

# Energy from Waste Combined Heat and Power Facility, North Yard, Devonport

## Commissioning Management Plan (CMP)

December 2014



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# 1 Introduction

The planning permission for the Devonport EfW CHP facility includes conditions during the construction and the commissioning phase. Planning permission reference 11/00750/FUL, granted by Plymouth City Council on 3<sup>rd</sup> February 2012 includes a Condition 20, which specifies the requirement for a Commissioning Management Plan. The full condition reads,

*“COMMISSIONING MANAGEMENT PLAN*

*(20) Prior to the commencement of the commissioning phase, a written Commissioning Management Plan and timetable of operation for the commissioning phase shall be submitted in writing to the Local Planning Authority for approval. This plan shall indicate each stage of the commissioning phase, any potential impact on residents, timetable of events, mitigation controls and consideration of weather conditions, and how the information will be made available to the public. The commissioning shall not commence without written approval of the Commissioning Management Plan by the Local Planning Authority. The approved Commissioning Management Plan shall be followed throughout. Any alteration to the plan shall not be made without the prior written approval of the Local Planning Authority.*

*Reason: The proposed site is in immediate vicinity to existing residential properties, whose occupants may experience harm to amenity from noise and/or dust, odour and to avoid conflict with Policy CS22 and CS34 of the Plymouth Local Development Framework Core Strategy (2006-2021) 2007 and W8 of the Plymouth City Council Waste Development Plan 2006-2021 adopted 2008.”*

This Commissioning Management Plan (CMP) addresses the requirements of planning condition 20. The CMP sets out the intended methods of effectively managing potential environmental impacts arising from the commissioning activities of the EfW CHP facility and details the community engagement proposals which ensure that the local community are kept informed of the progress of the commissioning stages.

The commissioning phase is a critical part of the development and will establish that the construction of the works has been completed in accordance with the requirements of the Contract. It will also test the functionality of the works using a controlled and safe sequence of activities including a progressive start-up of the Facility to achieve full operation of the works.

Whilst this CMP is a planning requirement and its contents will be agreed with the Local Planning Authority (LPA) as part of the discharge of Condition 20, some changes to the detail of the commissioning sequence and programme may be expected to take account of the day to day events on site. It is considered impractical to seek LPA approval to accommodate minor changes to this CMP which are not likely to be noticeable outside of the site boundary and which will not affect any of the impacts of the activities.

The responsibility for implementation of the CMP lies with the Principal Contractor MVV O&M GmbH and it shall be implemented and controlled by the Commissioning Manager who will work in conjunction with key personnel (Construction Director, commissioning engineers, operational staff from MVV Environment Devonport (MED), contractors, etc.) to ensure it is implemented correctly. In order to ensure that this CMP remains relevant it will be the responsibility of the Commissioning Manager to take ownership of the CMP and ensure its relevance to activities being undertaken on site in light of any changes from the initial scope of the plan.

## 2 CMP Overview

This CMP identifies the project management structure roles and responsibilities with regard to managing and reporting on the environmental impact of the commissioning phase. Management and mitigation measures are detailed in this CMP which demonstrate that the commissioning works will be carefully controlled and continuously assessed to ensure full compliance with all environmental requirements.

This CMP also identifies construction activities that will not be completed by the start of commissioning (see Appendix 2). These activities will continue in parallel with the commissioning phases.

Effective management of the commissioning phase will ensure that the works are completed successfully and are fully compliant with national and local environmental requirements. All aspects of work during this phase will adopt the approach taken during the construction phase, in accordance with the following general principles:

- All practicable steps shall be taken to minimise the environmental effects of commissioning works.
- All commissioning activities shall be conducted in accordance with this CMP, relevant legislation, Codes of Practices, Guidelines, and any local environmental procedures.
- All staff (including sub-contractors) shall be made aware of the environmental issues relevant to the commissioning phase through the provision of site specific information on the environmental impacts of commissioning activities and the mitigation measures to be applied during inductions, briefings and tool box talks and other relevant information.
- Regular review of progress ensuring that the environmental requirements of the commissioning phase are met and ensuring that environmental controls remain adequate throughout the duration of these works.

### 3 Roles and Responsibilities

This section describes the environmental roles and responsibilities of key members of the Commissioning Team and provides contact details for the relevant personnel. The Principal Contractor (MVV O&M GmbH) shall assign individuals to each of the roles and responsibilities outlined below.

#### **Construction Director**

- To lead by example and champion all areas of environmental management.
- Ensure that appropriate resources are in place to effectively implement the CMP and deliver all legal requirements.
- Manage investigation and resolution of complaints in accordance with the Amenity Complaints Protocol (Planning Condition 56).

#### **Commissioning Manager (in conjunction with Environmental Manager)**

- To lead by example and champion all areas of environmental compliance and best practice.
- Ensure that appropriate resources are in place to effectively implement the CMP and deliver all legal requirements.
- Review the CMP throughout the commissioning process to ensure it remains relevant and effective in identifying and managing environmental risks.
- Report to and agree in writing with the LPA any necessary amendments to the CMP.
- Ensure that all legal requirements are identified and met.
- Ensure that the works are conducted safely and that hazards are identified and removed.
- Ensure that the works are regularly reviewed to maintain compliance with this and other relevant environmental requirements and that documentation referencing environmental procedures and policy are relevant and up-to-date and included within the CMP.
- Manage all necessary documentation to demonstrate compliance with appropriate legislation for the required period.
- Ensure correct procedures are followed in case of an environmental incident.

#### **Construction Site Manager**

- Ensure that the CMP and associated documents and control methods are effectively implemented on site on a day to day basis.
- Fully investigate and act on any environmental incidents and report findings to the Commissioning Manager.

