Mr Alan Hartridge
Plymouth City Council
Plymouth, Devon
PL1 2AA

Our Ref: D123356

Your Ref: 10/01010/ESR10

Date: 25 November 2010

Dear Mr Hartridge

MVV Umwelt
Energy from Waste Combined Heat and Power Facility, North Yard, Devonport
Additional Clarification on Environmental Impact Assessment

Further to the Scoping Opinion received for this project we would like to clarify several points relating to the air quality assessment methodology, namely:

- Dust assessment methodology;
- Human health risk assessment methodology;
- Road traffic emissions assessment methodology; and
- Baseline air quality monitoring survey – PM_{10}.

These topics are dealt with in turn below.

Dust Assessment Methodology

Your Scoping Opinion requested further detail regarding the dust assessment methodology and we are writing to provide that detail.

Overview

It is proposed that the assessment of fugitive emissions of particulate matter (during the construction phase) and particulate matter, bio-aerosol and odour (during the operational phase) will be based on a qualitative methodology. The assessment will use information on the site layout/plant configuration, management procedures and distances to sensitive receptors to predict the likelihood of significant effects due to emissions generated by site activities.

Construction

The assessment will consider the impact of construction phase emissions of particulate matter (dust and PM_{10}) from site preparation and construction works with respect to the potential for

Scott Wilson Ltd
3rd Floor, Mayflower House
Armada Way, Plymouth, Devon
PL1 1LD, United Kingdom
Tel: +44 (1752) 676 700
Fax: +44 (1752) 676 701
www.urs-scottwilson.com

increased rates of soiling by deposited material; short term (24 hr mean) exposure of the local community to PM_{10} and deposition of particulates at ecological sites.

The assessment will indentify receptors that could be affected by emissions of particulate matter from site based construction activities. The assessment will consider physical controls on emissions and proposed management practices associated with a well managed construction site. Where additional protection is required to prevent significant effects from occurring at specific receptors, appropriate measures will be proposed and the residual impact assessed.

Air quality sensitive receptors

When assessing the impact of dust emissions generated during site preparation and construction works, receptors are defined as the nearest potentially sensitive receptor to the perimeter of the site in each direction. These receptors have the potential to experience impacts of greater magnitude due to dusts generated by the works, when compared with other more distant receptors, or less sensitive receptors, and as such represent examples of worst-case exposure. The identification of sensitive receptors considers residential properties and other potentially sensitive properties such as schools and hospitals or industrial premises.

The distances in Table 1 below are based on professional experience drawn from assessments of many different types of project, discussions with practitioners in the field, and from published reports. They assume that standard control measures will be put in place by the contractor.

Table 1: Zone for Potentially Significant Construction Dust Impacts from Construction Activities, with Standard Mitigation in Place

Source	**Zone within which Potentially Significant Effects may Occur (Distance from Source)**	
	Soiling at levels likely to cause annoyance	**Exposure to PM_{10} at levels that could exceed the 24-hour air quality objective***
Visible emissions of dust, likely to occur at the source on a regular basis	100 m	25 m – 50 m
Visible emissions of dust, likely to occur at the source on an infrequent basis	50 m	15 m – 30 m
Short-lived limited emissions of dust, occurring at the source on an irregular basis	25 m	10 m – 20 m

* Significance is based on the objective for 2004, contained within the Air Quality (England) Regulations 2000, which allow 35 exceedences / year of 50 $\mu g/m^3$ and take into account existing concentrations in the area. A range has been specified as it is difficult to assess specific PM_{10} impacts, especially in an area with high baseline concentrations.

Adapted from the Air Quality Impact Assessment for the Thames Gateway Bridge[1]

[1] D Laxen (2004), Thames Gateway Bridge Environmental Statement, Air Quality chapter, Transport for London.

Although dust emissions from potential dust generating sources would be present throughout the construction programme, they would not be expected to affect the same location on a regular basis. For this reason, receptors located within 50 m of the site boundary would be at an increased risk of experiencing a measurable increase in rates of surface soiling. The equivalent distance for the risk of a potentially significant increase in annual mean exposure to PM_{10} is 30 m.

Operation

The assessment of fugitive emissions of dust, odour and bioaerosol during the operational phase will be produced with reference to the dust, odour and bioaerosol risk assessment prepared for the Environmental Permit application in accordance with standard Environment Agency risk assessment templates and guidance. An example risk assessment template is shown in Appendix 1, at the end of the letter.

Assessment of Significance

The overall significance of the effect during the construction and operational phase is reported based on the professional judgment of the assessor. The figure in Appendix 2, at the end of this letter, illustrates the approach used to reach an opinion with respect to overall significance, in the form of a flow diagram.

Human Health Risk Assessment Methodology

Since the receipt of the Scoping Opinion, we have had discussions (meeting 24.08.10) regarding the need for Human Health Risk Assessment (HHRA) and the methodology to be employed.

We have reviewed the methodology used by SLR Consulting for the planning application by Viridor for the proposed EfW facility at New England Quarry. Table 2 below compares the methodology proposed by URS/Scott Wilson compared with that used by SLR consulting. The methodologies are considered comparable but the URS/Scott Wilson method ensures that:

- The risk of additional exposure via inhalation of NO_2, SO_2 and PM_{10} from direct emissions of combustion plant is assessed using the Committee on the Medical Effects of Air Pollutants (COMEAP) approach.
- The most up to date guidance for the assessment of significance is used.
- Dispersion modelling (ADMS Roads) is used to assess the impact of road traffic emissions as opposed to the Design Manual for Roads and Bridges (DMRB) Screening Assessment method (see also following section regarding Road Traffic Emissions Assessment).
- The human health risk assessment for toxic metals, dioxins, etc. quantifies the risk associated with change in exposure to emissions via ingestion and inhalation pathways (SLR quantify risk based primarily on ingestion of soil and foodstuffs).
- The human health risk assessment for toxic metals, dioxins, etc. reports evidence of impacts in a wide range of receptors as opposed to just the selected highest risk receptors.

