

BOTANY COGENERATION PLANT

Community Reference Group

Meeting	Community Reference Group	Meeting No.	6
Project	Botany Cogeneration Plant, Botany Road, Matraville	Date	Monday 16 August 2021
Venue	Zoom	Time	5:30pm – 6:30pm
Chaired by	Brendan Blakeley, Elton Consulting/WSP	Recorded by	Wendy Salkeld, Elton Consulting/WSP
Purpose	To provide a forum for two-way communication between the project proponent, SUEZ, and representatives of the community, stakeholder groups and the local community on the proposed Botany Cogeneration Plant; to inform the preparation of the environmental assessment.		

The CRG is part of SUEZ’s pre-lodgement engagement program. The group has been voluntarily established by SUEZ and membership is also voluntary. The CRG is not a decision-making body.

Membership of the CRG does not indicate acceptance, support or otherwise of the proposed Botany Cogeneration Plant.

Once SUEZ lodges the Environmental Impact Statement (EIS), DPIE will seek public feedback and make an independent assessment of the proposal.

Name	Community/stakeholder	Attended/Apologies/Invited
Laura West	Resident	Attended
Marie Mirza	Resident	Attended
Chantelle Adams	Resident	Apologies
Peter Fagan	Resident	Attended
David Power	Resident	Attended (left at 6pm)
Clr Danny Said	Mayor, Randwick City Council	Attended
Clr Christina Curry	Clr, Bayside Council	Invited
Clr Andrew Tsounis	Clr, Bayside Council	Invited
Kerry Kyriacou	Director of City Planning, Randwick City Council	Invited (alternative Council attendee yet to be advised)
Erin Barker	NSW Environment Protection Authority, DPIE	Invited
Brendan Pegg	Senior Land use Planner, Roads and Maritime Services (RMS)	Invited
Natalie Heather	Development Manager, SUEZ	Attended
Paul McMahon	Stakeholder Adviser, SUEZ	Attended
Cristina Rodrigo Nieto	Infrastructure Technical Manager, SUEZ	Attended

Jacob Chretien

General Manager Technical, Opal

Attended

Dr Jackie Wright

Director/Principal, EnRiskS

Presenter

Meeting Minutes

1 Welcome and introduction

Brendan Blakeley (Chair) undertook acknowledgement of country, welcomed, introduced and thanked all CRG members for attending. The Chair announced that Kerry Edwards and Spencer Harrop are stepping down from the CRG as they are moving out of Sydney. The Chair thanked Kerry and Spencer for their membership and input to the CRG. The Chair responded to David Power's query via email prior to the meeting advising that recruitment of replacement members will not be undertaken. The Chair explained that SUEZ advised that it will be concentrating on finalising the Environmental Impact Statement (EIS) which will then follow the approvals process, so the next CRG will be closer to the point where the EIS will be lodged.

Apologies were noted. The Chair and Secretariat declared pecuniary interests that SUEZ pays Elton Consulting/WSP for its services to Chair and support the CRG.

2 Assessing risks to Human Health

Dr Jackie Wright introduced herself and explained that her company Environmental Risk Sciences (EnRiskS) specialises in assessing human health risk. Jackie W advised that she has been undertaking human health risk assessments for many years including assessment of the Orica Botany site since the 1990's so she is very familiar with the area. Jackie W added that she has undertaken the assessment of many energy from waste projects. Jackie W explained that the human health risk assessment process is an iterative process. During assessment when risks are identified this risk consideration is fed back to the project team to adjust its planning.

Jackie W made a presentation to the CRG to explain the human health risk assessment process (attached). The CRG noted that the following issues are evaluated in the assessment:

Air emissions, which is a key focus

Noise, looking at how it affects health

Other aspects such as waste transport and handling and other hazards

Jackie W explained that all emissions from the project are subject to regulation, noting that the Protection of the Environment Operations Act (POEO Act) is a key regulation tool. Jackie W explained that the European Commissions Industrial Emissions Directive and EU Best Available Techniques reference documents (BREFs) essentially provide emissions limits that protect health and these are adopted in Australia in many assessments. Jackie W stated that facilities always operate under an EPA licence and the NSW EPA licencing covers plant design, monitoring requirements, reporting including any exceedances or any pollution incidents.