- Conduct and document environmental inspections to ensure full control of commissioning activities and compliance with this CMP.
- Ensure that environmentally orientated briefings and “Toolbox Talks” are being delivered to the site workforce.
- Implement and maintain environmental controls on site.
- Ensure action is taken on any spills/incidents that occur on site.
- Report any activity that has potential to have an environmental effect immediately to the Commissioning Manager.

#### **Sub-Contractors Commissioning Staff**

- Comply with direction given in the Site Induction.
- Proactively approach environmental issues whilst on site.
- Ensure all construction activities are carried out in line with the procedures detailed in the CMP.
- Immediately report any environmental incident to their supervisors.

#### **Community Liaison Manager**

- Ensure that the local community are fully aware of all significant commissioning activities in advance of them occurring, particularly for activities which the local community may be able to see or hear. The purpose and process of the activities will be explained to the local community in order that the commissioning programme does not cause unnecessary alarm amongst community members.
- Primary point of contact at MVV for members of the public regarding communication about commissioning activities.

#### **Contact Details**

Contact can be made with the construction site as follows (08:00 – 18:00):

- Phone: 07786 626 515
- Email: Juergen.Folz@envi-con.de

Contact can be made with the construction site as follows (18:00 – 08:00):

- Phone: 07805 684 516 (for Security guard at main gate), or:
- Phone: 07796 268851
- Name: Mike Campbell (Commissioning Manager)

Contact can also be made by email with the following persons:

| <b>Role</b>               | <b>Name</b>   | <b>Email</b>              |
|---------------------------|---------------|---------------------------|
| Construction Director     | John Wade     | john.wade@mvvuk.co.uk     |
| Site Manager              | Jürgen Folz   | juergen.folz@envi-con.de  |
| Community Liaison Manager | Jane Ford     | jane.ford@mvvuk.co.uk     |
| Commissioning Manager     | Mike Campbell | Mike.campbell@mvvuk.co.uk |

### **Training**

All commissioning personnel with environmental responsibilities shall be suitably trained.

The induction given to all commissioning personnel shall include a general overview of commissioning-specific environmental issues, as well as details of how these issues shall be managed.

Where additional environmental information is to be communicated to commissioning personnel, this will be achieved by means of Environmental Briefings and Toolbox Talks covering topics relating to specific commissioning activities.

All relevant environmental information shall be clearly displayed in all mess / office areas. Any actions relating to these shall be implemented immediately, and all site personnel made fully aware of any changes.

## **4 Technical Information and Programme**

The commissioning period is a critical phase in which those activities that require the application of heat to the process are carried out to demonstrate that the facility can treat residual waste in accordance with the technical specifications and all planning and environmental requirements.

Commissioning is undertaken in close liaison with the Environment Agency, which oversees the implementation of the Environmental Permit for the facility. Liaison will also be undertaken with the LPA, including the Plymouth City Council's (PCC) Public Protection Service (PPS) as necessary, and the local community.

Commissioning is currently programmed to commence on 17 November 2014, upon the successful completion of the required elements of mechanical completion testing and proceed

in accordance with the programme attached in Appendix 5. This programme may be subject to change and any amendments to the dates of the key events shown on the programme will be notified to the LPA.

## 4.1 Commissioning Sequence

There are multiple component activities involved in commissioning, some of which are contingent on others and some of which overlap others. Careful scheduling needs to include the essential flexibility in the programme to account for changing events and priorities. The programme will be reviewed on a regular basis and the Commissioning Manager will ensure that the works proceed in accordance with all environmental and safety requirements.

Commissioning is carried out initially by the use of the auxiliary oil fired burners and subsequently by the treatment of waste. It comprises of the operation of substantial amounts of equipment on a progressive and co-ordinated basis, in a manner that is generally similar to the normal operation of the Facility. Commissioning also includes activities such as curing of refractories, steam blowing of pipework and detailed optimisation of control systems.

The commissioning phases are detailed in Table 1 below (note that activity orders and phases may change to adapt to evolving conditions and priorities).

**Table 1. Commissioning Phases (Note: The dates given below are valid at the time of submission but may be subject to change at short notice).**

| Commissioning Phase   | Main Activities   |
|---|---|
| <p><i>Phase 1:</i></p> <p>First Firing with Auxiliary Oil Burners</p> <p>Approximately 35 days on an intermittent basis</p> <p>05.01.15 to 12.02.15</p> | <ul style="list-style-type: none"> <li>• Chemical boil out and refractory dry out</li> <li>• Start-up and tuning of auxiliary burners</li> <li>• No waste incinerated</li> <li>• Steam blowing of boiler</li> <li>• Preliminary calibration of CEMs with test gases</li> <li>• Emergency testing with burners</li> <li>• Emissions during this period will be due to the tuning of both oil burners. The emission levels will be monitored</li> <li>• Readiness Test</li> </ul> |

