

Strategic Analysis and Risk Analysis (including Test Sampling Plan and results of testing YTD)

Verification Year **2013**

Date of Last Revision **27/09/2013**

Revision Number **V2**

1 Identification of the Installation

1.1 Operator Operator Name

1.2 Installation Details Installation name
 Site name

1.3 Address Street address
 Town
 County
 Postcode

1.4 EU ETS Main Contact Person Email Phone

1.6 Activities according to Annex 1 of the EU ETS Directive

Number	Name of activity (Annex I of the ETS Directive)
1	Combustion of fuels in installations with a total rated thermal input exceeding 20 MW (except in installations for the incineration)
2	<input type="text"/>
3	<input type="text"/>
4	<input type="text"/>
5	<input type="text"/>

NOTE TO VERIFIERS :
This Risk Assessment template is an example and should be used alongside the guidance provided in Key Guidance Note II.2 on Risk Analysis.

Note matrix (3) - verification risk, given in Section 5 below is based upon that given on page 10 of the Key Guidance note but in a more intuitive format (i.e. the logic as described and presented in the KGN is reversed to make it more explicit and user friendly).

Where necessary , short plain English explanations are given in the Risk Table below, but the full definitions as in the MRR and AVR (and associated guidance) should be applied in practice.

This version of the exemplar expands on the separate version that shows the Risk Analysis Stage only. This version shows examples of the additional information that may be provided for the tests and sampling plan, as well as a record of the results of testing for transparency.
The example provided shows the results completed up to "Year To Date" with further work identified for the "Year End" completion of final reporting and preparation of the opinion statement

2 Monitoring and Reporting Plan Review

2.1 Most Recent Update of the Monitoring Plan Plan ID
 Date of Approval
 Number of previous versions applicable to this reporting year

2.2 Has any change to the applied monitoring tiers occurred during the reporting year?

2.3 Has an Annual Report on Progress to Highest Tier been submitted to the Competent Authority?

2.4 Has an Annual Report on Potential Improvements Identified by the Verifier been submitted to the Competent Authority?

2.5 Have any Notification of metering failure or other changes been made to the Competent Authority?

2.6 Have any variations been made to the Competent Authority?

3. Verification Implications

Free Text

If yes, has this been taken into account in the Risk Analysis/Verification Plan? [Yes/No, because]

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4 Review

4.1 Previous Year Verified Emissions
if applicable. If not, use estimated for year

27779

Category

A

4.2 Required materiality level applied

2%

Free Text

4.3 Team/Verifier Competencies OK?

Yes

4.4 Time Allocation Sufficient

Yes

Items in blue columns auto-calculate once tonnes are put into column 4 below. Once tonnes data entered sort by Aggregate % and then Aggregate tonnes in columns (7) and (8) below

4.5 Contribution analysis & M/M/DM check

% contribution of each source stream to the total emissions declared

Source	Fuel / Material Stream	tonnes CO ₂ e	% contribution	Separate RA Table Below?	Comments/Verification Focus <i>De minimis = ≤1kt or ≤2% total (to 20kt)</i> <i>Minor = ≤5kt or ≤10% total (to 100kt)</i>	Agg %age (Largest to Smallest)	Agg t (Largest to smallest)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
S3-4	F1 (Nat Gas)	20025.73	72.089%	1	Major	99.999%	27,779
S1	F1 (Nat Gas)	6926.8	24.935%	2	Major	27.909%	7,753
S2	F2 (HFO)	561.404	2.021%		Minor	2.974%	826
S8-11	F1 (Nat Gas)	203.99	0.734%		De minimis	0.953%	265
S1	F8 (Kero)	42.65	0.154%		De minimis	0.219%	61
S5-6	F4 (Nat Gas)	11.7	0.042%		De minimis	0.065%	18
S7	F3 (Nat Gas)	5.803	0.021%		De minimis	0.023%	6
S14	F6 (Propane)	0.551	0.002%		De minimis	0.002%	1
			0.000%			0.000%	0
			0.000%			0.000%	0
			0.000%			0.000%	0
			0.000%			0.000%	0
		0	0.000%			0.000%	0
			100.00%		Check if not 100% - rounding?		

