupational Health and Safety, Epidemiology and Safety Unit, are maintaining a Mesothelioma Register for reported cases throughout Australia. It appears that apart from claims made for compensation for other than mesothelioma through the Dust Diseases Board in New South Wales, there is no National Register available for asbestos related lung cancer or asbestosis.

The following information regarding asbestos, was supplied by Dr James Leigh, Head Epidemiology and Surveillance Unit of the National Institute of Occupational Health and Safety for inclusion in this report:

Statements from the *Collegium Ramazzini*, an international academic society that examines critical issues in occupational and environmental medicine, dated 1999, reports:

- Asbestos has been wholly or partially responsible for an estimated 25,000 deaths in Australia.
- Proportional to the population, from studies in Western Europe (Peto et al 1999), and consistent with Australian future estimates, there will be a further 10,000 mesothelioma deaths, and 20,000 deaths from lung cancer by the year 2020.
- "Early indications that chrysotile might be much safer than other forms of asbestos have not held up (UNEP, ILO, WHO 1998). The preponderance of scientific evidence to date demonstrates that chrysotile also causes cancer, including lung cancer and mesothelioma."

(Smith and Wright 1996, Sayner et al 1996).

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The *Collegium Ramazzini* has called for an immediate ban on the mining and use of asbestos because the risks cannot be controlled by technology or by regulations to work practices. "The strictest occupational exposure limits in the world for chrysotile asbestos (0.1 fibre/cc), are estimated to be associated with lifetime risks of 5/1,000 for lung cancer and 2/1,000 for asbestosis". (Sayner et al, 1997).

The *Collegium Ramazzini* reports that:

"Asbestos related diseases have a huge compensation liability. In Australia, typical legal and administrative costs per mesothelioma or lung cancer litigated cases, are between \$100,000 and \$200,000, and typical damages awarded approximately \$200,000 per case for a post - 65 retiree and up to \$450,000 for younger persons. Statutory compensation is approximately \$160,000 per case. This amount represents compensation for medical costs, pain and suffering, loss of amenity, and lost income, reflecting ultimately the cost to the State. The total future compensation liability for Australia is in the order of \$6 billion."

An extract from a paper produced by Dr James Leigh, entitled *Malignant Mesothelioma in Australia (1945 - 1995)* is as follows:

"...notifications show a continuing upward trend. Both male and female rates have increased but the male rate is over seven times the female rate. In 1995, the male crude rate was 6.7 per 100,000 per year and the female crude rate 1.1 per 100,000 per year. These are the highest reported cases in the world. The incidence is now similar to Hogkins Lymphoma or liver cancer, and the mortality greater than that of cervical cancer".

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1. INTRODUCTION

This report has been compiled in order to detail the findings of this Company's representatives, following several visits to the Woodsreef Mine site. Our issues have been restricted to the Terms of Reference provided by the Department of Mineral Resources and have not been prepared to include proposed rehabilitation of other areas of the mine site such as the pits, tailings dump and the waste rocks dumps.

Consideration has been given to the findings of the Barraba Mine Rehabilitation Feasibility Study, conducted by the New South Wales Mineral Resources Department and the *Dames & Moore Report* of October 1997. This Company's findings can be summarised as follows:

- Primary concern and actions should be addressed to alleviate the serious state of safety hazards located within the Mill House structure. These matters have been addressed in our Interim Site Safety Report submitted to Mineral Resources, dated 4th June 1999. In addition to our Interim Report action should be taken on the following matters:
 - Processed and residual asbestos products have been located in quantities varying from light contamination to heavy, solid compacted asbestos fibre on floors, in pipe ducting and equipment throughout the Mill House and adjacent structures.
 - Processed pure 100% asbestos fibre has been stored on the ground floor areas in steel drums and plastic wrappings. Some containers are in good condition but others are in a dilapidated state. A conservative estimate of the packaged materials would be 25 tonne.
 - Vandalism of the Mill House and adjacent office has occurred and consideration must be give to the exposure of these perpetrators to excessive asbestos fibre with possible future litigation.

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- Demolition of the Mill House cannot be carried out safely until a complete clean up of the structure and the removal of contained and residual asbestos fibre has been carried out.

- The ring road surface on the southern side of the Mill House provides access to the product feed dump and up to the crusher inlet hopper. The road surface consists of pure chrysotile asbestos fibre which would cause concerns for plant access during demolition, due to its disturbance.

- A general clean up of scrap metal and abandoned equipment in close proximity to the Mill House. All material is contaminated with asbestos fibre.

2. MANAGEMENT PROGRAM

At the time of writing this Report, there appears to be no clearly defined acceptance for the responsibility for the Woodsreef Mine Site Rehabilitation Management. The mine site covering the tailing dump, pits and waste rock dumps and adjacent areas pose a significant hazard over approximately 5.5 square kilometres. Concentrations of asbestos fibre have been identified in earlier reports conducted by the Department of Mineral Resources and are well documented.

This Report is restricted to the Mill House, office building and adjacent structures, but should also be read in conjunction with the *Dames and Moore Report*, of October 1997, which concentrates in the main with Environmental Management, Hazard and Risk Assessment issues associated with the total mine area.

The demolition of the Mill House and associated structures should be seen as a separate issue as it involves the combination of specialist demolishers and asbestos removers who will require proven past experience in this field of work and be prepared to co-operate in order to achieve the necessary results.

The Management Program associated with the work will require co-ordination between the Department of Mineral Resources, the Environmental Protection Authority, the Department of Land and Water Conservation, the Barraba Shire Council and the nominated consultant/contractor. The program will need to be clearly defined by experienced personnel who recognise the complexities of such works and who have the ability to achieve the desired results in the safest, most practicable and cost effective manner. Further consultation will be required to achieve these results.

3. SITE SAFETY

3.1 Terms of Reference for Report

- To provide an inventory of scrap metals, other litter and redundant plant, accompanied by recommendations for the removal and disposal of same.
- To provide an assessment of the general condition of the Mill House, office building and other structures on the site.
- To provide a program and costing for the removal of scrap materials, general litter, packaged and residual asbestos fibre within the Mill House and adjacent contaminated areas.
- To provide an estimate costing for the demolition and disposal of the Mill House.
- To provide estimate costing for demolition of the office building, fuel tanks and product storage area.
- To assess risks and hazards encountered on site and provide a management program to facilitate their implementation.
- To address the Occupational Health and Safety consideration and implement appropriate site safety procedures.
- To provide overall recommendations for additional monitoring and assistance required by the Department of Mineral Resources to implement control over the recommendations.

3.2 Legislative Responsibility

The Woodsreef Mine is a declared abandoned mine under the *Mines Inspection Act, 1901*. Under Section 45, (1) and (2), the Act defines the requirements of the owner to secure the mine to prevent accidents:

Section 45, (1): "Where any mine is abandoned, or the working thereof discontinued, at whatever time the abandonment or discontinuance occurred, the person who, at such time was the owner thereof shall cause the top of every shaft and any other opening considered to be a source of danger by an inspector, to be securely protected for the purpose of preventing accidents."

Section 45, (2): "If any person fails to act in conformity with this section, he shall be guilty of an offence against this Act."

Section 45, (6) may be considered to be relevant to the Woodsreef Mine and should be addressed:

"If any person shall, after any shaft or adit has become disused for mining purposes, wilfully damage or render useless such shaft or adit by the removal of any fencing, timbering, slabs, covering, casing, lining, ladder, platform, or other appliance in such shaft or adit without the consent of the Minister, he shall be guilty of an offence against this Act."

Clauses (3), (4), and (5) of Section 45, have been deleted in the Act and replaced in the *Mines Inspection Amendment Act 1998 No 69*, by *Division 3: Risk Management Strategies*, Section 46 Risk Management Strategies:

" The general manager of the mine must ensure that as soon as is reasonably practicable:

(a) any reasonable foreseeable safety or health risk arising from the carrying out of operations at the mine, and that has the potential to cause significant harm to persons carrying out those operations, is identified and assessed, and;

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(b) any such risk is eliminated, or if it is not reasonably practicable to eliminate the risk, the risk is minimised to the fullest extent that is reasonably practicable by measures that include the design of safe work systems."

