TEST & MEASUREMENT TEAM **SITE SPECIFIC PROTOCOL**	**UNIPER TECHNOLOGIES** **Technology Centre** **Ratcliffe-on-Soar** **Nottingham, NG11 0EE** **Tel: 02476 192900**

Classification: **IN CONFIDENCE**

Site Specific Protocol for release points A1 - TA 25295, A2 - TA 25296, A3 - TA 25298, A4 - TA 25299, A5 - TA 25300, A6 - TA 25301, A7 - TA 25303, A8 - TA 25304, A9 - TA 25305, A10 - TA 25307 at RWE - Grimsby Power Station	Doc No: GPS/C90695.001 SSP Job No: C90695.001 Date: 09/10/2019 Author: Mark Muter

SUMMARY / REVIEW

This Site Specific Protocol contains the information required to plan an emissions monitoring campaign at RWE - Grimsby Power Station

for Release Points: A1 - TA 25295 A2 - TA 25296 A3 - TA 25298 A4 - TA 25299 A5 - TA 25300 A6 - TA 25301 A7 - TA 25303 A8 - TA 25304 A9 - TA 25305 A10 - TA 25307

Part 1 of this SSP is updated for each visit and a new risk assessment will be produced for each monitoring campaign (as a separate document).

Part 2 of this SSP is updated when there are changes to the monitoring procedures or operators permit.

Depending on the significance of these changes it may be necessary to repeat a site review before updating the SSP.

Please sign this SSP to confirm your agreement, once signed please send back a signed copy.

Signed _____ on behalf of RWE - Grimsby Power Station

Part 1 - Contact details, monitoring dates and personnel										
Operator name	RWE Generation Limited									
Operator address	Grimsby Asset Site Office		Moody Lane,		Grimsby,		North East Lincolnshire.			DN31 2SW UK
Permit number	EPR/WP3036QH									
Release Points	A1 - TA 25295	A2 - TA 25296	A3 - TA 25298	A4 - TA 25299	A5 - TA 25300	A6 - TA 25301	A7 - TA 25303	A8 - TA 25304	A9 - TA 25305	A10 - TA 25307
Emission Source	Cummins Gas Engine No1	Cummins Gas Engine No2	Cummins Gas Engine No3	Cummins Gas Engine No4	Cummins Gas Engine No5	Cummins Gas Engine No6	Cummins Gas Engine No7	Cummins Gas Engine No8	Cummins Gas Engine No9	Cummins Gas Engine No10
Grid reference	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Sector of the Installation	MCPD
Installation name	RWE - Grimsby Power Station
Name of contact	Micheal Pollard
Contact email	micheal.pollard@rwe.com
Contact phone	+44(0)7795 353616
Report No of previous monitoring	NA
Date of previous monitoring	NA
Planned Date of monitoring	04/11/2019
Test laboratory name	Uniper Technologies
Test laboratory address	Technology Centre Ratcliffe on Soar Nottingham NG11 0EE
Test laboratory email	mark.muter@uniper.energy
Test laboratory phone number	+44 (0) 7818 075730
Test laboratory UKAS number	2200

Test laboratory staff

Name	MCERTS Registration Number	Current Certification						
		Trainee	MCERTS Level 1	MCERTS Level 2	TE 1	TE 2	TE 3	TE 4
Ben Morley	MM 02 024			✓	✓	✓	✓	✓
Chris Beech	MM 16 1381	✓						

Part 2 - Monitoring objectives

Overall aim of monitoring campaign

Emission Testing to demonstrate that emissions from the release point comply with the Limit Values set within the site's permit	✓

Substance to be monitored at each emission point & emission limit value

Periodic monitoring

Emission point	Determinand	Source	Short term ELV (Calendar monthly mean) mg/Nm3	Daily average ELV (95% of validated daily means within a calendar year) mg/Nm3	Monitoring frequency	Monitoring standard	Uncertainty requirement %
A1 - TA 25295	NOx (as NO_2)	Cummins Gas Engine No 1	95	NA	3 yearly	BS EN 14792	20
A2 - TA 25296	NOx (as NO2)	Cummins Gas Engine No2	95	NA	3 yearly	BS EN 14792	20
A3 - TA 25298	NOx (as NO2)	Cummins Gas Engine No3	95	NA	3 yearly	BS EN 14792	20
A4 - TA 25299	NOx (as NO2)	Cummins Gas Engine No4	95	NA	3 yearly	BS EN 14792	20
A5 - TA 25300	NOx (as NO2)	Cummins Gas Engine No5	95	NA	3 yearly	BS EN 14792	20
A6 - TA 25301	NOx (as NO2)	Cummins Gas Engine No6	95	NA	3 yearly	BS EN 14792	20
A7 - TA 25303	NOx (as NO2)	Cummins Gas Engine No7	95	NA	3 yearly	BS EN 14792	20
A8 - TA 25304	NOx (as NO2)	Cummins Gas Engine No8	95	NA	3 yearly	BS EN 14792	20
A9 - TA 25305	NOx (as NO2)	Cummins Gas Engine No9	95	NA	3 yearly	BS EN 14792	20
A10 - TA 25307	NOx (as NO2)	Cummins Gas Engine No10	95	NA	3 yearly	BS EN 14792	20

