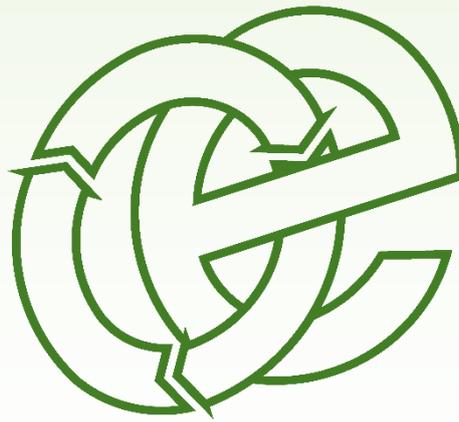


RESPONSE TO SCHEDULE 5 NOTICE

Kaug Refinery Services Limited

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Appendix I - Steam Boiler Technical Data Sheet

Summary

This document provides responses to the Notice of Request for Further Information (Schedule 5 Notice) issued by the Environment Agency (EA), dated 05/09/2024, requesting additional information for the application for a bespoke installation at Merse Road, Redditch (application ref: EPR/BP3421SC/A001).

1 Response to Question 1

1.1 EA Question

1a) Emissions to Air – information informing the Air Quality modelling report.

i) Provide the parameters used to calculate the emission rates for emission point 'A2'.

1.2 Response

The emission rates for emission point A2 were based on manufacturer information for the steam boilers which was provided by the applicant. Reference should be made to Appendix I for technical datasheet for the boilers. Emission rates are contained on page 3 of the document. The higher of the emission rates provided for each pollutant were used in the model to ensure a worst case assessment.

1.3 EA Question

1b) Confirm that the three process lines, in the monitoring report (ATESTA - Stack emissions monitoring report, date 27/07/2023, ref JOB-759, version 1), Drying Line, Kettle Line Extraction and the Stripping Line Extraction are the only three that exit through emission point 'A3'

1.4 Response

It is confirmed that emission point A3 will serve the kettle line extraction and stripping line extraction only. The drying line will be extracted via emission point A4, which will serve the drying ovens, metal decontamination appliance and melting furnaces.

2 Response to Question 2

2.1 EA Question

2a) Provide an assessment, to include detailed calculations of the expected sound emissions and mitigation measures of the proposed Steam Boiler, Thermal and Alkali Flue exhaust stacks to ensure that sound emissions do not exceed the specific sound levels predicted at the surrounding noise sensitive receptors as set out within the NIA.

Response

2.2 Additional design information is being obtained to inform the Noise Impact Assessment. An extension of time has been agreed with the EA for provision of this information.

2.3 EA Question

2b) Provide an updated noise management plan to include:

- i) detailed calculations of flue exhaust sound emission levels and detailed mitigation instead of the existing generic statement relating to the extraction system*
- ii) Control measures to ensure that the roller shutter door is not open during the period 06:00 – 07:00*

Response

2.4 Additional design information is being obtained to inform the Noise Management Plan. An extension of time has been agreed with the EA for provision of this information.

3 Response to Question 3

3.1 EA Question

3a) With reference, if necessary to our Waste Classification guidance (WM3 – link below) provide justification for the requested series of EWC codes you have applied to be accepted at this site that end in ‘99’.

Response

3.2 The following provides a more detailed description of the waste codes ending in ‘99’ that have been proposed as part of this application, in order to justify their inclusion:

- 08 01 99 – Silver solder paste & rags/gloves/wipes/floor sweeps contaminated with precious metal paint;
- 08 02 99 – Rags/gloves/paper contaminated with silver/copper conductive coating;

- 10 12 99 – Transfers, sponges, polishing wheels & paint brush stands from the ceramic industry;
- 11 01 99 – Jig Wire and scrap plating tanks from precious metal plating; and,
- 12 01 99 – Handwash/settlement tanks from jewellery manufacturing industry.

3.3 The '99' codes have been chosen since it is not considered that the specific waste types fall under other codes. However, the applicant welcomes further advice from the EA on this matter if they consider alternative codes are more appropriate.

3.4 The applicant had included an additional '99' code within the application, namely 10 07 99. This had been included to provide some operational flexibility, given that this includes wastes from the silver, gold and metallurgy sector. However, the operator does not have a specific waste stream description for this code at present. Therefore, they have advised that this waste code can be removed from the proposed list of waste codes in the application.

