PCU042224

Cobbora Coal Project
Preferred Project Report
Application No. 10-0001.

An objection to the preferred project report.

Issues. The mines response to submission on Air Quality & Meteorology Data. These issues have not been adequately addressed in the PPR.

(1) In the EIS.Cobbora Coal rejected data from BOM. Station at Dunedoo P.O and BOM station at Gulgong P.O. as the measurements were only taken twice daily.
Measurements on wind direction from both Mudgee and Dubbo were considered to give an adequate picture of wind conditions and air quality on a mine site many kilometers distant.
A more favorable picture on the mines impact on air quality and dust burden were thus available for the towns of Dunedoo and Gulgong.

On re examining this issue in the PPR. Cobbora Coal now includes data from both BOM. Stations at Dunedoo PO. and Gulgong.PO.They now concede wind measurements show wind patterns from West & Southwest together with Northwest winds from Dunedoo which will play a considerable part on air quality issues and dust burdens for the two nearest towns i.e.Gulgong & Dunedoo.
They now consider these wind patterns show "good correlation" to their own Met. Station on the mine site. This is complete reversal of their original position.

Department of Planning
Received
6 MAR 2013
Scanning Room

How can their data give a respected picture of wind patterns, dust burdens and air quality issues on the two towns closest to the mine namely Gulgong & Dunedoo?

Much more work is required on air quality issues and fine particle emissions and its effect on communities' .Cobbora Coal believes that dust burdens and fine particle emissions will not affect these towns.Their research is designed to give a favorable image of mining.

2. Uncovered coal wagons passing through the town of Gulgong.
Cobbora Coal believes there will be "no significant 'impact on towns along the rail corridor. They then concede that ARTC. and Railcorp may use dust monitors. Again saying one thing and meaning something else.

Meteorology data collection and dust monitoring is required in the town areas of both Gulgong and Dunedoo, independent of the mines sampling. This would give an unbiased picture of this mines effect on the local communities.

I have never donated to any political party. I am objecting to these matters out of genuine concern for the future health of local people.

W Moyle.
Wendy Moyle

Wendy Moyle
"Glengarry" Puggoon Rd.
Gulgong 2852
Email moylewendy@gmail.com
Phone 0263741404

(ENC)

Additional Information.

1
Wind Rose Data Wind direction versus Wind speed March 1970-30 Sept.2010

9.am Total observations.Gulgong.

2

3.pm Total observations Gulgong PO.

3

Wind Rose Data Wind direction versus wind speed Jan 1965-Sept 2010

3.pm Total observations Dunedoo PO.

4

3pm Total observations July Dunedoo PO

5 Extract from...

Contributions of Fuel Combustion to Pollution by Airborne Particles in Urban and Non-Urban Environments. An ERDC Study Final Report.
Australian Nuclear Science and Technology Organization
NSW Environment Protection Authority
Pacific Power Corp, University NSW. , Macquarie University , June 1995

Rose of Wind direction versus Wind speed in km/h (01 Mar 1970 to 30 Sep 2010)

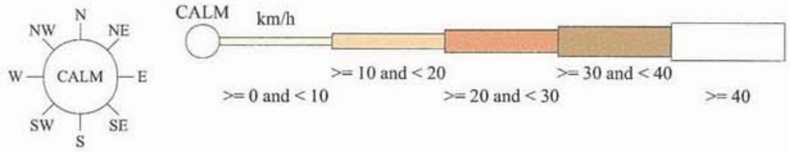
Custom times selected, refer to attached note for details

GULGONG POST OFFICE

Site No: 062013 • Opened Jan 1881 • Still Open • Latitude: -32.3634° • Longitude: 149.5329° • Elevation 475m

