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JERSEY TTS

LA COLLETTE CLINICAL WASTE TREATMENT PROJECT

VARIATION TO WASTE MANAGEMENT LICENCE

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MANAGEMENT SUMMARY

Jersey currently generates approximately 450 tonnes of clinical waste annually. At present, all waste arising from hospitals, care homes, medical practices and the like are collected as a single waste and consequently the mixed waste must be classified as hazardous waste due to the small fraction that is hazardous. All of the waste is processed at the clinical waste incinerator ("CWI") operated by the States of Jersey's Transport and Technical Services department ("TTS") at Bellozanne. This incinerates the waste at high temperature (1100°C) within a diesel fired combustion chamber with the flue gas cleaned using a bag filter, sodium bi-carbonate and activated carbon. No useful energy is recovered from this process.

The mixed waste comprises of general domestic waste, offensive/hygiene and infectious treatable wastes. Typically it is considered Good Practice in the UK for the different waste types to be collected separately. This allows better management of the waste, allowing the most appropriate treatment to be applied to each type.

Based on an audit of the Islands clinical waste arisings by TTS in 2014, it is estimated that waste being treated as clinical waste at the Bellozanne facility is made up of domestic and offensive/hygiene waste (approximately 60%); infectious treatable clinical waste (approximately 27%); infectious contaminated waste; sharps; small body parts; cytotoxic and cytostatic wastes, and medicines (approximately 13%).

TTS are planning the installation of a new sewage treatment facility at Bellozanne. As part of this project TTS intends to decommission the Bellozanne CWI as it occupies land required for the new sewage treatment plant.

To develop the most appropriate option for a new clinical waste treatment facility on Jersey, TTS and the Department of Health have agreed a strategy to separate the waste types to allow Best Practice for the collection and treatment of waste to be implemented. This would reduce the amount of hazardous waste being produced, and allow the efficient treatment of each waste type.

Once the domestic and offensive/hygiene wastes are collected separately the La Collette energy-from waste ("EfW") plant would process approximately 60% of the waste currently being treated as clinical waste without any additional pre-treatment.

There is also space within the La Collette EfW plant to install separate pre-treatment and treatment facilities for infectious (treatable) and hazardous waste. Approximately 27% of the clinical waste would be pre-treated to a sterilised form and then incinerated in the existing EfW plant boilers. The remaining proportion (approximately 13%) would be treated in a new small, high-temperature disposal unit. Overall approximately 87% of the clinical waste currently generated would be diverted from clinical waste incineration and treated in a process with energy recovery.

The domestic, offensive/hygiene and pre-treated waste incinerated in the EfW plant would use the existing energy recovery and flue gas treatment ("FGT") facilities. The new high temperature disposal unit would also use the existing flue gas treatment plant. This would make the best use of the existing asset and avoid the construction of a new facility.

This document is provided by TTS as an initial assessment of the existing Waste Management Licence (no. WML019) with regards to the proposed disposal of clinical waste at the La Collette EfW facility and has highlighted the following:

(1) the clinical waste processes would be located within the site boundary of the existing waste management licence for the La Collette EfW;

(2) the disposal of clinical waste at La Collette would comply fully with the stipulations of the Statutory Conditions section of the Waste Management Licence;

(3) the disposal of clinical waste at La Collette would comply fully with the stipulations of the Management section of the Waste Management Licence;

(4) several additions to tables referenced in Operations section Waste Management Licence would be required to accommodate the processing of clinical waste;

   a) update of the approved list of site activities (Table S3.1) to include waste pretreatment and high temperature disposal equipment operation;

b) update of the list of permitted waste types (Table S2.1) to include clinical waste; and

c) update of Operating Techniques list (Table S3.2) to include the requirement to update the Working Plan to include the operation and maintenance of the new equipment;

(5) the table listing the waste sampling requirements of the site (Table S4.4) would require updating to include testing of the high temperature disposal by-products; and

(6) the table specifying the reporting requirements of the site (Table S5.1) needs to be updated to include reporting on sharps ash testing.

With the exception of these changes, the processing of clinical waste at La Collette EfW would comply fully with the requirement of the Waste Management Licence. As such a variation to this licence is considered appropriate rather than an application for a new licence.

The environmental impacts of the processing clinical waste at La Collette EfW have also been reviewed against the assessment completed for the EfW. It is considered that the additional waste streams and processes would not contribute to the environmental risks of the La Collette site and may be adequately managed through the facilities existing control measures. There would be no material change to the findings of the original assessment completed for the EfW with the inclusion of the Islands clinical arisings. As such we consider that a further environmental impact assessment is not required.

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1 INTRODUCTION

1.1 Background

Jersey currently generates approximately 450 tonnes of clinical waste annually. At present, all waste arising from hospitals, care homes, medical practices and the like are collected as a single waste and consequently the mixed waste must be classified as hazardous waste due to the small fraction that is hazardous.

The amount of clinical waste being processed in the last six years is shown in Table 1 below. All of the waste is processed at the CWI operated by TTS at Bellozanne.

Table 1. Clinical waste arisings on Jersey

Year	CWI treated
2008	346 tonnes
2009	365 tonnes
2010	405 tonnes
2011	423 tonnes
2012	428 tonnes
2013	453 tonnes

Typically it is considered Good Practice in the UK for the different waste types to be collected separately. The mixed waste comprises of general domestic, offensive/hygiene and infectious (treatable) wastes which could be collected and treated separately. This allows better management of the various wastes using the most appropriate treatment to be applied to each type. It is estimated that waste being treated as clinical waste at the Bellozanne facility is made up of the waste types outlined in Table 2 based on an audit of clinical waste arisings conducted by Jersey TTS in 2014.

Table 2. General composition of clinical waste on Jersey

Waste Description	% Weight
Domestic and offensive/hygiene waste	59.3%
Infectious waste (treatable)	27%
Infectious waste (chemically contaminated)	<1%
Body parts	<1%
Sharps	8.5%
Cytotoxic and Cytostatic wastes	<1%
Medicines	4.2%

1.2 Bellozanne Clinical Waste Incinerator

TTS has proposed to replace the existing Bellozanne CWI to provide space for the construction of new sewage treatment plant.

The Bellozanne clinical waste facility incinerates the mixed waste at high temperature (1100°C) within a diesel fired combustion chamber. The flue gas is then cleaned using a bag filter with sodium bicarbonate and activated carbon injection to remove acid gases, metals, dioxins and furans. This is a similar process to the flue gas cleaning at the new La Collette EfW plant, albeit that this system uses hydrated lime instead of sodium bicarbonate.

There is no heat recovery from the process at Bellozanne, unlike the La Collette EfW plant which produces electricity as a useful output from the combustion process.

The bottom ash produced at Bellozanne is disposed of alongside bottom ash from the La Collette EfW plant and the flue gas cleaning residues are disposed off in a hazardous landfill cell at La Collette.

1.3 Waste Treatment Options

A feasibility study completed by Fichtner (August 2012) outlined and evaluated the following options with regards to disposal of the Islands clinical waste:

(1) thermal treatment in a new dedicated facility, using incineration, gasification, pyrolysis or plasma gasification;

(2) pre-treatment using autoclaving followed by final treatment by incineration or other disposal means; and

(3) export of waste to Europe or the UK.

The findings of the feasibility study can be summarised as follows:

(1) the preferable solution is diversion of domestic and offensive/hygiene waste directly to the EfW plant, with the pre-treatment of the suitable remaining waste with final disposal at the La Collette EfW. This would account for approximately 87% of waste currently generated;

(2) the remaining fraction of the waste (13%) would still require high temperature disposal;

(3) the most suitable location for the pretreatment units and high temperature disposal unit is the atrium of the La Collette EfW using the much larger EfW plant's flue gas cleaning systems; and

(4) waste segregation practices must be adopted by waste generators to separate out waste which can be pre-treated from that which requires disposal at temperatures of at least 1100°C.

The adoption of these recommendations would permit the complete diversion of clinical waste from Bellozane CWI while delivering UK Best Practice for waste management.