Air emissions

Jackie W showed an infographic on air emissions sourced from the NSW Chief Scientist. She explained that the aim of a stack is to really well disperse the plume before any of the air emissions come down to ground level where people are.

Jackie W described that highest concentrations are in the stack, so this is where the EPA limits are applied. The air goes out into the atmosphere while it is warm, where it mixes and disperses noting that some will

come back to ground level and these are the concentrations that we need to consider carefully as this is what we are exposed to.

Jackie W added that the assessment also looks at what might be deposited in dust, with metals and POPs attached.

Assessing health risks

Jackie W informed the CRG that the assessment looks at all the chemicals released from the stack for example, carbon monoxide, because it is combustion process, and dioxins and furans.

Jackie W explained that when she looks at this, she considers the total exposure that everyone has to these pollutants, including those from other sources. This is important to note because people are exposed to these chemicals in every-day life for example, metals in soil, and dioxins and furans which come from bushfires. She advised that different exposure pathways are considered such as inhalation and also dust particles that settle on the ground and how we interact with these. For example, dust particles may land on home grown produce such as vegetables which we eat but dust may also land on chickens who consume vegetables and then we consume the eggs. In addition, to these exposure pathways, the use of water in rainwater tanks is considered as well.

Jackie W detailed that she looks at acute exposures (peak short-term) but also chronic/long term exposure. The exposures have to be quantified and the worst-case scenario i.e. where maximum deposition would occur is always considered. Another step is to consider the toxicity of these individual chemicals. Toxicity values are stated in enHealth guidelines and these are protective of all adverse health effects e.g. asthma and carcinogenic risk over a lifetime. Drawing upon the enHealth guide, calculations of risk is undertaken where total intake vs acceptable rate is considered.

Large health studies – waste to energy

Jackie W advised that the human health risk assessment also considers where else these types of facilities are operating. Jackie W stated that she looked mostly at modern waste to energy facilities to see HHRA outcomes. She explained that the review of recent facilities is important because technology has significantly changed since the old facilities commenced operations. Jackie W stated that European guidelines have become more stringent for example, cars still generate the same amount of chemicals due to the combustion process but the emission controls have changed and what comes out of the exhaust is significantly reduced. Jackie W advised that these case studies found no risk to human health risk in those areas. Drawing upon conclusions of other studies is considered, noting that the fuel source in other waste to energy studies is mostly based on the combustion of municipal waste, not processed engineered fuel (PEF).

David P asked about the source of the information that Jackie W uses and is it from SUEZ? Jackie W replied that the air quality modelling data comes from air quality monitoring consultants engaged by SUEZ and the NSW government maximum limits standards. Jackie W added that she uses conservative assumptions and worst-case scenario in her risk analysis. For example, that everyone is exposed 24hours/day, 365days/year and eats home grown vegetables and eggs every day.

Marie M sought clarification on the stack dispersal explanation that close properties won't have concentrations at ground level but further away properties will as this is where it settles on the ground.

Jackie W responded that maximum concentrations are at the top of the stack. Then the plume goes up into the atmosphere, where it does a mixing process, at high altitudes. When settlement does occur, it takes into account terrains, for example hills, as they would be higher up. Jackie W further explained that what she looks at is the dust that comes out, which is usually quite fine particles that you can't see, which mixes with the air and then drop out. She added that she looks at where it lands; and how humans would be exposed.

The Chair reminded all that in earlier CRG meetings, there has been discussion of inversion layers in this neighbourhood, and does the HHRA look at prevailing wind and climatic conditions?

Jackie W replied that the air dispersion modelling takes into account terrain and sea breezes under a worst-case scenario for exposure pathways. She detailed that this means taking the maximum amount from the model and considering the scenario where there the least amount of mixing at altitude. She added that there is a mix of worst-case days, so it is important to look at a range of conditions.

Danny S asked that when dust particles hit the ground, do taller buildings impact on the results and is it easy to predict the likely impacts.

Jackie W responded that air quality modelling can incorporate heights of buildings. Since the meeting, Jackie W has further checked the air modelling and there are no tall buildings included in the modelling as these are not present in the residential areas close to the site. The health risk assessment has focused on low to medium density residential properties, where there is soil that may be accessible, fruit and vegetables grown and chickens kept for eggs, that do not include multi-storey buildings.