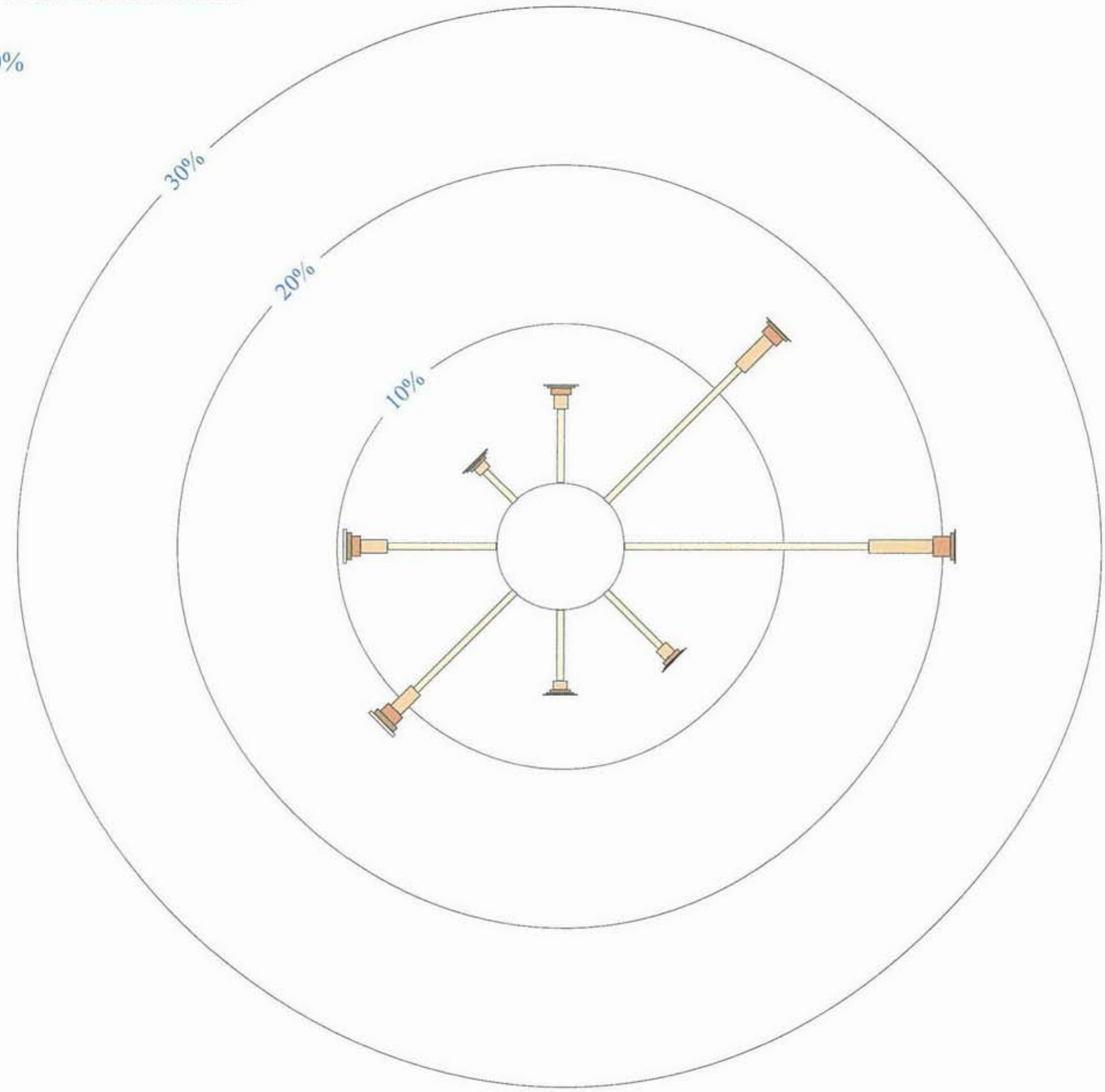
An asterisk (*) indicates that calm is less than 0.5%.
Other important info about this analysis is available in the accompanying notes.

(1)



9 am
12806 Total Observations

Calm 20%



Australian Government
Bureau of Meteorology

Copyright © Commonwealth of Australia 2012 . Prepared on 29 Mar 2012
Prepared by National Climate Centre of the Bureau of Meteorology.
Contact us by phone on (03) 9669 4082, by fax on (03) 9669 4515, or by email on climatedata@bom.gov.au
We have taken all due care but cannot provide any warranty nor accept any liability for this information.