Optional Use: To check de minimis and minor categories are correct, auditor can use this space to calculate the aggregated percentage of de minimis and minor sources to confirm correct classification. E.g. there may be >1 de minimis source and the correct classification should be checked.

4.6 Previous Findings Closed?

Yes/No

Comments on Previous Findings

Free Text

4.7 Comments on Monitoring methodologies, data flow activities, control system and control environment

Free Text

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Copy/Paste as many sets of the table below as are needed for each of the identified Major Source Streams in 4.5 above; apply the risk rankings to each element of the table. The examples given below are indicative, the text in columns A, B and C must be edited to match the GHG monitoring and reporting elements identified in the Operator's data flow

Assigning Risk Ranks in the Risk Analysis Below

Severity relates to the severity of the impact upon the data. E.g. if the problem occurred would it result in a significant or insignificant mis-statement of data for that stream. If the data stream was a significant contributor to the overall total emissions, even an insignificant mis-statement in the individual data stream could have a material impact upon the aggregate total; therefore the overall contribution to the total needs to be taken into account also. This contribution is identified in Table 4.5 above

Likelihood relates to the chance that the problem would occur. Is it highly likely or not?

1) Inherent Risk

	Severity		
	L	M	H
L	Low	Low	Low
M	Low	Medium	Medium
H	Low	Medium	High

2) Control Risk		
L	M	H

Low means there is a robust control in place and minimal likelihood that the control would breakdown or be mis-applied.
High means there is no control in place or breakdown etc is highly likely

3) Verification Risk

	Control		
	L	M	H
L	Very Low	Low	Medium
M	Low	Medium	High
H	Medium	High	Highest

The higher the verification risk the greater depth of verification and amount of sampling and testing required in order to reduce the level of verification risk such that residual risk is acceptable

NOTE TO VERIFIERS :

(1) **Inherent Risk** relates to the implication that there might be a mis-statement arising in the data resulting from the attributes or characteristics of the source of the data (or its manipulation) in the absence of any quality controls

(2) **Control Risk** relates to the implication that a quality control in place might break down or be mis-applied (or might be non-existent) therefore meaning that any inherent risk identified **would** have an impact upon the data.

(3) **Verification risk** relates to the implication that an incorrect conclusion is arrived at as a result of failure to conduct sufficient breadth and depth of testing etc. Therefore the higher the verification risk (as a product of inherent and control risks) the more work is required to be done