In the advent of an accident in any form, were it to happen within the confines of the Mill House structures, to visitors or intruders, sections of the *New South Wales Construction Safety Act 1912* with Amendments may also have relevance in any actions taken by the injured person. Consideration should be given to this possibility by your Department Advisors.

3.3 Environmental Control

It is our belief that the *Environmental Protection Authority's Waste Minimisation and Management Amendment Regulations 1999* for Asbestos will be relevant to the Mill House Site Rehabilitation. Section 29 covers the special requirements relating to asbestos waste. Clause (1), (4)(a), (4)(b), and (4)(d), have relevance to the present situation at Woodsreef and should be addressed by all respective parties.

In consultation with the E.P.A. Office in Armidale, consideration will need to be given to these amendments concerning Clause (5)(a): requiring that "disposal of asbestos waste" which would include any contaminated material or equipment from the Mill Site, "must be disposed of only at a landfill site that may legally receive the waste". Confirmation that the north pit can be used under these circumstances, as recommended by the *Dames and Moore Report*, will be required from the E.P.A. before any removal and disposal activities can take place.

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The adoption of bulk removal of asbestos, due to the volume and existing state of asbestos materials within the Mill House, has been discussed with Mr Simon Smith of the E.P.A. in Armidale, as it appears to contravene the requirements of the Amendment Regulation, being Section 29 (4), pertaining to the bagging of the waste as described in the Amendment Regulations. It was pointed out that should the bagging process be adopted, the material could not be dumped into the pits that presently contain water, as they would float. This was appreciated by the E.P.A., who indicated that consideration would be given to bulk loading and transport of the waste to the pits providing that an approved work procedure and method was adopted. Procedures for the handling of bulk asbestos from the Mill House and adjacent surrounds needs to be developed and approved prior to the commencement of any removal contract.

Consideration of the Acts and Regulations, as above, have been addressed throughout this report in compiling recommendations and costs.

3.4 Asbestos Removal

Any work involving the disturbance or removal of asbestos materials from the Mill House and adjoining areas, should be carried out strictly to the procedures and requirements of *Worksafe Australia's Code of Practice for Asbestos 1988*, and by experienced competent persons holding an appropriate licence for the work issued or approved by the New South Wales WorkCover Authority.

3.5 Building Encapsulation

In order to carry out the major removal of asbestos prior to demolition, the Mill House building should be encapsulated in order to control the release into the atmosphere of asbestos fibres. This would entail the fixing of heavy duty, reinforced polyurethane sheeting to the outer walls of the Mill House.

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The sheeting would require to be fixed with battens or other such material in order to secure the sheeting to withstand wind velocities of up to 40 knots. This Company has achieved satisfactory results utilising this method when carrying out asbestos removal and demolition of boilers at a sugar mill in Mackay. Wind velocities, over the four month period, reached 50 knots and caused no integral damage to the encapsulation material.

Due to the volume of the building to be encapsulated, it would not be practicable to apply negative air units to the encapsulation in order to depressurise the work area, as recommended by the Code of Practice for Asbestos. It would be our recommendation that a system of fine water spray nozzles be arranged around the inside periphery of the encapsulation at various levels in order to minimise any escape into the atmosphere of asbestos fibres. This method gives proven results, but will be reliant on the availability of an adequate water supply.

3.6 Demolition of Structures

The proposed demolition of the Mill House and adjacent structures must be carried out by experienced, competent persons to Australian Standards *AS2601: Demolition of Structures 1991*. Due to the complexities of the Mill House structure and inherent dangers of floor strengths perforated with open penetrations, persons carrying out the work should hold the highest degree of demolition licencing issued, and be approved by the New South Wales Authority, and carry out the works under the guidance of a Structural Engineer.

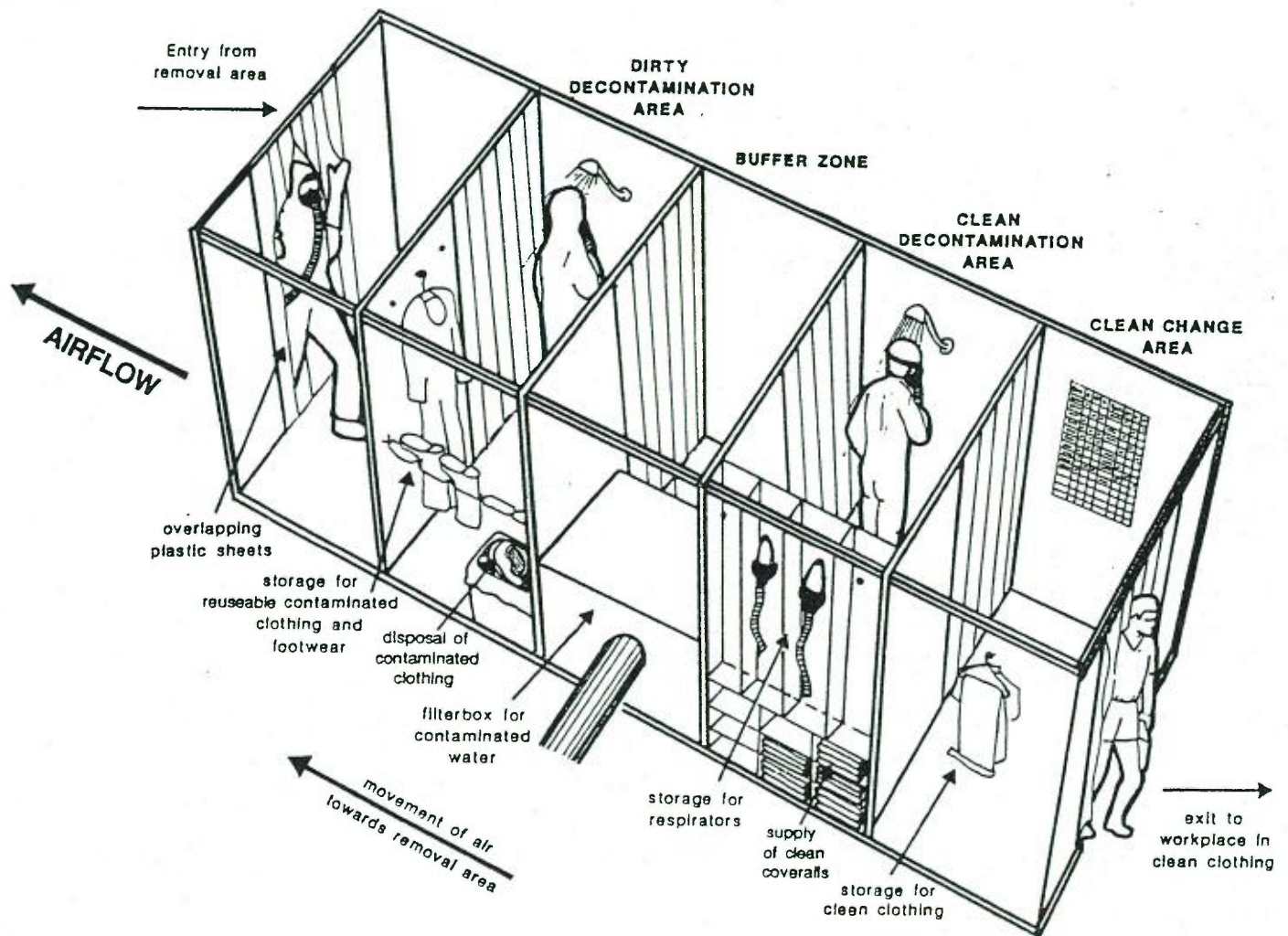
3.7 Unique Circumstances

It must be appreciated that should the bulk visible and accessible asbestos contamination be removed prior to demolition, it cannot be assumed that demolition can take place without consideration of the fact that asbestos fibre will be encountered at every phase of the demolition due to the intensity of asbestos contamination throughout the mill.