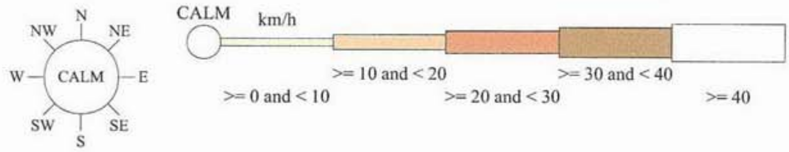
Rose of Wind direction versus Wind speed in km/h (01 Mar 1970 to 30 Sep 2010)

Custom times selected, refer to attached note for details

GULGONG POST OFFICE

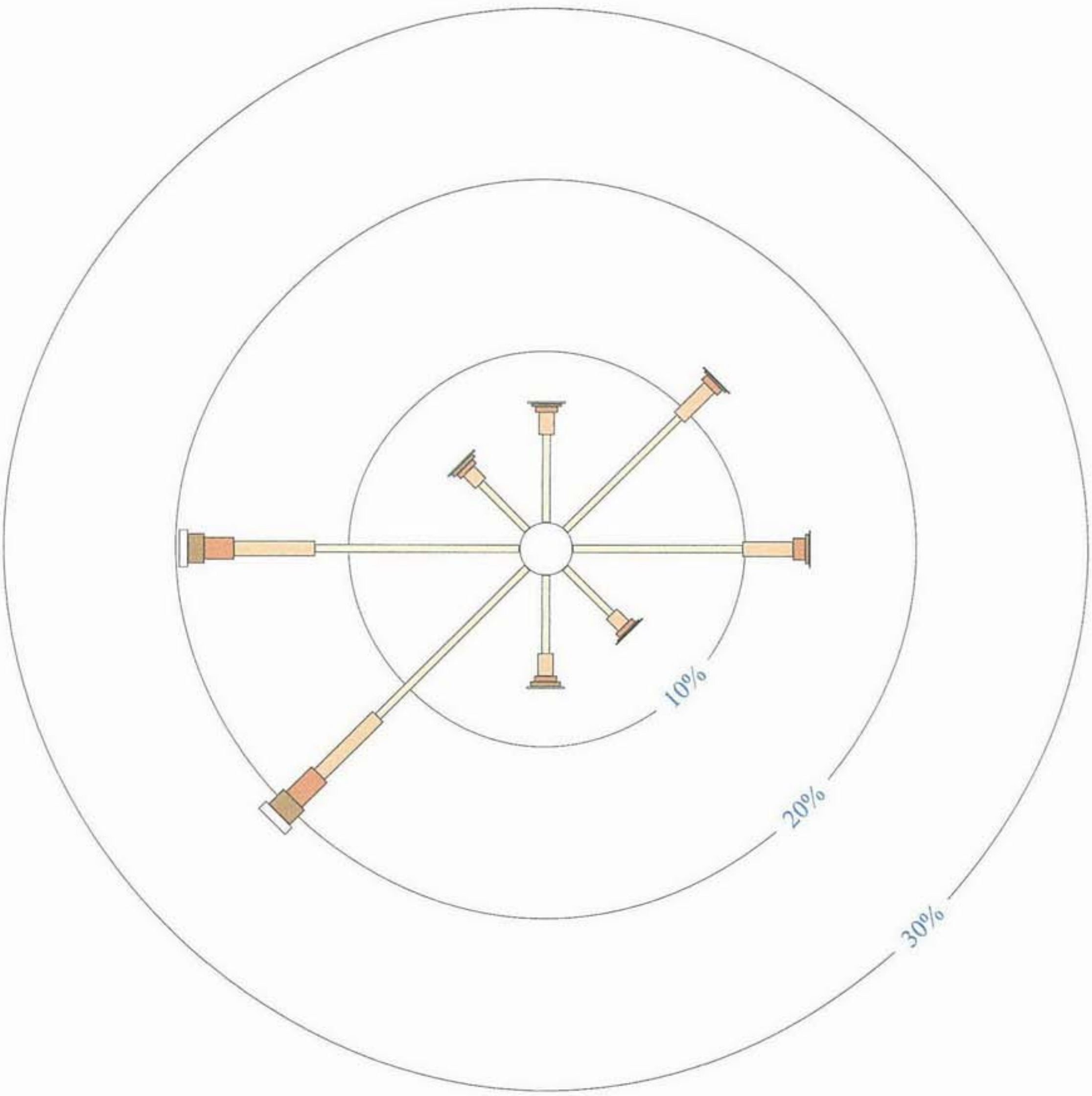
Site No: 062013 • Opened Jan 1881 • Still Open • Latitude: -32.3634° • Longitude: 149.5329° • Elevation 475m

An asterisk (*) indicates that calm is less than 0.5%.
Other important info about this analysis is available in the accompanying notes.



