
ASBESTOS INVESTIGATION REPORT

Cwmcarn High School



Prepared by:

Gareth Vaughan CCP (Asbestos), TechIOSH



October 2012

Asbestos Investigation Report
Cwmcarn High School, Cwmcarn, NP11 7NG

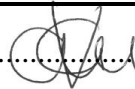
Report type Asbestos Management Investigation Report

Report issue: For Final Comment

Issuing office: Nantgarw

Report Reference: 1630124

Originator:



Mr. Gareth Vaughan Operations Manager
CCP (Asbestos),
TechIOSH

26th October 2012

Checked & approved:



Mr. John Evans Technical Director
BSc., CMIOSH,
FRSPH, MIOA,
PGCE

26th October 2012

This report is not to be used for contractual or engineering purposes unless the front cover sheet is signed where indicated by both the originator of the report and the approver and the report is designated 'Final' on the cover sheet.

We confirm that the content of this report is a true and honest account of the information as presented to us and arising from our investigations.

Index

1) Definitions	–	Page 4
2) Executive Summary	–	Page 5
3) Asbestos Related Health Effects	–	Page 7
4) Introduction	–	Page 9
5) Investigation Activities & Procedures	–	Page 10
6) Investigation Results & Evaluation	–	Page 13
7) Data Quality & Verification	–	Page 14
8) Conclusions	–	Page 14
9) Recommendations	–	Page 15
10) References	–	Page 16

Appendices

Appendix A – Existing Plans	–	1 cover sheet & 6 pages
Appendix B – Existing Survey Data	–	1 cover sheet & 327 pages
Appendix C – Santia R&D Survey Data	–	1 cover sheet & 140 pages
Appendix D – CCBC Swab Results	–	1 cover sheet & 16 pages
Appendix E – Santia Air Test Results (1)	–	1 cover sheet & 5 pages
Appendix F – Santia Bulk/Swab Results	–	1 cover sheet & 1 pages
Appendix G – Santia Air Test Results (2)	–	1 cover sheet & 7 pages
APPENDIX H – Response to Comments	–	
APPENDIX I – Asbestos in Schools	–	1 cover sheet & 84 pages

Definitions

'Asbestos' means any of the minerals, and substances including the minerals, crocidolite, amosite, chrysotile, fibrous actinolite, fibrous anthophyllite and fibrous tremolite.

'Asbestos containing material' means any material, substance or product which is made with or contains asbestos.

'Abatement' means any and all procedures physically taken to control fibre release from asbestos containing material.

'Encapsulation' means treatment of asbestos containing material with another material that surrounds or embeds asbestos fibres in an adhesive matrix to prevent the release of fibres, as the encapsulant creates a membrane over the surface, penetrates the asbestos containing material and binds its components together.

'Enclosure' means the construction of an airtight, impermeable barrier around asbestos containing material to control the release of asbestos fibres into the adjacent environment.

'Non-friable asbestos containing material' means any asbestos containing material which when dry cannot be crumbled, pulverised or reduced to powder by hand pressure (for practical reasons, non-bonded, asbestos containing textile fabrics should be considered as friable).

'Removal' means the stripping of any asbestos containing material from surfaces or components in a building.

'Sampling/Sample' means any asbestos bulk or swab taken.

'Air test' means any test where a quantifiable volume of air has been drawn through a nitrate-cellulose membrane, and analysed to provide a fibre concentration.

'MMM' means man-made mineral fibre

'AIB' means Asbestos Insulating Board

'PLM' Polarised Light Microscopy

'PCM' Phase Contrast Microscopy

'UKAS' United Kingdom Accreditation Service

'PLM' Polarised Light Microscopy

'PCM' Phased Contrast Microscopy

'CAR 2012' The Control of Asbestos Regulations 2012

'HASAWA 1974' Health & Safety at Work Act 1974

'MHSWR 1999' Management of Health & Safety at Work Regulations 1999

'R&D Survey' Refurbishment & Demolition Survey

Executive Summary

At the request of Caerphilly County Borough Council, Santia Asbestos Management Limited was commissioned to prepare this Asbestos Investigation Report of Cwmcarn High School, Cwmcarn, Gwent, NP11 7NG following concerns raised over asbestos issues throughout the school and the possible release of asbestos fibres to occupied parts of the premises.