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This Company has experienced this occurrence during demolition of redundant power stations, where the procedures incorporated a combined demolition and asbestos activity requiring all crews to wear protective clothing and a high level of respiratory protection to a minimum P3 classification. Decontamination procedures for staff, equipment and demolished materials are paramount to achieve a safe working procedure. These procedures are clearly defined and detailed in the *Worksafe Australia Code of Practice for Asbestos, 1988*. A depiction of a typical decontamination follows.

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An arrangement for a decontamination facility (an example).
Worksafe Australia's Code of Practice and Guidance Notes, Asbestos

3.8 Legal Responsibilities

In awarding any contract for asbestos removal and demolition, the Department of Mineral Resources should consider their legal responsibilities in the advent of an accident or future asbestos litigation claims. It is therefore recommended that any future Contract for asbestos removal and demolition be awarded only to a company, or individual, that has been accredited with the New South Wales WorkCover Authority and has a proven track record for such work, and carries a minimum of \$10 million of Public Liability Insurance including asbestos exposure claims.

As mentioned previously in this report, work carried out on the Woodsreef Mine site, being asbestos removal and demolition, may be considered to wholly or partially fall under the jurisdiction of the *New South Wales Construction Safety Act, 1912*, No 38, and including *WorkCover Legislation Amendment Act 1995*, No 89. Advice given by Mr Rick Rech, of the New South Wales WorkCover Licencing Section, indicates that as an abandoned mine site, where the lease has expired, Woodsreef may come under the jurisdiction of the WorkCover Authority, particularly in relation to asbestos removal and demolition of structures. It is recommended that consideration be given to clarify his opinion.

Mr Rech can be contacted on 02 9370 5869.

4. FINDINGS

4.1 Scrap Metal and Debris

This report covers the assessment of scrap metal and litter located in the Mill House, and the adjacent surrounds.

- Within the confines of Mill House:
 - i) Disassembled scrap metal is generally made up of steel ducting, both heavy and light duty, steel plate, pipe work, and an assortment of single steel rods and angles. Three (3) large hoppers exist on the 7th and 8th floors along with a mobile loading system located on the 8th floor. The majority of this material is highly contaminated with asbestos fibre and would not be of commercial value unless decontaminated. To conform to normal work practice, scrap would be required to be decontaminated of bulk asbestos, before being wrapped and sealed in heavy duty plastic sheeting for transport to the dump site. This would become a tedious and expensive exercise and preference would have to be given to our recommended work procedure, being a bulk removal within the confines of a totally encapsulated building.
 - ii) Debris and litter, excluding asbestos materials, is generally confined to the lower levels of the building and consists of paperwork, timber, empty drums and drill core samples. Most material is asbestos contaminated and preference would be given to the work method referenced above.

Note: It should be made clear that all personnel involved in any assessment or minor clean up would be required to wear protective clothing and a minimum of a P2 respirator. Decontamination facilities would be required for all workers carrying out this work.

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- Adjacent to the Mill House:
 - i) Disassembled scrap metal located within the adjacent area of the Mill House was quite varied and consisted of large sections of hoppers and ducting, piping, tower frames, angle, steel plate, ladders, empty drums and an assortment of minor steel and iron. All material noted was asbestos contaminated and represented little or no commercial value. The decontamination of the material in situ would pose problems as most is scattered over a large area and partially buried in asbestos contaminated fill. The larger sections of ducting at the crusher end could be processed and salvaged, but would be of minor value. Our recommendation would be to decontaminate where possible, load into plastic lined bins or trucks, and dispose into the nominated burial sites.
 - ii) The area surrounding the Mill House contained varying degrees of debris and litter, unevenly spread and consisting of mainly timber, pallets, broken glass, paper and plastic sheeting. As described previously, these materials can be assumed to be asbestos contaminated to varying degrees and would require any clean up and collection to be carried out with care and with personnel wearing disposable overalls and minimum P2 respirators. Collection of these materials would require a mobile facility such as a tip truck, lined with heavy duty plastic sheeting, and have the ability to traverse the areas to be cleared and to have access to a dumping site.

4.2 Dump Site

No consideration has been given in this report for the disposal of asbestos, and contaminated equipment and material. It appears that the access roads to the north pit are unserviceable due to slippage and pending collapse of the rock face. Should this site be approved as a dump site, Section 3.3, further investigation will be required with the E.P.A. and Mines Engineers as to the practicalities and legal aspects of utilising this area.

**5. ASSESSMENT OF STRUCTURAL CONDITION OF THE MILL HOUSE,
OFFICE BUILDING AND OTHER STRUCTURES.**

5.1 Assessment

The Mill House building consists of a steel framed structure of eight (8) levels, with supporting steel columns at approximately 5 metre spacings. The ground floor concrete slab is substantial and approximately 1½ metres off ground level at the northern end of the building, tapering off to be at ground level at approximately mid-building.

Each intermediate level has a concrete reinforced suspended slab of approximately 150mm thickness and perforated with numerous scattered penetrations ranging from 200x200mm to 2m² which facilitated pipe and ducting penetrations. The 7th level, which housed precipitator filter socks, has a 12-15m² penetration with no protecting rails.

The roof of the 8th floor appears to be a complete concrete reinforced slab with a supported corrugated asbestos cement roof, pitched over the entire surface. The roof is sound but considerable asbestos fibre product can be seen under the area where a conveyor was once located. The concrete support columns still remain on top of the 8th floor roof slab.

External cladding of the building is corrugated asbestos cement sheeting. Significant damage has been inflicted on this sheeting with probably up to 35% either being damaged or missing. Our estimate of asbestos cement sheeting is 130 tonne.

A goods lift is located at the centre of the main building and serviced all floors to the 8th level. Several doors are not secured and are a hazard. It is unlikely that this lift could be brought back into service and no consideration has been given to this possibility.

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It can be assessed that the condition of the supporting steel structure of the Mill House is sound. As stated elsewhere in this report, some concern must be given to the condition of the suspended floor slabs on each level. For such machinery as bob cats or boom lifts to be used during any demolition, an engineering report would be required to ascertain safe loadings.

The only remaining significant equipment within the building are the three hopper mixers of approximately 10m long, 4m wide, and 3½m high, and with an estimated weight of 10-15 tonne each. Two units are located on the 7th level and one on the 8th. Visual inspection of one unit showed significant asbestos contamination. A mobile hopper runs on rails across the full width of a mezzanine level of level 8 and would weigh between 3 - 5 tonne.

The remains of the single level crushing plant is housed in a similarly constructed building attached to the southern end of the Mill House. The majority of the plant has been removed but a considerable amount of dilapidated plant remains in what could only be called a dangerous and hazardous state. Concrete conveyor housings which run to the two remaining corrugated mixing tanks north west of the office, appear to have filled with water and no protection is afforded to prevent access.

The floor area of this section contains up to 50mm of pure asbestos fibre and at the time of inspection was damp, slippery and hazardous. Steam pipes of 4" to 6" diameter running along the walls are lagged with calcium silicate insulation containing up to 35% asbestos. This lagging is deteriorated and, in places, falling off.

The general condition of this area could be described as hazardous, dangerous and unacceptable, and in its present state should be sealed off as a priority. An estimated costing for this work appears in Section 8 as Option 1.

5.2 Interim Report

Due to the deteriorated state of the Mill House and the potentially hazardous situations, covering not only environmental issues from the amount of asbestos fibre loosely spread throughout the building, but the lack of provision for safety when accessing the structure, an Interim Report on Safety Issues, was presented to the Department of Mineral Resources as a matter of immediate concern and requiring priority action.

The Interim Report is attached.

5.3 Office Building

This building consists of a single story brick building on a concrete slab containing numerous partitioned offices, main electrical switch room, drafting room, lunch room, toilets, wash facilities and air conditioning plant. The building has been vandalised with smashed windows, light fittings removed and most internal doors missing. Some asbestos sheeting was located as well as one heater bank in the air conditioning ducting which contained asbestos mill board.

5.4 Drying House

This structure, of three levels, is located on the western side of the Mill House built on an embankment. It is a steel framed structure, clad with corrugated asbestos sheeting and contains thousands of precipitator filter bags which hang from the roof area. The buildings and bags are highly contaminated with asbestos fibre. Steel cat walks run the length of the building and one supply pipe, approximately one metre in diameter runs from the building into the lower section of the Mill House. A section of a conveyor support column is adjacent the building on the north side.