3 pm
12343 Total Observations

Calm 8%



Australian Government
Bureau of Meteorology

Copyright © Commonwealth of Australia 2012 . Prepared on 29 Mar 2012
Prepared by National Climate Centre of the Bureau of Meteorology.
Contact us by phone on (03) 9669 4082, by fax on (03) 9669 4515, or by email on climatedata@bom.gov.au
We have taken all due care but cannot provide any warranty nor accept any liability for this information.

Rose of Wind direction versus Wind speed in km/h (02 Jan 1965 to 30 Sep 2010)

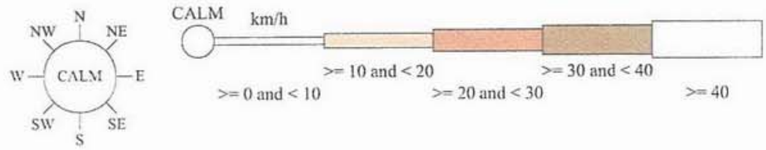
Custom times selected, refer to attached note for details

DUNEDOO POST OFFICE

Site No: 064009 • Opened Jan 1912 • Still Open • Latitude: -32.0159° • Longitude: 149.3964° • Elevation 388m

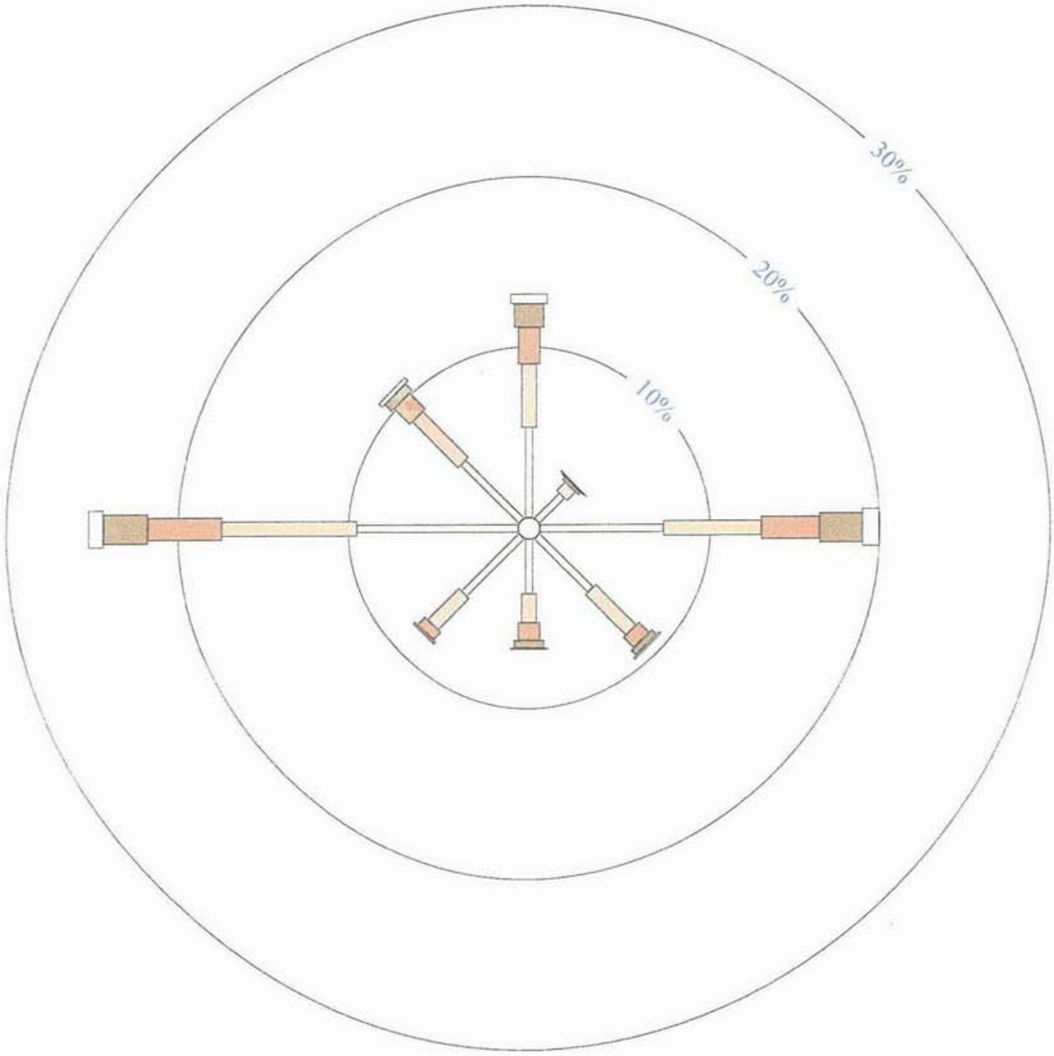
An asterisk (*) indicates that calm is less than 0.5%.
Other important info about this analysis is available in the accompanying notes.