| Commissioning Phase   | Main Activities   |
|---|---|
| <p><i>Phase 2:</i></p> <p>First Firing on Waste and Steam Circuit Testing.</p> <p>Approximately 15 days.</p> <p>13.02.15 to 05.03.15</p>                                    | <ul style="list-style-type: none"> <li>• First waste deliveries</li> <li>• Flue gas treatment system operating</li> <li>• Shutdown and start-up using oil burners</li> <li>• Progressive increase in quantity of waste on the grate for basic adjustment of the Combustion Control system</li> <li>• Optimisation and adjustment of combustion at various load conditions</li> <li>• Ash and residue transportation and storage systems operation</li> <li>• Commissioning of the Baling system</li> <li>• Commissioning Turbine, load/synchronisation testing adjustments by open-circuit operation, switch-over from Turbine-bypass to turbine and return, Turbine trip.</li> </ul> <p><i>Except in response to an emergency situation, activities that will result in any short term elevated noise levels and visible emissions will be avoided over Christmas Day and Boxing Day.</i></p>                                  |
| <p><i>Phase 3:</i></p> <p>Commence electricity generation.</p> <p>Approximately 39 days on an intermittent basis</p> <p>05.03.15 to 09.04.15</p>                            | <ul style="list-style-type: none"> <li>• QAL 2 testing of CEMS when stable operation is achieved</li> <li>• Adjustments at low load and nominal load, combustion and flue-gas cleaning systems</li> <li>• Synchronisation and Tests of Turbine with supply to Grid and Dockyard</li> <li>• The facility can automatically switch over to and operate in "island" mode</li> <li>• Live Tests with standby emergency power and boiler protection</li> <li>• Observation and final adjustment at nominal and low load.</li> <li>• Fine tuning of control loop parameters to optimise system reaction to changes (e.g. in waste quality) and transitory behaviour.</li> <li>• Testing of the emission control and monitoring system control loops.</li> <li>• Demonstration of the Combustion conditions by verification of the 2 seconds/850 C requirement.</li> <li>• Satisfactory shutdown under emergency conditions</li> </ul> |
| <p><i>Phase 4:</i></p> <p>Acceptance and Reliability Testing.</p> <p>15 days uninterrupted operation ending with start of Normal Operation.</p> <p>10.04.15 to 28.04.15</p> | <ul style="list-style-type: none"> <li>• Continuous operation</li> <li>• Waste throughput up to the maximum continuous rating (MCR) capacity of the Facility.</li> <li>• Demonstration of compliance with the Environmental Permit emission limit values</li> <li>• Acceptance Test</li> </ul>  |

## 4.2 Working hours

As the Facility operates on a 24 hours basis the commissioning activities of necessity need to replicate this mode of operation. Once certain systems are made “hot” they need to be maintained at temperature to enable other parts to be commissioned and also to avoid unnecessary thermal cycling which would be detrimental to the equipment.

Consequently from the start of commissioning the facility will be in operation and personnel will be present on the site 24 hours a day, seven days a week. Phase 2 of the commissioning programme requires waste to be fed onto the grate so prior to the start of this phase normal waste deliveries will commence in line with periods approved by planning condition i.e.:

|               |                |
|---------------|----------------|
| Monday-Friday | 08:00 – 19:00  |
| Saturday      | 08:00 – 18:00  |
| Sunday        | 10:00 – 16:00  |
| Bank Holidays | 10:00 – 16:00  |
| Christmas day | No deliveries  |
| Boxing Day    | 10:00 to 16:00 |

## 5 Environmental Management

The commissioning works are covered by the project specific Environmental Management System (EMS) which complies with BS EN ISO 14001. The EMS is monitored and audited by appropriate personnel throughout the duration of the works.

Processes involved in commissioning have the potential to give rise to steam, vapour, smoke and noise, and this CMP focusses in particular on the control and minimisation of these key elements of the commissioning works. In order to minimise the risk of such events, and to mitigate potential impacts, an environmental risk assessment has been undertaken. This examines the activities under the commissioning phase and details measures that will be implemented to reduce the risk of environmental impact during each activity. This risk assessment is presented in Appendix 1 as the Environmental Aspects and Impacts Assessment.

Control and mitigation activities identified as part of the environmental risk assessment will be communicated by MVV Umwelt O&M GmbH to all commissioning personnel. Risk assessments

and method statements prepared by contractors for commissioning activities will be reviewed by the MVV Umwelt O&M GmbH Environmental Manager prior to the activity commencing, to ensure that all activities are planned in accordance with all environmental and best practice requirements.

The following subsections outline the processes and methods to be implemented on site to ensure all environmental risks are identified and sufficient mitigation measures are put in place to reduce environmental impacts associated with the works.

## **5.1 Environmental documentation & records**

All environmental documentation shall be kept on site at all times and be available for inspection by internal and external auditors and regulators, as well as the client and management. Site personnel shall be made aware immediately if any significant changes in work procedures are implemented.

Relevant documentation shall include the following:

- Site Weekly Checklist
- Impacts and Aspects Matrix
- Environmental Risk Assessment
- Commissioning Management Plan
- Pollution Prevention Plan including emergency response
- Training and Responsibilities Matrix

Weekly environmental inspections shall take place on site by the relevant commissioning supervisor(s) who will be suitably competent. The findings of these inspections and any associated actions shall be appropriately documented on the Weekly Checklist.

Site management shall meet as necessary with the LPA to review activities on site and the potential environmental impacts and mitigation measures relevant to those activities that will be implemented.

The Site Emergency Response Plan which includes details of the management of an environmental emergency shall be clearly displayed on site noticeboards and the information explained to all site personnel. The Emergency Response Plan will contain a clear detailed plan of the site which indicates the location of sensitive receptors such as watercourses and drainage points. An appropriate number of spill kits shall be located within these areas and will be clearly marked on the plan. It is the responsibility of the site management to ensure all spill kits are fully

stocked at all times, and an inventory of equipment within the spill kit is to be clearly displayed within.

The project is registered with the Considerate Constructors Scheme (CCS) under registration number: 19164.