5.5 Storage Tanks

Numerous tanks remain on the adjacent area of the Mill House and consist of two fuel tanks, two corrugated steel mixing tanks with a concrete conveyor tunnel at their base, running to the Mill House. Other minor tanks and plant are in close proximity. The corrugated mixing tanks could be assumed to contain asbestos fibre product of unknown quantities.

It was noted that a thick layer of pure asbestos fibre was evident on the ground on the northern side of the main fuel storage tank which will require removal prior to the demolition or removal of the tank. No investigation was carried out to determine any fuel content remaining in the tank.

6. RISK ASSESSMENT

6.1 Statement

An Interim Report has been presented to the Department of Mineral Resources as a matter of priority. The Interim Report, attached, indicates the potential hazards located within the Mill House pertaining to site safety matters, particularly in the lack of safety rails and covers over the floor penetrations and the apparent lack of responsibilities to safety issues for any official or unofficial personnel entering the Mill House site.

The degree of asbestos contamination throughout the building was noted but not expanded upon in the report. Following our third visit to the site, and further appraisal of site safety matters, we have concluded that the following conditions require attention:

- It must be accepted that the entire building, including the crushing plant area be considered as highly contaminated with pure asbestos fibre. Disturbance of this fibre, even by inspection of the building, will cause respirable asbestos fibres to be released into the atmosphere. Any prolonged activity from either personnel or light machinery, such as bobcats, would cause a level of release in excess of the National Exposure Levels for chrysotile of 0.5 fibre/ml. This assumption is based on past experience of all of our personnel who visited the site including our Environmental Consultant, Mr Craig Carlson, who has been associated in this industry for 10 years, and is a N.A.T.A. registered Laboratory Asbestos Fibre Counter. We believe that this assumption can be collaborated by reference in a Risk Assessment carried out by Ms Eva Fransis of the Department of Industrial Relations, dated 28th August 1986 and documented in the "Barraba Mine Rehabilitation Feasibility Study". Ms Fransis reported, under the heading of *Predicted Exposure During Rehabilitation Work* in part that:
 - i) "Available exposure data on earthmoving related work was very limited and was restricted to only 10 tests during mine activities;
 - ii) The tests were on truck drivers, loader operators, and one on a grader operator;

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- iii) The range of test results was 0.2 to 0.9 fibres/ml, with an average of 0.4 fibre/ml."

These tests reflect open cut mine activities where asbestos fibre content of the product represent only an estimated 0.55% of the processed material. (These figures are taken from the *Dames and Moore Report 1997*). Asbestos fibres located within the Mill House are 100% pure asbestos fibre. The National Occupational Standard for chrysotile is 0.5 fibre/ml. The exposure sets out the time-weighted average fibre concentration of air breathed by a worker throughout a working shift, calculated from one or more measurements taken over a sample period of not less than four hours using the Fibre Membrane Filter Method as described in *Worksafe Australia Code of Practice on Asbestos, 1988*.

- The *Dames and Moore Report* noted that air monitoring for asbestos fibres carried out by the New South Wales Department of Mineral Resources in 1992 at the tailing dump during rehabilitation work with heavy machinery, indicated fibre concentration in the range of 0.01 fibre/ml to 0.04 fibre/ml which were in compliance with the occupational standards for chrysotile of 0.5 fibre/ml. It must be considered that asbestos fibre content of tailings materials would be very low and far less than the estimated fibre content of the base rock, being 0.55% fibre bases on figures quoted in the *Dames and Moore Report*.

6.2 Assessment Introduction

From the past asbestos contamination records at the mine site, it can be assumed that any activity or work within the Mill House site would cause an unacceptable level of asbestos fibre release with resulting exposure to any personnel on site not wearing appropriate personnel protection and having available, suitable decontamination facilities as defined in *Worksafe Australia's Code of Practice on Asbestos, August 1988*.

As detailed in Section 6.1, asbestos fibre inhalation would be the major health hazard and dominant factor for work in and around the Mill House area. This is collaborated in the *Dames and Moore Report, Executive Summary* for the total mine site, where it was stated that "Asbestos inhalation is the dominant factor at Woodsreef, accounting for over 90% of the estimated total statistical risk with the site." Our assessment of safety factors pertaining to the lack of rails and cover plates over penetrations has been discussed in Section 7, and must be considered to require priority action so as to reduce potential accidents. This requirement for safety protection as detailed in the Interim Report must rate highly as an initial high risk factor.

6.3 Demolition Work Assessment

6.3.1 Mill House

As stated previously, the general structural condition of the Mill House building is sound. The reinforced concrete suspended slabs will require a Structural Engineer's assessment if additional loading, such as equipment and machinery for demolition purposes, were to be employed on the slabs.

The removal of all accessible asbestos fibre from the building would be a requirement prior to any demolition taking place. Methods for this work and the necessary preliminary planning would form part of a Work Safety Plan.

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Due to the extensive asbestos contamination, one can be assured that during the programmed demolition, further asbestos will be uncovered. It will be necessary therefore to have a demolition crew work concurrently with an asbestos removal crew to recover and contain asbestos as the components of the building and equipment are removed. This co-ordination of works necessitates that persons engaged in the demolition are experienced and competent with the hazards of asbestos. Only persons who have demonstrated a proven ability for such works should be engaged. Such persons should be recognised as "competent persons" as accepted by the NSW WorkCover Authority for this classification and hold current appropriate licences. Failure to control the demolition activities in a systematic manner will result in potential hazards of asbestos exposure to all personnel within the work area. Providing this criteria is adopted, we can see no risk in the demolition and the safe removal of equipment and building structures.

All equipment used in the demolition must be certified and conform to the requirements of New South Wales Regulations. Demolition procedures must conform to Australian Standard *AS2601, Demolition of Structures 1991*.

Prior to commencement of works, a Site Safety Specific Plan should outline the scope of works and address a Risk Management Plan. This plan should be comprehensive and detail the procedures to be adopted for demolition, asbestos removal, site safety and contingency plans conforming to relevant Codes of Practice, Standards and Regulations. All parties associated with the works should be consulted as to its contents and approve the derived procedures.

6.3.2 Office Building

The demolition of this building does not pose any foreseen problems as to risk. It is a simple single story, brick and concrete structure with a clip lock roof. Asbestos cement sheeting has been used on the eaves and facade as well as some internal linings. One electric heater bank in the air conditioning duct contains asbestos mill board. The vinyl tiles used as a floor covering in some areas are likely to contain asbestos, however no tests were conducted. Asbestos materials should be removed prior to demolition by licenced personnel.

6.3.3 Fuel Tanks

No examination of these tanks was carried out to determine if they contained diesel fuel oil. This must be done prior to demolition and a Gas Free Certificate obtained so as to prevent an explosion if a hot work method of demolition were to be accepted.

6.3.4 Corrugated Steel Product Tanks

These two tanks are situated to the north west of the office building and appear to be connected to the Mill House by an underground concrete duct that contained a conveyor system. No access was attempted, however there is every chance that the tunnels could be full of water. It will certainly contain asbestos materials from spillage of the product being carried to or from the Mill House.

No apparent risk can be attributed to the safe demolition of the tanks provided that all asbestos contamination has been removed.

6.3.5 Drying House

This three story steel structure with corrugated asbestos cladding is situated adjacent to the Mill House and to its west. It contains a vast quantity of precipitator filter bags of approximately 100mm in diameter, and 10 to 15 metres in length. They are of a fabric material but contain a heavy concentration of pure asbestos fibre. No functional drawings or workings of this structure are available.

The risk factor of this building is high due to the volume of asbestos fibre contained within the filter bags and within the structure. The controlled decontamination of this building must be carried out following a strict removal procedure and to comply with the Code of Practice. A full encapsulation of the building is required and should be maintained during preliminary demolition of the structure.

6.3.6 Sundry Equipment

Various other structures are within close proximity to the Mill House and other than being asbestos contaminated, no risk factors could be identified.

