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Bwrdd Iechyd Prifysgol
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University Health Board

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Ein cyf / Our ref: AJ/491

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Dyddiad / Date: 3rd December 2014

Dear Kevin

Environmental Permitting (England and Wales) Regulations 2010

Application Reference: EPR/PP3733WW/A001

Operator: WTI UK Ltd

Facility: Parc Adfer Energy Recovery Facility, Deeside, Flintshire, CH5 2LL

With reference to the above please find attached our assessment of public health implications associated with this proposed development.

We have consulted our technical advisors within Public Health Wales as well as PHE CRCE – Wales, and our comments are based on the information contained within the application documentation.

Should you have any queries, please do not hesitate to contact me.

Yours sincerely

Professor Trevor Purt
PRIF WEITHREDWR / CHIEF EXECUTIVE

Enc

Copy To: Andrew Jones
Huw Brunt
Daniel Rixon
Chris Whiteside
Graham Brown

Environmental Permit Consultation Response; EPR/PP3733WW/A001

WTI UK Ltd, Parc Adfer Energy Recovery Facility, Deeside, Flintshire, CH5 2LL

This assessment of public health implications associated with the proposed development in question has been undertaken by Public Health Wales and PHE CRCE-Wales, on behalf of the Health Board.

1. Public Health Implications

Based upon the information provided by the applicant and the nature of the process, there is limited potential for risk to public health from the activities undertaken at the application site. The modelled atmospheric process emissions from the plant are low when compared to Air Quality Objectives or Environmental Assessment Levels. Whilst the application identifies that the operations generally appear to have addressed the risks and be in line with the principles of Regulatory Guidance we outline the following recommendations in Section 5 for the Regulator to consider when preparing permit conditions.

2. Position Statement

The Health Protection Agency (a predecessor organisation to PHE) published a position statement on the impact on health of emissions to air from municipal waste incinerators. As this process comes under the Waste Incineration Directive (WID) this position statement has some relevance to this application. The Position Statement concludes;

Modern, well managed incinerators make only a small contribution to local concentrations of air pollutants. It is possible that such small additions could have an impact on health but such effects, if they exist, are likely to be very small and not detectable.

3. Local Public Health Context

The local area of the proposed development is generally deprived.

Health indicators for the relevant MSOA apart from a higher population density, are comparable with the remainder of the Local Authority, Health Board and Wales. All cause mortality is elevated when compared with the LA, HB and Wales values (see table 6),

It is essential the process is managed properly and meets strict emission and operational standards.

Applicant/Site History

The application site does not have any current land use; it comprises an area of vacant brownfield (previously developed) land. Furthermore, the applicant has confirmed that there is no enforcement history in recent years.

4. Recommendations

- The applicant should agree with the Regulator a timetable for seeking external accreditation to ISO4001 standard.
- Whilst the modelled long-term and short-term process emissions to atmosphere are predicted to be low we would recommend that the Regulator is satisfied that when combined with existing background levels air quality is not adversely compromised.
- The applicant should agree to undertake stack emission testing to confirm the parameters assumed in the emission dispersion modelling assessment to validate the impact to local receptors
- There is the potential for fugitive dust emissions; it is important that these are adequately controlled so that they do not adversely impact on human health.
- The Regulator should be satisfied that implementation of fire prevention measures, and measures to minimise the public health impacts in the event of a fire, such as fire breaks and adequate access for fire fighting.
- The Regulator should be satisfied that odour management plan is suitable to ensure that there will be no discernible odour from on-site activities. This is especially important given the perceived association between odour and ill health.
- The Regulator is satisfied that all on site storage of liquids is suitably banded in compliance with Guidance. Similarly, that all waste storage facilities are in line with Regulator's guidance.

5. Environmental Permit Details

Application Date (NRW)	29 th October 2014
Date Received	5 th October 2014
Consultation Deadline	26 th November 2014
Applicant Name	WTI UK Ltd
Address	Parc Adfer Energy Recovery Facility, Deeside Industrial Park, Flintshire, CH5 2LL
Grid Reference	SJ 31040 71639
Application Type	New Bespoke - A
Regulated Facility Type	Incineration of waste & treatment of IBA
Application Reference	EPR/PP3733WW/A001
Application Site Size	N/A
Local Authority	Flintshire County Council
Health Board	Besti Cadwaladr University
Date Response sent to Health Board	01 st December (NRW notified of delay and to expect comments)

5.1 Process Description

The application is for the development of an Energy Recovery Facility (ERF) that would treat up to 200,000 tonnes of residual waste via a Combined Heat and Power (CHP) plant; the majority of the imported waste would be Municipal Solid Waste (MSW) collected by the five



partner local authorities. The balance would comprise residual Commercial and Industrial (C&I) waste. The ERF would also include a facility to treat and burn and recycle the Incinerator Bottom Ash (IBA).