In response to the question on how far the plume travels, Jackie W replied that the further you go from the stack the lower the concentrations are and it doesn't take far to reach background levels. Jackie W added that when she does her assessment, she looks at which location has the highest concentration and assumes that this will be representative of anywhere.

Peter F asked that with respect to the pollutants that would come out of stack, how do you know what they would be and how do you accurately predict these.

Jackie W responded that what comes out of facilities depends on the nature of fuel and in the case of the Botany Cogeneration Plant it is dry, non-putrescible waste. The pollutants generated depends on the fuel itself and overseas measure of what comes out is required so this is used to help inform what usually comes out of these facilities.

Peter F noted that broken fragments of furniture may be burnt and a lot of furniture has fumigant treatment on the wood, and does this have impact on human health.

Natalie H responded that the fuel doesn't just arrive at the plant and that it goes through a Quality Assurance process. Cristina R added that most facilities overseas don't go through the fuel processing that SUEZ would be undertaking and there are processes to negate the inclusion of this type of material in the fuel but she doesn't have any more detail to add at this stage. Cristina R also responded to the query on where data has come from and replied that a lot of the data is from overseas but regardless of this, SUEZ has NSW EPA limits that it has to comply with. Cristina R noted that these limits are using the worst-case scenario for any of the modelling.

Danny S asked that if certain types of fuel have heavier particles, are the heavier ones removed. Jackie W responded that yes, the baghouse removes heavier particles, and it is the other finer particles that she is considering.

The Chair noted that in previous meetings members expressed concerns about emissions from this facility on top of existing pollution within the area and asked how cumulative impacts would be considered.

Jackie W advised that she has to look at total exposure that people have and also looks at background air quality modelling data and there is a modelling location close by. Jackie W explained that when it comes to considering pollutants that are not monitored at those stations, then she has to make assumptions. She added that she is also aware of other monitoring in areas for example, the Botany Industrial Park and looks at those to see if anything is different, and she also looks at literature information.

Laura W stated that she is more interested in wildlife impacts, directly above plume and does Jackie W assess that.

Jackie W advised that no, she doesn't look at wildlife but notes that at ground level wildlife would have the same exposure consideration as human health.

Laura W stated that she likes that Jackie is considering the human health impacts on eating home grown vegetables, eggs and rainwater tanks.

Marie M asked that when measuring pollutants in the air, do you consider asthma, health compromised people or those with breathing difficulties.

Jackie W responded that the enHealth guidelines do consider and are protective of sensitive individuals and these guidelines have already taken into account those that are sensitive for example, epidemiological studies are considered.

Natalie H further responded to Laura's question and advised that the EIS team has undertaken a biodiversity review, which include fauna, where the team looked at plume emissions and also considered nocturnal activities for example, the team came onto the Opal site at night to consider any microbats.

Natalie H stated that the community has made comment around the toxic nature of the material in the bottom ash and flue gas residues, and how is this considered in the HHRA.

Jackie W advised that the residues are considered as part of the overall process of exposure pathways. She explained that there are stack emissions but there is also ash or residue in ash formed during the process, collected on site, within an enclosed system, and this has to be characterised and tested and then disposed of in accordance with NSW waste disposal guidelines. She observed that there may be a need for treatment for the disposal of residues in ash, but she noted that the residues can't leave site unless it is in enclosed trucks and this is an important consideration in exposure pathways.

Jacob C added that there is a handling and disposal process if the flue gas treatment residues are found to be over guidelines.

Jackie W stated that sometimes the height of stack can assist in improvement of dispersion but if the stack height is restricted, then emissions may be required to undergo further treatment.

Marie M asked how often air quality readings are undertaken, is it daily, weekly, monthly.

Jackie W responded that she doesn't look at the air monitoring frequency as part of the HHRA but added that there would be a licence to for any stack discharge by the EPA. In addition, the EPA licence conditions will dictate what must be measured, how often, what reporting is required including the reporting of exceedances.

Natalie H reminded the CRG that meeting three covered this topic and it is quite complex and is covered in the regulations set down by the State Government.

Cristina R added that the CEMS (Continuous Emissions Monitoring System) monitors on a 24/7 basis with a backup system. Cristina explained that some substances can't be measured on a continuous basis as there is no technology available to do this, so there is collection of the substance which is then taken to a laboratory for analysis. Cristina R referred to the use of more stringent European standards but it is all required by the EPA licence.