1.4 Clinical Waste Management

The HSE (UK) operates within the guidelines of several comprehensive guidance documents, specifically HTM 07-01 and the RCN Safe Management of Health Care Waste, which outline Best Practice for clinical waste segregation. In the UK, producers of clinical waste are required to segregate waste arisings by law as part of their Duty of Care to classify and describe their waste. Without waste segregation there is a risk that hazardous waste would be disposed of in an unauthorized manner and staff handling the waste streams may be exposed to infectious waste or injured (e.g. needle stick) by the waste. The correct segregation of waste can also aid in waste mitigation as recycling may be adopted, which is currently not possible on Jersey as all of the waste is deemed hazardous. Further to this, the HSE guidelines state that the disposal of hazardous waste through incineration is costly and carbon intensive and the volumes forwarded to CWI's should be reduced where possible.

In Jersey, the waste arisings from healthcare facilities are not segregated and all of the waste is forwarded to the Bellozanne CWI for disposal. This is a carbon intensive and costly practice as the gate fee charged at a CWI facility is typically higher than that charged at an EfW facility processing domestic waste. As a result, segregation measures are usually taken by clinical waste producers to ensure that only the small fraction of the overall waste requiring high temperature disposal is forwarded to the CWI.

A survey of the Islands waste arisings by Jersey TTS in 2014, found that approximately 60% was of the arisings were domestic or offensive/hygiene in nature, not requiring high temperature disposal, and a further 27% of this waste may be made safe through pretreatment.

Segregation at source has the potential to reduce the quantity of hazardous clinical waste in Jersey significantly to approximately 13% of its current figure, introduce waste disposal cost savings and reduce the carbon intensity of clinical waste disposal on the Island through utilizing energy recovery.

To develop the most appropriate option for a new clinical waste treatment facility on Jersey, TTS and the Department of Health have agreed on a strategy to separate the waste types to allow Best Practice for the collection and treatment of waste to be implemented. The intent is that the new process would reduce the amount of hazardous waste being produced and allow the efficient treatment of each waste type.

1.5 Description of the Proposed Solution

The proposed pretreatment and disposal facility at La Collette would comprise of the following elements which would be installed within the existing building structure:

(1) two pre-treatment units (autoclaves), each capable of processing approximately 200 tonnes per annum of clinical waste;

(2) refrigerated storage with a capacity for two weeks of clinical waste arisings;

(3) high temperature waste disposal unit (small batch CWI);

(4) bin washing and drainage facilities;

(5) an external bin lift between the EfW building and the Bulky Waste Store to the storage and the processing area in the EfW atrium; and

(6) pipework, cabling, controls systems and the like for the integration of the pre-treatment and high temperature disposal equipment into the existing facility.

With the exception of the external bin lift, all of the equipment would be located within the existing structure of the La Collette EfW as show in the preliminary drawings in Appendix A.

1.6 Operation of the Proposed Solution

It is proposed to dispose of clinical waste through a combination of waste pre-treatment followed by incineration of the sterilised product in the existing municipal solid waste ("MSW") EfW plant, and high temperature disposal in the new La Collette CWI plant. The waste pre-treatment and high temperature disposal processes would be fully incorporated into the existing facility and would completely dispose of all of the Island's clinical waste arisings.

Domestic and offensive/hygiene clinical waste is non-hazardous and on delivery to La Collette will be tipped into the MSW bunker for storage and processing.

The remainder of the clinical waste categories are hazardous due to infection or other properties of the waste and shall be received by a dedicated unloading bay between the EfW building and the Bulky Waste Store. The bins would then be lifted to the "atrium" (concrete slab above the tipping apron) for storage and processing.

The operation of the pretreatment and high temperature disposal units are dependant on the operation of the main EfW plant for process steam and flue gas treatment. To account for EfW plant outages, the refrigerated store would be sized to accommodate up to two weeks of clinical waste arisings.

The pre-treatment units would operate within the operating hours of the EfW plant up to five (5) days a week (excluding Saturdays and Sundays) sterilising approximately 800kg of clinical waste a day for inclusion in the MSW waste stream. Following sterilisation the waste would be fed into the MSW bunkers via dedicated chutes where it would be processed without variation to the existing operating procedures.

The high temperature disposal unit would also operate within the operating hours of the EfW plant for four (4) days a week initially, processing approximately 400kg of waste a day. As the level of waste arisings increases to a forecast 2 tonnes per week by 2035, the units would be operated up to five (5) days a week (excluding Saturdays and Sundays).

Following disposal of the clinical waste, the empty bins would be lowered back down to ground level for steam cleaning in a dedicated bin washer prior to redistribution. Any run off from the cleaning would be retained in the adjacent bunker or captured by the process water drainage system before being treated and discharged to sewer under the existing trade effluent consent.

The pretreatment and high temperature disposal processes would be heavily automated with manual operator intervention only required to feed waste bins into the relevant piece of equipment i.e. to/from the delivery vehicles, the bin lift or the bin washer.

1.7 Waste Management Licence Review

The La Collette EfW facility operates within the constraints of its Waste Management Licence (WML). The following sections of the WML will be reviewed in Section 4 of this report to identify where variations would be required to accommodate the processing of clinical waste processing at La Collette EfW:

(1) statutory conditions;

(2) management;

(3) operations;

(4) emissions and monitoring; and

(5) information.

2 CLINICAL WASTE MANAGEMENT PROCESS

2.1 Bellozanne CWI

The Bellozanne CWI is the only CWI in Jersey and it achieves its aim of destroying all of the clinical waste produced on the Island. The Bellozanne CWI recovers no energy from the waste and is purely a disposal facility. The plant is currently occupies land which is required for a new sewage treatment plant and Jersey TTS is preparing a proposal for its replacement.

2.2 Waste Segregation

At present all of the clinical waste produced in Jersey is delivered to Bellozanne CWI in 660 litre yellow bins as a single waste for disposal, as illustrated in Figure 1.

Approximately 60% of waste arisings are domestic or offensive/hygiene wastes and do not require high temperature disposal. A further 27% of the clinical waste may be deemed non-hazardous following pretreatment and can be diverted from high temperature disposal. The remaining 13% cannot be rendered non-hazardous through pretreatment and includes cytotoxic and cytostatic wastes, medicines and sharps.

It is proposed to adopt a programme of waste segregation at source to separate out domestic and offensive/hygiene waste (which requires no treatment), waste which can be sterilised through pretreatment (autoclaving) and waste requiring high temperature disposal, in order to significantly reduce the volume of waste which must be forwarded to a CWI. The recovered domestic, offensive/hygiene and sterilised waste can then be treated as MSW (approximately 87% of waste produced) and added to the waste currently processed at the La Collette EfW for energy recovery, while the remaining clinical waste (approximately 13%) may be treated on a batch basis in a small high temperature disposal unit located within the La Collette EfW facility.

It is proposed to segregate the waste according to the principles of the Department of Health (UK) guidelines (HTM 07-01) and RCN Safe Management of Health Care Waste. An overview of the segregation proposal is illustrated in Figure 2.

The obligations the various waste producers will be bound to with respect to segregation and auditing of waste would be enacted under the Waste Acceptance Criteria (enclosed in Appendix B for reference) agreed between the waste producer and Jersey TTS.

2.3 Integration into the Existing Facility

It is proposed to install the majority of the new waste processing equipment in the atrium of the La Collette EfW as shown on the site plan in Appendix A. The atrium is currently unoccupied and provides the shortest route for the transfer of sterilised waste to the MSW bunkers below. Waste will be brought up to the atrium via a bin lift installed in the open space between the main EfW building and the Bulky Waste Store.

No significant barriers to the installation of the proposed clinical waste handling equipment have been identified.