The CCS is a non-profit-making, independent organisation founded by the construction industry to improve its image. The CCS is neither grant maintained, nor funded by the government, and is solely financed by its registrations. The CCS Codes of Considerate Practice commit those sites and companies registered with the Scheme to be considerate and good neighbours, as well as respectful, environmentally conscious, responsible and accountable. Registered sites and companies must also consider their appearance and safety.

This commitment is maintained by the CCS monitoring registered sites and by the display of posters around the construction site, setting out the Code to which the sites or companies are committed. If passers-by wish to comment, the name and telephone number of the site manager or company contact are clearly displayed, alongside the Freephone telephone number of the CCS's administration office.

- **Training and management procedures**

To ensure that mitigation methods and measures are applied, appropriate training and management procedures will be implemented in accordance with Building Research Establishment's (BRE): The Pollution control Guide: Part 1 – Pre-project planning and effective management.

All site personnel, site operatives and sub-contractors will be made aware of the risks and mitigation methodology for any potential environmental impacts relevant to their specific activities through the Site Induction and regular briefings and toolbox talks.

## **5.2 Visible Emissions**

By definition, the commissioning process involves the application of heat, and pressure to certain parts of the plant to test and achieve safe and efficient function of the plant within all environmental and operational parameters.

As this is a newly built plant, it is inevitable that there will be the generation of some visible or odour emissions during the commissioning process. These may be the result of for example

materials being heated for the first time, temporary coatings and finishes being subject to elevated temperatures or the drying of refractory or insulation materials releasing water vapour. All such emissions will be temporary and will cause no environmental harm.

There will also be the release of steam from the boiler and water steam system vents (start-up valve, pressure relief valve etc.) on the roof of the boiler house as the various systems and operating conditions are tested. The commissioning process is a planned and structured activity but also one in which there has to be a degree of flexibility in the sequence and timing of activities, and therefore these releases of steam can be difficult to predict, and so may appear at irregular intervals during certain parts of the commissioning process.

- **Mitigation Techniques**

Commissioning activities will be visually monitored to identify any unnecessary or abnormal visible emissions.

If any emissions are observed to occur which may have the potential to cause nuisance, prompt action will be taken to ensure that the source of the emissions is identified and that action is taken to reduce the emissions as soon as possible.

### **5.3 Noise control**

The site is directly adjacent to residential areas making noise arising from commissioning activities a particularly sensitive issue to local residents. There are some elements of the commissioning activities which do have the potential to give rise to intermittent bursts of unusual noise which are likely to be audible to the nearby properties.

As with any plant as complex as this, commissioning must be carried out in accordance with strict operating procedures and standards so that all operational and safety systems are fully tested and proven and we accept that this will give rise at times to temporary abnormal noises levels which are both planned and unplanned.

- **Commissioning Activities Likely to Generate Noise**

There are some essential activities during the commissioning phase which will generate short term abnormal noise levels. These activities are listed below, and are almost certain to generate an unfamiliar noise that is audible from outside the site boundary. It is important to note that

whilst such noises are inherent in commissioning such a facility, MVV Umwelt O&M and its subcontractors will undertake all best practicable measures to reduce noise emissions, and also to respond rapidly and effectively to feedback from the LPA and local community where it is received.

The activities which are most likely to generate any significant abnormal noise beyond the site boundary are:

1. Relief valve testing
2. Testing of start-up and shutdown procedures
3. Testing of alarm systems
4. Steam blowing of pipework and boiler

Activities 1 and 2 will involve releases of steam from the vent outlets on the roof of the boiler house. These vents are fitted with silencers to minimise noise emissions as far as is practicable but the noise is likely to be heard outside of the site boundary. The noise will be short term but may need to be repeated in order to test all systems, however there will normally be a significant interval between such events.

Activity 3 will need to be carried out to ensure satisfactory operation of such things as fire alarms and process condition alarms. Certain of these alarms need to be tested to prove they are audible in all areas of the facility.

These activities will be carefully planned and controlled by the Commissioning Team, and undertaken using Best Available Techniques by highly experienced commissioning engineers.

In normal circumstances, activities which are known to result in abnormal noise levels will be planned to occur outside of the night time period. However there may be circumstances where such noise levels will occur on an unplanned basis during the optimisation of the systems.

Activity 4 - Steam blowing of the Pipework and Boiler is an essential part of the commissioning process, steam blowing ensures that the water and steam parts of the boiler are free from debris that may have accumulated during the construction phase. Steam blowing is essential prior to the connection of the steam supply pipework to the steam turbine because the turbine is a sensitive high speed rotary machine and any debris entering the turbine would cause damage to the rotor blades.

Steam blowing has to be carried out multiple times to ensure that all such debris is removed and until specific defined standards of cleanliness are obtained. Consequently it is not possible

to state in advance how many times steam blowing will be required, as it depends on how successful each steam blowing event is. To minimise the amount of steam blowing needed the boiler will previously have been flushed out and chemically cleaned in a boil out process.

The steam blowing procedure will give rise to steam release under pressure against a target plate, and will cause an associated abnormal noise. Such noises are short-term, typically 15 minutes for each blow with a period of 30 minutes between blows.

The procedure will be conducted using a special arrangement of piping and valves located on the east side of the facility directed away from the nearest sensitive receptors. The system will be fitted with a purpose designed silencer unit to minimise noise emissions to nearby residential areas.

Because steam blowing is anticipated to be the noisiest of the commissioning activities specific prior notification of the days on which steam blowing will take place will be given to nearby residents, the LPA and the Environment Agency (EA) (see section 6).

- **Noise Emissions from Other Commissioning Activities**

Whilst our design, construction and engineering teams are highly experienced and competent, we need to plan for unforeseen noise events during the commissioning phase. Our experienced commissioning engineers may need to undertake work that is out of a published sequence, or repetitions of previous works. These may generate unexpected noise.

