

# GHGVerification Risk Analysis Tool

Contract No.:

Client/Installation:

Scheme subject to verification : EU ETS

## 1) Assess the source streams to determine Major, Minor and Deminimis contributors

Enter data in the table below and then sort the data by the information in columns (6) and (7), this will rank the data into size order and enable comparison to the Minor and Deminimis Thresholds (see column (5)).

Source (1)	Fuel Material Stream (2)	tonnes CO <sub>2</sub> e (3)	%ontribution (4)	Comments/Verification Focus <i>Deminis = ≤1kt or ≤2% total (to 20kt)</i> <i>Minor = ≤5kt or ≤10% total (to 100kt)</i> (5)	Aggregate % (Largest to Smallest) (6)	Aggregate tonnes (Largest to Smallest) (7)	Major/ Minor/ Deminimis
	F2 - Fuel gas	1,031,002.89	42.80%		100.000%	2,408,735	Major
	FCCU Regen	781,921.52	32.46%		57.197%	1,377,732	Major
	F1 - Fuel oil	492,436.37	20.44%		24.735%	595,810	Major
	F3 - Flare gas	87,096.97	3.62%		4.292%	103,374	Major
	SRU CO <sub>2</sub> venting	9,403.04	0.39%		0.676%	16,277	Deminimis
	F4 - A flare	5,921.72	0.25%		0.285%	6,874	Deminimis
	CCR/CRU coke comb	840.9	0.03%		0.040%	952	Deminimis
	F5 - Gas Oil to MP Boiler	99.49	0.00%		0.005%	111	Deminimis
	F6- Diesel fire pump gasoil	11.62	0.00%		0.000%	12	Deminimis
		0	0.00%		0.000%	0	
		0	0.00%		0.000%	0	
		0	0.00%		0.000%	0	
Total Tonnes Declared =		2,408,734.52	100.00%	Check if not 100% - rounding error?			

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## **2) For the monitoring and reporting elements across the data flow assess the risks in terms of strengths and weaknesses and the potential for mis-statement or non-conformity to arise**

This Analysis will assist in providing focus for Stage 2 detailed testing to be documented in the verification plan.

In the Range section highlight your consideration of the risk level for each criterion using a position from left to right – the further to the right the higher the risk is considered to be. Provide relevant comments and/or a reference to a linked work paper to justify the risk area selected. (Use the Shading Tool to 'fill' the relevant block to indicate your assessment of the risk level and state the "Average" risk level where the template states XXXX eg across the set of bullets for that element do the results generally indicate Low, Medium or High risk) In determining the risk range the following should be taken into consideration :

**Inherent risk** –the susceptibility of a parameter in the emission report (or a sub-component of it) to misstatements that could be material, individually or when aggregated with misstatements in other parameters and/or susceptible to non-compliance with requirements, assuming that there were no related control activities. HIGH would indicate a high susceptibility to mis-statement.

**Control risk** - risk that the internal control system fails to prevent, detect or correct in a timely manner a misstatement, which individually or when aggregated with other parameters, could be material. HIGH would indicate a high susceptibility to failure of control, or no control in place..

**Detection risk** - the risk that the verifier will not detect and/or address a material discrepancy or a non- conformity that exists. Identification of "inherent" and "controls" risks helps to minimise the risk that the verifier will overlook a material discrepancy. In addition, the sampling strategy adopted by the lead verifier, taking account of materiality levels, controls residual detection risk. Residual levels, after application of control measures should therefore be "low" before the Lead Verifier decides to minimise the amount of investigation and testing to be done on that area.