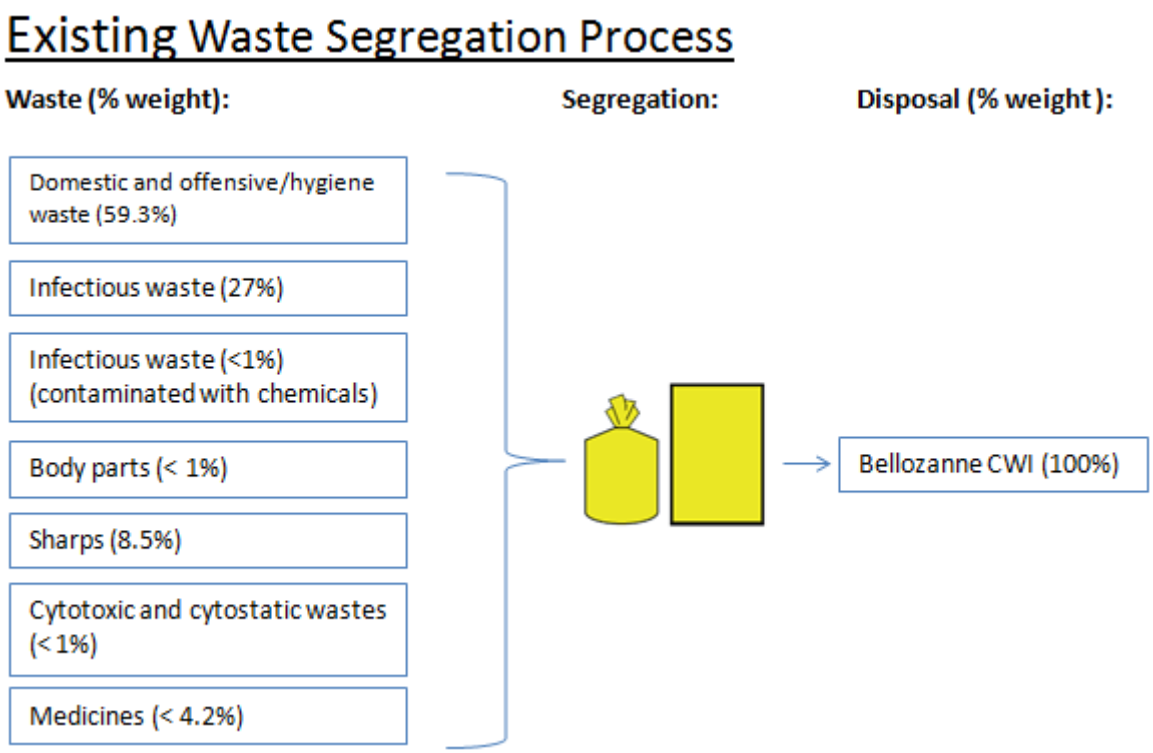

Figure 1, unsegregated waste

Proposed Waste Segregation Process

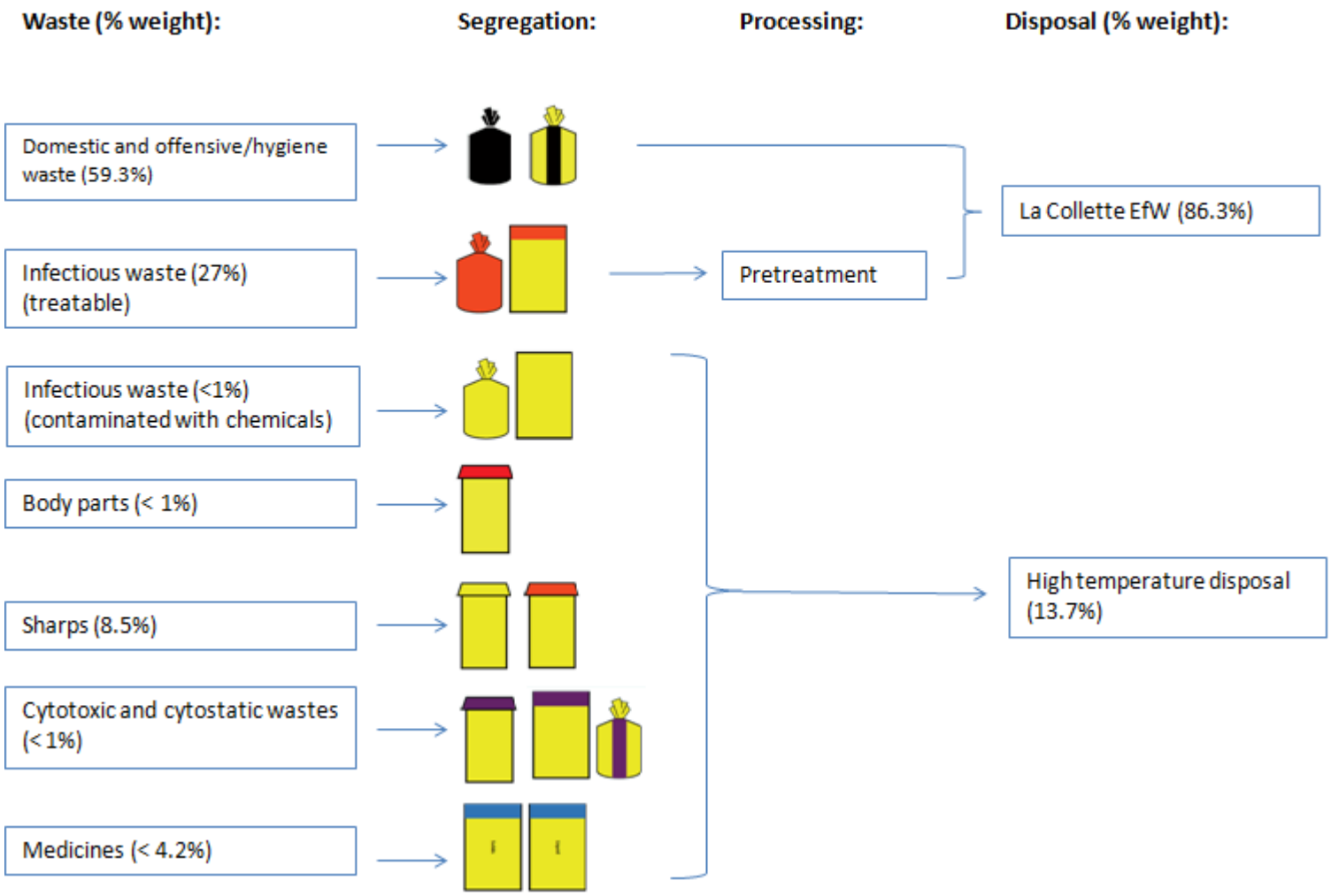

Figure 2, waste segregation

2.4 Energy Recovery

The Bellozanne CWI is purely a disposal facility and does not recover energy from the waste received. The Waste incineration Directive ("WID") requires the flue gas generated to be raised to a furnace temperature of at least 1100°C[1], which requires the injection of significant volumes of light fuel oil and makes waste disposal at Bellozanne CWI energy intensive.

The processing of clinical waste at La Collette EfW would permit energy recovery in the form of electrical power from approximately 87% of the Island's clinical waste arisings with the remaining 13% of the waste forwarded to high temperature disposal.

2.5 Process By-Products

There would be several by-products from the processing of clinical waste processing at La Collette:

(1) bottom ash (mixed with the existing MSW ash);

(2) clinical waste ash (from high temperature disposal unit, containing sharps);

(3) additional flue gas treatment residue; and

(4) additional flue gases.

The non-combustible elements of domestic, offensive/hygiene and sterilised clinical waste added to the MSW stream would form an inert ash similar to that which the La Collette EfW currently produces.

The original Environmental Impact Statement ("EIS") states that the maximum ash output of the facility per annum is 29,000 tonnes per annum (t/a) for a waste throughput of 105,000 t/a. The facility currently produces approximately 16,000 t/a from approximately 70,000 t/a of MSW. If clinical waste is included this would increase marginally to 16,100 t/a which is well within the maximum ash output expected originally.

Clinical waste which cannot be made safe through pretreatment would be processed on a batch basis by a high temperature disposal unit located adjacent to the pretreatment equipment. This waste represents approximately 13% of the clinical waste produced on the Island and it is primarily made up of metals and glass. Any ash produced from the treatment process would be inert in nature but due to inherently dangerous nature of the sharps (which may include syringes, scalpels and the like), the ash arisings of the CWI would be disposed of at a hazardous landfill.