In CHP mode, the ERF could export approximately 13.2 MW of electrical energy, or 115.6 Million kWh per year based on an input of waste of 175,000 tonnes per annum. This is enough to serve around 28,000 households, or approximately 18% of the population of the county of Flintshire. The heat from the ERF has the potential to be piped in a heat main to various end users, at a relatively high temperature of ~82° Celsius, from which the user would extract at much as necessary to satisfy their personal demand.

The lifespan of the project is 25 years and the proposed ERF would be operational 24 hours per day, 7 days per week.

5.2 Operational Risk Assessment (ORPA)

OPRA Attribute	Rating
Complexity	E
Emissions & inputs (most significant emissions/inputs stated)	D (Air)
Location	D
Operator Performance	A
Compliance Rating	A

Compliance Rating: A = less regulatory effort; F = more regulatory effort

5.3 Environmental Management Systems

Management System	Management System to be used
EC Eco-Management and Audit Scheme (EMAS)	
ISO 14001	✓
BS 8555 (Phases 1 -5)	
Green Dragon	
Own management system	

WTI UK Ltd will operate the site using an Environment Management System accredited to ISO14001 Standard. The EMS will be certified within 12 months of the site becoming operational.



5.4 Process Emissions and Mitigation Measures

<p>Air Emissions (releases from stack/s)</p>	<ul style="list-style-type: none"> Using detailed air dispersion modelling the applicant predicts that, using a worst case scenario, both short-term and long-term process contributions (PC) will be insignificant (using H1 methodology). The applicant states that all short-term and long-term impacts are regarded as insignificant (i.e. long-term PC is <1% of the long-term environmental standard; short-term PC is <10% of the short-term environmental standard). Whilst it is acknowledged that PCs are low when compared to the respective standards it is recommended to clarify existing background levels of pollutants to ensure that the combined concentrations (PEC) are not significant when compared to Air Quality Objectives (AQO). The Human Health Risk Assessment calculates the tolerable daily intake for ingestion and inhalation routes of exposure. Using a worst case scenario the model predicts for dioxins and furans that the increase in intake as a result of the process contribution is extremely small at 0.13% of the mean daily intake (MDI). On this basis all identified receptors using the in the modelling are well below the Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment (COT) limit value of 2 pg I-TEQ/kg BW/day.
<p>Mitigation</p>	<ul style="list-style-type: none"> In order to ensure that facility complies with the requirements of the Industrial Emissions Directive (IED), the plant will be designed to operate with emissions to air below the IED emission limits. The plant will employ a continuous emissions monitoring system in addition to an air intake monitoring system to monitor the combustion process in accordance with best available technology (BAT). The combustion gases will be cleaned in a flue gas treatment plant. This will include the injection of carbon, primarily to control dioxin emissions and the injection of lime / sodium bicarbonate to control acid gas emissions. The facility will employ bag filter flue gas treatment to reduce emissions of heavy metals and particulates.
<p>Air Emissions (irregular releases)</p>	<ul style="list-style-type: none"> Fugitive dust emissions from process areas, storage, bottom ash, air pollution control residues and reagents. Re-suspension of dust from site roads. The assessments of dusts and litter are not predicted to be significant taking into account both location of sensitive receptors and mitigation techniques that will be employed.
<p>Mitigation</p>	<ul style="list-style-type: none"> The applicant states that there will be strict waste acceptance procedures in place in line with Sector guidance. The applicant acknowledges that fire is a risk when receiving and storing large quantities of waste; fire detection measures will be place and size of stockpiles will be limited.
<p>Odour Emissions</p>	<ul style="list-style-type: none"> The applicant states that the risk of generation or odour and bioaerosols from the waste material would be relatively low and the potential for emission would be mitigated by the enclosure of all