(3)



3 pm AN
12727 Total Observations

Calm 3%



Australian Government
Bureau of Meteorology

Copyright © Commonwealth of Australia 2012 . Prepared on 29 Mar 2012
Prepared by National Climate Centre of the Bureau of Meteorology.
Contact us by phone on (03) 9669 4082, by fax on (03) 9669 4515, or by email on climatedata@bom.gov.au
We have taken all due care but cannot provide any warranty nor accept any liability for this information.

Rose of Wind direction versus Wind speed in km/h (02 Jan 1965 to 30 Sep 2010)

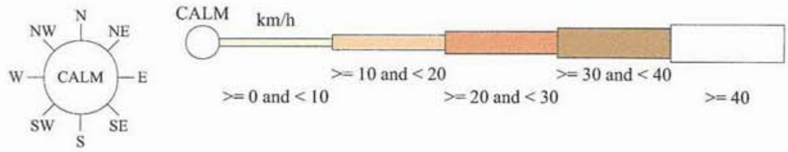
Custom times selected, refer to attached note for details

DUNEDOO POST OFFICE

Site No: 064009 • Opened Jan 1912 • Still Open • Latitude: -32.0159° • Longitude: 149.3964° • Elevation 388m

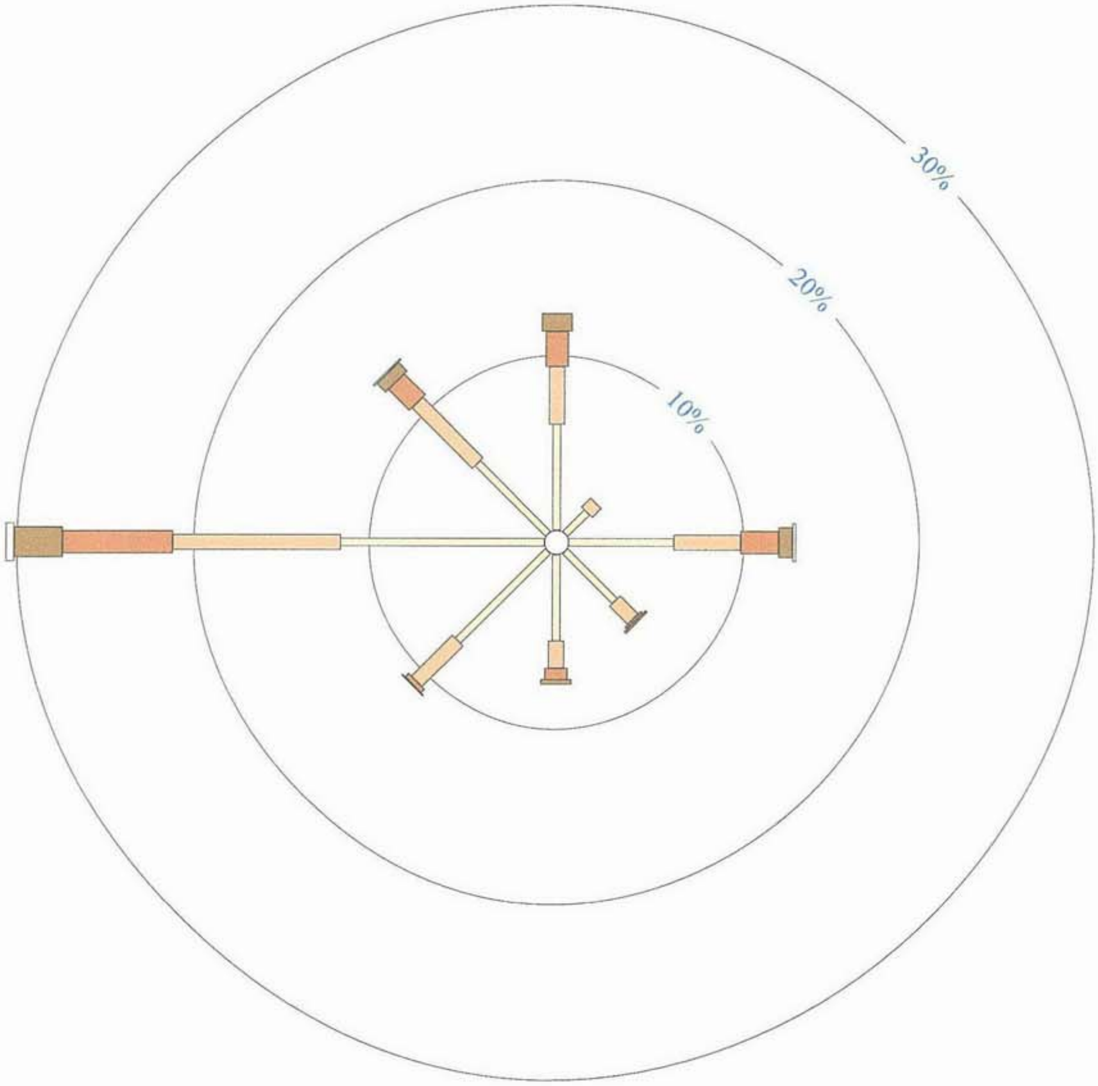
An asterisk (*) indicates that calm is less than 0.5%.
Other important info about this analysis is available in the accompanying notes.