The separation of the waste types would mean the volume of potentially dangerous residues produced from the treatment process containing sharps and the like would be significantly reduced. This would also remove possible contamination sources from the bottom ash from the EfW plant which could restrict recycling opportunities.

The additional flue gases produced through the processing of clinical waste at La Collette would contribute to approximately 20 t/a of additional FGT residue. La Collette currently produces 3,550 t/a of FGT residue which is currently disposed of in sealed pits at La Collette. In 2014, FGT residues will be shipped to the UK for safe disposal under a DRR instead of being stored on the Island. The DRR application specifies that the FGT residue shipped are the by product of the processing MSW only and would require update to account for the additional FGT residue associated with the disposal of clinical waste at the facility. Table 3 summarises the by-product arisings from the processing of clinical waste at La Collette and its impact on the current output of the facility.

[1] Article 6, paragraph 1.

Table 3, Clinical waste treatment by-products			
By-product	**Permitted by the EIS (t/a)**	**Current Rate (t/a)***	**Proposed Rate (t/a)****
Bottom ash	29,000	16,000	16,100
Ash containing sharps	-	-	60
FGT residue	6,400	3,550	3,570

Notes:

These figures are indicative only and would vary with waste composition.

* assumes the EfW is operating at 70% capacity

** assumes that clinical waste will make up 0.43% of the waste stream i.e. 450 t/a

The impact of clinical waste processing at La Collette on the flue gas emissions of the facility is discussed in detail in Section 5.6.

3 OVERVIEW OF ACTIVITIES

3.1 Waste Acceptance Criteria

Clinical waste received by the Jersey TTS would be subject to Waste Acceptance Criteria (enclosed in Appendix B for reference) to establish that it is as expected and has been appropriately segregated at the point of disposal by the waste producer.

The following sections provide a brief overview of each party's obligations under the Waste Acceptance Criteria and the waste disposal process.

3.2 Waste Reception and Storage

The waste would be segregated at source by the waste producer into demarked category specific bins in accordance with their waste handling procedure. The demarked bins allow for ease of identification by the Operator on delivery to La Collette. The waste producer shall segregate its waste into the following categories:

(1) domestic waste;
(2) offensive/hygiene;
(3) infectious (treatable);
(4) infectious (chemically contaminated)
(5) body parts;
(6) sharps;
(7) cytotoxic and cytostatic; and
(8) medicines.

It is the waste producer's responsibility to ensure that its waste arisings are segregated correctly and it will be required to regularly audit its waste segregation practices.

Domestic and offensive/hygiene clinical waste is non-hazardous and on delivery to La Collette will be tipped into the MSW bunker for storage and processing.

The remainder of the clinical waste categories are hazardous due to infection or other properties of the waste and shall be received at a dedicated clinical waste reception area between the MSW hall and the bulky waste facility. Here the waste will be unloaded and its details entered into the clinical waste tracking system. The information logged includes details of the waste producer, waste category, the carrier and the weight.

Following the logging of the waste delivery by the Operator the waste would be lifted to the atrium for storage and processing. The Operator would use the category specific demarking on the waste bins to determine which process stream is appropriate for the waste:

(1)	infectious (treatable)	-	clinical waste pretreatment stream
(2)	infectious (chemically contaminated)	-	high temperature disposal stream
(3)	body parts	-	high temperature disposal stream
(4)	sharps	-	high temperature disposal stream
(5)	cytotoxic and cytostatic	-	high temperature disposal stream
(6)	medicine	-	high temperature disposal stream

In order to mitigate the generation of odours from the clinical waste it would be stored at a temperature of less than 5°C in a refrigerated room with a capacity for two weeks of clinical waste arisings. This storage capacity is sufficient to allow for a prolonged outage of the main EfW plant which the pretreatment and high temperature disposal equipment are dependant on for process steam and flue gas abatement.

The empty containers would be lowered to ground level via the bin lift for washing in a dedicated ground level bin washer prior to redistribution. Pre-treatment Process

It is proposed to use autoclaves to pre-treat clinical waste prior to inclusion in the municipal waste stream as shown by the process flow diagram in Figure 3.

The selected pretreatment technology would be designed specifically for the sterilisation of clinical waste to the Level III criteria provided by the State and Territorial Association on Alternative Treatment Technologies ("STAATT") or equivalent. The pretreatment units would be controlled and monitored by a dedicated process control system, to ensure that the waste is heated to the required temperature for the required time during each sterilisation cycle.

The sterilising capabilities of the pretreatment process shall be verified using a combination of physical, chemical and biological monitoring:

(1) physical monitoring involves the monitoring and recording of autoclave pressure and temperatures during every process cycle for comparison against a set of manufacturer specified minimum performance parameters;

(2) Chemical monitoring involves the introduction of a temperature, pressure and time activated test strip into the autoclave during a process cycle to verify that the process parameters are being met. The strip should be triple contained when used to adequately test the autoclave and shall be a "Class 5: Integrating Indicator" or approved equivalent. Chemical monitoring shall be carried out every month.

(3) Biological monitoring involves the introduction of a live bacterium sample (such as Bacillus Stearothermophilus) into the autoclave and, following processing; testing of the sample to confirm that it meets the kill rate specified under STAATT Level III. The sample should be triple contained when used to adequately test and autoclave and it is recommend that this test is carried out every four (4) months. Biological monitoring will also be used during the commissioning of the pretreatment stream to verify its configuration.

The pretreated clinical waste, sterilised through autoclaving, would be transferred to the MSW bunkers via a dedicated chute for energy recovery.

3.3 Batch High Temperature Disposal

3.3.1 Clinical Waste

Approximately 13% of the clinical waste arisings cannot be rendered non-hazardous through pretreatment and can only be disposed though hazardous landfill or high temperature disposal (in excess of 1100°C). This hazardous waste would be disposed of at La Collette using a high temperature disposal unit located in the atrium of the EfW building with the flue gases generated being forwarded to the existing flue gas treatment plant for abatement, as shown in the process flow diagram in Figure 3.

The high temperature disposal unit would operate on a batch basis for four (4) days a week initially to process the weekly waste arisings forecast for 2015 of 1.3 tonnes. As the level of waste arisings increases to a forecast 2 tonnes per week by 2035, the units would be operated five (5) days a week.

3.3.2 Police and Customs Usage

The high temperature disposal unit may be used on occasion by the Police and Customs and Excise to destroy a range of items including evidence, counterfeit goods, seized items and drugs. The manual feed door of the high temperature disposal unit would provide the ability to witness the feed of the items for disposal into the unit. Once the door has been closed, and the items have passed into the unit, the door may be re-opened to confirm everything has been destroyed.

This functionality is currently provided by the Bellozane CWI and may be continued at La Collette EfW.

3.4 Auditing of Segregation

The effective segregation of waste into demarked bins at source by waste producers is imperative to guaranteeing the safe and efficient disposal of waste at La Collette EfW, as detailed previously in Section 2.2. Routine auditing of clinical waste segregation practices at source would form part of the clinical waste producers waste handling procedure.

Waste producers shall audit its waste arisings every 48 months if it produces less than five (5) tonnes of clinical waste per year, or every 12 months if it produces more than five (5) tonnes of clinical waste per year in accordance with the EPR 5.07 guidelines.

3.5 Waste Tracking

Each waste producer shall complete an annually updated consignment note (example include in Appendix C for reference) detailing the waste categories it will be forwarding to the La Collette EfW plant over the following year.

The bar code based clinical waste logging system used at La Collette shall employ this information to confirm that the waste deliveries forwarded comply with the waste producers consignment note and shall log the category and weight of the waste received by each waste producer over the year.

3.6 Re-distribution of Waste Bins

The bins used to deliver clinical waste to the facility are cleaned in a dedicated bin washer before they can be returned which shall draw water from the towns main. The water requirements of the bin washer are not expected to be significant compared to the overall facility demand.