Table 2: Comparison of Proposed URS/Scott Wilson Methodology and SLR Consulting Methodology

URS/Scott Wilson Methodology	SLR Consulting Methodology (from January 2010 assessment)
Approach	
Use of United States Environmental Protection Agency HHRA protocol to assess exposure of toxic metals, dioxins, etc. via inhalation and ingestion of direct emissions from combustion plant and indirectly via food chain pathway. Use of COMEAP approach to assess risk of additional exposure via inhalation of NO_2, SO_2 and PM_{10} from direct emissions of combustion plant.	Assessment of exposure to toxic metals, dioxins etc. via direct ingestion of soil and indirectly via food chain pathway. Risk of additional inhalation of emissions metals, dioxins, NO_2, SO_2 and PM_{10} from combustion plant not directly assessed, as considered to be less significant than ingestion pathway. Significance of change in atmospheric concentrations of emissions considered in air quality report.
Air Quality Report	
Dispersion modelling of atmospheric concentrations and deposition for all emissions using ADMS (Air Dispersion Modelling Software). Combined impact of combustion plant and road traffic emissions assessed using ADMS Roads and latest available emission factors (EFT4.2 – released February 2010). Use Institute of Air Quality Management (IAQM) descriptors for significance (November 2009) as per current Environmental Protection UK (EPUK guidance (April 2010).	Dispersion modelling of atmospheric concentrations and deposition for all emissions using ISC AERMOD. Applies screening approach to calculate road traffic emissions using Design Manual for Road and Bridges (DMRB) spreadsheet and DMRB 2003 emission factors. Use National Society for Clean Air (NSCA) descriptors for significance (2006) - now replaced by EPUK guidance (April 2010).
Human Health Risk Assessment – NO_2, SO_2 and Particulates (PM_{10})	
Apply method developed COMEAP for Department for Health to quantify risk of additional exposure.	Has compared absolute atmospheric concentrations against air quality objective values. Assumes that increases of PM_{10} below objective value do not introduce additional risk to human health.

Human Health Risk Assessment – Toxic Metals, Dioxins, etc.	
Quantifies risk associated with change in exposure to emissions via ingestion and inhalation pathways. Includes risk to infants of ingestion of mothers milk. Method is the current integrated risk assessment protocol published by the USEPA. Reports evidence of impact for infant, child and adult age groups for residents, farmer and fisher type receptors.	Quantifies risk based primarily of ingestion of soil and foodstuffs, using Soil Guide Value as key criteria as per CLEA contaminated land assessment approach*. Uses 1996 HM Inspectorate of Pollution approach to assessment of risk from dioxins. Reports impact for child and adult farmer as selected highest risk receptor types. * CLEA guidance states that "*Regulators are under no obligation to use CLEA Guidance*".

Road Traffic Emissions Assessment

The Scoping Report stated (at paragraph 5.8.49) that *"a quantitative assessment of the impact of additional road traffic emissions during the operational phase would be undertaken. The method would be based on the Screening Assessment methodology set out in the Design Manual for Roads and Bridges (DMRB) guidance document HA207/07….."*.

Following the receipt of the Scoping Opinion and further discussion between our Danny Duce and your Graham Hooper, we can now confirm that the quantitative assessment of the impact of additional road traffic emissions during the operational phase will be assessed using the dispersion model ADMS Roads rather than the DMRB Screening Assessment methodology.

Baseline Air Quality Monitoring Survey – PM_{10}

The Scoping Report stated (at paragraphs 5.8.34 and 5.8.35) that *"It is proposed to undertake PM_{10} monitoring using automatic sampling equipment. The monitoring exercise would utilise a PM_{10} Beta Attenuation Monitor (BAM)…The BAM monitor is internationally approved and is capable of being calibrated against the EU Gravimetric Standard"*.

Due to availability of equipment with our supplier TRL, a Tapered Element Oscillating Microbalance (TEOM) analyser with Volatile Correction Model (VCM) correction is now being used to monitor baseline PM_{10} instead of a BAM monitor. Correspondence we have had with Matthew Shutt at the Environment Agency has confirmed that this is an acceptable approach.

Baseline air quality monitoring, including PM_{10} monitoring, commenced in August 2010. As you are aware the details of this have also been discussed between Danny and Graham.

We hope that the items above have helped to clarify the methodology for our air quality assessment for the proposed development of an EfW CHP facility at North Yard, Devonport. If you have any further queries please do not hesitate to contact us.

Yours sincerely

Ian Roach
Principal Environmental Planner
Environment and Natural Resources
URS/Scott Wilson

Direct Line: +44 (0)1752 676 728
ian.roach@scottwilson.com

cc (by email)
Danny Duce: Principal Air Quality Specialist, URS / Scott Wilson
Graham Hooper: Senior Environmental Protection Officer, PCC
Nicola Horne, Unit Manager Environmental Protection and Monitoring Unit, PCC