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DANIDA

EIMP Phasing-out Phase, 2003-2004

Audits to selected monitoring sites in Egypt, October 2004

Rolf Dreiem



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1 Introduction

The EIMP Phasing-out Phase has been formulated to consolidate EIMP achievements, while gradually integrating the EIMP activities and staff into the existing EEAA administrative and organisational structure.

The fifth and last Mission during the EIMP Phasing out Phase Air Quality component was undertaken during 18 September to 28 October 2004. Responsible for the Mission was Bjarne Sivertsen. The instrument expert, Rolf Dreiem, spent one month auditing the measurement programme, inspecting the sites and supporting the monitoring institutions in technical questions. Mr. The Nguyen Thanh from NILU also supported the EEAA staff in training them to use a new database, AirQUIS. A test version of AirQUIS was installed at EEAA.

This report describes the audit programme and summarizes the findings at the nine sites selected for these audits.

2 Audit programme

The audits took place from 1 until 29 October 2004. All audits were done together with the responsible person for the stations. The largest problem we faced was transportation. At most of the stations we had to bring travelling standard gas cylinders. The cars in the project did not have proper registration papers. Some of the audits were done by private cars and taxis.

Audits and inspections were prepared and undertaken to a selection of measurement sites in Cairo, Alexandria and the Delta. The sites selected for audits by the expatriate expert are supposed to be among the future first priority sites.

The following sites were visited for these audits:

- **Cairo:**
Gomhoreya Street
Tabbin
Fum AlKhalig
Abbaseya
Quolaly
- **Alexandria:**
El Shouhada
IGSR
Alex regional site
- **Delta:**
El Mahalla
Kafr Zayat

2.1 Audit results

The complete set of Audit reports from the Audit performed by the NILU expert is presented in this report.

2.1.1 Gomhoreya Street

Sheet Number:

Station audit

1. General information

Station: Gomhoreya Street	St. Id: AQ02	Date: 16 Oct. 2004
Auditor: Rolf Dreiem	Sign: RD	
Audit institution: NILU		
Responsible technician: Madame Camela	Present y/n: Y	
Institution: CEHM		
Local maintenance personnel: N	Present y/n:	
Date of last audit: 26 April 2004 ...		

2. Technical system audit

2.1. Facilities

Controlled access to station y/n: Y.....	Door always locked y/n: Y.....
Are there windows y/n: N.....	Windows always closed y/n:
Air condition y/n: Y.....	Is it running y/n: Y
	Normal temp. y/n: Y ...
Dust deposits y/n: N	Dust removal frequency: Weekly
From where is the dust coming: Door	

2.2. Equipment

Dust deposits inside instruments y/n: N.....	Dust removal frequency: 3 months
Dust deposits inside tubes/manifold y/n: Y..	Dust removal frequency: N.....
Any instruments not working (which): No.....	
What is the plan for malfunctioning instruments:	

2.3. Operations

Are necessary SOPs available y/n: Y	Are SOPs of latest version y/n: Y.....
Are necessary forms available y/n: Y.....	Are forms of latest version y/n: Y
Are the instrument Instruction manuals available y/n: Y.....	
Is the technician familiar with the QC documentation y/n: Y....	

Sheet Number:

2.4. Record keeping

Is the Station manual available y/n: Y.....

Is the Station visit log maintained and signed at every visit y/n: Y.....

Are the pages in the visit log numbered y/n: Y.....

Are Site visit log forms, maintenance forms and other forms older then 3 months brought to the laboratory for archiving in the History log y/n: Y.....

2.5. Maintenance

Date of last maintenance visit: 14 Oct. 2004

Actual maintenance frequency: Weekly.. Scheduled frequency: Weekly.....

Is maintenance performed according to the SOP y/n: Y.....

Air intake filter change frequency: 2 weeks.....

2.6. Calibration procedures

There is one sheet for each instrument.

Instrument: TEI 43C SO2.....

Type of performance check unit: Zero generator. No span gas at station.....

Are the performance check acceptance criteria available y/n: Y.....

Are the field calibration acceptance criteria available y/n: Y.....

	Last performed	Actual frequency	Scheduled frequency
Manual performance check	14 Oct. 04	Weekly	Weekly
Automatic Z/S check			
Field calibration	No	0	3 months

Sheet Number:

Performance evaluation audit - Gas monitors

There is one sheet for each instrument.