3.7 Waste Types

The waste types that would be diverted from Bellozanne CWI for processing at La Collette are as outlined in Table 4 and defined by the European Waste Catalogue ("EWC").

Table 4, List of Waste Types	
EWC Code	**Definition**
18 01	**Waste from natal care, diagnosis, treatment or prevention of disease in humans**
18 01 01	Sharps except 18 01 03
18 01 02	Body parts and organs including blood bags and blood preserves (except 18 01 03)
18 01 03	Waste whose collection and disposal is subject to special requirements in order to prevent infection
18 01 04	Waste whose collection and disposal is not subject to special requirements in order to prevent infection, e.g. dressings, plaster casts, linen, disposable clothing
18 01 06	Chemicals consisting of or containing dangerous substances
18 01 07	Chemicals other than those listed in 18 01 06
18 01 08	Cytotoxic and cytostatic medicines
18 01 09	Medicines other than those mentioned in 18 01 08
18 02	**Waste from research, diagnosis, treatment or prevention of disease involving animals**
18 02 01	Sharps except 18 02 02
18 02 02	Waste whose collection and disposal is subject to special requirements in order to prevent infection
18 02 03	Waste whose collection and disposal is not subject to special requirements in order to prevent infection
18 02 05	Chemicals consisting of or containing dangerous substances
18 02 06	Chemicals other than those listed in 18 02 05
18 02 07	Cytotoxic and cytostatic medicines
18 02 08	Medicines other than those mentioned in 18 02 07
20 01	**Municipal wastes – Separately collected fractions**
20 01 31	Cytotoxic and cytostatic medicines
20 01 32	Medicines other than those mentioned in 20 01 31
20 03	**Other municipal wastes**
20 03 99	Evidence, counterfeit goods, seized items and drugs presented for witnessed disposal by the Police and/or Customs

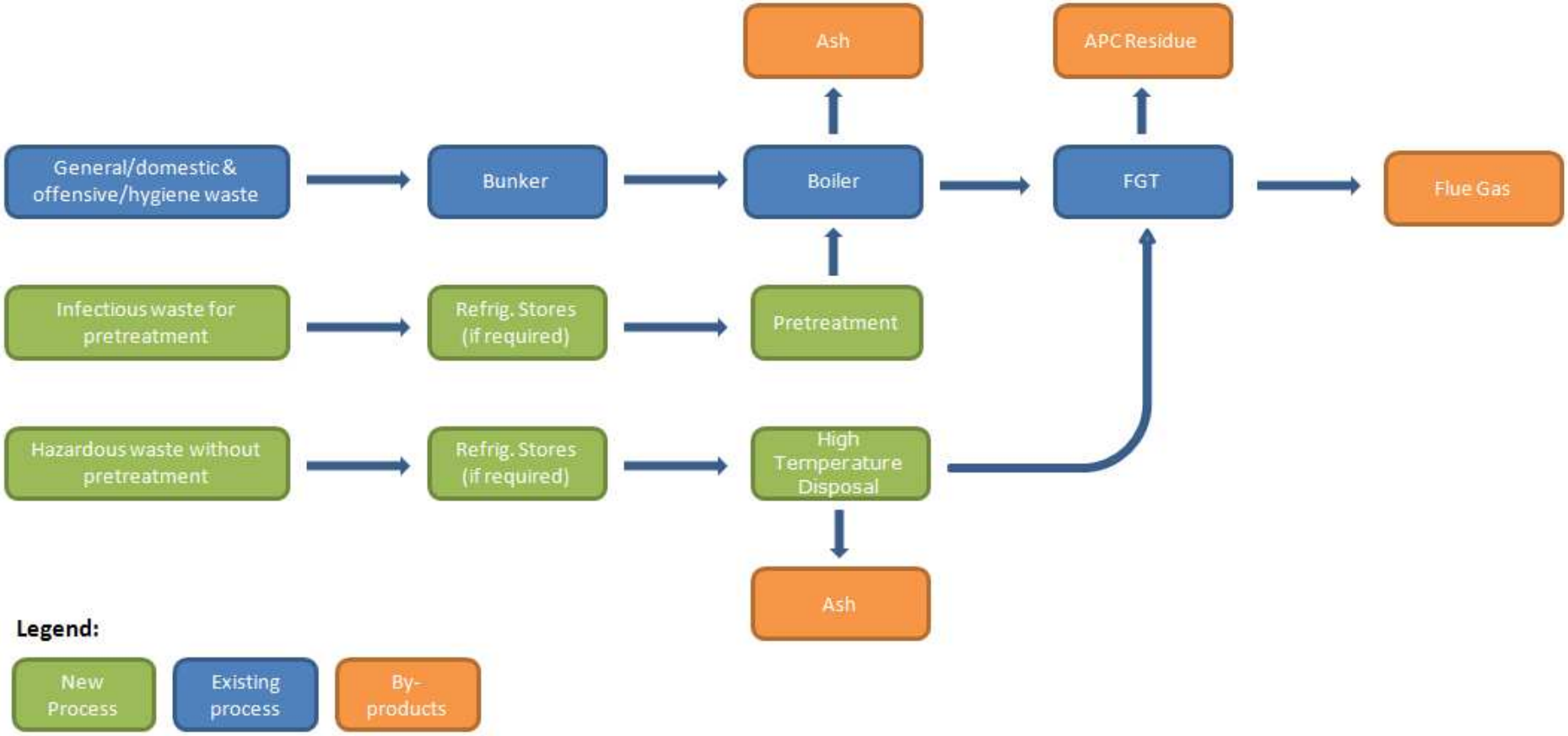

Figure 3, Process Flow

4 VARIATION TO LICENCE

4.1 Review of the Existing WML

The La Collette EfW operates within the constraints of a WML (ref. no. WML019) which complies with the Waste Management (Jersey) Law. This document authorises the keeping, treatment, disposal or recovery of controlled waste to the extent specified in the WML.

The disposal of clinical waste at the La Collette EfW may only take place under variation of its WML. The required variations are highlighted and discussed in the following sections. It should be emphasised that, other than the points which are discussed, the La Collette EfW would continue to comply with the stipulations of the WML.

4.2 Statutory Conditions (WML Section 1)

The disposal of clinical waste at La Collette would comply fully without varying the stipulations under this section of the WML.

4.3 Management (WML Section 2)

The disposal of clinical waste at La Collette would comply fully without varying the stipulations under this section of the WML.

4.4 Operations (WML Section 3)

4.4.1 Authorised Activities

La Collette EfW is currently permitted to receive and transfer hazardous waste, but an addition to the table of authorised site activities (see Table S3.1) would be required to permit the pretreatment and high temperature disposal processes.

Table S3.1 Activities (variation)		
Activity described in Article 23 (2) of the Waste Management (Jersey) Law 2005	**Description of specified activity**	**Extent of specified activity**
Article 23 (2) (c)	Pretreatment of waste	Pretreatment of waste
Article 23 (d)	High temperature disposal	Disposal of residual hazardous waste

Tables S2.1 explicitly list the wastes that the La Collette EfW is permitted to receive for incineration and several additions to this table would be required to account for the receipt and disposal of clinical waste.

Table S2.1 Permitted waste types and quantities for incineration (variation)	
Maximum quantity/ other limitations	Maximum design throughout of 7.5 tonnes per hour on each line. (Based on a Cv of 9.2 MJ/kg). Combined throughput of sewage sludge and other oily sludge's not to exceed 10% of throughput on each line.
Waste Ref.	**Description**
I11	Offensive/hygiene municipal waste from human/animal health care.
I12	Hazardous and non-hazardous health care waste arisings including: (1) anatomical waste (limited to small body parts); (2) infectious waste contaminated with chemicals; (3) infectious waste not contaminated with chemicals; (4) sharps (medically and non-medically contaminated); (5) infectious waste contaminated with cytotoxic and cytostatic medicines; and (6) medicines other than cytotoxic and cytostatic medicines.