(4)



3 pm Jul
1083 Total Observations

Calm 3%



Australian Government
Bureau of Meteorology

Copyright © Commonwealth of Australia 2012 . Prepared on 30 Mar 2012
Prepared by National Climate Centre of the Bureau of Meteorology.
Contact us by phone on (03) 9669 4082, by fax on (03) 9669 4515, or by email on climatedata@bom.gov.au
We have taken all due care but cannot provide any warranty nor accept any liability for this information.

(5) EXTRACT FROM CONTRIBUTION TO POLLUTION BY AIRBOURNE PARTICLES IN URBAN & NON URBAN ENVIRONMENTS
AN ERDC STUDY FINAL REPORT JUNE 1995

In summary, visibility impairment by light scattering and absorption of aerosols mainly occurs below the PM2.5 fine particle or accumulation mode cut off. Coarse particles (> 2.5 μm) do not play a significant role in this form of visual pollution.

A.2 FINE PARTICLES AND HEALTH EFFECTS

A.2.1 Lung Retention and Ingestion

Respirable particles are generally defined by the National Health and Medical Research Council (NHMRC) as having diameters less than 10 μm, ie. PM10 size particles. Particles of this size can penetrate the upper respiratory tract and the bronchi, however, they will not penetrate deep into the lungs and the alveoli and hence are not absorbed directly into the blood stream. Particles greater than 10 μm can lodge in the nasal passages, trachea and nasopharyngeal regions and are generally expelled through the nose or swallowed and ingested. Particle size is obviously critical in assessing the health effects of aerosols. Figure A.3, taken from the work of the US Department of Health (1969), shows the fraction of particles deposited in various places of the human anatomy as a function of particle size. Particles from the accumulation mode (< 2.5 μm) have the highest deposition efficiencies (20 - 70%) for the human pulmonary system, while up to 100% of particles from the mechanical mode (> 2.5 μm) are deposited in the naso-pharyngeal system. The trachea-bronchial system has a relatively low deposition efficiency (< 10%) for all but the nearly gaseous size particles (<0.01 μm). The TSP limit of < 50 μm diameter covers the nasopharyngeal, pulmonary and trachea-bronchial systems. The PM10 limit (< 10 μm) corresponds to a broad range of deposition efficiencies for both the pulmonary and nasopharyngeal systems and hence contains particle sizes that could be both ingested or inhaled. Work by Goldberg (1973) confirms that the fraction of particles retained in the human lung is at a maximum for particles of diameters between 0.5 and 2.5 μm (Figure A.4) and minimal for diameters above 5 μm and below 0.1 μm.

A.2.2 Health Effects

Soluble fine particles have the capability to dissolve in the lung fluid and to chemically bind with lung tissue, having local effects, or to dissolve directly in the blood stream and as in the case of lead or other heavy metals may produce systemic poisoning. Insoluble particles may be taken up by phagocytes (white blood cells, etc.), transported to the bronchioles and removed from the upper respiratory tract within the mucous. Mucous may be swallowed, and hence further absorption can occur through the gastro-intestinal tract, or it may be ejected as sputum. Insoluble particles that penetrate into the lung tissue may enter the lymph node system or react with the lung tissue producing infections or other diseases such as silicosis. These pathways are discussed in more detail by Hatch (1961).