Caerphilly County Borough Council hold the corporate Duty Holder responsibilities for the safe management of asbestos containing materials within the buildings owned managed and maintained by the Authority. However at a premises level the school Head Teacher and the Governing Body hold the Duty Holder responsibilities under the provisions of regulation 4 of the Control of Asbestos Regulations 2012 on a day to day basis to ensure that the asbestos containing materials included within the buildings are safely managed and not disturbed or damaged by normal occupancy activities or by maintenance activities undertaken within the building.

The school currently caters for children from the age of 11 and has also a sixth form capability up to the age of 18, accommodating 900+ students per annum.

The purpose of this investigation was to assess the potential risks posed to staff, pupils and visitors posed by asbestos building material used within the premises, identify the level of contamination, confirm any sampling or air test results and determine a course of action.

A significant number of ACM's were identified from the existing management survey (Appendix A & B) conducted in 2009, held on Caerphilly County Borough Council's online database 'RAMIS', and through visual identification whilst undertaking this investigation.

There is evidence of widespread contamination within the ceiling voids at Cwmcarn High School which has been recorded within the existing, subsequent R&D surveys and additional investigations undertaken by Caerphilly County Borough Council and Santia Asbestos Management Limited. There is also evidence of continued damage to AIB boards within the classrooms of Building A, caused by chairs and tables as pupils vacate them, resulting in scuffs, scrapes and impact damage.

Based on the information contained within the surveys, bulk/swab and air samples results available it is clear based on the positive bulk/swab results that there is a serious risk of exposure to asbestos fibres. The swab samples were taken from areas below the contaminated ceiling voids; this presence of asbestos fibres in occupied areas suggests a number of plausible routes:

- a) There is free flowing air from the ceiling void to occupied areas

- b) Ceiling tiles are being disturbed through disturbance caused by gusts of wind as windows/doors are opened
- c) Changing of ceiling lights conducted by the maintenance team are disturbing asbestos fibres within the AIB ceiling tiles/contaminated ceiling voids as cables are pulled through the holes to aid the maintenance task
- d) The heaters are possibly blowing asbestos fibres into occupied areas as a result of the identified contamination within the heater cupboards and the lack of a break between the heater cupboards and the contaminated ceiling void in some areas of Building A. Testing has confirmed that there is free asbestos fibre within the heater cabinets. It is also the fact that unsealed asbestos insulating board, which contains amphibole amosite asbestos fibres is present in other heaters and that in one heater cabinet examined there is damaged asbestos insulating board and in another asbestos insulating board debris to the floor of the heater cabinet. Both of these occurrences will only add to the possibility of free amosite asbestos fibres being released into the general environment of the classrooms where the heater cabinets are located. Air tests undertaken with the heaters in use for a short period in the order of four hours in an empty school resulted in the detection of airborne fibre levels of up to 0.007 fibres per cm³ (7000 fibres per m³) which is more than ten times above the previously accepted background level for schools of 0.0005 fibres per cm³ (500 fibres per m³) as quoted in the report of the Asbestos in Schools Group published in October 2011 and as also referred to in the Department of the Environment, Transport and the Regions document published in 1999, "Asbestos and man-made mineral fibres in buildings – Practical Guidance". In situations where the heaters are left on for longer periods during the cold winter month and with the school occupied by up to 900 pupils and 100 staff it is possible that the airborne fibre levels and the associated risk will increase.
- e) The asbestos fibres within occupied areas are a result of continual damage to AIB window panels as a results of impact damage from chairs and tables

Abstract from 'Asbestos in Schools' (Appendix I – Page 4: Para 2)

'Schools which contain chrysotile, amosite and crocidolite pose a risk to health. All types of asbestos can cause cancer but the "amphiboles," amosite and crocidolite, are more dangerous. Amosite is estimated to be up to 100 times more likely to cause mesothelioma than chrysotile and crocidolite up to 500 times more likely to. There is no known threshold exposure to asbestos below which there is no risk, and all exposures, however small, are cumulative.'