Table No. 1

Fuel/Source Stream : Natural Gas S1, S3-4

Insert unique ID of relevant evidence item from Evidence Index

Activity (A)	Description (B)	Type of Risk (C)	Relevant to this data flow?	Inherent Risk			Verifier Assessment of client control activities & effectiveness	Control Risk	Verification Risk (& so depth of Verification Activity Required)	Verification Test Plan & Sampling Plan (if applicable)	Results of Testing & Verification Comments X reference to Document List	Evidence Reference	Residual Risk Acceptable?	Finding transferred to Issues Log ?
				Severity	Likelihood	Risk								
Measurement of flow	Installed equipment are appropriate?	Incorrect measurements	Yes	M	L	M	Annual calibration and maintenance regime in place	L	LOW	1) Test - Confirm appropriate meter specification, 2) Test - Inspection of meter in situ to check units/ components in place match underlying records, Sample - minimum of 50% permitted measurement instruments Fallback - if tests failed extend original sample by 10%	Inspected all OK. Supplier has provided a statement of accuracy. NOTE - Sampling programme established to ensure inspection rotated to cover all permitted measurement instruments across the trading period	C213-08 series	Yes	If a test is failed the verifier assesses and makes a judgement on the character and seriousness of the error, or failed sample; and on the basis of this decides whether to extend the sampling. KGN4 gives more information but essentially the extension of sampling should be in line with the verifier's assessed risk that as the first sample failed there should be no error in the new or extended sample. So for a high risk area it might be appropriate to select an additional sample of at least the same size as the original sample (eg original sample of 25% of the data universe and a second sample of 25% making a total of 50% of the data universe checked). For a lower risk area it may be acceptable to extend the original sample by a proportion (eg original Sample of 30% of the data universe, extended by a further 10% to give a total of 40% of the data universe checked). However, if there are errors in the second/extended sample, then further testing would need to be done until either 100% of the data universe is checked or the verifier is satisfied that they have identified all likely anomalies.
Measurement of flow	If applicable - deduction meters from this source are appropriate?	Incorrect measurements	No											
Measurement of flow	Installed equipment location is appropriate?	Incorrect measurements	Yes	H	L	H	Appropriate location & installation configuration - correct length of minimum straight run of pipe etc	L	MEDIUM	3) Test - Check - meter description corresponds to M&R Plan? 4) Test - Meter in appropriate location? Sample - as for (1) & (2) above Fallback - as for (1) & (2) above	Checked - all OK			
Measurement of flow	Installed equipment uncertainty acceptable?	Incorrect measurement, non compliance with tier	Yes	M	L	M	Input data to calculation stated to be checked and evidenced; and updated annually Calculation stated to follow recognised Standard or guidance	L	LOW	5) Test - Confirm inputs to uncertainty studies, assess any uncertainty calculations, check they are complete for Temperature & Pressure compensation Sample - all data inputs for Major source streams Fallback - No additional testing, failure is a NC issue	Data provided by supplier for M1 - checked all OK			
Measurement of flow	Equipment Calibration and Maintenance?	Incorrect measurement	Yes	H	M	H	Meter is responsibility of mains gas supplier under their calibration and maintenance regime	L	MEDIUM	6) Test - Assess adequacy of calibration and maintenance and actions taken. 7) Test - Confirm calibration in compliance with procedures Sample - as for (1) & (2) above Fallback - as for (1) & (2) above	Data provided by supplier for M1 - all OK Procedures in place to cover management of planned maintenance etc	C213-06-02	Yes	
Measurement of flow	Equipment failure?	Missing data, incompleteness, incorrect measurement	Yes	H	M	H	2 meter streams in place, main and back up	M	HIGH	8) Test - Cross check of produced data, justifications for periods of zero flow, Sample - high level analysis of full year's data for zero flow. Plus minimum of 30% of data for Major sources spread across the year. Fallback - if tests failed take a second sample of 30%	No problem with main meter stream in the year. No zero flow situations identified. Samples tested for February, May, August and October to pick up peaks and troughs in consumption, crosshatched to new download from the flow computers - all OK	C213-05-01/02	Yes	