Low Risk	Range	High Risk	Comments
<b>Acquisition of data?</b> <ul style="list-style-type: none"> <li>Source input data identified (eg fuel/process/samples)?</li> <li>Measurement procedure defined?</li> <li>Measurement/Analytical equipment identified?</li> <li>Measurement/Analytical equipment calibrated?</li> <li>Calibration procedure identified?</li> <li>Calibration to recognised Standards</li> <li>Calibration records available</li> <li>Measurement/Analytical equipment maintained?</li> <li>Maintenance records available?</li> </ul>	<p>Overall risk assessment for this section:</p>	<p>LOW</p> <ul style="list-style-type: none"> <li>Not defined</li> <li>Not defined</li> <li>Not identified</li> <li>Not calibrated</li> <li>Not defined</li> <li>Non Standard method used</li> <li>Not readily available</li> <li>Not maintained</li> <li>Not readily available</li> </ul>	<p>Including further time required to evaluate/test this area?</p> <p>All sources listed in permit and SOP</p> <p>Documented in SOP</p> <p>Documented in SOP</p> <p>Key meters and equipment are on planned maintenance except for the FCCU air rate meter (this is no longer used for ETS calculations as the CEMS is now in use)</p> <p>Known and documented in standard forms for completion.</p> <p>Analysers calibrated to internal standards, not clear if these relate to ISOs. Failure to implement GC independent maintenance requirement although discussed with CA. For other instruments test equipment is not always being recorded on the report forms</p> <p>No problems finding records</p> <p>Key meters and equipment are on planned maintenance (except FCCU air rate – see above), no problems finding records etc</p> <p>Meter and analyser records easily obtained and reviewed</p>
<b>Handling of data?</b> <ul style="list-style-type: none"> <li>Data readily available</li> <li>Data 'appears' reliable</li> </ul>	<p>Overall risk assessment for this section:</p>	<p>LOW</p> <ul style="list-style-type: none"> <li>Not readily available</li> <li>'Appears' unreliable</li> </ul>	<p>Data available in company database and underlying information. D/B not very transparent, but only affects FG and FCCU as other data calculated in additional spread sheet.</p> <p>RFO data is normally subject to Sarbanes Oxley checks, FCCU data is</p>

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<ul style="list-style-type: none"> <li>• Appropriate adjustments for STP have been accounted for</li> <li>• Simple management mechanism (eg spreadsheet)</li> <li>• Data handling process formally defined</li> <li>• Data and process periodically checked/ verified</li> <li>• Fully automated systems</li> </ul>		<ul style="list-style-type: none"> <li>• No adjustment has been made</li> <li>• Complex management mechanism (eg databases etc)</li> <li>• Not formally defined</li> <li>• Not checked</li> <li>• Mostly manual systems</li> </ul>	<p>used for detailed process control; FG data is part of installation mass balance. Other data appears reliable                      Yes, made in calculation spreadsheet. But as data is calculated and reported in tonnes, this makes no difference to the results                      Complex series of spread sheets etc; D/B used for final calculation is complex and non-transparent, although SOP contains formulae and a top up spreadsheet is in place to show EU ETS required elements                      Detailed process flow diagram in place for key stages, SOP in place including risk assessment (but this needs updating to reflect whole accounting process)                      Internal sense checks and validation of data monthly by several different people. Internal EMS audits review GHG accounting and system is formally part of externally certified EMS                      Mostly automated systems using inbuilt sector calculations with extra spread sheet to calculate the additional ETS requirements. A number of manual transfers along the way but internal QA is good</p>
<p><b>Emissions calculations?</b></p> <ul style="list-style-type: none"> <li>• Interface(s) identified - input data :to: calculation mechanism</li> <li>• Emissions/Discharge calculation process defined (&amp; documented)</li> <li>• Calculation of emissions factor etc clearly defined, documented and controlled</li> <li>• Assumptions clearly documented</li> <li>• Calculation sources/values clearly defined</li> <li>• Calculations periodically checked/verified</li> <li>• Calculation systems protected from unauthorised access</li> </ul>	<p style="color: red; text-align: center;">Overall risk assessment for this section:</p>	<p style="background-color: yellow;">LOW</p> <ul style="list-style-type: none"> <li>• Not identified/ defined</li> <li>• Not defined and/or documented</li> <li>• Not documented/defined</li> <li>• Not documented</li> <li>• Not defined</li> <li>• Not checked</li> <li>• Not protected</li> </ul>	<p>Clear process flow diagram outlining personnel and responsibilities at each stage                      Uses the sector standard spread sheet now promoted by their trade association                      Labs for FG and FO accredited to ISO17025</p> <p>SOP is pretty comprehensive, but would benefit from identifying the names of the .xls files used for the calculations (as these are standard names carried forwards each year).                      D/B has audit trails built in, SOP defines sources and links, cell comments used to explain adjustments etc. But algorithms not transparent                      Detailed checks of relevant underlying data are made by site rep before data is entered into D/B, monthly reported data is cross checked by Supervisor and HSE Manager and signed off quarterly before submission for corporate reporting. FO is included in Sarbanes Oxley testing and external audit                      D/B is password protected and creates an audit trail when amendments are made. Underlying spread sheets are in an edit controlled access folder on the server.</p>
<p><b>Data reporting?</b></p> <ul style="list-style-type: none"> <li>• Processes formally defined</li> <li>• Processes formally documented</li> <li>• Responsibilities formally defined</li> <li>• Process simple (eg few hands/streams)</li> </ul>	<p style="color: red; text-align: center;">Overall risk assessment for this section:</p>	<p style="background-color: yellow;">LOW</p> <ul style="list-style-type: none"> <li>• Not defined</li> <li>• Not documented</li> <li>• Not defined</li> <li>• Process complex (eg lots of</li> </ul>	<p>Yes – SOP within management system                      Yes – SOP within management system                      Yes – SOP within management system                      Process is a bit complex but the SOP clearly outlines activities and</p>