4 Response to Question 4

4.1 EA Question

4a) Provide an assessment for the shredding of printed circuit boards to show that all appropriate measures have been considered against our guidance WEEE Appropriate Measures for permitted facilities.

Response

4.2 The applicant has reviewed the relevant appropriate measures for the shredding of circuit boards. Specifically, they have advised that the following sections of the WEEE Appropriate Measures will be complied with, as applicable:

- 5.1 – Preparing WEEE for reuse;
- 5.2 – General waste treatment;

- 5.3 – Treatment of WEEE containing BFRs and POPs;
- 5.4 – Process monitoring;
- 5.8 – Treatment of SMW; and,
- 5.13 – Record keeping for all treatment residues.

5 Response to Question 5

EA Question

- 5.1 *5a) Provide evidence that all bunding where bricks or blockwork are used follows the guidance in CIRIA C736 Containment Systems for the Prevention of Pollution with particular reference to any coatings used to seal the brickwork on the inside of the brick bunds.*

Response

- 5.2 An external bricked bunded area is proposed for storage of alkaline effluents, as shown on the site layout plan. This will include 3no. 7,000 litre tanks which will store weak cyanide-based solutions. These are anticipated to be classed as non-hazardous as cyanide concentrations are anticipated to be below 1% as a result of treatment.
- 5.3 The bund has been designed to meet the appropriate containment volume, including a brick bunded enclosure which could contain the capacity of the largest tank (plus 10%) as per the CIRIA 736 guidance. The bricks will be cemented and watertight and a suitably chemical resistant coating will be applied to the inside walls of the bund.
- 5.4 Future maintenance will ensure the containment area remains suitable for the anticipated operational lifespan of the site.
- 5.5 The operator will undertake regular visual inspections of all proposed bunded areas on site, supplemented by periodic structure integrity checks.

Appendix I

Steam Boiler Technical Data Sheet



Standard Features and Devices

- Vertical Tubeless Heat Exchanger
- Thick wall construction (9.27 mm minimum)
- Never needs re-tubing
- Fully wetted design – no refractory
- Operating efficiencies up to 86% (Typical 82%)
- Variable Speed High Pressure Combustion Air Blower
- 10.34 barg Maximum Allowable Working Pressure
- Stainless steel jacket
- Fully modulating 4:1 turndown burner
- Industrial pilot ignition
- Operating and high pressure limit switches
- Two (2) Low Water Cut Off probes with manual reset
- Low NOx emissions <20 ppm
- Media free cyclonic combustion air intake filter
- Gas train
- Safety interlock contacts for external device
- Remote boiler enable contacts
- Emergency-stop contacts
- Combustion Air Inlet Adapter
- Safety Relief Valve

Control Options

- Automatic surface blowdown (TDS)
- Control panel with non-fused disconnect
- High water protection
- Boiler alarm package
- Boiler gauge package
- Auto bottom blowdown
- High integrity 1st and 2nd low water level limiters
- Optional modbus interface (BACS)
- Optional PC interface
- Alarm Specific Volt Free Contacts

Listings & Compliance

- CE Marked to PED, EMC and the Machinery Directive
- Constructed to BSEN 12953 as standard

Trim Kit Items (Shipped Loose)

- Pressure Gauge
- Installation and Operation Manual
- Reflex Gauge glass
- Cyclonic air filter

Information provided in this document is based on standard boiler configurations. Alternate or custom configurations may result in deviations. Fulton practices continuous product improvement and reserves the right to change specifications and/or dimensions without notice.

Capacities
(Applies to elevations up to 2,000 ft)

	VSRT Model	VSRT-20
Rated Input at High Fire	<i>kW</i>	244
Minimum Input at Low Fire	<i>kW</i>	61
Rated Output	Boiler HP	20
	<i>kg/hr</i>	320
	<i>kW</i>	200

Fuel Requirements
(Pressure requirements at rated input)

	VSRT Model	VSRT-20
Fuel Usage at Rated Input (Natural Gas)*	<i>M³/hr</i>	22.36
Fuel Usage at Rated Input (Propane Gas)**	<i>M³/hr</i>	9.39
Min Gas Pressure (NG or LPG)	<i>mbar</i>	19
Max Gas Pressure (NG or LPG)	<i>mbar</i>	35

* m³/hr based on 39.4MJ/m³ Natural Gas (2016 Dukes Report)

** m³/hr based on 94MJ/m³ Propane

Electrical Requirements
(Applies to <20ppm NO_x standard blower motor and control options)

	VSRT Model	VSRT-15
Electrical Supply*	volts	400
	Ø	3
	Hz	50
Control Voltage	Volts ac	110
IP Rating		54
Full Load Amps (FLA)	Amps	14.8

*Includes Burner fan motor, feedwater pump & standard control circuit.