The system optimisation phases of the commissioning may give rise to extraneous noise, which will be controlled as far as possible to reduce potential impact on the surrounding communities.

- **Mitigation Techniques**

There are several measures which will be undertaken as part of the planning and execution of potential noise-generating commissioning works:

- Specific training by means of tool box talks for all operatives involved in potentially noisy activities during commissioning, to include the requirement for all noise to be minimised and techniques to help reduce noise emissions.
- Noise control measures, including silencers when steam blowing, will be used.
- Ongoing liaison with PCC, PPS and the local community.
- Noise monitoring will be conducted at sensitive receptors in accordance with the Commissioning Noise Monitoring Programme (Section 5.4)

- Monitoring of feedback from local residents during site activities.
- Maintenance: Regular and effective maintenance of equipment during commissioning by trained personnel will be undertaken to ensure that no excessive noise is generated by poor maintenance.

## 5.4 Commissioning Noise Monitoring Programme

The off-site receptor locations to be employed for noise monitoring during commissioning of the EfW CHP facility are listed in Table 2 and shown in Appendix 4. These receptors provide a good representation of the closest receptors in each direction from the EfW CHP facility. The proposed receptor locations have been agreed with the Noise Monitoring Steering Group. Also listed in Table 2 are a set of on-site monitoring locations to be employed.

**Table 2: Receptor locations during commissioning**

| Receptor | Address                        |
|----------|--------------------------------|
| R3       | 13-15 Savage Road, PL5 1BP     |
| R15      | 1 – 12 Talbot Gardens, PL5 1BU |
| R22      | 22 Hamoaze Avenue, PL5 1BQ     |
| CA1      | 98-100 Cardinal Ave, PL5 1UT   |
| A        | On-site monitoring location    |
| B        | On-site monitoring location    |
| C        | On-site monitoring location    |

For each of the four stages of commissioning, outlined in Table 1, it is proposed to undertake noise measurements on site for a continuous 24 hour period at the three locations outlined in Table 2 (to be undertaken either simultaneously or on consecutive days). In addition, short-term noise measurements at the off-site receptors will also be undertaken, once at each receptor. Short term measurements shall comprise noise monitoring over a 60 minute period during the quiet part of the daytime (10:00 to 12:00 and 14:00 to 16:00) and over a period of 60 minutes during the quiet part of the night (01:00 to 03:00). However a degree of judgement will need to be applied when determining the exact timings of the measurements.

In addition to this, it is proposed to undertake off-site noise monitoring of specific noisy activities (e.g. steam blowing). These noisy activities will be identified by MVV and discussed with the NMSG, who will agree upon an outline noise monitoring schedule for each stage of commissioning. In determining the noise monitoring schedule the NMSG will take into consideration:

- The likely noise impact of each activity or group of activities;
- The ability to mitigate noise; and
- The location of the noise source in relation to residential receptors.

This approach will ensure noise monitoring captures specific noisy activities, and the monitoring regime should reflect this in relation to its timing and location. For example, noise monitoring will only be undertaken at receptors where there is considered to be a significant noise impact. It is important that a degree of judgement is allowed by MVV, their consultants, and other members of the NMSG in determining the exact timings and location of the measurements off-site.

Noise measurements shall be carried out by a suitably trained consultant. Suitably trained is defined as someone who has attended a recognised course in environmental noise measurement and reporting.

The following measurement procedure shall be adhered to:

- Type 1 integrating sound level meters and calibrator shall be employed (the sound level meters shall have calibration certificates dated within the previous 2 years and the calibrator shall have a calibration certificate dated within the previous year).
- The sound level meters shall be calibration checked prior to the measurements and calibration checked following the measurements. The calibration levels shall be noted.
- Prior to the measurements, suitable meteorological conditions shall be confirmed using local weather forecasts and on-site readings.
- Sound level meters, with all-weather protection, shall be installed at locations A, B and C, as listed in Table 2 and shown in Appendix 4.
- At each on-site location, noise levels shall be logged for a minimum 24 hour period.
- Logged parameters shall comprise LAeq,T, and LAFmax values in contiguous 5 minute intervals.
- At each on-site location, a note of the prevailing noise climate shall be made during installation and retrieval of equipment. This will include a brief description of plant noise and the contribution of noise from other non-site sources.
- At each on-site location, a note of the prevailing meteorological conditions shall be made during installation and retrieval of equipment. If conditions are unsuitable for noise monitoring, the measurements shall be postponed until the following day.
- At each short-term monitoring location, a note of the prevailing noise climate shall be made. This will include a brief description of plant noise and the contribution of noise from other non-site sources. In particular, any characteristics of the plant noise (e.g. tonal element).

- The guidance for the monitoring of noise levels given in BS4142 and BS7445 shall be followed.

For off-site noise monitoring, a noise monitoring reporting sheet, as used for the construction monitoring, will be filled out. Copies of the monitoring sheets will be kept on site as well as submitted to PPS.

For on-site 24 hour noise monitoring (to include supplementary off-site monitoring) a short report will be produced which will contain:

- The measured daytime and night-time noise levels at the on-site receptors;
- The measured daytime and night-time noise levels at the off-site receptors; and
- A comparison between on-site and off-site noise levels.

The report will be kept on site as well as submitted to PPS.

Should noise complaints be received, these will be thoroughly investigated by the site management in accordance with the Amenity Complaints Protocol (Planning Condition 56) and actions implemented to ensure repetition of the issues are avoided.