4.4.2 Operating techniques

Table S3.2 specifies the documentation under which the La Collette EfW may be operated. The La Collette EfW Working Plan, prepared by Fichtner on the 06/07/2010, would require updating to include design details of the new clinical waste handling equipment and the operation and maintenance techniques required to operate the plant safely and efficiently. A process flow summarising the clinical waste handling proposal for La Collette has been shown previously in Figure **3**.

Table S3.2 Operating Techniques (variation)		
Description	**Parts**	**Date Received**
Application	Update of La Collette Working Plan to include the receipt, processing and disposal of clinical waste.	To be confirmed

Paragraph 3.3.5 of the WML specifies the locations at which waste may be stored; this would require an update to include the clinical waste refrigerated store described in Section 3.1 of this report.

4.5 Emissions and Monitoring (WML Section 4)

Paragraph 4.2.1 of the WML requires wastes produced by the site to be sampled in accordance with the stipulations of Table S4.4. This table would require an update to include the inert sharps ash produced by the high temperature disposal process as shown in the following table.

Table S4.4 Residue quality control (variation)					
Emission point reference or source or description of point of measurement	**Parameter**	**Limit**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
Sharps ash			Before use of a new disposal or recycling route	Sampling and analysis as per ash sampling protocol agreed with the Regulator	

The disposal of clinical waste at La Collette EfW would not require any other variation to the emissions limits or stipulations outlined in Section 4 of the WML.

4.6 Information (WML Section 5)

Paragraph 5.2.3 of the WML states that monitoring reports shall be submitted for the emissions points list in Table S5.1. This table would require update to include the inert sharps ash by-product of the high temperature disposal process, as shown below.

Table S5.1 Reporting of monitoring data (variation)			
Parameter	**Emission or monitoring point/reference**	**Reporting period**	**Period begins**
Residue quality parameters as required by condition 4.6.1	Sharps ash	As per the specified monitoring frequency / before use of new disposal or recycling route	From first date that waste is disposed of in the high temperature unit

The disposal of clinical waste at La Collette EfW would not require any other variation to the emissions limits or stipulations outlined in Section 4 of the WML.

4.7 WML Supporting Information

The combustion process, energy recovery, gas cleaning, ash handling, site drainage and emissions monitoring processing outline in the supporting information unchanged.

Health care wastes would have to be removed from the unacceptable wastes list.

5 IMPACT OF VARIATION

5.1 Raw Materials

The La Collette EfW consumes a number of raw materials while processing MSW, including:

(1) hydrated lime;
(2) activated carbon;
(3) dry urea;
(4) gasoil;
(5) demineralise water; and
(6) various maintenance materials (e.g. greases, welding gases etc…).

The slight overall increase in plant throughput associated with the receipt of clinical waste would lead to a proportional increase in the use of raw materials at La Collette EfW.

The only raw materials that may experience additional consumption outside of this proportional increase would be gasoil and demineralised water.

The combustion process of the batch CWI would not be self sustaining, unlike the MSW stream, and would require continuous gasoil injection to maintain the combustion parameters specified under the WID for safe disposal of hazardous waste. The gasoil consumption of the batch CWI would be confirmed on appointment of a supplier and is expected to vary from batch to batch of clinical waste as the wastes calorific value and density would vary significantly.

At peak operation the autoclaves would require approximately 80kg of steam per cycle (derived from demineralised water) which would be extracted from the EfW steam system. The additional water consumption would not contribute significantly to the water consumption of the facility.

5.2 Waste Handling and Storage

Where applicable, all segregated waste would be stored in the bins provided by the Operator featuring clear labelling and colour coding, as shown in Figure 2, which indicate which categories of waste are permitted to be stored in each bin (such as "infectious (treatable) waste" or "cytostatic and cytotoxic"). Small practices that do not generate enough waste to justify having an Operator supplied bin (such as dentists and GP's) shall present waste to the facility in appropriately labelled sealed rigid containers.

Clinical waste classified as domestic or hygiene/offensive would be forward directly to the MSW bunker for disposal without additional treatment and may be monitored and logged via the weighbridge.

The remaining clinical waste fractions would be received in an independent bay between the MSW and bulky waste buildings (as shown in the plant layout, Appendix A) where its details would be recorded on the clinical waste logging and tracking system (see section 3.1 for more details). Following logging or the waste delivery is shall be lifted to the atrium using the lift for storage and/or processing.

Infectious (treatable) clinical waste would be rendered safe through pretreatment (autoclaving) to a sterilised form and would be added to the MSW waste for energy recovery.

Hazardous clinical waste that cannot be made safe through pretreatment would be processed in a high temperature disposal unit independent of the MSW waste stream.

5.3 Combustion Process

The combustors employed at La Collette are of a mechanical moving grate design which continuously mixes the waste promoting good combustion. The domestic, offensive/hygiene sterilised clinical waste included in the waste stream would be similar in nature to the existing municipal waste and would have no impact on the any of the characteristics of the combustion system. The additional waste would form an inert bottom ash following combustion that can be safely handled by the existing wet ash management system.

5.4 Energy Recovery

The hot gases from the combustion process are used to raise superheated steam for export to a steam turbine which generates electricity. The additional waste included in the municipal waste stream (either directly tipped or following pre-treatment) would contribute to La Collette's energy recovery from waste, but as the additional waste would make up less than 1% of the plant's throughput contribution may not be measurable. However the energy recovered would be a significant increase from the current operation.

5.5 Hazard Assessment

5.5.1 COMAH Regulations

The La Collette EfW is adjacent to the La Collette Fuel Depot which under the Control of Major Accidents Hazards Regulations 1999 ("COMAH") is designated as a "major hazard". The potential risks the construction of the La Collette EfW plant introduced to this COMAH site where assessed in a study produced by Atkins titled *"Initial Assessment of Vapour Cloud Explosion Risks Associated with the La Collette Fuel Depot"* on behalf of the States of Jersey submitted on the 18th of July 2007.

This study concluded that although there are residual risks to the people at the EfW, they are marginal and no other barriers to the development of the La Collette site were identified.

The operation of the clinical waste facility would not increase labour levels at the site significantly. The construction phase would require significantly less manpower than the original construction of the EfW plant which was considered to be an acceptable risk within the general area of La Collette. Given the comparatively small scale of the construction and operation of a clinical waste treatment facility within the La Collette it seems reasonable that the risks deemed acceptable for the EfW plant would not be materially affected.

5.5.2 Road Safety

Following consultation with Jersey Highways, the pre-existing access routes around the site were upgraded to account for the increased traffic flows and improve road safety. It was agreed with Jersey Highways that the upgraded access roads are reasonably safer.

The increase in traffic flow associated with the installation and operation of the clinical waste equipment is expected to be insignificant in comparison to the background traffic and would not introduce any additional road safety risks.

5.5.3 On-Site Safety

The design, construction and operation and maintenance of the La Collette EfW facility complies with all of the relevant legislation and appropriate measures have been taken during each phase to control the health and safety hazards posed by site processes.

The installation of the clinical waste handling equipment would comply fully with the existing mitigations measures set out in the EIS which include design reviews, HAZOP studies, compliance with the Working Plan and the use of satisfactory operating procedures.

5.6 Air Quality

Under the WID (2000/76/EC), there is no difference between the emissions limits of a facility handling non-hazardous waste (in this case MSW and sterilised clinical waste) and a facility handling hazardous waste (sharps, items contaminated with cytotoxic and cytostatic medicines etc.). The flue gases from the high temperature disposal unit and the incineration of sterilised waste in the existing boilers could be cleaned by the existing flue gas treatment plant to achieve the necessary emission limits.

The air quality assessment assumed that the La Collette EfW plant would operate continuously to process 105,000 tonnes per annum. Hence, the worst case was considered for the potential release of pollutants from the chimney stack. The conclusions of the EIS with regards to the impact the La Collette EfW plant on air quality in Jersey for this flow rate may be summarised as follows:

(1) the emissions from the facility would conform to the maximum limits imposed by the Waste Incineration Directive (2000/76/EC);

(2) the facility would not result in any of the UK or European air quality objectives being exceeded;

(3) there would be a considerably reduced impact on the Islands air quality when compared with the now decommissioned Bellozanne facility; and

(4) the dioxin emissions would be 0.2% of the tolerable daily intake for a local adult; for comparison the decommissioned Bellozane facility contributed 14% of the tolerable daily intake.