6.3.7 Adjacent Ground Areas

Some ground areas within the proximity of the Mill House, are highly contaminated with asbestos which will become a risk during any demolition process. These areas include:

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- The roadways, which make up the ring road to the product dump adjacent to the crusher feed inlet, contain pure asbestos fibre with an inlay of small stones. This material is up to 50mm in thickness over a road length of approximately ½km and being approximately 10m wide. Any disturbance of this material by heavy vehicles or machinery during the demolition process will cause asbestos to be released into the atmosphere. Either the drivers of such vehicles would be required to wear protective equipment, or the asbestos fibre would be required to be removed and dumped.

- Some areas adjacent the fuel tanks also contained quantities of asbestos fibre which would be disturbed during the removal or demolition of the tanks. Activity of this nature would require personal protection for all personnel.

7. RECOMMENDED PROGRAM

This program has been devised so as to accomplish two phases of the proposed demolition of the Mill House.

Firstly, the Mill House needs to be made safe by the erection of barrier railings where none exist so as to provide a safe viewing area; and by providing cover over existing floor penetrations. To execute this, selective cleaning of asbestos must be accomplished to gain access for a contractor to carry out these temporary works.

Secondly, the program is devised so as to allow safe access to all levels of the Mill House by authorised personnel and at a later date, by prospective tenderers, should the Department so wish.

As an option, all accessible asbestos materials could be removed from the Mill House thus allowing a wider appraisal of the building for demolition purposes.

Having given due consideration to our findings and assessments, we recommend that the following program be adopted for the demolition of the Mill House, office building, associated structures and the rehabilitation of the Mill House adjacent areas.

7.1 Warning Signs

As described in our Interim Report, priority should be given to work to be carried out within the Mill House to make the site safe for future inspections and the probability of visitors or intruders inadvertently entering the area. This work should include the placing of warning signs within the proximity of the Mill House, covering at least each side of the building. The warning signs should be approximately 2m x 1m, and depict at a minimum that:

- Unauthorised entry to the building is forbidden;

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- The building, at all levels, contains a high volume of asbestos fibres and asbestos dust;
- Authorised personnel must wear protective equipment being:
 - hard hats;
 - safety boots;
 - disposable overalls, and;
 - Respiratory protection to a minimum of P2 classification.

Note: Authorised personnel should have been inducted on the hazards of asbestos and the correct procedures for the wearing and disposal of overalls and masks.

- All suspended floors contain hazardous floor penetrations and a lack of hand rails;
- Contact the Department of Mineral Resources, Armidale, for further information, phone: 02 6770 2100.

7.2 Decontamination

7.2.1 Decontamination Unit

A portable decontamination unit should be set up as close as possible to the northern entrance to the ground floor of the Mill House. This would entail the provision of pressurised water and a hot water heater serviced by a generator, or mains power, with the capacity of approximately 10 KVA. As the mine site cannot be fully secure, provision should be made to secure the decontamination unit by fencing or other means to prevent theft or vandalism.

The decontamination unit should contain clean towels, disposable overalls and P2 respirators with clear instructions on a notice board as to their use.

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Asbestos disposable plastic bags, as described in the *E.P.A. Amendment Regulations 1999*, Section 29, (4) (b), should also be available for depositing used personal protective equipment.

7.2.2 Truck Wash Facilities

Due to the extent of asbestos contamination at ground level in the surrounds of the structures, a vehicle wash area should be established adjacent the access/egress road from the main gate in order to control the progression of asbestos contamination being transferred around the site and onto the public road.

The design of this facility would consist of a concave concrete pad with a drainage pit incorporating filtration and pumping facility. The importance of an adequate water supply for this purpose should be addressed in future planning.

7.3 Associated Temporary Works

In the letting of any contract to carry out the temporary measures within the Mill House, it must be stressed that the contractors will be required to wear personal protective equipment (P.P.E.), be inducted on working with asbestos, including decontamination, and be made aware of the existing safety hazards in the building and close surrounds. A person recognised by the New South Wales WorkCover Authority as a "competent person" for friable asbestos removal, should supervise all temporary work, and be responsible for the implementation of all safety procedures.

Prior to the temporary safety barriers and floor penetration works being carried out, it will be necessary to remove or isolate as much loose asbestos material as possible. This would include:

- Areas of the ground floor where bagged asbestos is present in dilapidated plastic bags;

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- Floor areas leading to the access stairs so as to minimise the disturbance of fibre in order to reach the stairs;
- Cleaning of access stairs and floor areas around a proposed viewing area on each floor.

This work must be carried out by an approved asbestos removalist, under the control of a "competent person", as described by the New South Wales WorkCover Authority.

7.4 Declaration of Safe Areas

It is recommended that safe areas be declared to allow visitations by authorised personnel, by the erection of a two layer, 10mm diameter chain welded to the main support columns, in predetermined areas so as to restrict access to the unsafe floors but allowing for safe access to all levels for viewing and future tendering purposes.

7.5 Air Monitoring

Air monitoring by a N.A.T.A. registered laboratory is required to be carried out during all phases of this program and on a daily basis. Test results should be made available no later than midday of the following day. Any unacceptable levels of fibre detection should be reported immediately to the site asbestos supervisor and actions taken to contain any risk factor, which would be prescribed as a procedure in the Project Specific Quality Plan.

7.6 Crushing Plant

Concern has been expressed earlier in this report regarding the unprotected area around the now dismantled crushing plant at the southern end of the Mill House.

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It is recommended that weld mesh be fitted to the various openings accessing this area. The area poses a serious hazard, particularly for any juvenile intruders, with unprotected sump areas filled with water and conveyor tunnels left open. Reference should be made to the various photos accompanying this report. Please note: The date on some of these photographs is incorrect due to a faulty battery.

Note: This is an Interim Program designed to assist the Department in assessing the needs to further progress the rehabilitation of the Woodsreef Mine site, and should be seen as a minimum preliminary plan designed to achieve Site Safety and Environmental Protection.

8. ESTIMATED COSTS

In evaluating the cost for work considered in this study to be of a necessity, due account has been taken of the following factors:

- Relative isolation from a major source of supply and the delivery of materials required for asbestos removal and demolition;
- The need to reinstate power and water supply, and telecommunications;
- A suitable and experienced labour force;
- Living away costs for specialised trades people, technical and management staff;
- Road access to a prescribed dump site.

8.1 Phase One

Work required to be carried out in order to establish a safe and environmentally sound work area for future total asbestos removal and demolition of all structures within the Mill House areas as previously described, would include:

- Establishment of on site water, electrical power and telecommunications in order to allow work to be carried out and to effect the safety factors required;
- Carrying out the supply and erection of warning signs to at least four locations at ground level of the Mill House;
- Establishment of a mobile decontamination unit at the northern entrance to the ground floor level of the Mill House;

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- Provision of suitable portable facilities including office, mess and toilet for initially six to eight personnel;
- Provision of induction training for all personnel including site hazards and asbestos removal procedures;
- Carrying out a preliminary asbestos removal program so as to create a safe zone on all floors within and adjacent to a proposed viewing area. This will include floor cleaning, removal of deteriorated bagged asbestos on the ground floor and isolating areas on the other floors where excessive quantities of asbestos fibres are evident. Removal procedures will be developed and conform to the Code of Practice for Asbestos. They will be carried out primarily by the use of approved high efficiency vacuum units fitted with H.E.P.A. filters. The bagged asbestos waste will then be removed to a secure location for later disposal.
- To supply and fit two levels of 10mm chain as guard rails to areas so as to provide safety barriers and a viewing area.
- To supply and fix 10mm floor plate to those floor penetrations within the viewing area.
- To supply and fit 50mm red and white barrier tape depicting the safe zone for inspection purposes.
- Provision of air monitoring to be carried out during all phases of this work and results of these tests made available as soon as possible.

This Company's estimated cost for this work:

\$75,000.00

(Seventy-five thousand dollars).

Note: We have received quotations for the supply and fitting of chain barricades and floor coverings to penetrations, and these are reflected partially in this cost.

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Option 1

To provide and fit F82 weld mesh to openings to prevent access to the crusher plant building on the southern end of the Mill House. Refer to photographs. Please note: The date on some of these photographs is incorrect due to a faulty battery.