It is proposed that the NMSG will discuss:

- The off-site noise monitoring schedule for each stage of commissioning;
- The timing of continuous 24 hour on-site noise monitoring within each phase of commissioning to ensure the measurement is capturing a representative sample of the noise climate;
- Complaints received by MVV or PCC, and any subsequent mitigation implemented (where practicable);
- Implemented noise mitigation measures throughout commissioning and where improvements/alterations can be made; and
- Noise levels recorded during commissioning.

## **5.5 Odour, litter and dust control**

Commissioning works will involve the receipt of waste on site from phase 2 onwards, the control of odour, litter and dust will be achieved by:

- Assessment of odour risks during the various stages of commissioning in the context of the surrounding environment and nearby sensitive receptors.

- Introducing odour checks as part of daily routine inspections of the facility during the commissioning process, once waste reception has commenced. Should odour that is suspected of arising from the site be detected at nearby sensitive receptors, odour checks will be extended to these areas to determine likely origin and remedial measures.
- Ensuring that all normal operational odour control measures are implemented, notably that waste delivery vehicles are enclosed and/or sheeted, to prevent the escape of odour; and ensuring that the internal roller shutter doors into waste tipping bays are commissioned prior to first waste delivery and are only opened when a waste vehicle requires access.
- All waste is handled, processed and loaded within enclosed spaces. Air from the tipping hall is drawn into the furnace combustion chamber, preventing the release of dust and odours.
- Ensuring the shutdown exhaust system is commissioned before first waste delivery. This provides odour and dust control in the tipping hall and waste bunker when the incineration process is not in operation.
- Ensuring the external door to the tipping hall is commissioned before first waste delivery and kept closed outside of periods when vehicle access is required.
- Implementing the Environmental Checklist in Appendix 3.

## 6 Community Relations

Good relations with people living and working in the vicinity of site operations are of paramount importance. Continued maintenance of these relations throughout commissioning will contribute towards allaying people's fears. Good relations can be developed by keeping people informed of progress and by treating complaints fairly and expeditiously.

- **Communication Plan: Steam Blowing of Boiler and Pipework**

Due to the potential for noise to arise from the activities which may be audible off-site, MVV will implement a specific Communication Plan to inform local residents of progress with these activities. Regular updates will be made via the MVV Website, Construction Newsletters, task-specific letter drops and engagement with the local community. Use of local media – including radio and newspapers – may be used where appropriate.

MVV's Community Liaison Manager produces regular Construction Newsletters which are delivered (as a mailshot) to 1800 properties around the construction site. The autumn newsletter

will outline the commissioning process, including any specific activities that may be observable during each phase. A further Construction Newsletter will be delivered during Phase 2/3 of commissioning to update residents on progress through the commissioning programme.

In addition to the newsletters, the closest neighbours will receive extra information by means of a special letter drop. The purpose of this letter drop is to give more detail, as this becomes known, about more specific timings of activities that might give rise to concern such as steam blowing. As previously mentioned, some of these events can be difficult to predict and the purpose of providing additional information is to reassure residents that any disturbance will be short-term and temporary, rather than to attempt to deliver a detailed schedule of activities.

All newsletters and letters will also be placed on the community website, which is the primary source of information, and the Community Liaison Manager will continue to be available at least once a month in the local community for those wishing to speak to someone face-to-face. Community Computer Facilities are available at Tamar View Community Complex in Barne Barton for those without internet access (delivered via the Section 106 agreement and already in place).

- **Community Liaison Manager contact details**

|                      |                       |
|----------------------|-----------------------|
| Office telephone:    | 01752 393156          |
| Mobile phone number: | 07876 135632          |
| e-mail:              | jane.ford@mvvuk.co.uk |
| Website:             | mvvuk.co.uk           |

## Appendix 1 - Environmental Aspects and Impacts Matrix (Commissioning)

| Aspect              | Legislation   | Impact  | Risk   | Mitigation Measures  |
|---------------------|---|---|--|--|
| Noise               | Environmental Protection Act 1990<br>Clean Neighbourhoods & Environment Act 2005<br>Control of Pollution Act 1974<br>Town and Country Planning Act 1974   | Disturbance to residents.<br>Statutory Nuisance.  | Complaints.<br>Legal action.<br>Delay to works.<br>Risk to Reputation.                 | Considerate Constructors Scheme.<br>Best Practicable Means on site – low noise plant, noise monitoring, feedback from local residents. Installation of silencers during steam blowing.<br>Careful programming of works.<br>Specific training to all operatives on noise control.<br>Close communication with local community and LPA.<br>Community Liaison Manager.<br>Programme of noise monitoring, both proactively and reactively. |
| Visible emissions   | Environmental Protection Act 1990<br>Clean Neighbourhoods & Environment Act 2005<br>Control of Pollution Act 1974   | Disturbance to residents.<br>Statutory Nuisance   | Complaints<br>Legal action.<br>Delay to works.<br>Risk to Reputation                   | Programming of works to ensure these are short-term events.<br>Careful control of process to reduce likelihood of emissions.   |
| Water               | Water Industry Act 1991<br>Water Resources Act 1991<br>Water Act 2003<br>Groundwater Regulations 1995   | Water quality /groundwater quality reduction.<br>Pollution<br>Water Charges,<br>Resource consumption. | Legal Action<br>Clean-up costs<br>Failure to meet consent.<br>Uneconomical us of water | Surface water and trade effluent consents.<br>Monitoring compliance<br>Environmental Incident Procedure, Spill kits/training<br>Environmental Management Plan  |
| Odour, litter, dust | Environmental Protection Act 1990<br>Control of Pollution Act 1974<br>Clean Neighbourhoods & Environment Act 2005<br>Environmental Permitting Regulations 2010<br>Environmental Protection Act 1990<br>Clean Neighbourhoods & Environment Act 2005<br>Control of Pollution Act 1974<br>Town and Country Planning Act 1974 | Disturbance to residents.<br>Statutory Nuisance   | Complaints<br>Legal action.<br>Delay to works.<br>Risk to Reputation                   | Considerate Constructors Scheme.<br>Best Practicable Means on site: Odour Monitoring (daily after receipt of waste commences), dust monitoring (daily visual), litter monitoring (daily visual).<br>Ensure all waste is delivered in enclosed areas; recovery of air from waste bunker to combustion chamber.  |