Weights & Water Volume

	VSRT Model	VSRT-20
Dry Weight	<i>kg</i>	1,230
Operating Weight at Normal Working Level	<i>kg</i>	1,653
Flooded Weight	<i>kg</i>	1,787
Water Volume at Normal Working Level	<i>Liters</i>	424

Requirements	Air Intake and Ventilation	VSRT Model		VSRT-20	
				Open Flued (Type B)	
		Boiler Room Ventilation for Combustion (free area) Low Level Inlet	Cm^2		880
		Boiler Room Ventilation for Combustion (free area) High Level Outlet	Cm^2		440
Typical Combustion Air Intake Flow Rate	$M3/hr$		301		

Requirements	Flue	VSRT Model		VSRT-20
				Open Flued (Type B)
		Minimum Allowable Draft Pressure Boiler Operating	in WC kPa	
Flue Gas Exhaust Flow Rate at 125 psig	Standard CFM Actual CFM		190 323	

Emissions	Typical Natural Gas Operation (Corrected to 3% O ₂ , CO to be 10ppm or less)	VSRT Model		VSRT-20	VSRT-20	
				<20ppm NO _x condition	15% excess air operation	
		NO _x	kg/hr		0.008	0.025
		SO _x	kg/hr		0.0002	0.0002
CO	kg/hr		0.0026	0.0026		

Min Clearances	(Local codes may supersede Fulton requirements)	VSRT Model		VSRT-20
		Side clearance from Vessel PV	mm	
Total Installed Height Required for Burner Removal	mm		2800	

No information provided in the document constitutes a guarantee, consult factory for any guarantees

ITEM	DESCRIPTION	SIZE	TYPE
A	STEAM OUTPUT	1 1/4"	B.P.T.
B	BACKFLOW OUTLET	1 1/4"	N.P.T.
C	STEAM OUTLET*	Z"	N.P.T.
D	EXHAUST	2"	N.P.T.
E	EXHAUST STACK	2"	N.P.T.
F	EXHAUST STACK	2"	N.P.T.
G	EXHAUST STACK	2"	N.P.T.
H	EXHAUST STACK	2"	N.P.T.
I	EXHAUST STACK	2"	N.P.T.
J	EXHAUST STACK	2"	N.P.T.
K	EXHAUST STACK	2"	N.P.T.
L	EXHAUST STACK	2"	N.P.T.
M	EXHAUST STACK	2"	N.P.T.
N	EXHAUST STACK	2"	N.P.T.
O	EXHAUST STACK	2"	N.P.T.
P	EXHAUST STACK	2"	N.P.T.

NOTE:

- STEAM OUTPUT LEAK FROM 10 KG/CM² AT 100°C
- ALL CLEARANCES ARE FACTORY RECOMMENDATIONS. CONSULT LOCAL JURISDICTION FOR EXACT CODE COMPLIANCE.
- FOR ALL CLEARANCES, THE DIMENSION IS TO THE CENTERLINE OF THE PIPING UNLESS OTHERWISE SPECIFIED.
- FULTON RECOMMENDS 610 MM CLEARANCE BETWEEN OPENINGS OF ALL BOILERS, 407 MM CLEARANCE OF HANDHOLES, AND 265 MM CLEARANCE OF THE TOP OF THE BOILER.
- PLEASE REFER TO LOCAL MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- ALL DIMENSIONS IN INCH () DENOTE REFERENCE DIMENSIONS.
- ALL DIMENSIONS IN INCH () DENOTE OVERALL DIMENSIONS.

8. WE RESERVE THE RIGHT TO CHANGE SPECIFICATIONS WITHOUT NOTICE. INFORMATION IS SUBJECT TO CHANGE BASED ON AVAILABLE INFORMATION. CONSULT LOCAL JURISDICTION FOR EXACT CODE COMPLIANCE. ADDITIONAL OPTIONS OR ACCESSORIES ARE REQUIRED.