The risk posed by the asbestos fibres identified during the surveys/swab sampling pose a significant risk to the occupants of Cwmcarn High School. Taking in to account the widespread ceiling contamination and the subsequent remaining ACM within Cwmcarn High School, it is foreseeable that further exposure is highly likely based on recent findings. The overall risk has the potential to breach the following Regulations:

Asbestos Investigation Report
Cwmcarn High School, Cwmcarn, NP11 7NG

Health & Safety at Work Act 1974

- 1) Section 2.2 – General Duties of Employers to their Employees
- 2) Section 3.1 – General Duties of Employers and Self-Employed to Persons other than their employees

Management of Health & Safety at Work Regulations 1999

- 1) Regulation 3.1 – Risk Assessment

Control of Asbestos Regulations 2012

- 1) Regulation 4 – Duty to Manage
- 2) Regulation 10 – Information, Instruction and Training
- 3) Regulation 11 – Prevention or Reduction of Exposure to Asbestos
- 4) Regulation 16 – Duty to Prevent or Reduce the Spread of Asbestos

Taking into account the information presented and collated during this investigation, UK legislation, the age/condition of Cwmcarn High School coupled with the amount of contamination and ACM's throughout the buildings, we are of the opinion that it is not feasible to continue operating the school in the current condition based on the risks imposed on occupants.

Based on the potential costs to remediate, abate the asbestos and the subsequent re-instatement, coupled with fire, legionella and electrical safety inspections/upgrades it is not practical based on **cost versus risk** to continue the schools operation and Caerphilly County Borough Council should consider the removal of all ACM's so far as reasonably practicable followed by the subsequent demolition of Cwmcarn High School.

Asbestos Related Health Effects

Asbestos exposure in humans may cause both cancer and non-cancer effects. Among them are:

Non-Cancer Effects:

Asbestosis – is a chronic pneumoconiosis associated with inhalation exposure to asbestos. It is characterised by the gradual formation of scar tissue in the lung parenchyma. Initially the scarring may be minor and localised within the basal areas, but as the disease develops, the lungs may develop extensive diffuse alveolar and interstitial fibrosis.

Build-up of scar tissue in the lung parenchyma results in a loss of normal elasticity in the lung which can lead to the progressive loss of lung function. The initial symptoms of asbestosis are shortness of breath, particularly during exertion. People with fully developed asbestosis tend to have increased difficulty breathing that is often accompanied by coughing or rales (crackles). In severe cases, impaired respiratory function can lead to death. Asbestosis generally takes a long time to develop, with a latency period from 10 to 20 years.

Asbestos Investigation Report
Cwmcarn High School, Cwmcarn, NP11 7NG

Pleural Abnormalities – Exposure to asbestos may induce several types of abnormality in the pleura (the membrane surrounding the lungs).

- Pleural effusions are areas where excess fluid accumulates in the pleural space. Most pleural effusions last several months, although they may be recurrent.
- Pleural plaques are a-cellular collagenous deposits, often with calcification. Pleural plaques are the most common manifestations of asbestos exposure.
- Diffuse pleural thickening is a non-circumscribed fibrous thickening of the visceral pleura with areas of adherence to the parietal pleura. Diffuse thickening may be extensive and cover a whole lobe or even an entire lung. Infolding of thickened visceral pleura may result in collapse of the intervening lung parenchyma (rounded atelectasis).

Cancer Effects:

Lung Cancer – Exposure to asbestos is associated with increased risk of developing all major histological types of lung carcinoma (adenocarcinoma, squamous cell carcinoma, and oat-cell carcinoma). The latency period for lung cancer generally ranges from about 10 to 40 years. Early stages are generally asymptomatic, but as the disease develops, patients may experience coughing, shortness of breath, fatigue and chest pain. Most lung cancer cases result in death. The risk of developing lung cancer from asbestos exposure is substantially higher in smokers than in non-smokers

Mesothelioma – Mesothelioma is a tumour of the thin membrane that covers and protects the internal organs of the body including the lungs and chest cavity (pleura), and the abdominal cavity (peritoneum).