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<ul style="list-style-type: none"> <li>Data formally checked/ verified before report sent</li> </ul>		<ul style="list-style-type: none"> <li>'hands'/stream)</li> <li>Not checked</li> </ul>	<p>responsibilities (except for some permit conditions)</p> <p>Yes</p>
<p><b>General management/ Organisation :</b></p> <ul style="list-style-type: none"> <li>Shows strong awareness of relevant Scheme</li> <li>Shows commitment to compliant reporting</li> <li>Has defined clear responsibilities for M&amp;R</li> <li>Provides good levels of resource for M&amp;R</li> <li>Has formal management system in place (&amp; includes relevant accounting &amp; reporting) eg ISO9000/14001</li> <li>Formal system formally includes reporting for this Scheme</li> <li>Has undertaken &amp; documented Risk Assessment of accounting &amp; control environment</li> <li>Has prior experience of non-financial data verification (eg EMAS or other ETS etc)</li> <li>Has undertaken internal audits/assurance/controls processes of M&amp;R for this Scheme</li> <li>Data storage and archive well defined and robust</li> <li>Has mechanisms in place to ensure data/IT security and Information Management; and integrated with mainstream processes</li> </ul>	<p>Overall risk assessment for this section:</p>	<p><b>LOW</b></p> <ul style="list-style-type: none"> <li>Poor awareness</li> <li>Poor commitment</li> <li>Poorly defined responsibilities</li> <li>Lack of appropriate resource</li> <li>No relevant formal management system</li> <li>Not included</li> <li>No assessment undertaken</li> <li>No prior verification experience</li> <li>No prior internal audits etc</li> <li>Poorly defined and not functioning well</li> <li>Mechanisms not defined or not functioning</li> </ul>	<p>Good awareness and senior management involvement.</p> <p>Yes – most improvements accepted and enacted</p> <p>Yes</p> <p>Yes –current data co-ordinator in place since August ##; most other relevant personnel have been in place for a number of years and no significant changes in accounting process have occurred..</p> <p>Yes, incorporated within the certified EMS and internal/ external audits are being conducted of the accounting system.</p> <p>Yes and included within the internal audit programme; copies of reports viewed.</p> <p>Yes, although this is not complete as it only covers the primary data generation parts of the data flow and controls</p> <p>Yes, into the #th year of GHG verification</p> <p>Yes – reports viewed</p> <p>Electronic data stored on formal company servers with access controls and backups. No issues were identified with hard copy document storage although reminders are needed that non-standard activities (eg re-calculations of source data) needs to have underlying evidence stored with ETS files.</p> <p>Yes</p>
<p><b>General business environment?</b></p> <ul style="list-style-type: none"> <li>No internal/external drivers to mis-state</li> <li>Good internal control to minimise mis-statement</li> </ul>	<p>Overall risk assessment for this section:</p>	<p><b>LOW</b></p> <ul style="list-style-type: none"> <li>Internal/external drivers present</li> <li>No controls</li> </ul>	<p>None apparent, good monitoring of trading position undertaken and management actively involved. Site needs to minimize its emissions as its allocation is insufficient, but no issues apparent to auditor. New holding company has declared an interest in understanding requirements, and ensuring its systems will meet them before requiring site to adopt new systems.</p> <p>D/B has a process to produce an forecast for corporate use; but the calculation of this YTD is erroneous due to failure to update key input values resulting in underestimates in the forecasts. This may be a handover issue with the new data co-ordinator</p>
<p><b>Data analysis</b></p> <ul style="list-style-type: none"> <li>Data analysis on-going to spot trends and anomalies (eg</li> </ul>	<p>Overall risk assessment for this section:</p>	<p><b>LOW</b></p> <ul style="list-style-type: none"> <li>No on-going data analysis</li> </ul>	<p>Yes at multiple levels on both raw input data and manipulated</p>