Danny S sought confirmation that Jackie W's role is to put forward the scenarios and assessment for the EIS but not after the EIS. He then sought clarification that people would then make submissions on the HHRA presented and people's submissions can look into the detailed figures and information.

Jackie W replied that the air quality impact assessment, its modelling, assumptions, references and use of worst-case scenario provide input to help inform the EIS. Jackie W also replied that yes, the data would be included in the EIS so people can make a submission on what is in those reports.

Natalie H stated that Jackie W is independent of SUEZ.

The Chair added that Jackie W's report would be independently assessed by the relevant arm of Government. Jackie W confirmed this and added that it is usually the NSW Department of Health.

Jacob C asked Jackie W what the feedback loop was if the investigations identified any concerns. Jackie W confirmed that no project could proceed that posed any human health risks and the proponent would need to amend the design or approach to ensure that there was no human health impacts from the proposal.

3 Discussion and next meeting

Environmental Impact Statement (EIS)

The Chair asked about the process for the exhibition of the EIS.

Natalie H responded that with the unexpected impacts of COVID-19, the next few months will require the EIS team to buckle down to prepare the EIS, noting that the HHRA work always has to be undertaken towards the end as it draws upon a lot of the other studies.

Natalie H explained that SUEZ is thinking about the timing of the EIS exhibition as it is a complex project. She added that the Community Information Centre (CIC) was set up as drop in facility and useful for the EIS exhibition but with COVID-19 this is looking like it might be online. Natalie H stated that SUEZ has greatly appreciated the feedback from the CRG, has considered issues raised and incorporated this into the EIS. Natalie H committed to coming back to this group before a decision around timing is made.

The Chair stated that SUEZ will use this time to get the EIS into a good draft form.

Danny S clarified that there is one more meeting to go and this will be when the EIS is coming out, but will that be this year or next year.

Natalie H replied that the aim was for the EIS to be exhibited this year, but SUEZ is reviewing this timing as online exhibition is not ideal for such a complex project, and SUEZ needs to evaluate what is best. Natalie H stated that she is still keen to facilitate dialogue with the community and wants to support the best way for the EIS to be reviewed.

Danny S expressed his support (thumbs up icon) for a considered approach towards the EIS exhibition by SUEZ.

The Chair invited further thoughts from the CRG on this and checked if there were any other questions.

The Chair thanked the CRG for their participation and wished everyone to stay safe.

Meeting finished 6.30pm.

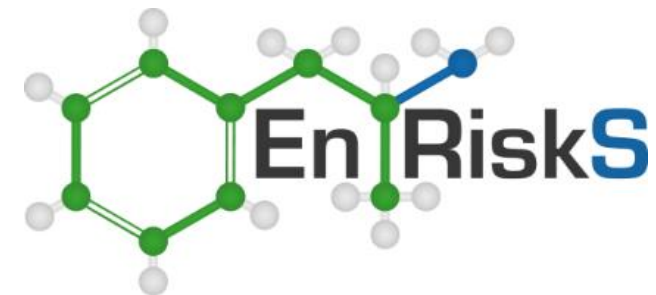
Attachments: Presentation slides

**Assessing
risks to
human
health**

Botany Cogeneration Plant

16 August 2021

Dr Jackie Wright



What does the health risk assessment evaluate?

Impacts from the Project that have the potential to affect community health



Air emissions – key focus



Noise



Waste transport and handling and other hazards



All emissions from the Project are subject to regulation

Protection of the Environment Operations Act 1997 No 156 [NSW]

Protection of the Environment Operations Act 1997 No 156

Protection of the Environment Operations (Noise Control) Regulation 2017 [NSW]

Protection of the Environment Operations (Noise Control) Regulation 2017

[2017-449]

Protection of the Environment Legislation Amendment Act 2011 No 63



Environment protection licences

Energy from Waste Policy

Protection of the Environment Operations (Clean Air) Regulation 2010 [NSW]

Protection of the Environment Operations (Clean Air) Regulation 2010

[2010-428]

Protection of the Environment Operations (Waste) Regulation 2014 [NSW]