Exposure to asbestos is associated with increased risk of developing mesothelioma. The latency period for mesothelioma is typically around 20–40 years. By the time symptoms appear, the disease is most often rapidly fatal.

People who visit or work/study at Cwmcarn High School may be exposed to asbestos by incidental ingestion of contaminated surface dust and by inhalation of air that contains asbestos fibres. Of these two pathways, inhalation exposure is considered to be of greater concern. The amount of asbestos fibres released to air will vary depending upon the level of asbestos in the source material (e.g. Asbestos Insulating Board) and the intensity and duration of the disturbance activity. Because of this, predicting asbestos levels in air associated with disturbance activities based only on measured asbestos levels in source material is extremely difficult. Therefore, the most direct way to determine potential exposures from inhalation is to measure, through sampling and analysis, the concentration of asbestos in air during a specific activity that disturbs a source material albeit that in order to comply with the provisions of regulation 11 of the Control of Asbestos Regulations 2012 and the advice contained with the associated Approved Code of Practice asbestos containing materials should not be disturbed unless it is absolutely necessary to do so.

1.0 INTRODUCTION

1.1

This asbestos investigation report presents the survey, analysis data, and air test results for the potential release of asbestos fibres from ACM identified within the ceilings, walls and heating system at Cwmcarn High School.

Background

1.2 There is a clear 'Policy of Managing Asbestos' for schools as outlined below, taken from 'Asbestos in Schools':

1.3 Cwmcarn High School is situated within a small housing estate and provides an educational establishment to 900+ students ranging from age 11 to 18.

1.4 The school serves an area of established housing within a former mining village, but it also draws from pupils further afield such as from the nearby city of Newport.#

Approximately 90% of the pupils come from local primary schools. The remainder come from schools beyond the immediate neighbourhood. Almost all of the pupils come from semi-rural areas similar to the village that serves the school.

1.5 There are three buildings on the site each with a different type of construction, though all three were built within the period of asbestos use prior to the year 2002.

1.6 Cwmcarn High School (Building A) is constructed from reinforced steel joists and concrete floors with AIB internal wall panels. The other buildings are of a more modern architectural type though all three contain ACM in various forms/products.

1.7 ACM was widely used due to the product being readily available and cheap at the time of construction, and for its thermal and fire retardant properties.

1.8 Caerphilly County Borough Council hold the corporate Duty Holder responsibilities for the safe management of asbestos containing materials within the buildings owned managed and maintained by the Authority. However at a premises level the school Head Teacher and the Governing Body hold the Duty Holder responsibilities under the provisions of regulation 4 of the Control of Asbestos Regulations 2012 on a day to day basis to ensure that the asbestos containing materials included within the buildings are safely managed and not disturbed or damaged by normal occupancy activities or by maintenance activities undertaken within the building.

Asbestos Investigation Report
Cwmcarn High School, Cwmcarn, NP11 7NG

1.9 The asbestos within Cwmcarn High School has however not been managed effectively based on historic information available and current findings, and this may be a direct/indirect result of procedures and evidence of asbestos debris following removals as contained within the asbestos survey report.

1.10 There are a number of issues which have not been addressed resulting in damaged/unsealed AIB being visible, contamination below the ceiling voids and contamination within the classroom heaters.

1.11 There is also conclusive evidence of previous removals and it is clear that the 'clearance standard' has not been met as specified within 'The Control of Asbestos Regulations 2012', 'The Control of Asbestos Regulations 2006' and the superseded 'The Control of Asbestos at Work Regulations 2002'.

1.12 Objectives developed at the beginning of the investigation focused on concerns associated with:

Objective 1: Determine if health and safety is being/has been compromised by an exposure to asbestos contained in fugitive dust as measured by air sampling or in building dust present in the work/study area.

Objective 2: Determine the amount of asbestos and asbestos contamination to establish the costs associated with the subsequent removal/remediation and environmental clean throughout the premises.

Objective 3: Provide a recommendation based on the remaining ACM's and asbestos contamination to prevent/reduce the further exposure to asbestos fibres.