<p>Mitigation</p>	<p>operations. In addition nearest residential receptors are 1.5km distant and no nearby industries which could be particularly sensitive to odours, concluding that the overall risk of impact is negligible.</p> <ul style="list-style-type: none"> Measures will be employed by the applicant in order to mitigate generation and fugitive release of odours and bioaerosols. Waste is delivered and stored into the building which has fast acting doors and process air ventilation to prevent fugitive release of odorous air to control and manage odours. The air within the reception area building is managed through extraction into the boiler before release through the main stack. In this way negative pressure is maintained within the building and odours are completely oxidised.
<p>Water Emissions</p>	<ul style="list-style-type: none"> The applicant states the site does not lie within a Groundwater Source Protection Zone. There are no process emissions to ground water and mitigation measures have been incorporated into the design of the development. Overall the assessment indicates that the proposals would not have any significant impacts upon the water environment.
<p>Mitigation</p>	<ul style="list-style-type: none"> Surface water management would seek to control the drainage from the development using sustainable drainage techniques (SuDS).
<p>Land Emissions</p>	<ul style="list-style-type: none"> A number of operational mitigation measures and best available techniques have been incorporated into the scheme design, which would reduce the potential risk to ground and surface water.
<p>Mitigation</p>	<ul style="list-style-type: none"> Secondary containment of 110% fuel and oil storage. Bunded areas subject to inspection.

6. Local Public Health Context

MSOA W02000066 which is in USOA W03000016, Flintshire Local Authority and Betsi Cadwaladr University Health Board:

For each Indicator, apart from a higher population density the relevant MSOA values are comparable with the remainder of the Local Authority, Health Board and Wales. All cause mortality is elevated when compared with the LA, HB and Wales values.

See Appendix 1 for detailed explanation of terms.

Indicator (see footnotes for data sources and time periods)	MSOA*		Local Authority (LA)		Health Board (HB)		Wales rate	Comments		
	value (95% CI)	Lowest MSOA* in Wales	Highest MSOA* in Wales	Lowest LA in Wales	Highest LA in Wales	Lowest HB in Wales			Highest HB in Wales	
1. Population Density	4.1 n/a	0.1	116.7	0.3	24.3	0.3	1.1	9.9	1.4	Population density is greater than the LA, HB and Wales
2. Low birth weight	5.9 (4.1 to 7.7)	1.8	9.8	4.3	5.7	4.8	5.6	6.6	5.6	Low birth weight is higher than LA, HB and Wales
3. All-cause mortality	710 (643 to 782)	363	1,072	479	585	521	594	685	607	All cause mortality is higher than LA, HB and Wales
4. Asthma emergency admissions	108 (79 to 145)	23	365	85	118	85	124	163	133	Asthma emergency admissions are lower than LA, HB and Wales
5. COPD emergency admissions	221 (183 to 264)	17	646	85	188	111	200	294	200	COPD emergency admissions higher than LA, HB and Wales
6. Respiratory disease emergency admissions	1,238 (1,136 to 1,346)	576	2,429	833	1,171	907	1,252	1,730	1,327	Respiratory disease emergency admissions are less than the HB and Wales
7. Self-reported respiratory illness*	12 (9 to 14)	8	20	11	13	11	13	16	14	Self-reported respiratory illness is similar to LA, LHB and Wales
8. Fair/poor health*	21 (17 to 24)	14	34	16	18	18	18	26	21	Fair/poor health is similar to LA, LHB and Wales
9. Limiting Long Term Illness (LLTI)*	29 (26 to 33)	22	37	23	25	25	25	31	28	Limiting Long Term Illness (LLTI) is above LA, LHB & Wales

1. Persons per hectare, Census 2001 (ONS), 2010; 2. Proportion of all live births weighing <2500g (singleton births only), ADBE, 2007-11; 3. EASRs per 100,000 population, ADDE & MYE (ONS), 2006-10; 4-6. EASRs per 100,000 population, PEDW (NW/S) & MYE (ONS), 2006-10; 7-9. Percentage of adults (age standardised) who reported respiratory illness, fair/poor health & LLTI, WHS (WG), 2003/04-2009. *USOA for WHS data (indicators 7, 8 & 9).

7.1 Welsh Index of Multiple Deprivation

10. Local and national fifth of deprivation, 1 (least deprived) 5 (most deprived), WIMD 2008 (WG), 2008

LSOANAME (LSOACODE) (see footnotes for data source and time period)	Local and national fifth of deprivation (1 least deprived 5 most deprived)			Comments
	Local Authority	Health Board	Overall	
10. WIMD	5	4	4	The area is deprived
	5	5	5	
	4	4	4	
	5	5	5	
	5	5	5	
	4	3	3	

Please note that the number of LSOAs range from 3 to 7 so the number of complete rows in the above table will vary depending on the MSOA selected.