This Company's estimated cost for this work, based on quotation:

\$12,000.00

(Twelve thousand dollars)

8.2 Phase Two: Asbestos Removal In Preparation for Demolition

This phase would entail the complete removal of asbestos materials from the Mill House and adjacent structures, and would include:

- Following Phase One completion, re-establishment of services to the site, including water supply, electrical power and telecommunications.
- Re-establishment of a mobile decontamination unit in a suitable area, depending on conditions after Phase One, to allow access and egress from the Mill House.
- Letting of a period contract either by the Principal Contractor or controlling Department, for air monitoring. Monitoring will be carried out during all phases of the asbestos removal by a N.A.T.A. registered laboratory, in accordance with the requirements of *Worksafe Australia's Code of Practice for Asbestos*.
- Provide training for all personnel involved in the removal of asbestos for those persons not having completed the New South Wales WorkCover Authority approved two day T.A.F.E course for Friable Asbestos Removal. Training and site inductions to be conducted by an approved WorkCover Safety Officer.
- Carry out the removal of all asbestos cement sheeting from the Mill House structure and surrounds, where material has been dislodged, in accordance with procedures documented by the New South Wales WorkCover Authority.
- Carry out the removal of all asbestos material including drummed and packaged material, asbestos embedded on floors, equipment, conveyor tunnels throughout the structures, including the drying building and adjacent areas in a manner and procedure approved by the E.P.A. and complying with the *Code of Practice for Asbestos 1988*.

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- Remove all asbestos material located on the Ring Road to the south of the inlet hopper and encompassing the product stock pile utilising an approved procedure, to be developed.

- Removal all asbestos material located on the ground to the north and west of the main fuel tank using the same procedure as in the previous works.

This Company's estimated cost for this work:

\$485,000.00

(Four hundred and eighty-five thousand dollars)

These costs are based on conventional approved procedures currently adopted in compliance with Acts and Regulations. Variations to these procedures have in the past been approved and adopted for specific projects, so as to reduce the overall costs of bulk asbestos removal. It is recommended that further study be conducted to assess feasibility of these procedures at the Woodsreef Mine.

8.3 Phase Two: Demolition of Structures

Our costing estimates for the demolition of the Mill House building, the adjacent structures being the drying house and storage tanks, and the office building, have been assessed with due consideration given the fact that asbestos contamination will still be present during the entire demolition phase. This will require personal protective equipment to be worn throughout the entire process or on the advice of the Occupational Health and Safety Officer, utilising the results of daily air monitoring indicating safe working procedures.

Allowance has also been made for conventional methods of demolition, being by use of excavators, mobile cranes, bobcats, and boom lifts, as mechanical means of demolition, including manual oxy torch cutting of the steel work. It is this Company's belief that conventional demolition methods are the only operations that will comply with the requirements of the Environmental Protection Authority. Consideration has been given to the use of explosives to demolish the Mill House structure. Although it would be the most cost effective, it would require considerable consultation and agreement from the various Departments to gain approval and further research and consultation should be pursued.

No allowance has been made for the demolition and removal of the ground floor slab in the Mill House.

No allowance has been made for the reconstruction of the road access to the north pit, being the preferable point for disposal of all materials processed from the structures and nominated in the *Dames & Moore Report*.

This Company's estimated costs for the works:

\$750,000.00

(Seven hundred and fifty thousand dollars).

9. CONTRACTUAL RECOMMENDATIONS

The proposed works, as outlined in our brief from the Department of Mineral Resources, are unique. They must consider all aspects of environmental issues, and the health and safety of on-site personnel and the general public, while conducting work in an abandoned and derelict structure that is highly contaminated throughout with pure asbestos fibre.

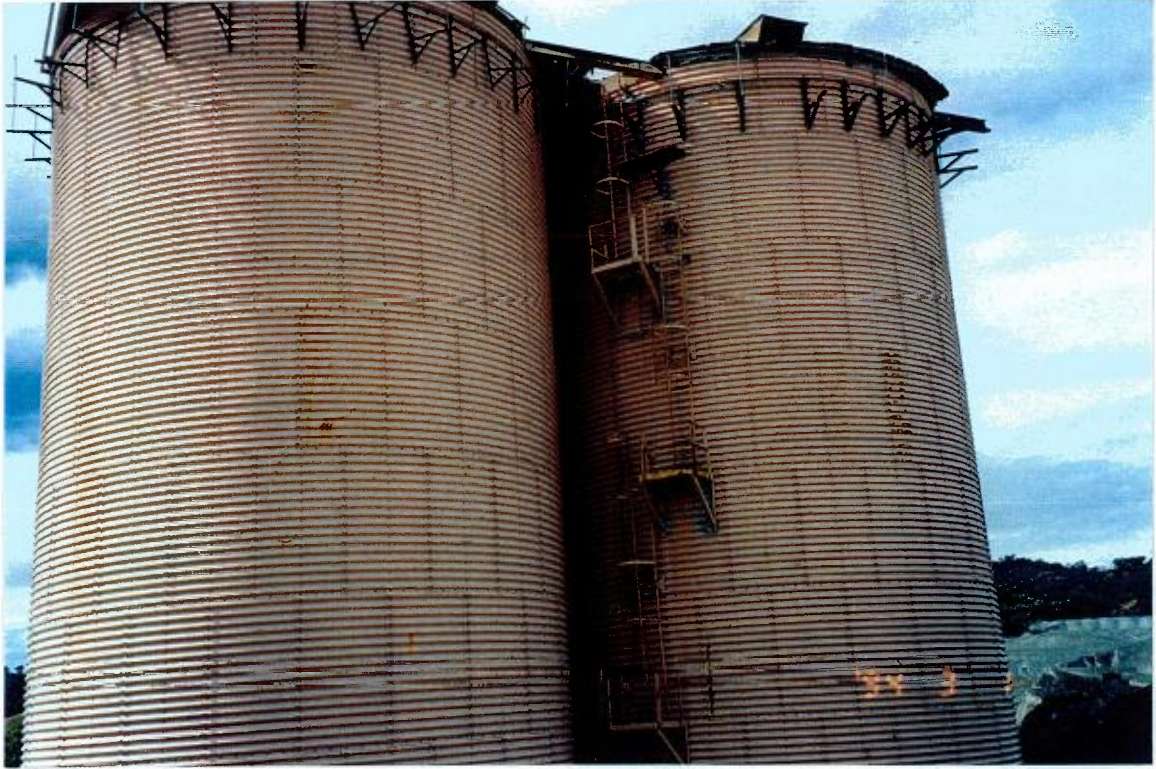
Offering this proposed works for open tender is fraught with danger as it will attract many *self serving!*
contractors who will purport to know all. History has repeatedly shown us instances of past performances where inexperienced companies have been awarded contracts for various reasons, mainly because of price, and who have failed to comply with Standards and Regulations, not only endangering their own personnel but the public at large. This is still allowed to happen today. History has also documented the unnecessary and tragic loss of life, and the suffering in years to come, of workers who have been criminally exposed to asbestos fibre. Unfortunately the latency period for the final effects of asbestos exposure can be up to 40 years, and may not affect Authorities making decisions on this project.

It is imperative that the utmost care be taken in assessing any future contracts which involve the demolition and rehabilitation of the Woodsreef Mine Mill House and associated structures. A selective tendering process should be instigated and strict guidelines placed on any assessment of the potentially successful tenderer. Consideration should be given to the formation of a proven expert committee, capable of assessing the requirements of environmental and safety control at the Mill House site. This Company is more than satisfied with the recommendation of the past assessments made available from the Department of Mineral Resources and the *Dames and Moore Report*, and suggest that any planned future development should encompass their recommendations.

ATTACHMENTS

PHOTOGRAPHS

DEPICTION OF MILL HOUSE CONDITIONS
Woodsreef Asbestos Mine : Barraba



Corrugated steel storage tanks. Conveyors to Mill House have been removed.



Drying House, of three levels, containing filter bags and highly contaminated.

DEPICTION OF MILL HOUSE CONDITIONS
Woodsreef Asbestos Mine : Barraba



View from the west of the remains of the Crushing Plant.