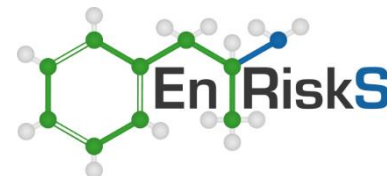
Protection of the Environment Operations (Waste) Regulation 2014

[2014-666]



Industrial Emissions Directive

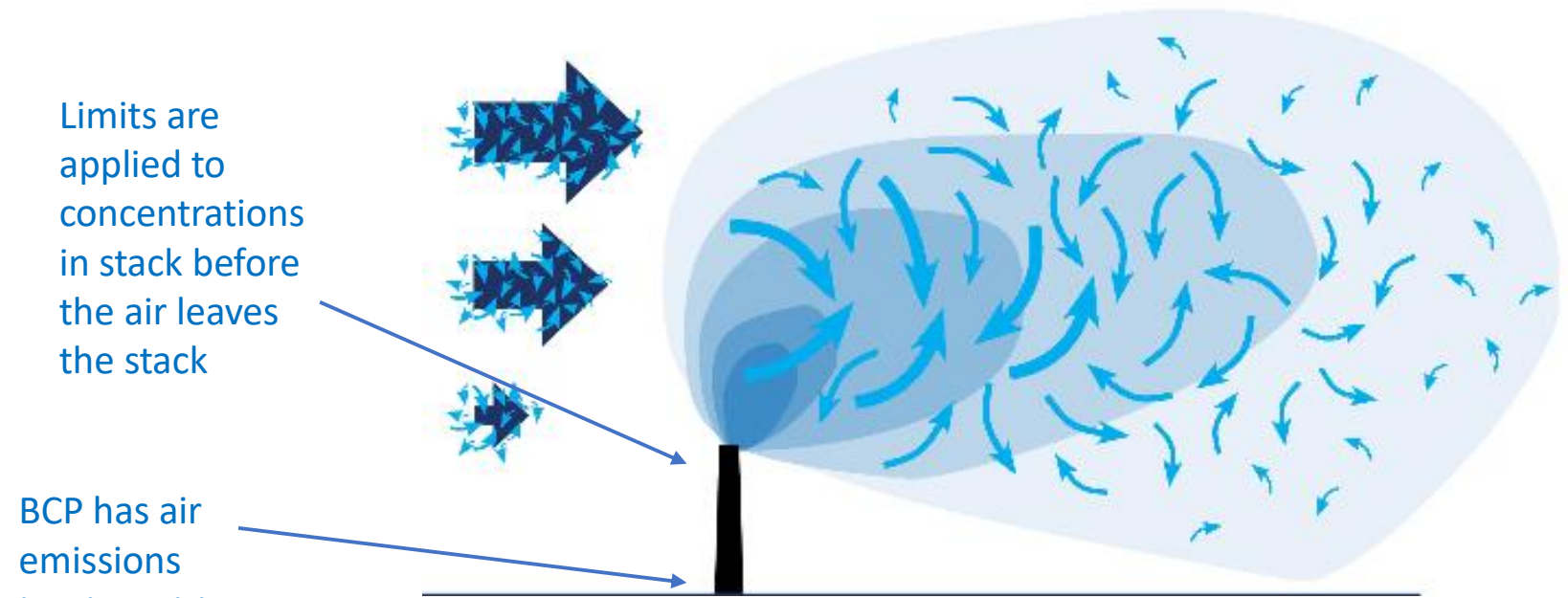
EU Best Available Techniques reference documents (BREFs)



Air emissions



- This is steam rising from power station
- Most of the plume rises up, rather than falls to the ground