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Measurement of flow	Alternative methods?	Missing data, Non compliance with tier, incorrect measurement	No	H	m	H	Alternate method agreed with Competent Authority and stated in procedures. But no missing data declared.	L	MEDIUM	<p>9) Test - Check CA approved use of alternate</p> <p>10) Test - Check data generated is consistent with other periods</p> <p>Sample - 100% of identified periods for which alternate applied</p> <p>Fallback - No additional testing, failure is a NC issue</p>	CA approval notification seen. One period where there was a problem; application of alternate is appropriate; data analysed against normal data flow, no material issues identified	CZ13-05-03/04	Yes	
Measurement of flow	Manipulation of source data to produce consumption?	Incorrect conversion factors or other errors in calculations	No	L	M	M	Potential for anomalies to arise as the spread sheets feed several different reporting processes with different needs which could result in changes being made by other users impacting upon emissions reporting	M	MEDIUM	<p>10) Test - Check formulae in relevant spread sheets</p> <p>Sample - check both key spread sheets.</p> <p>Fallback - if anomalies found, check all spread sheets.</p> <p>11) Test - Confirm data back to source meter reads. Confirm no other changes or adjustments made by other users</p> <p>Sample - check minimum of 30% YTD data for major source streams spread across the year. Random check of 10% of data for Minor source streams.</p> <p>Fallback - if tests failed extend original sample by 10%</p>	Conversion of ##### and ##### house Gas consumption has gone via an energy calculation with no provenance for the CV etc. Direct conversion from standard cubic feet (scf) (meter reads) to m3 indicate a +3% error on each stream CHECK YEAR END THAT PRO RATED INVOICES ARE CONSISTENT WITH METER READS	CZ13-05-06/07/08	Yes	Yes - currently overstating deminimis stream
Fuel sampling	Location & Frequency of sampling	Unrepresentative samples, non compliance with M&R requirements	Yes	H	L	H	Continuous on line sampling	M	HIGH	<p>12) Test - Check maintained to 17025 requirements - obtain certificate. Observe samples being taken</p> <p>Sample - check 100% online analysers</p> <p>Fallback - No additional testing, failure is a NC issue</p>	Checked certificates all OK No issues with sampling as online analyser working as planned, maintained and calibrated in accordance with procedure	CZ13-07 series	Yes	
Fuel analysis	Methodology appropriate?	Incorrect analysis	Yes	H	L	H	ISO 17025 certified provider used	M	HIGH	<p>13) Test - Obtain current certificate from NAB, check 17025 maintained and up to date and schedule covers tests required</p> <p>Sample - check 100% online analysers</p> <p>Fallback - No additional testing, failure is a NC issue</p>	Checked certificate - all OK	CZ13-10	Yes	
Fuel analysis	Calibration appropriate?	Incorrect calibration , leading to incorrect factors, inaccuracy	Yes	H	L	H	Competent 3rd party used for maintenance	M	HIGH	As for Test (13)	Checked certificate - all OK	CZ13-10	Yes	
Fuel Consumption totals	Manual or automatic data transfer errors	Data transfer errors, incorrect tags, missing data, missing invoices, data entry errors, calculation errors, incorrect totals	Yes	H	L	H	A lot of manual transfers but cross checked between data co-ordinator and assistant. Initial consumption checked by commercial manager (invoices : internal meter reads)	H	HIGHEST	<p>14) Test - Cross check data transfers made. Trail data back from main spread sheet to subsidiary sources.</p> <p>Sample - min 30% of Major Source Streams spread across year; 10% of Minor sources; 100% check against invoice records</p> <p>Fallback - if tests failed take a second sample of equivalent in size to the original sample</p>	Checked back to source data for major streams all OK no anomalies identified. Transfers are made by cut and paste so no rounding errors have been introduced	CZ13-05-10 + CZ13-11 series	Yes	
Fuel Consumption totals	Conversion of STP to NTP done? <i>(Standard Temperature & Pressure)</i> <i>(Normal Temperature & Pressure)</i>	Incorrect calculation; failure to convert	Yes	M	L	M	Done automatically within the spread sheet	L	LOW	<p>15) Test - Check formulae and conversion factor used</p> <p>Sample - check all relevant formula cells to ensure consistency & correctness</p> <p>Fallback - No additional testing, failure is a NC issue for correction across all relevant formulae</p>	Done in main calculation spread sheet at end before consolidation of data for reporting - all OK	CZ13-05-10	Yes	

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Determination of NCV	Data transfer, calculation	Data transfer errors, incorrect tags, missing data, missing invoices, data entry errors, calculation errors, incorrect totals	Yes	H	M	H	Net Calorific Value (NCV) calculation determined b-via online analysis and downloaded into detailed spread sheet	H	HIGHEST	16) Test - Cross check - correct values used for NET CV, ensure NCV normalised to 0°C, Cross check of spread sheet and calculation tools Sample - check all relevant formula cells to ensure consistency & correctness Fallback - No additional testing, failure is a NC issue for correction	Checked - all OK	C213-05-10	Yes	
Determination of emission factor	Data transfer, calculation	Data transfer errors, incorrect tags, missing data, missing invoices, data entry errors, calculation errors, incorrect totals	Yes	H	L	H	Calculation based upon ISO6974; compressibility factor included Raw data linked automatically to calculation spread sheet	M	HIGH	17) Test - Cross check of calculation in spread sheet,- * if national/ regional factor used confirm correct, * if installation specific factor use crude comparison with regional factor to check reasonableness (for gas recalculate using VB EF checker), * confirm consistent throughout year, * check and recalculate emission factor Sample - (a) check all relevant formula cells to ensure consistency & correctness (b) for gas uses one sample result to check conversion using VB 6974 checker) Fallback - No additional testing, failure is a NC issue for correction	Checked - all OK	C213-05-10	Yes	
Determination of oxidation factor	Calculation errors	Calculation errors, processing errors, inaccuracy	Yes	M	L	M	Use of competent staff Default values selected	M	MEDIUM	18) Test - Cross check calculation in spread sheet Sample & Fallback - as for Test (15)	Checked - all OK	C213-05-10	Yes	
Selection & transfer of Default Factors	Data transfer, calculation	Incorrect default; data transfer error; incorrect units	Yes	H	M	H	Updated factors taken from DECC website	M	HIGH	19) Test - Check correct factors selected; compare data transferred to current year values specified on government/CA website Sample & Fallback - as for Test (15)	YEAR END CHECK TO BE DONE			
Calculation of CO2 values	Calculation of : Activity data x EF x NCV	Calculation errors, processing errors, inaccuracy	Yes	H	M	H	Standard templates and separation of responsibilities for input, calculation and QA/QC	M	HIGH	As per Test (15) - Cross check calculation in spread sheet, Check correct conditions 273.15K (0 °C and 101.352 Pa (1 atmosphere of pressure))	Checked, all OK. Noted that conversion of diesel values on the spread sheet uses incorrect factors and doesn't account for density in conversion from volume to mass.	C213-05-10	Yes	Deminimis source stream to be added to permit
Data reporting	Data transfer to AER Template	Data transfer error, missing information	Yes	H	M	H	Transfer process done by####	M	HIGH	20) Test - Check transfer of data to report format at Year End. Check for early rounding and failure to add NCV if reporting in t/t not energy Sample - 100% of data/information points transferred Fallback - No additional testing, failure is a NC issue for correction	YEAR END CHECK TO BE DONE			
Additional Item 1	Additional Item - insert any data flow element not included in the list above													