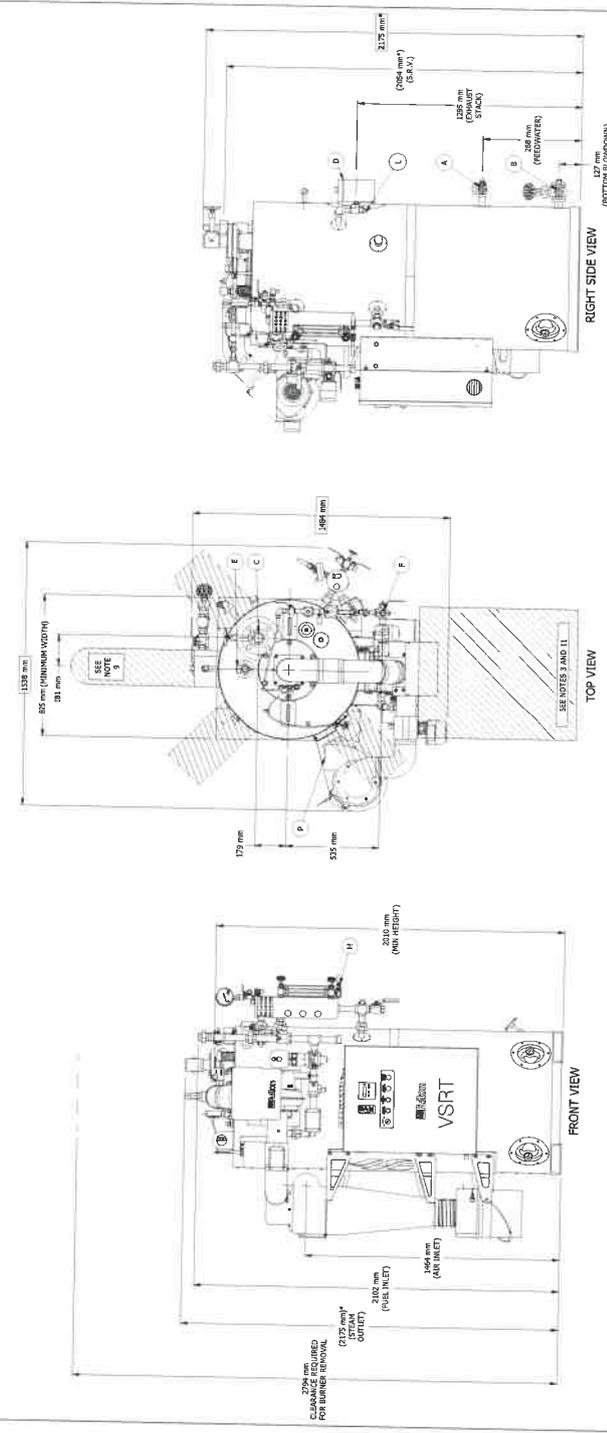
9. RECOMMENDED STACK GUT IS MINIMUM 610 MM STRAIGHT SECTION WITH 45° DOWNWARD ANGLE AT THE END. DIRECTIONAL CHANGE SHALL BE 90°.

10. LOCAL CODES MAY SUPERSEDE FULTON RECOMMENDED CLEARANCE.

11. * SIZE DEPENDS ON TRIM PRESSURE.

CUSTOMER CONNECTIONS (MECHANICAL)

ITEM	DESCRIPTION	SIZE	TYPE
A	STEAM OUTPUT	1 1/4"	B.P.T.
B	BACKFLOW OUTLET	1 1/4"	N.P.T.
C	STEAM OUTLET*	Z"	N.P.T.
D	EXHAUST	2"	N.P.T.
E	EXHAUST STACK	2"	N.P.T.
F	EXHAUST STACK	2"	N.P.T.
G	EXHAUST STACK	2"	N.P.T.
H	EXHAUST STACK	2"	N.P.T.
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M	EXHAUST STACK	2"	N.P.T.
N	EXHAUST STACK	2"	N.P.T.
O	EXHAUST STACK	2"	N.P.T.
P	EXHAUST STACK	2"	N.P.T.



Fulton Fulton Boiler Works (GB) Ltd 9-SR-020312 - PDS (UK)	
SHEET 1 OF 1	
VSRT-20 GAS FIRED MODULATED STEAM BOILER (10.34 barg)	
ORDER NO: 281022018	ORDER DATE: 28/02/2018
DRAWN BY: N/A	CHECKED BY: N/A
DESIGNED BY: N/A	APPROVED BY: N/A
MANUFACTURED BY: C.K.	MANUFACTURE DATE: 28/02/2018
INITIAL RELEASE	B.O.M. ELEC. ENG. MECH. ENG. CHECKED APPROVED
REVISION DESCRIPTION	REVISION HISTORY