## Appendix 2 – Construction Activities to be Completed After Start of Commissioning

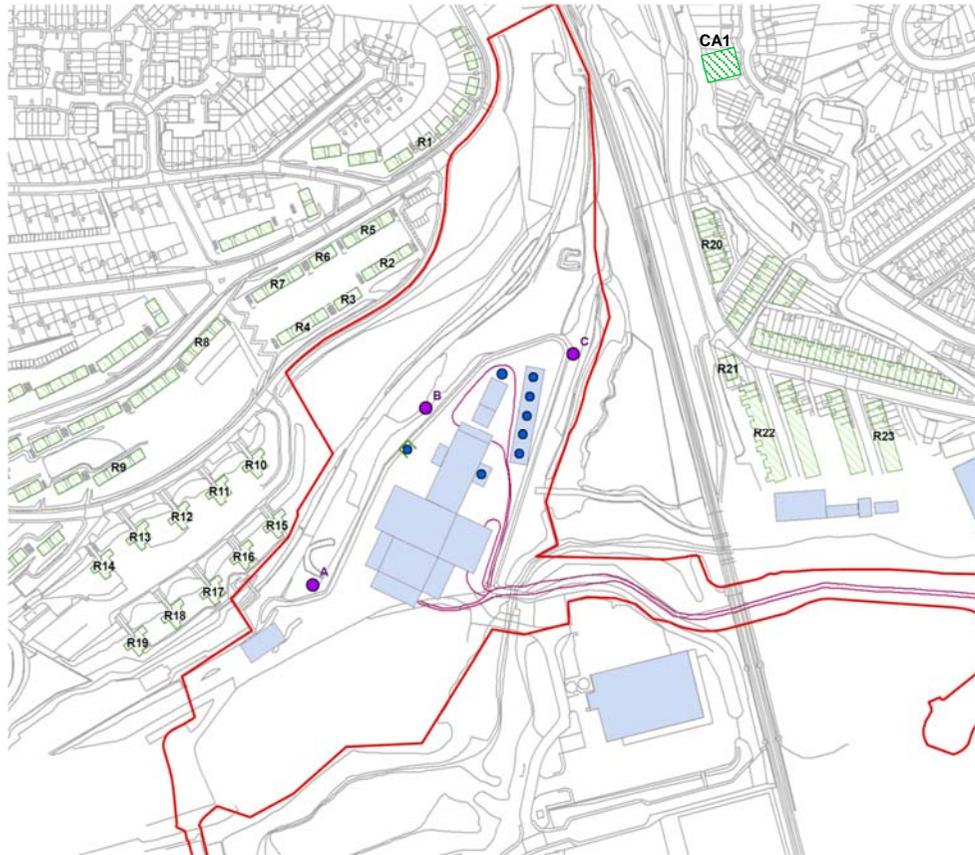
The construction activities listed below will not have been completed by start of commissioning and will therefore be ongoing during the commissioning phase.

| Activity No. | Activity   | Location on EfW site   | Anticipated completion date |
|--------------|--|--|-----------------------------|
| 1            | Mechanical and electrical Installation of auxiliary coolers  | East side of boiler hall south   | Start of phase 2            |
| 2            | 33/11kV cable & switchgear installation works  | South and east side of site and within dockyard  | Start of phase 2            |
| 3            | Underground services   | North east area of site  | Start of phase 2            |
| 4            | Final roads, kerbs & hardstandings   | Various areas of site  | Start of phase 2            |
| 5            | Final wearing course and marking of access road  | Site access road   | Start of phase 2            |
| 6            | Reinstatement and handover of TTM to MOD   | TTM  | Start of phase 2            |
| 7            | Realignment of boundary fence and removal of existing culvert bridge                               | West site boundary/within naval base   | Start of phase 3            |
| 8            | Installation of permanent sewer diversion and removal of temporary sewer diversion system          | West site boundary   | End of phase 3              |
| 9            | Installation of architectural ribs on facility buildings   | Waste bunker, boiler house, turbine hall   | Start of phase 4            |
| 10           | Installation of architectural ribs on ACC  | ACC  | Start of phase 4            |
|              | Installation of CHP pipework and support foundations from pipe bridge to dockyard connection point | East site boundary to boundary fence and inside naval base                             | Start of phase 4            |
| 11           | Installation of feature lighting system on facility buildings                                      | Waste bunker, boiler house, turbine hall   | End of phase 4              |
| 12           | Installation of feature lighting system on ACC   | ACC  | End of phase 4              |
| 13           | Construction of swale and associated groundwork features   | West site boundary   | End of phase 4              |
| 14           | Site perimeter fencing   | West site boundary & west boundary of TTM  | End of phase 4              |
| 15           | Construction of sculpture area   | Adjacent to access road entrance on west side of North Access Road to Camels Head gate | End of phase 4              |
| 16           | On site landscape planting   | Areas inside operational site boundary   | Spring 2015                 |
| 17           | Landscape planting in swale area   | West site boundary   | Spring/end November 2015    |