Strategic Analysis and Risk Analysis (including Test Sampling Plan and results of testing YTD)

Additional Item 2	Additional Item - insert any data flow element not included in the list above													
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USING THE TABLE BELOW AS A TEMPLATE, INSERT MORE COPIES OF THE TABLE IF NEEDED FOR ADDITIONAL SOURCE STEAMS TO BE ANALYSED

Table No.		Fuel/Source Stream :			Verifier Assessment of client control activities & effectiveness	Control Risk	Verification Risk (& so depth of Verification Activity Required)	Verification Test Plan & Sampling Plan (if applicable)	Results of Testing & Verification Comments X reference to Document List	Evidence Reference	Residual Risk Acceptable?	Finding transferred to Issues Log ?		
Activity (A)	Description (B)	Type of Risk (C)	Relevant to this data flow?	Inherent Risk										
				Severity									Likelihood	Risk
Measurement of flow	Installed equipment are appropriate?	Incorrect measurements												
Measurement of flow	If applicable - deduction meters from this source are appropriate?	Incorrect measurements												
Measurement of flow	Installed equipment location is appropriate?	Incorrect measurements												
Measurement of flow	Installed equipment uncertainty acceptable?	Incorrect measurement, non compliance with tier												
Measurement of flow	Equipment Calibration and Maintenance?	Incorrect measurement												
Measurement of flow	Equipment failure?	Missing data, incompleteness, incorrect												
Measurement of flow	Alternative methods?	Missing data, Non compliance with tier,												
Measurement of flow	Manipulation of source data to produce consumption?	Incorrect conversion factors or other errors in												
Fuel sampling	Location & Frequency of sampling	Unrepresentative												
Fuel analysis	Methodology appropriate?	Incorrect analysis												
Fuel analysis	Calibration appropriate?	Incorrect calibration ,												
Fuel Consumption totals	Manual or automatic data transfer errors	Data transfer errors, incorrect tags, missing data, missing invoices												
Fuel Consumption totals	Conversion of STP to NTP done? (Standard Temperature & Pressure) (Normal Temperature & Pressure)	Incorrect calculation; failure to convert												
Determination of NCV	Data transfer, calculation	Data transfer errors, incorrect tags, missing												
Determination of emission factor	Data transfer, calculation	Data transfer errors, incorrect tags, missing data, missing invoices												
Determination of oxidation factor	Calculation errors	Calculation errors, processing errors, inaccuracy												
Selection & transfer of Default Factors	Data transfer, calculation	Incorrect default; data transfer error; incorrect units												
Calculation of CO2 values	Calculation of : Activity data x EF x NCV	Calculation errors, processing errors												
Data reporting	Data transfer to AER Template	Data transfer error,												
Additional Item 1	Additional Item - insert any data flow element not included in the list above													
Additional Item 2	Additional Item - insert any data flow element not included in the list above													