2.0 INVESTIGATION ACTIVITIES AND PROCEDURES

2.1 A Type II – MDHS100 survey has previously been undertaken at Cwmcarn High School in the period from 2009 to 2011 when a survey report for the school was delivered to the Authority. However it is understood that the final report following the completion of all quality checks was not delivered until 2012. A copy of this report, as produced by Enquin Environmental Limited has been loaded on to the Caerphilly County Borough Council's asbestos web-based database 'RAMIS'. The findings of this survey report are detailed within Appendix A to this document.

2.2 The survey undertaken was carried out in line with the guidance and legislation at that time i.e. 'Control of Asbestos Regulations 2006' and 'MDHS 100'. The disclaimers, caveats are synonymous with reports carried out within that period by many companies operating within the asbestos surveying industry. Following the initial handover of survey information by Enquin Environmental Limited in 2011, Caerphilly County Borough Council put in place a 'Prohibit access' arrangement to ceiling voids as a result of the asbestos contamination identified in the report.

Asbestos Investigation Report
Cwmcarn High School, Cwmcarn, NP11 7NG

2.3 A further three 'Refurbishment' surveys have been carried out by Santia Asbestos Management Limited within the months of May to July 2012 in line with current guidance HSG 264 – Asbestos: The Survey Guide, the Control of Asbestos Regulations 2012 and the Santia Asbestos Management Limited internal procedures (APGN 2).

2.4 These surveys undertaken were part of planned works within the school, and they have identified significant amounts of ACM and ACM debris in various locations throughout the schools premises confirming previous findings associated with the HSG 264 Management Survey.

2.5 Further sampling strategies/investigations have taken place at Cwmcarn High School by Caerphilly County Borough Council and Santia Asbestos Management Limited in an aim to identify any potential asbestos fibre releases and the level/extent.

2.6 During September 2012 Caerphilly County Borough Council officers undertook a swab sampling investigation to certain areas of Building A. The samples were analysed at Santia Asbestos Management Limited's UKAS accredited laboratory. Fifty samples were submitted, out of those fifty, nine samples tested positive for Amosite asbestos. The results of the sample analysis can be found in Appendix D & F.

2.7 Investigations undertaken by Santia Asbestos Management Limited

As a direct result of the findings of Caerphilly County Borough Council's investigation, Santia Asbestos Management Limited were commissioned to undertake a further investigation to the forced air heaters located in Building A – first floor. This investigation involved the undertaking of swab sampling surfaces inside the heater cabinets; bulk samples were also taken of any material within the heater cabinets that could in the surveyor's opinion contain asbestos.

When analysed, the swab/bulk samples proved that there is damaged AIB panel/debris within two separate heater cabinets within rooms 175 and 211. Of the eight heater cabinets two of the heater cabinets side walls are made of AIB, one sealed – room 209 and one unsealed – room 201. Further swab samples also returned positive results for the presence of Amosite from surfaces within the heater cabinets, as a result of fibre migration through disturbance. In all, eleven swab and six bulk samples were taken from within the eight forced heater cabinets located on the first floor of Building A

2.8 Air Samples

At the request of Caerphilly County Borough Council, air sampling has been undertaken at Cwmcarn High School on various occasions with the premise of providing reassurance to Caerphilly County Borough Council and subsequently Cwmcarn High School that asbestos fibre levels were not above the clearance indicator of $0.01\text{f}/\text{cm}^3$ as detailed in HSG248: "Asbestos – The Analysts Guide for Sampling, Analysis and Clearance Procedures" and The Control of Asbestos Regulations 2012. It should be noted that the 'Clearance Indicator' is a guidance figure and not a safe long term exposure level. When

undertaking 'Reassurance' air testing, the 'Clearance Indicator' applies to areas which have had asbestos removed within a controlled environment. We have to therefore look at what the transient/ambient fibres levels should be for a classroom as detailed in 'Appendix I, "Asbestos in Schools" which quotes a target level of 0.0005f/cm³. The air test results undertaken by Santia Asbestos Management Limited show that the actual fibre concentrations presented within the ground of first floor of Building A are 0.007, 0.008, 0.005, 0.003, 0.006, 0.004 fibres per cm³ which is in some case over ten times the level quoted in the above document. It should be noted that these airborne fibre levels were measured in an almost empty building. In an occupied school, with 900 plus pupils and approximately 100 members of staff moving about, particularly at lesson change times, it is probable that due to air movement and general vibration in the building airborne fibre levels could be higher thus increasing the risk of exposure.