La Collette EfW currently operates at approximately 70% of its design rating and below its permitted emissions rates. The processing of non-hazardous clinical waste at the facility would represent an increase in waste throughput of less than 1% and pose no risk to continuing to comply with these limits.

The flue gas contributed by the high temperature disposal of the remaining hazardous waste to the main flow of the EfW furnace would be insignificant (< 1%) and would not exceed the design limits of the facility.

The corresponding emissions increase from both the inclusion of sterilised waste in the MSW stream and the operation of the high temperature disposal unit have been illustrated in Table 5. The emissions increase would be negligible and would be within the emissions considered within the EIS.

The diversion of approximately 87% of the clinical waste arisings from Bellozanne CWI (with the remaining fraction disposed of on a batch basis by a high temperature disposal unit) would result in an overall reduction in emissions from the processing of clinical waste on the Island. The processing of this waste at Bellozanne requires the injection of fuel oil to sustain combustion while the EfW process at La Collette, which will be applicable to approximately 87% of this waste, is self sustaining and does not require fossil fuel injection.

It can be seen that clinical waste could be processed at La Collette EfW without any material change to the existing air quality assessment, and as such no further assessment is required so long as the annual waste throughput is within 105,000 tonnes per annum.

Table 5, Air Quality Standards (AQS) and Environmental Assessment Levels				
Emissions	**Permitted by the EIS**		**Current Rate**	**Proposed Rate**
	(mg/m^3)	**(g/s)**	**(g/s)***	**(g/s)****
Oxides of nitrogen (as NO_2)	200	5.058	3.54	3.56
Sulphur dioxide	50	1.264	0.88	0.89
Carbon monoxide	50	1.264	0.88	0.89
Particulates (PM10)	10	0.253	0.18	0.18
Hydrogen Chloride	10	0.253	0.18	0.18
Hydrogen Fluoride	1	0.025	0.02	0.02
Ammonia	10	0.253	0.18	0.18
VOCs	10	0.253	0.18	0.18
Mercury	0.05	1.3 mg/s	0.91 mg/s	0.92 mg/s
Cadmium and Thallium	0.05	1.3 mg/s	0.91 mg/s	0.92 mg/s
Other Metals	0.5	12.6 mg/s	8.82 mg/s	8.88 mg/s
PAHs (as B[a]P)	0.0001	2.53 µg/s	1.77 µg/s	1.78 µg/s
Dioxins and Furans	0.1 ng/m^3	2.53 ng/s	1.77 ng/s	1.78 ng/s
* assumes the EfW is operating at 70% capacity ** assumes that clinical waste shall make up 0.43% of the waste stream i.e. 450 t/a				

The delivery of approximately 450 tonnes of waste annually would contribute up to 10 additional deliveries per day to the EfW facility and to traffic at La Collette. The original assessment considered typical daily deliveries of approximately 300 vehicles to the energy from waste plant (including the bulky waste facility) and approximately 750 vehicles at the La Collette site including the green waste reception. Whilst these numbers may have varied, they would not have reduced significantly. As such the addition of 10 further vehicles and associated emissions are expected to be insignificant and so no further assessment should be required.

5.7 Water Resources and Drainage

The La Collette EfW site lies on reclaimed land where there are no surface water features such as rivers, streams or ponds within the reclamation area; however, the site is within 30 metres of the sea. Pollution control measures have been incorporated into the design of the facility and specified within the Working Plan (provided with the EIS) in accordance with the requirements of the existing WML.

The facility has been designed to minimise any pollution risk to groundwater as a result of waste handling or site management activities through engineered containment and drainage systems. The facility operates on the principle that uncontaminated and potentially contaminated drainage are kept separate within separate drainage systems. The processing of clinical waste at La Collette would take place within the existing EfW building, inside the catchment area of the established drainage systems, and would not pose a risk to local ground water.

The operation and maintenance of the clinical waste handling equipment would make the following contributions to water drainage from the site:

(1) spillages and general wash down water from the unloading area, atrium and the stores would drain to the existing foul water drainage system; and

(2) wash water generated during the decontamination of the delivery bins by the automatic bin washer would also discharge to the existing foul water drainage system.

The following additional provisions shall be adopted in areas where contaminated water may be present due to spillages or run off from waste containers and bins:

(1) The clinical waste unloading area is currently served by the surface water drainage which must not be exposed to contaminated run off from clinical waste. The clinical waste unloading area shall be isolated from surface water system using ACO channels as shown in the drawings provided (see Appendix A). This shall ensure that any contaminated water associated with spills or run off during the unloading process may be captured by the existing foul waste drainage system.

(2) To allow for the washing down of the tipping hall atrium and refrigerated stores, two (2) gully drains shall be centrally located in the atrium floor. The atrium slab has no gradient and wash down water shall be pushed or directed to the gullies by the Operators. The refrigerated stores shall have a floor slope towards one of the drains as shown in the drawings (see Appendix A).

5.8 Noise and Vibration

5.8.1 Original Assessment of the EfW Plant

The noise impacts of the La Collette EfW site were reviewed prior to construction in the context of the existing background noise of the site, which is influenced by road traffic, industrial noise and commercial activities. Noise impacts were also considered in the context of background sound from the sea nearby.

The review concluded that the residual impact, given the proposed mitigation measures, would be negligible. The impact on existing residential areas from any increase in road traffic noise on local roads during the daytime period would also be negligible.

5.8.2 Operational Noise

The noise produced during the operation of the La Collette EfW is mitigated by the noise attenuation measures incorporated into the facilities design and as a result there is no adverse impact on the nearby residential properties. The attenuation measures adopted include the use of insulated double skinned cladding in the walls of the EfW building and the restriction of the operating times of certain noisy equipment.

With the exception of the bin lift, all of the proposed clinical waste handling equipment would be installed within the existing EfW building, taking advantage of the noise mitigations measures already employed. The impact of the new equipment on the sites noise emissions is expected to be insignificant and if the need for additional noise attenuation is identified it would be incorporated into the design.

The bin lift installed between the main EfW building and the Bulky Waste Store is not expected to be a significant source of noise but shall adopt the same noise attenuation measures in its design as the existing facility.

5.8.3 Construction Stage

The majority of the construction work associated with the installation of the proposed equipment at La Collette EfW would take place within the existing EfW building and would be effectively mitigated by the noise attenuation measures already in place.

The construction of the bin lift between the main EfW building and the Bulky Waste Store would adopt the same noise mitigation measures adopted during the construction of the La Collette facility such as the restricting noisy activities to between 08:00 and 16:00.

The impact of the new equipment installation works is also expected to be insignificant.

5.8.4 Traffic Movements

Traffic noise mitigation measures such as the restriction of heavy goods vehicle deliveries in the late evenings and the routing of vehicles to minimise the use of reversing alarms are specified by the existing EIS and are currently in use at La Collette. As a result, the impact of traffic movements on sensitive local receptors such as the Commercial Buildings and Havre des Pas are considered insignificant.

The increase in traffic movement associated with the construction and operation of the clinical waste handling equipment is expected to be marginal in comparison with the background traffic movement of the area and would not constitute a breach of the sites noise emissions constraints.

5.9 Odour

All of the new equipment would be located within the existing building or the external bin lift enclosure and any fugitive odours shall be captured by the existing combustion air system. In order to mitigate the generation of odours from the clinical waste it would be stored at a temperature of less than 5°C in a refrigerated room with a capacity for two weeks of clinical waste arisings. This storage capacity is sufficient to allow for a prolonged outage of the main EfW plant which the pretreatment and high temperature disposal equipment are dependant on for process steam and flue gas abatement.