A review on air pollution health effects and air quality objectives was prepared recently by Streeton (1990). This report recommended, on the basis of health effects, the introduction of objectives for PM10 particles averaged daily and annually, and that TSP lead objectives of 1.5 $\mu g/m^3$ be revised downwards to 1.0 $\mu g/m^3$ averaged over 3 months. A recent report on asthma in children and smog in Victoria, (Rennick and Jarman,1992), found that there was a significant relationship between asthma attendances and days when the airborne particle index, as supplied by the Victoria EPA, was above their guidelines.

Bobak and Leon 1992 found weak positive associations between neonatal mortality in the Czech Republic and PM10 particles. Stronger adjusted effects were seen for post neonatal mortality, with a consistent increase in risk from the lowest to the highest PM10 quintile. Weaker and less consistent evidence of a positive association with NO_x was observed. They estimated that for every 25 $\mu g/m^3$ increase in PM10 particle concentrations, the post neonatal respiratory mortality increased by a factor of 1.58. This work is in line with earlier studies done in 117 US metropolitan areas in the 1960's (Lave and Seskin, 1977). These showed a positive association between PM10 and to a lesser extent sulphate concentrations and infant mortality. A 10% reduction in PM10 levels was associated with a 1% decrease in infant mortality.

Pope et al 1992 looked at daily mortality rates and PM10 levels for the total Utah County population from April 1985 to December 1989. The relative risk of death was found to increase monotonically with PM10 levels, and the relationship was observed at PM10 levels well below the US National Ambient Air Quality Standard of 150 $\mu g/m^3$ (maximum for 24 hours). Mortality averaged approximately 4 - 5% higher for each 50 $\mu g/m^3$ incremental increase. On days when the 5 day lagged moving average PM10 levels exceeded 100 $\mu g/m^3$, mortality counts averaged approximately 19% higher than on days when these levels were less than 50 mg/m^3. The largest effects were for deaths from respiratory disease and cardiovascular disease. It was stated that 30-40% of respiratory disease deaths or 5 - 6% of total deaths in Utah County (pop. 260,000) were attributable to air pollution. The mean daily mortality plotted against the mean PM10 levels for a 5 day lagged moving average is shown in Figure A.5.

Further data from the US Six Cities Study of Air Pollution and Health (Ware et al, 1986; Dockery et al, 1989) shows that particle levels are positively associated with rates of chronic cough, bronchitis and chest illness in pre adolescent children.

A.3 CLIMATE EFFECTS

Particles in the atmosphere absorb and reflect solar radiation, modify the temperature profile through the atmosphere and change the droplet structure of clouds (Hobbs and McCormick 1988). Via these mechanisms, they can exert a cooling effect which appears to be of comparable magnitude but opposite in sign to the enhanced greenhouse effect. The magnitude of this cooling is currently one of the largest uncertainties in predicting future global temperatures. Recent reports on the uncertainties in greenhouse modelling (Penner et al 1993) have emphasised the need for more extensive physical and chemical data on atmospheric aerosols. At present, sulphate aerosol particles are considered to be the most significant contributors to greenhouse masking and have been the subject of much study (Charlson et al 1992). This raises may issues, for example: efforts to reduce acid rain by curbing sulphur dioxide emissions may exacerbate global warming due to the reduction of sulphate aerosol particles. Organic aerosols, elemental carbon and mineral matter are also considered important in greenhouse masking, but may be more significant in the southern than the northern hemisphere. Little information is available on the chemical or physical properties of aerosols in the southern hemisphere, particularly above land masses where satellite data are not available.

The effect of atmospheric particles on climate depends in part upon the presence or absence of clouds (Kiehl and Briegleb 1993). Under clear skies, particles reflect solar radiation, causing a general cooling. Some particles, such as elemental carbon, also absorb significant radiation throughout the atmosphere, reducing the heating of the surface and thus altering the temperature profile through the atmosphere. This in turn modifies convection processes and thus weather patterns. Under cloudy skies, the effects of particles are more complex and are poorly understood. The effect of particles on radiation is difficult to determine because much radiation is reflected by the clouds themselves. One significant influence of the particles is that of increasing the number of cloud condensation nuclei.