Following the reassurance air test results, Caerphilly County Borough Council Operatives undertook an environmental clean to areas 043, 044, 045, 046, 047, 048 and 049. During the environmental clean the Operatives wore personal monitors. The results showed personal exposures of 0.03, 0.06 and 0.07 which was below the 0.1f/ml Control Limit but showed an elevated level in fibres during this operation. It should be noted that the environmental clean work involved the use of controlled methods utilising

Class H vacuum cleaners with HEPA filtration and wet wiping techniques. Had traditional cleaning techniques been used for these high level areas then it is probable that the resultant airborne levels would have been higher.

2.9 Quality Control

Santia Asbestos Management Limited is accredited by the United Kingdom Accreditation Service (UKAS) for:

- Asbestos Fibres in Air (PCM)
- Asbestos in Bulk Materials (PLM)

All analysis undertaken on behalf of Caerphilly County Borough Council was done so in line with Santia Asbestos Management Limited internal procedures, conforming to ISO17020 and ISO17025.

2.10 Blanks

Field blanks are generated when filters are taken from satisfactory batches to the sampling area and subjected to the same treatment as filters used for sampling, (the cap is removed and replaced after a few seconds). The filters in capped, cowed heads are taken to the sampling area without having air drawn through them and without them being attached to the worker (the cap is removed and replaced after a few seconds). A field blank is to be mounted for each shift on site but only needs to be counted if any of the fibre counts for that shift exceed the clearance limit of 0.010f/cm³.

2.11 Equipment Decontamination Procedures

During sampling activities, appropriate decontamination measures were used to minimise cross-contamination. All tools used for sampling were decontaminated prior to each sample being taken.

2.12 Certificate Book

A record is kept by each analyst to record the location and type of air samples taken. All bulk/swab samples are recorded in real time on Santia Asbestos Management Limited's online software.

2.13 Sample Packaging and Transportation

Samples are transported in a double bag method to ensure that the samples do not pose a risk to anyone they may come in contact with. These samples are then opened in a laboratory dust cabinet in a controlled environment.

2.14 Appendix E & G shows the locations of all air sampling points taken at Cwmcarn High School.

3.0 INVESTIGATION RESULTS AND EVALUATION

3.1 It is reiterated that the results from the bulk/swab samples, are presented in this section and in Appendix D & F.

3.2 Air samples collected during this investigation are part of an independent evaluation of the health risks at Cwmcarn High School conducted by the Santia Asbestos Management Limited. The results and evaluation of those results are presented in Appendix E & G.

3.3 The bulk/swab samples taken clearly identify the presence of asbestos fibres below the contaminated ceiling voids.

3.4 These results show that there is a risk that:

- a) residual fibres on surfaces following previous removals
- b) a disturbance of the ceiling void contamination has occurred
- c) further disturbance of ACM's has occurred

3.5 Results for air samples are provided in Appendix E & G.

4.0 DATA QUALITY SUMMARY

Santia Asbestos Management Limited as part of their UKAS accreditation partake in RICE and AIMS to ensure that all analysts meet the criteria for undertaking analysis of samples through PLM and PCM. All analysts/consultants who have carried out works on Cwmcarn High School participate in the aforementioned schemes.

5.0 CONCLUSIONS

5.1 Based on the present and historic information, including the most recent surveys and sampling investigations, there is evidence that Cwmcarn High School poses a potential serious risk to health as a result of the building remaining ACM's and heater/ceiling void contamination.