A small volume of steam released on opening the Pretreatment Stream autoclaves would be captured by locally mounted ventilation hoods connected to the sludge odour extraction system. This steam is sterile and non-hazardous.

5.10 Landscape and Visual Effects

The physical nature of the La Collette EfW, a large building 80m long, 36m wide and 37m high, was comparable with the existing industrial uses of the La Collette area. However the prominent nature of the reclaimed area where the EfW is located provides a conspicuous location for a building taller than the existing structures on the site. Landscaping has been employed to offset the visual impact of the EfW building on residential area to the east of the site.

Most of the proposed clinical waste handling equipment would be installed within the existing EfW building with the exception of the bin lift, forced ventilation louvres and safety vent nozzles which will be visible on the plant exterior.

The bin lift will comprise of a 20m tall shaft located between the existing EfW building and the bulky was store. The first 15m of the lift shaft will be hidden from view by the Bulky Waste Store with the remaining 5m visible and attached to the side of the main EfW building.

The significant solar gains of the atrium (due to the large south-facing glass wall) and thermal emissions from the clinical waste handling equipment would impact on the comfort of personnel working in the area for prolonged periods. To alleviate this, forced ventilation and a method of reducing solar gains would be required. The installation of forced ventilation would require the penetration of the existing cladding adjacent to the lift shaft.

The installation of any safety vent pipework leading to the roof would be significantly smaller than that already installed. The position of any safety pipework would be centralised in the roof to coordinate with other pipework and to allow the visual impact to be screened within the roof truss steelwork.

An appropriate method of reducing the solar gain of the atrium remains to be specified but would be installed inside the atrium as not to impact on the visual appearance of the building structure. The new equipment would not contribute to the light emissions of the site at night.

The overarching mitigation measures adopted to offset the visual appearance of the building would not be impacted by processing of clinical waste at La Collette and this chapter of the EIS would remain unchanged.

5.11 Traffic and Transport

An assessment of the probable effects of traffic from the La Collette EfW was commissioned by the States of Jersey Highways Department prior to the construction of the facility in 2007. The types of traffic vehicles included in the assessment were primarily refuse collection vehicles operated by the parishes of Jersey and commercial vehicles delivering trade and commercial waste to the facility. The assessment found that the existing junction at Mount Bingham / The Quay and the junction with La Route de Veulle will have the capacity to cater for the traffic flows projected for the facility on full load.

The traffic impact from additional vehicles associated with the installation and operation of the clinical waste handling equipment would be insignificant (less than 10 vehicles a day) in comparison to the background flow. Consequently it is not expected to impact on the mitigation measures already put in place by the EIS for traffic management.

5.12 Archaeology and Culture Heritage

The La Collette EfW is on an area of reclaimed land and does not have any surface or buried archaeological features.

Consultation with the Jersey Heritage Trust in 2007 confirmed that the facility would have a visual impact on the view from Elizabeth Castle, along with the other industrial structures at La Collette.

The original assessment identified a number of sites registered as designated sites in the vicinity of La Collette, namely the Territorial Army Head Quarters, La Collette Tower; and Elizabeth Castle. It was confirmed that the proposed EfW facility would have no significant impact on any of these designated sites, except that the outlook from the sites would be affected.

The impact of the EfW facility on the view from key receptors including Elizabeth Castle was mitigated through an extensive design review process for the architectural and landscaping design which was completed to discharge the Reserved Matters associated with the original outline consent.

The majority of the equipment installed as part of the proposed clinical waste treatment facility would be fully enclosed by the existing buildings of the La Collette EfW plant, the external bin lift would mostly be hidden between the main EfW building and Bulky Waste Stores and would not materially impact on the architectural or landscaping now present at the site.

As such there should be no need to carry out a further assessment for the installation of the clinical waste facilities.

5.13 Bio-Diversity

The La Collette site is situated on reclaimed land which is wholly composed of manmade and highly disturbed habitats including both open and capped ash pits, bare soil substrates, in-filled areas and tipped material such as rubble and timber. Given the high level of disturbance, the site is devoid of vegetation with the exception some sparse grass land.

The EIS concluded that the habitat was unremarkable following several years of monitoring by the States of Jersey Ecologist.

Given the low ecological value of the site and the continued use of the land in similar manner to that at the time of the original assessment, the likelihood of these works having an impact on biodiversity is negligible. The proposed clinical waste installation falls within the boundaries of the La Collette site and does not contribute to the loss of any habitat. It was found that the proposed equipment may also be adequately managed under the pollution control measures already established by the EIS.

5.14 Geotechnical Ground Conditions

The La Collette site is on an area of reclaimed land that comprises of a fill behind a large rock fill embankment. A ground investigation carried out by drilling boreholes was completed prior to the construction of the EfW as some of the heavy structural foundations required construction piling to the rock.

Based on observations during this site investigation, the nature of the fill material was considered acceptable for the type of construction proposed and excavated materials could be re-used on site without treatment. The fill used to reclaim the land is primarily inert but there is a risk that some potentially harmful contaminants may have been included in the fill which if encountered would require necessary action, specified in the EIS, to identify appropriate disposal routes.

Some ground works would be required to facilitate the installation of the external bin lift and the existing mitigation measures outlined in the EIS would be adopted to manage these works.

6 CONCLUSIONS

This assessment of the variations required to the existing Waste Management Licence (no. WML019) to permit the disposal of clinical waste at the La Collette EfW facility has highlighted the following:

(1) Adopting waste segregation at source and integrating clinical waste pretreatment and high temperature disposal into the La Collette EfW would permit all of the clinical waste arisings on the Island to be diverted from Bellozanne CWI. Clinical waste may be processed at La Collette without introducing any additional environmental risks and can be effectively managed through the mitigation measures established in the existing EIS.

(2) Approximately 87% of the Island's clinical waste arisings, currently forwarded to the Bellozanne CWI, may be processed at La Collette EfW as MSW following pretreatment. The remainder of the waste, approximately 13%, can be made safe through high temperature disposal which can be accomplished on a batch basis by a high temperature disposal unit integrated into the EfW facility building.

(3) The Bellozanne CWI is purely a disposal facility and does not recover energy from its process in addition to requiring significant volumes of fuel oil injection to maintain furnace temperatures. The integration of clinical waste processing into the La Collette EfW would permit energy recovery from approximately 87% of the Islands clinical waste arisings.

(4) The new facility would allow the efficient use of space within a significant existing building and utilise spare capacity to dispose of the sterilised and hazardous clinical waste.

(5) The separation of the waste types would mean the volume of potentially dangerous residues produced from the treatment process containing sharps and the like would be significantly reduced. This would also remove possible contamination sources from the bottom ash from the EfW plant which could restrict recycling opportunities.

(6) The disposal of clinical waste at La Collette would comply fully with the stipulations of the Statutory Conditions chapter (section 1) of the Waste Management Licence.

(7) The disposal of clinical waste at La Collette would comply fully with the stipulations of the Management chapter (section 2) of the Waste Management Licence.

(8) Several additions to tables referenced in the Operations chapter (section 3) of the Waste Management Licence would be required to accommodate the processing of clinical waste;

   a) the addition of waste pretreatment and the high temperature disposal processes to the approved list of site activities;

   b) the addition of clinical waste to the list of permitted waste types ; and

   c) the addition of an updated Working Plan, to include the operation and maintenance of the new equipment, to the Operating Techniques list .

(9) The table listing the waste sampling requirements (Table S4.4) would require updating to include testing of the high temperature disposal by-products;

(10) The table specifying the reporting requirements (Table S5.1) of the site needs to be updated to include reporting on sharps ash testing.

(11) Except for what has been explicitly listed above, the processing of clinical waste at La Collette EfW would comply fully with the requirement of the Waste Management Licence.

(12) The environmental impacts of including the additional clinical waste processes within the La Collette EfW would not represent a material change from the assessment carried out for the EfW. The environmental risks at the La Collette site would be adequately managed through the facility's existing control measures.

Appendix A - Preliminary Drawings

Appendix B – Waste Acceptance Criteria

Appendix C – Sample Consignment Note

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