Instrument: TEI 43C SO₂..... Serial number: 57625-316

Zero level check monitors

Values recorded from two zero checks on the maintenance sheet:

Date	14 Oct. 04		6. Oct. 04	
Parameter	SO ₂		SO ₂	
Response	7.8 ppb		7.4 ppb	
Acceptance criteria	-3-+5 ppb			
AC ≤ Resp ≤ AC y/n	N		N	

Remember to add measurement units!

Span check monitors

Values recorded from two span checks on the maintenance sheet: **No span gas cylinder.**

Parameter	-			
Response	-			
Working standard	-			
Difference	-			
Dev = $\frac{100 * Diff}{Wrk. std.}$	-			
Acceptance criteria	-			
$ Dev \leq AC$ y/n	-			

Remember to add measurement units!

Comparison with travelling standard: **No travelling gas cylinder every 3 months.**

Parameter	-	
Response	-	
Travelling standard	-	
Difference	-	
Dev = $\frac{100 * Diff}{Trv. std.}$	-	
Acceptance criteria	-	
$ Dev \leq AC$ y/n	-	

Remember to add measurement units!

AC = Acceptance criteria

Non-compliance report no 1

Place/area: Gomhoreya Street **Station id:** AQ 02.....

Reference document(s): Station audit 2.2

Name of auditor: Rolf Dreiem

Date: 16 Oct. 2004

Non-compliance: Dust inside glass manifold.		
Signatures:	Auditor: Rolf Dreiem	For the institution: Camela

Corrective action(s): Clean glass manifold.
Date when corrective action will be completed: 1 week

Signature of manager responsible for place/area where the non-compliance is identified.

Corrective action implemented:	Name	Signature	Date
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Corrective action confirmed by auditor:	Signature	Date
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Non-compliance report no 2

Place/area: Gomhoreya Street **Station id:** AQ 02.....

Reference document(s): Performance evaluation audit – Gas monitors.

Name of auditor: Rolf Dreiem

Date: 16 Oct. 2004

Non-compliance: No SO2 span gas cylinder at station. No CO span gas cylinder at station. No NOx span gas cylinder at station. No travelling gas cylinder every 3 months.		
Signatures:	Auditor: Rolf Dreiem	For the institution: Camela

Corrective action(s): Span gas cylinders From EEAA? Travelling gas cylinder from CEHM every 3 months.
Date when corrective action will be completed: 2 weeks

Signature of manager responsible for place/area where the non-compliance is identified.

Corrective action implemented:			
	Name	Signature	Date

Corrective action confirmed by auditor:		
	Signature	Date

2.1.2 Tabbin

Sheet Number:

Station audit

1. General information

Station: Tabbin	St. Id: AQ 06	Date: 18 Oct. 2004
Auditor: Rolf Dreiem		Sign: RD
Audit institution: NILU		
Responsible technician: Maher		Present y/n: Y
Institution: CEHM		
Local maintenance personnel: No		Present y/n:
Date of last audit: 21 April 2004 ...		

2. Technical system audit

2.1. Facilities

Controlled access to station y/n: Y	Door always locked y/n: Y
Are there windows y/n: Y	Windows always closed y/n: Y
Air condition y/n: Y	Is it running y/n: Y
	Normal temp. y/n: Y ...
Dust deposits y/n: N	Dust removal frequency: 2 Weeks.....
From where is the dust coming: Windows	

2.2. Equipment

Dust deposits inside instruments y/n: N	Dust removal frequency: Monthly.
Dust deposits inside tubes/manifold y/n: N..	Dust removal frequency: 2 weeks..
Any instruments not working (which): TSP	
What is the plan for malfunctioning instruments: Waiting for new brushes.	
.....	

2.3. Operations

Are necessary SOPs available y/n: Y	Are SOPs of latest version y/n: Y
Are necessary forms available y/n: Y	Are forms of latest version y/n: Y
Are the instrument Instruction manuals available y/n: Y	
Is the technician familiar with the QC documentation y/n: Y....	

Sheet Number:

2.4. Record keeping

Is the Station manual available y/n: Y.....
 Is the Station visit log maintained and signed at every visit y/n: Y.....
 Are the pages in the visit log numbered y/n: Y.....
 Are Site visit log forms, maintenance forms and other forms older then 3 months brought to the laboratory for archiving in the History log y/n: Y.....

2.5. Maintenance

Date of last maintenance visit: 13 Oct. 2004
 Actual maintenance frequency: Weekly.. Scheduled frequency: Weekly.....
 Is maintenance performed according to the SOP y/n: Y.....
 Air intake filter change frequency: 2 weeks.....

2.6. Calibration procedures

There is one sheet for each instrument.