5.2 Bulk/Swab sampling data collected by Caerphilly County Borough Council/Santia Asbestos Management Limited and analysed by Santia Asbestos Management Limited, shows that asbestos fibres have been released to the work/study environment, resulting in settled dust/fibres on:

- 1) work surfaces,
- 2) window ledges and
- 3) various horizontal surfaces

5.3 However, even with this information available it is not possible to quantify the amount of asbestos fibres released and over what period of time, and it should be noted that the fibres present a risk. As soon as this information became known on the 26th September 2012 the rooms affected was closed off in order to prevent any future possible exposures to asbestos fibre and to comply with the requirements of regulation 3 of the Management of Health and Safety at Work Regulations 1999, Sections 2 and 3 of the Health and Safety at Work etc. Act 1974 and generally with the provisions of the requirements of the Control of Asbestos Regulations 2012 and specifically regulation 11.

5.4 The level of asbestos fibres present in the air would have been considerably far more concentrated following the removal of the AIB ceiling tiles (based on published data) and the resulting debris/contamination in the ceiling voids than is currently present. This concentration will have continued to reduce over time due to the fibres settling on surfaces, being subsequently disturbed as the surfaces have been repeatedly cleaned by the cleaners/caretakers walked on by occupants.

5.5 The AIB window panels within the classrooms also have visible damage to them; this damage is caused by pupils scraping their chairs/tables against the AIB. There is also evidence of damage to the AIB through the stapling/pinning of posters/pupils work etc. to the panels which should have been prohibited as this can lead to elevated levels and subsequent exposure. This type of exposure should have been prevented by the application of a protective cover over the AIB.

Asbestos Investigation Report
Cwmcarn High School, Cwmcarn, NP11 7NG

5.6 Analysis of air sampling data does not indicate the presence of asbestos contamination above the regulatory control limit of 0.1f/ml as detailed in Regulation 3 'The Control of Asbestos Regulations 2012', however Regulation 11 states that the fibre concentration level should be as low as reasonably practicable; in this case more could have been done to comply with this regulation. (Page 32 – Asbestos in Schools)

6.0 RECOMMENDATIONS

It is of paramount importance that Caerphilly County Borough Council and Cwmcarn High School collate all present and historic information available surrounding the removal and management of ACM's at the school.

Additional investigations need to be carried out without delay to establish:

- 1) The full extent of materials present within the Cwmcarn High School Buildings.
- 2) The condition of the identified ACMs and importantly the degree of damage throughout all buildings and rooms.
- 3) The extent and spread of asbestos fibre contamination within the buildings initial evidence of which is already available from existing survey contamination investigations already carried out.
- 4) The extent of air borne asbestos fibre contamination within the buildings albeit that the levels which could occur in a fully occupied school will not be able to be measured as the risks of recreating these conditions are unacceptable and would be directly contrary to the requirements of the Control of Asbestos Regulations 2012.
- 5) The full history of asbestos removal work undertaken at the school to include the tracing of all the contractual, air monitoring, clearance inspection and monitoring and hazardous waste removal documentation.
- 6) The full potential for staff, pupils, and visitors using the buildings for being exposed to elevated levels of airborne fibre levels, including to the amphibole Amosite (brown) asbestos fibres which have been identified within the buildings.
- 7) The full extent and cost of the works which will be required to restore safe conditions within the school buildings and the alternative actions which will need to be considered should the cost of the required remediation be prohibitively expensive

As a consequence of the investigations carried out for the preparation of this report it is advised that Caerphilly County Borough Council consider immediate prohibition of access to the school, as a consequence of the risk of exposure to asbestos fibres, until the above recommendations are acted upon and the findings of the more comprehensive investigations are fully considered and assessed.

Asbestos Investigation Report
Cwmcarn High School, Cwmcarn, NP11 7NG

7.0 REFERENCES

Health & Safety at Work Act 1974

The Management of Health & Safety at Work Regulations 1999

The Control of Asbestos Regulations 2012

HSG264 – Asbestos: The Survey Guide (HSE published 2012)

HSG248 – Asbestos: The Analysts Guide for Sampling, Analysis and Clearance Procedures

World Health Organisation Elimination of Asbestos related disease 2006

HSE Occupational, domestic and environmental mesothelioma risks in Britain 2009

Fibrous Materials in the Environment Institute for Environment and Health – P72 and P75 1997