8. Sensitive Receptors

Sensitive receptors are those identified and screened against a pre-determined criterion (see table below) to identify those that may be potentially affected by the installation. Please also see attached map displaying key receptors.

Key identified receptors (up to 1000m radius of installation)	Receptors	Approx. distance from centre of installation (m)	Approx. direction from installation	Sensitivity (potential public health impacts from on-site activities) ¹
Residential	None	n/a	n/a	n/a
Public Amenities	None	n/a	n/a	n/a
Primary, secondary and tertiary care facilities	None	n/a	n/a	n/a
Primary, secondary, further or higher educational facilities	None	n/a	n/a	n/a
Public or private groundwater abstractions	None	n/a	n/a	n/a
Groundwater Source Protection Zones or Drinking Water Protected Areas	None	n/a	n/a	n/a
Flood Zones or Flood Warning Zones	Installation not located on a Zone	n/a	n/a	n/a
Air Quality Management Areas	None	n/a	n/a	n/a

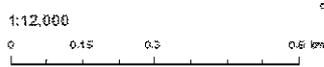
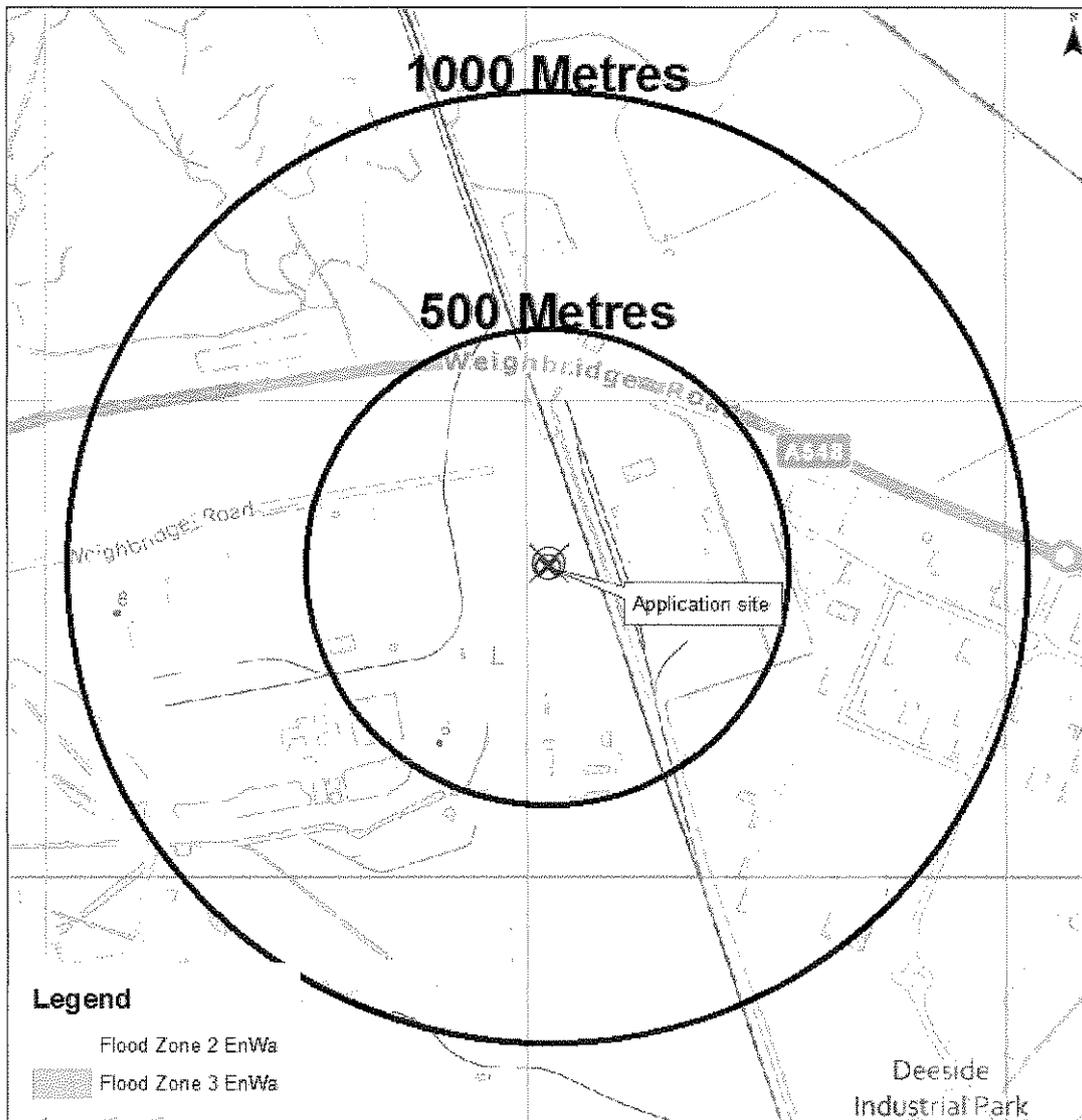
¹ Sensitivity criterion based upon, declared pollutants, proximity to installation, environmentally sensitive zones and sensitive residential receptors.