Office building with corrugated storage tanks at back.

DEPICTION OF MILL HOUSE CONDITIONS
Woodsreef Asbestos Mine : Barraba

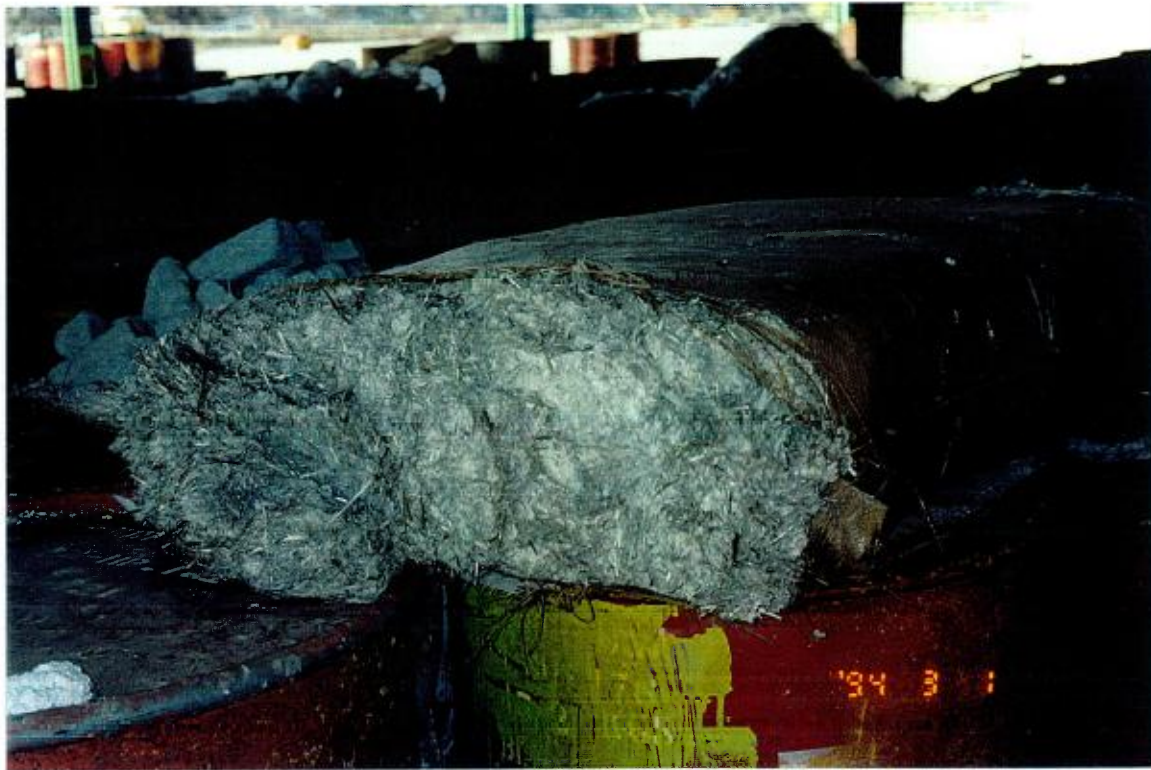


Remains of the conveyor footing on the tailings dump.



Typical scrap metal and debris scattered on asbestos residue.

DEPICTION OF MILL HOUSE CONDITIONS
Woodsreef Asbestos Mine : Barraba



Pure asbestos fibre in dilapidated wrapping.
Sealed drums contain finished product ready for shipment.



Processed asbestos fibre in broken plastic packaging.

DEPICTION OF MILL HOUSE CONDITIONS
Woodsreef Asbestos Mine : Barraba



Processed asbestos fibre ready for shipment.



Typical precipitator filter bags containing pure fibre.

DEPICTION OF MILL HOUSE CONDITIONS
Woodsreef Asbestos Mine : Barraba



Asbestos fibre on the floor around structural columns.



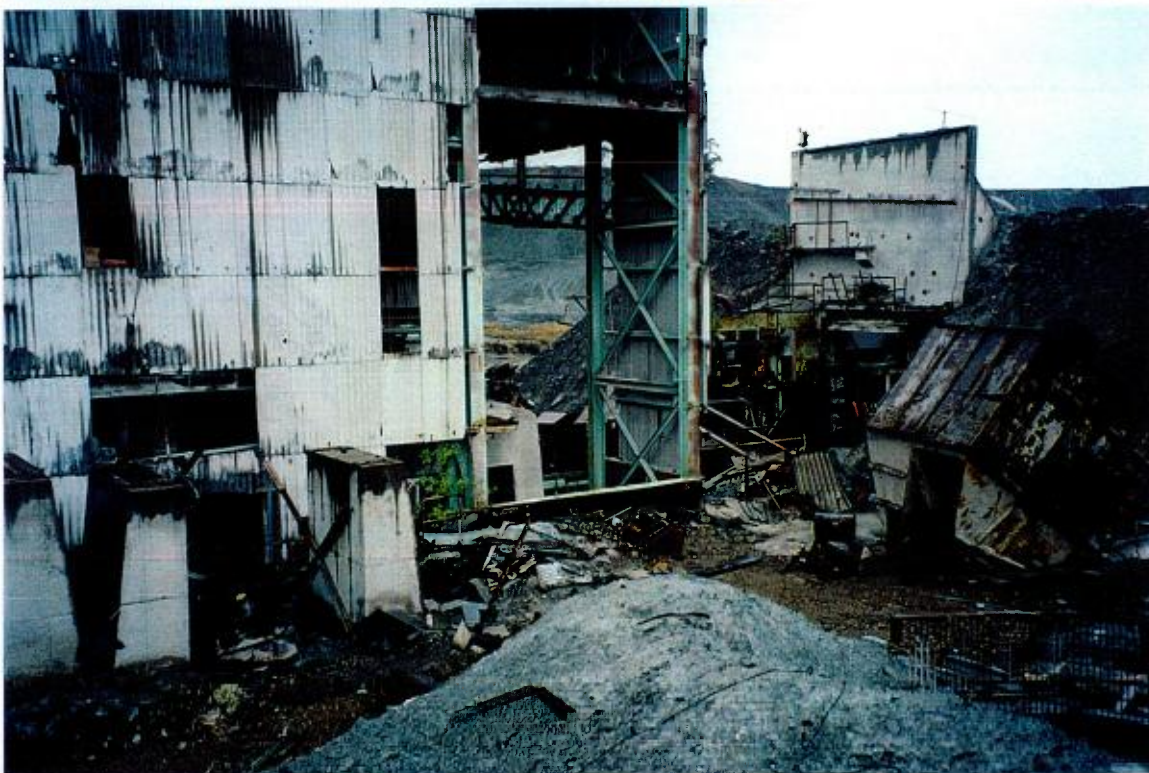
One of three large hoppers on the 7th and 8th floors, containing asbestos material.

DEPICTION OF MILL HOUSE CONDITIONS
Woodsreef Asbestos Mine : Barraba



← Crushing
Plant inlet
hopper, not
protected.

↓ Southern
end of the
Mill House
and
partially
demolished
Crushing
Plant.



DEPICTION OF MILL HOUSE CONDITIONS
Woodsreef Asbestos Mine : Barraba



← Remnants of the Crushing Plant depicting unprotected pit and asbestos fibre.

↓ Southern wall of the Mill House showing broken asbestos cement cladding.