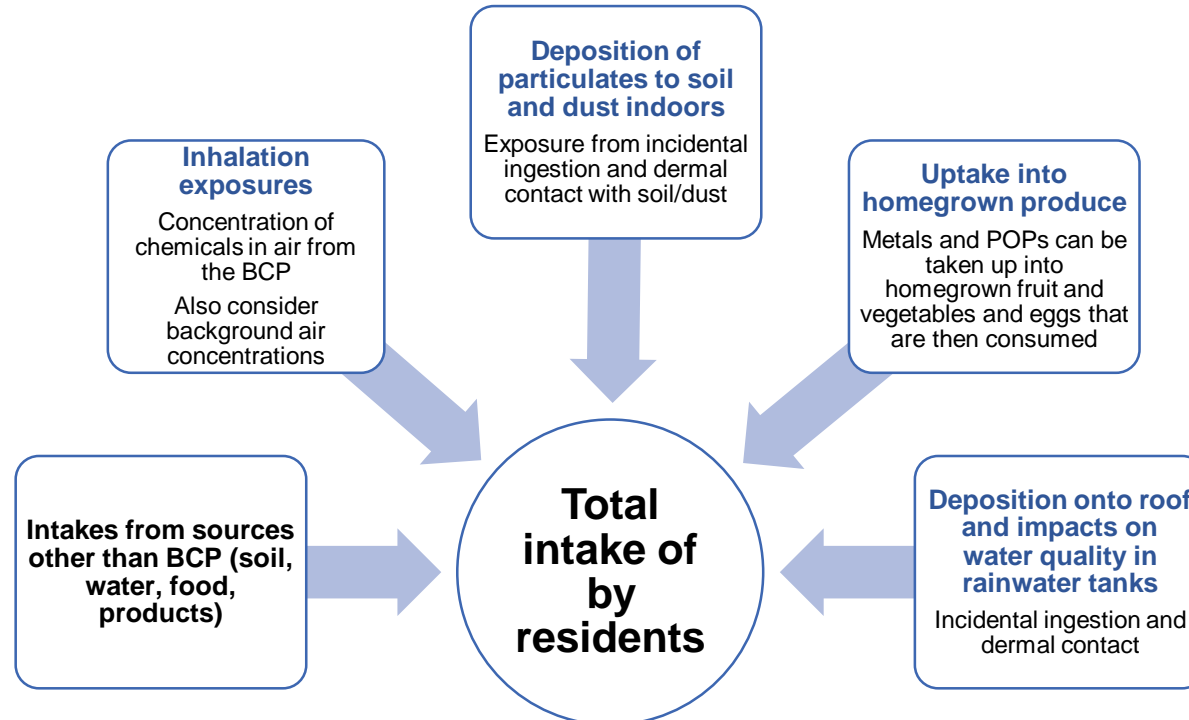
Limits are applied to concentrations in stack before the air leaves the stack

BCP has air emissions treatment to remove pollutants from air prior to going up stack

- Plume rises up and mixes with atmosphere, spread/disperses with only a small amount reaching the ground
- The concentration that reaches the ground is what the community may be exposed to

Assessing health risks

Assessed for all chemicals emitted to air from BCP
Includes gases, metals, and POPs (dioxins and furans)



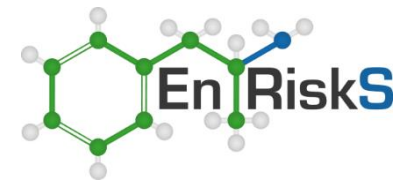
Calculation of risk = total intake/acceptable intake
Also calculate incremental lifetime carcinogenic risk = total intake x risk factor

Toxicity of each individual chemical - acceptable intake which is protective of all adverse health effects for all members of the community, or risk factor which enables quantification of lifetime carcinogenic risk

Inhalation assessed for peak short-term exposures

All pathways assessed for long-term exposures

Approach follows guidance from enHealth (2012)



Large health studies - WtE



Risk of congenital anomalies near municipal waste incinerators in England and Scotland: Retrospective population-based cohort study

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Fetal growth, stillbirth, infant mortality and other birth outcomes near UK municipal waste incinerators; retrospective population based cohort and case-control study

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Bayesian spatial modelling for quasi-experimental designs: An interrupted time series study of the opening of Municipal Waste Incinerators in relation to infant mortality and sex ratio

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- Series of large statistical studies published last year with researchers from Imperial College London as well as other UK and Swiss universities
- Undertook the studies because older similar studies had found there might be some health effects around incinerators but none of the older studies looked only at modern plants that complied with the EU IED standards
- These studies focused on new plants that met the standards and looked at 22 plants and used data from the Office of National Statistics – i.e. standard government collected data
- **“We found no evidence that exposure to PM₁₀ from, or living near to, an MWI operating to current EU standards was associated with harm for any of the outcomes investigated. Results should be generalisable to other MWIs operating to similar standards.”**