### Appendix 3 – Commissioning Environmental checklist

|  |      |               |                 |
|--|------|---------------|-----------------|
| Reporting day/week:  |      | Completed by: |                 |
| Short description of work carried out within reporting period:                     |      |               |                 |
| Weather conditions :   |      |               |                 |
| Environmental incidents in the reporting period:                                   |      |               |                 |
| Activities: (to be completed by Environmental Manager).                            |      |               |                 |
|  | Name | Date          | Action required |
| Noise monitoring:<br>Action required?  |      |               |                 |
| Spill kits checked<br>Completeness of inventory                                    |      |               |                 |
| Fuel storage<br>checked (containment integrity,<br>storage quantity)               |      |               |                 |
| Water vapour/steam emissions<br>check  |      |               |                 |
| Environmental toolbox talks<br>held (indicate topics as note!)                     |      |               |                 |
| Environmental training requirements<br>identified any requirements and<br>arrange. |      |               |                 |
| Odour check (after waste reception<br>commences)                                   |      |               |                 |
| Litter check – any evidence of litter<br>around site?                              |      |               |                 |
| Dust check – any evidence of dust<br>arising from site activities?                 |      |               |                 |

## Appendix 4 – Noise Receptor Locations



| Key   | Description                        |
|---|------------------------------------|
|  | Site Boundary                      |
|  | On site noise monitoring location  |
| <b>R3/CA1</b>   | Off-site noise monitoring location |

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## Appendix 5 – Commissioning Key Events Programme

| Activity ID | Task Name   | Duration | Start     | Finish    | 2014 |     |     |     | 2015 |     |     |     |  |  |
|-------------|---|----------|-----------|-----------|------|-----|-----|-----|------|-----|-----|-----|--|--|
|             |   |          |           |           | Sep  | Oct | Nov | Dec | Jan  | Feb | Mar | Apr |  |  |
| IBS12350    | Start hot commissioning   | 0d       | 05.01.15* |           |      |     |     |     |      |     |     |     |  |  |
| IBS10050    | Ignition Test / Attempts Auxiliary Burners                                | 3d       | 26.01.15  | 28.01.15* |      |     |     |     |      |     |     |     |  |  |
| PLY 27020   | Hot commissioning CEMS container  | 5d       | 26.01.15  | 30.01.15  |      |     |     |     |      |     |     |     |  |  |
| IBS10070    | Boiler Steam Blow-out (Boiler separately)+ 2nd Boil-out Boiler            | 15d      | 29.01.15  | 12.02.15  |      |     |     |     |      |     |     |     |  |  |
| PLY 25280   | Readiness Test Certificate  | 0d       |           | 12.02.15* |      |     |     |     |      |     |     |     |  |  |
| PLY 25290   | First delivery of waste   | 0d       | 13.02.15* |           |      |     |     |     |      |     |     |     |  |  |
| IBS12530    | Installation of filter bags and cages (depends on duration steam blowout) | 4d       | 13.02.15  | 16.02.15  |      |     |     |     |      |     |     |     |  |  |
| IBS14000    | Hot commissioning baling plant  | 5d       | 14.02.15  | 18.02.15  |      |     |     |     |      |     |     |     |  |  |
| IBS10510    | Operating steam purity and boiler adjustments                             | 8d       | 16.02.15  | 25.02.15  |      |     |     |     |      |     |     |     |  |  |
| IBS10280    | Start-up Combustion and Boiler for 1st Waste Fire                         | 1d       | 18.02.15* | 18.02.15  |      |     |     |     |      |     |     |     |  |  |
| IBS10300    | Optimising Boiler Adjustments and Control                                 | 57d      | 18.02.15* | 15.04.15  |      |     |     |     |      |     |     |     |  |  |
| PLY 25300   | First fire with waste   | 0d       | 19.02.15  |           |      |     |     |     |      |     |     |     |  |  |
| IBS12070    | Hot commissioning residue system  | 10d      | 19.02.15  | 28.02.15  |      |     |     |     |      |     |     |     |  |  |
| IBS11660    | 1st Steam Delivery to Turbine   | 0d       | 26.02.15  |           |      |     |     |     |      |     |     |     |  |  |
| IBS11690    | Connection to generator   | 0d       | 01.03.15  |           |      |     |     |     |      |     |     |     |  |  |
| IBS11700    | Hot commissioning generator   | 4d       | 01.03.15  | 04.03.15  |      |     |     |     |      |     |     |     |  |  |
| IBS11710    | First feed of 33kV to grid  | 0d       | 05.03.15  |           |      |     |     |     |      |     |     |     |  |  |
| PLY 25310   | Start of Power generation   | 0d       | 06.03.15  |           |      |     |     |     |      |     |     |     |  |  |
| IBS12670    | Hot commissioning CHP steam and condensate system                         | 5d       | 23.03.15  | 27.03.15  |      |     |     |     |      |     |     |     |  |  |
| PLY 25320   | Acceptance test   | 12d      | 10.04.15  | 27.04.15  |      |     |     |     |      |     |     |     |  |  |
| PLY 25330   | Planned EPC service commencement  | 0d       | 28.04.15  |           |      |     |     |     |      |     |     |     |  |  |
| PLY 25340   | Trial operation   | 20d      | 28.04.15  | 25.05.15  |      |     |     |     |      |     |     |     |  |  |
| PLY 25350   | Issuance of Taking-Over Certificate                                       | 0d       | 26.05.15  |           |      |     |     |     |      |     |     |     |  |  |

 Summary  
  Remaining Work  
  % Compl...  
 Actual Work  
  Milestone