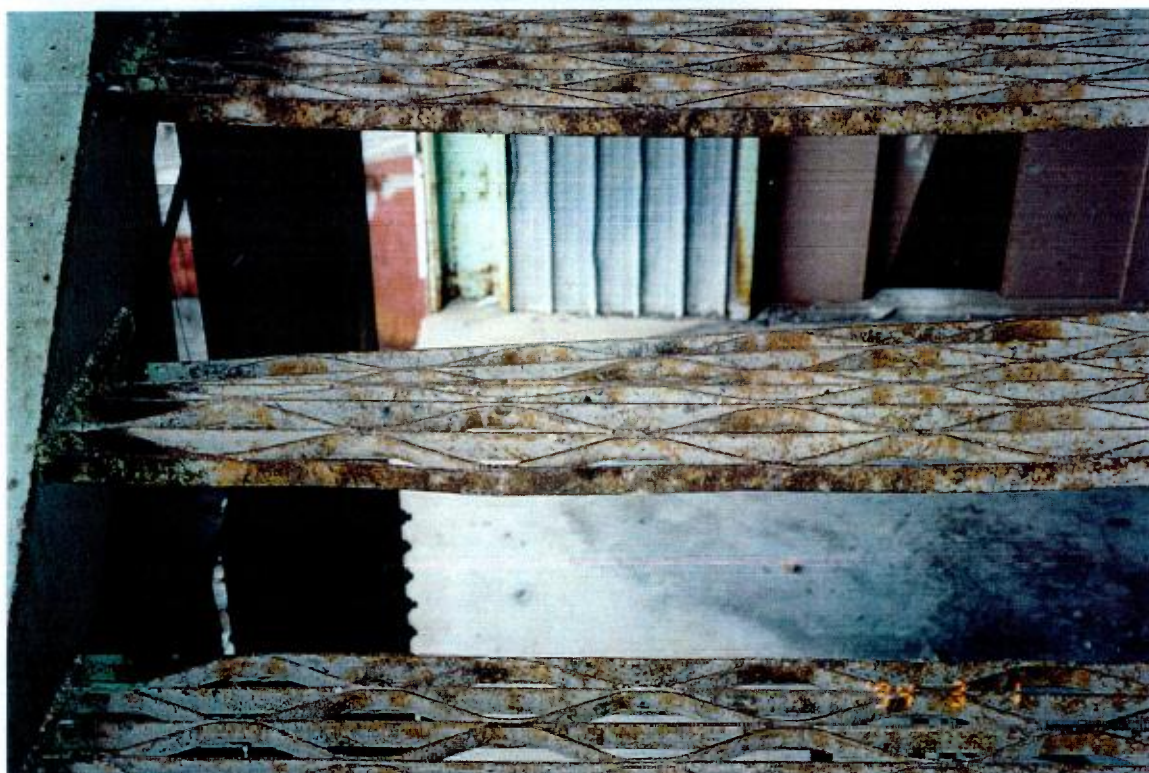


DEPICTION OF MILL HOUSE CONDITIONS
Woodsreef Asbestos Mine : Barraba



← Internal conveyor pit with broken pipe lagging on the wall in the background.

↓ Example of damaged stairs and open lift door on the top right corner.



DEPICTION OF MILL HOUSE CONDITIONS
Woodsreef Asbestos Mine : Barraba



← Solid
asbestos
fibre in
remnants
of supply
pipes.

↓ Typical
floor
penetra-
tions.



INTERIM REPORT

***WOODSREEF ASBESTOS MINE
BARRABA***

***DEPICTION OF SAFETY
ISSUES***

INTERIM REPORT

Prepared for:

The Director, Environment

New South Wales Department of Mineral Resources

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DEPICTION OF SAFETY ISSUES : INTERIM REPORT
Woodsreef Asbestos Mine : Barraba

Initial Findings

Following our preliminary visit to the Mine site by our Asbestos Manager Mr George Smith, our Demolition Manager Mr Mick Merriman, and our Environmental Consultant Mr Craig Carlson, we wish to bring to your attention the unsafe, hazardous and unacceptable state of the Mill House building and adjacent surrounds.

In the opinion of our team, urgent action is required to prohibit all personnel, being official visitors or others from entering the area of the Mill and adjoining structures on the following grounds:

- The ground around the Mill House is contaminated with high levels of friable asbestos fibre which have accumulated from Mill activities.
- Entry into the main holding shed and laboratory is a hazard due to the presence of excessive asbestos fibre on the floor, presence of asbestos in bales in a deteriorated state as well as 44 gallon drums containing asbestos in a dilapidated state. Considerable vandalism has occurred in all areas which are now highly contaminated. One cannot access further into the Mill without major disturbance of fibre, visible as progress is made through the lower levels.
- Our inspection showed on the rear of Level 2 that only one old warning sign was evident throughout the whole Mill area, indicating that a respirator was required in the factory area.
- On all levels, except number 7, the area to the immediate left side of the access stairs have no hand rails in place. The result of this is that any personnel using the access stairs are in an unacceptable risk situation upon reaching the next upper level. A fall from this height would result in a certain fatality occurring.
- The extent of pilfering and vandalism which has occurred indicates the presence of persons within the Mill House, causing danger to themselves and to all others entering after their occupation. Skylarking in a dilapidated structure such as this, will certainly culminate in tragedy.
- Levels 1 and 2 are highly contaminated with fibre over the entire floor area. Evidence suggests that this has occurred through the removal of pipe work and steel ducting systems which contains asbestos residue. This action also resulted in leaving multiple openings in the existing slabs. These penetrations, and on all upper levels, are of sufficient size to allow bodily access to lower levels.
- Entry stairs between Level 2 and Level 3 are in a dangerous state and in danger of imminent failure.
- Level 3 is highly contaminated with distinct evidence of an asbestos fibre spill around the stairwell and broken pipe tubing scattered over the floor area.
- Level 4 is highly contaminated due to pipe tubing that has been pulled down to the slab and asbestos product spread over the floor area.
- Level 5 is covered by excessive asbestos fibre. Of major concern is not only the asbestos fibres present, but a hazard exists where no hand rails are in place on the access stairs (as noted above), floor penetration holes have been cut through most of the slab and an accumulation of machinery equipment and ducting that has been dropped from upper levels is hazardous.

DEPICTION OF SAFETY ISSUES : INTERIM REPORT
Woodsreef Asbestos Mine : Barraba

- Level 6 is highly contaminated with asbestos fibres. No hand rails and unprotected openings would allow persons to fall to the ground from this level. This level contains thousand of core samples, in a stable condition, but are contained in a highly contaminated room.
- Level 7 and Level 8 contain large hopper systems and bins which contain hardened asbestos fibres and the area is highly contaminated with asbestos.
- Level 8 is highly contaminated and contains thousands of asbestos cloth filter bags which still contain substantial friable asbestos fibre product.
- The outside area between the silos and the mill, particularly under the now removed conveyors, contains high concentrations of pure asbestos fibre which can be easily disturbed simply by walking through the area.

Recommended Immediate Action

It can be seen from the initial visit by our team to the site, that conditions existing in and around the Mill House constitutes an unacceptable level of risk and hazard to any persons entering these or adjacent areas.

As a "Duty of Care" and a requirement of the Mines Inspection Amendment Act 1998, Section 44, Division 3, we recommend that immediate steps be taken to improve the safety of the Mill House area in the following manner:

- Take steps to secure the entry into the Mill House and adjacent structures.
- Erect barriers and warning signs to alert any visitor or others of the dangers of accessing the area.
- Erect notices that minimum personal protective equipment should be: respiratory protection to class P3 filter on a half mask; and disposable overalls, must be worn by anyone entering the area. *See Note I.*
- Take measures to erect hand rails and barriers to all levels within the Mill House. *See Note II.*
- Fit and secure plates or grids over floor penetrations with particular attention given to Level 3 through to Level 7.
- Make available on site a suitable decontamination unit conforming to the Worksafe Australia's Code of Practice on Asbestos, before any remedial work takes place.

These actions are required before any attempt can be made to clean up asbestos contamination or for future assessment within the Mill House site.

Note I: Asbestos fibres encountered within the Mill House are basically processed 100% pure chrysotile asbestos in significant quantities. Physical activity within the area will undoubtedly cause a disturbance of the fibre which would exceed the occupational exposure standard for chrysotile of 0.5f/ml. Provision should be made for the collection of any used disposable personal protective equipment as required by the Code of Practice for Asbestos.

Note II: Basically no hand rails exist on the stairways to the levels, and floor penetrations are extensive over the floor areas. Consideration must be given to the erection of hand rails fitted to the stairs and protruding into the floor area at sufficient width and depth to allow for future visitation and inspections for tender purposes. This would provide a safe observation area at each level with all other areas being declared off limits, by use of strategically placed warning signs.