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Low Risk	Range	High Risk	Comments
year on year comparison)			emissions date
<ul style="list-style-type: none"> <li>Sense checks done regularly (eg against production etc)</li> </ul>		<ul style="list-style-type: none"> <li>No sense checks</li> </ul>	None specifically against production although a variety of trends and checks are done by both HC accountants and Energy co-ordinator
<b>Movements analysis</b>	<b>Overall risk assessment for this section:</b>	<b>HIGH</b>	
<ul style="list-style-type: none"> <li>Movements analysis on-going to identify Real Reductions vs Reductions from method change etc</li> </ul>		<ul style="list-style-type: none"> <li>No on-going movements analysis</li> </ul>	None done formally at present, although monthly reporting and monitoring is done as part of regulatory purposes
<ul style="list-style-type: none"> <li>Movements analysis records Material Movements resulting from method changes etc (ir non-Real Reductions</li> <li>A method change has occurred that has resulted in a <b>Material</b> difference in the reported data?</li> </ul>		<ul style="list-style-type: none"> <li>No analysis and recording of non-Real Reductions</li> <li>No method change has occurred</li> </ul>	Not formally at present  The CEMS system will be used for FCCU CO2 data from the last quarter and the A Flare meter was used from 1/1/11. Not clear at this stage what impact that will have but a number of elements of accounting and compliance will need adjusting to accommodate these.

3) Evaluate each of the source streams identified in (1) on the basis of the overall evaluation of the data flow given in (2) and provide an individual assessment of each in the table below. This will direct the level of effort you should put into the testing of that source stream.

Source (Fuel) Stream <i>(delete/insert as appropriate):</i>	Source Status <i>eg Major, Minor, De minimis</i>	Inherent Risk (H, M, L)	Controls Risk (H, M, L)	Verification Focus (H, M, L)	Comments
F1 - Refinery Fuel Gas	Major	High	Medium	HIGH	Method adjustment gives rise to material change in emissions
F2 - Refinery Fuel Oil	Major	High	Low	Low	
M1 - FCCU air flow	Major	High	Low	Medium	Large emission source
F3 - Flare Gas	Minor	Medium	Low	Medium	Flare events gives rise to issues associated with EFs
F4 - A Flare Gas	De minimis	Low	Low	Low	
F5 - Gas Oil/Diesel (temp Boiler)	De minimis	Low	Low	Low	
M2 - Acid Gas rate	De minimis	Low	Low	Low	
M3 - CCR Coke	De minimis	Low	Low	Low	
F6 - Gas Oil/ Diesel (Fire pumps)	De minimis	Low	Low	Low	