9. Map Identifying Key Sensitive Receptors

WTI UK Limited

Parc Adfer Energy Recovery Facility, Deeside Industrial Park, Flintshire



Public Health England
 Wellington House
 133 - 155 Waterloo Road
 London, SE1 8UG

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10. Signed

The Permit application and supporting data used to provide an assessment of environmental public health implications has been agreed by Public Health Wales and Public Health England (CRCE, Wales).



Signed:

Date:01/12/14.....

Kristian James Public Health Wales Health Protection



Signed: _____

Date: 11/11/14

Ed Huckle, Principal Environmental Public Health Scientist, Public Health England,
Centre for Radiation, Chemical and Environmental Hazards (Wales)



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Appendix 1



GEOGRAPHY: Selectable MSOAs (USOA presented for WHS data and LSOA for WIMD)
PERIOD: 2006 to 2010 (ADBE data for 2007-11 and WHS data for 2003/4-2009)
DEMOGRAPHY: Persons ages 16+ for WHS data, singleton (i.e. not twins) births with a weight of < 2500g (numerator) and all singleton live births (denominator) for low birthweight indicator, all Wales residents for the three emergency admissions indicators, all cause mortality indicator and the population density indicator.
STATISTICS: European age standardised rate includes 95% confidence intervals, super output area range, LA range, HB range, age-standardised percentage, national and local fifths of deprivation

NOTES: **Indicators included in the interactive spreadsheet:**

Population Density - This is calculated as persons per hectare for each area.

Low birthweight - Proportion of singleton live births with a birth weight less than 2500g. It is a legal requirement to register a birth and so the ADBE provides a reliable and complete data source. ADBE data were geocoded to MSOA of residence using the mother's postcode of residence at time of birth. Errors may occur where postcodes straddle the local authority boundaries. 95% confidence intervals were calculated using the normal approximation to the binomial distribution (see p.143 of Kirkwood & Sterne 2003).

All cause mortality - European age-standardised rate per 100,000 with 95% confidence intervals (intervals calculated using a method proposed by Dobson et al (1991)).

Emergency admissions - All emergency admitting episodes with a primary diagnosis of the condition between 2006 and 2010 were counted in the analysis. This means that individual patients could be admitted multiple times and each of these admissions would be counted. Emergency admissions were extracted where the admission method was between 21 and 29. This includes emergency transfers. European age-standardised rate per 100,000 with 95% confidence intervals (intervals calculated using a method proposed by Dobson et al (1991)). ICD 10 codes used were as follows: Asthma, J45-J46; COPD, J40-J44 & J47; Respiratory disease, J00-J99.

Self reported respiratory illness, Limiting Long Term Illness (LLTI), Fair/poor health - Percentage of adults (age standardised) who reported currently having the condition. Results are standardised using 2007 mid-year population estimates for Wales, to adjust for the effect of age in comparisons between areas.

WIMD - Local fifths within each local authority and health board area were produced by grouping all Lower Super Output Areas (LSOAs) within each area into fifths. The national fifths, local authority fifths and health board fifths area therefore different and specific to the area. The value for the fifths ranges from 1 (least deprived) to 5 (most deprived). Further information on local fifths can be found in the publication "Measuring inequalities: trends in mortality and life expectancy" and the accompanying technical guide, all available on:

www.publichealthwalesobservatory.wales.nhs.uk/inequalities

Further information on MSOAs can be found in the publication "Guide to middle super output areas" which has been produced for each local authority area and is available on the website as follows:

<http://www.wales.nhs.uk/sitesplus/922/page/49851>

REFERENCE: Dobson A.J. et al (1991) Confidence intervals for weighted sums of Poisson parameters. *Stat Med* 10(3):457-462.
Kirkwood B.R. & Sterne J.A.C (2003) *Essential Medical Statistics*. Blackwell Science: Oxford.)