Reference conditions at which results are expressed

Moisture %	0
Pressure mbar	1013
Oxygen % dry	15
Temperature °C	0

Details of monitoring methods

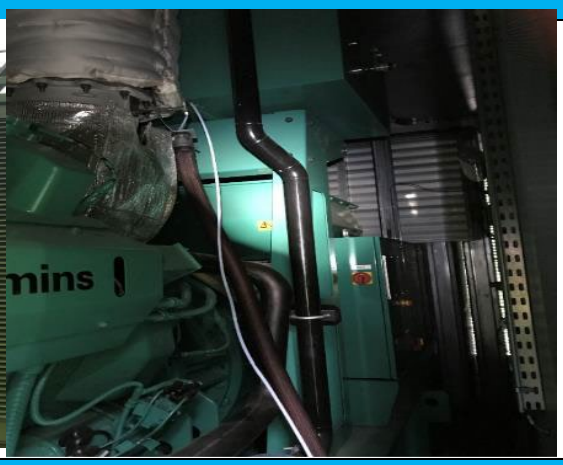
Determinand	SRM Standard Applied	Equipment Type	Principle	SRM Work Instruction Number (TOI)	Overall uncertainty of monitoring methods %
NOx (as NO2)	BS EN 14792	Horiba PG250a	Chemiluminescence	TOI_APT_004_1	~5%

Part 2 - Operating information											
Type of process	Combined bank of 10 gas engines for the production of electricity.										
Description of the process	X10 Gas engines, each engine has a thermal rating of 4.8MWth (with and aggregrated capacity of 48MWth)										
	A1 - TA 25295	A2 - TA 25296	A3 - TA 25298	A4 - TA 25299	A5 - TA 25300	A6 - TA 25301	A7 - TA 25303	A8 - TA 25304	A9 - TA 25305	A10 - TA 25307	
Process operation: Continuous, Batch, Standby etc	As Required	As Required	As Required	As Required	As Required	As Required	As Required	As Required	As Required	As Required	
Fuel type	Natural gas	Natural gas	Natural gas	Natural gas	Natural gas	Natural gas	Natural gas	Natural gas	Natural gas	Natural gas	
Feedstock	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
The normal load, throughput or continuous rating	4.8 MWth	4.8 MWth	4.8 MWth	4.8 MWth	4.8 MWth	4.8 MWth	4.8 MWth	4.8 MWth	4.8 MWth	4.8 MWth	
Any unusual occurrences that can take place	Start up and shut down										
Stack temperature °C	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	
Stack velocity m/s	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	
What type of abatement is fitted	None	None	None	None	None	None	None	None	None	None	
DAHS details	NA										
Process details to be collected over the monitoring period	%Load										

Part 2 - Sample location	
Rectangular or circular stack	Circular engine exhaust duct
Dimensions of stack & sampling platform	<1m diameter
Description of the monitoring location	Engine/Catalytic Converter exhaust
Description of sample ports and number of lines	Single 1" BSP plug on each engine.
Number of sampling points per line	1
Gaseous sampling position	~0.1m deep
Summary of compliance with CEN standards	EN15259 not applicable for small duct
Access	The sample ports are located at ground level, a small step may be needed to access the sampling port. Access to the Power Station is gained by pre arrangement only.
Adequate work area at the monitoring location	Yes
Availability of required utilities	3 pin 240V power supply, the power is stepped down to 110v using a 240/110 voltage transformer.
Pitot tube traverse of the velocity profile	NA
Temperature of stack	NA
Moisture of stack	NA
Homogeneity test result	NA
Restrictions on using equipment	None
Physical restricitons to using equipment	None
Appropriate measurement equipment for the application	Portable equipment with MCERTS

Summary of compliance with BS EN 15259	NA

Diagram of emission point, platform and location



Part 2 - Details of monitoring

Determinand - Compliance	Expected emission values	Units	Lower Detection limit	Units
NOx (as NO2)	< 100	ppm	< 2	ppm
NOx (as NO2)	< 100	ppm	< 1	ppm
NOx (as NO2)	< 100	ppm	< 1	ppm
NOx (as NO2)	< 15	%	< 0.02	%
Equipment used for analysing each substance monitored	As per requirements of standards quoted			
Chemical analysis method and laboratory details	NA			
Any modifications to technical procedure, with justifications and any resulting changes to the uncertainties	None			
Reason why any substance in the monitoring objective is not monitored	NA			
Explanation why any substance will not be monitored in accordance with the monitoring method	NA			