Instrument: TEI 42C NOx
 Type of performance check unit: Zero calibrator and gas cylinder.....
 Are the performance check acceptance criteria available y/n: Y.....
 Are the field calibration acceptance criteria available y/n: Y.....

	Last performed	Actual frequency	Scheduled frequency
Manual performance check	6 Oct. 04	*Monthly	Weekly
Automatic Z/S check	Zero daily.		
Field calibration	7 Oct. 04	6 months	3 months

*Manual span check every month to save span gases.

Sheet Number: **Performance evaluation audit - Gas monitors**

There is one sheet for each instrument.

Instrument: TEI 42C NOx Serial number: 57866-315

Zero level check monitors

Values recorded from two zero checks on the maintenance sheet:

Date	18 Oct. 04		16 Sept. 04	
Parameter	NO	NOx	NO	NOx
Response	0.6 ppb	1.0 ppb	-0.2 ppb	-0.3 ppb
Acceptance criteria	-3-+5 ppb	-3-+5 ppb	-3-+5 ppb	-3-+5 ppb
AC ≤ Resp ≤ AC y/n	Y	Y	Y	Y

Remember to add measurement units!

Span check monitors

Values recorded from two span checks on the maintenance sheet:

Parameter	NO	NOx	NO	NOx
Response	626 ppb	1268 ppb	625 ppb	1270 ppb
Working standard	625 ppb	1279 ppb	625 ppb	1279 ppb
Difference	1 ppb	-11 ppb	0 ppb	-9 ppb
$\text{Dev} = \frac{100 * \text{Diff}}{\text{Wrk. std.}}$	0.16 %	0.86 %	0 %	0.7 %
Acceptance criteria	15 %	15 %	15 %	15 %
$ \text{Dev} \leq \text{AC y/n}$	Y	Y	Y	Y

Remember to add measurement units!

Comparison with travelling standard: **No travelling standard used.**

Parameter	-	
Response	-	
Travelling standard	-	
Difference	-	
$\text{Dev} = \frac{100 * \text{Diff}}{\text{Trv. std.}}$	-	
Acceptance criteria	-	
$ \text{Dev} \leq \text{AC y/n}$	-	

Remember to add measurement units!

AC = Acceptance criteria

Non-compliance report no 1

Place/area: Tabbin Station id: AQ 06.....

Reference document(s): Station audit 2.2

Name of auditor: Rolf Dreiem

Date: 18 Oct. 2004

Non-compliance: TSP not working.		
Signatures:	Auditor: Rolf Dreiem	For the institution: Maher

Corrective action(s): Waiting for spare parts (ordered).
Date when corrective action will be completed: When new spare parts arrive.

Signature of manager responsible for place/area where the non-compliance is identified.

Corrective action implemented:	Name	Signature	Date
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Corrective action confirmed by auditor:	Signature	Date
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Non-compliance report no 2.....

Place/area: Tabbin Station id: AQ 06.....

Reference document(s): Station audit 2.5 and 2.6.....

Name of auditor: Rolf Dreiem

Date: 18 Oct. 2004

<p>Non-compliance:</p> <p>Weekly maintenance form not filled in every week.</p> <p>Manual performance check every month.</p> <p>No travelling standard used.</p>		
Signatures:	Auditor: Rolf Dreiem	For the institution: Maher

<p>Corrective action(s):</p> <p>Start making maintenance form from next visit.</p> <p>Start making Zero/Span by cylinder every week.</p> <p>Start using travelling standard every 3 months.</p>
<p>Date when corrective action will be completed: Next week.</p>

Signature of manager responsible for place/area where the non-compliance is identified.

Corrective action implemented:			
	Name	Signature	Date

Corrective action confirmed by auditor:		
	Signature	Date

2.1.3 Fum Al Khalig

Sheet Number:

Station audit

1. General information

Station: Fum Al Khalig	St. Id: AQ08	Date: 16. Oct. 2004
Auditor: Rolf Dreiem	Sign: RD	
Audit institution: NILU		
Responsible technician: Madame Camela	Present y/n: Y	
Institution: CEHM		
Local maintenance personnel: N	Present y/n:	
Date of last audit: December 2003 .		

2. Technical system audit

2.1. Facilities

Controlled access to station y/n: Y	Door always locked y/n: Y
Are there windows y/n: N	Windows always closed y/n:
Air condition y/n: Y	Is it running y/n: Y
Dust deposits y/n: N	Dust removal frequency: Weekly
From where is the dust coming:	

2.2. Equipment

Dust deposits inside instruments y/n: N	Dust removal frequency: 3 months
Dust deposits inside tubes/manifold y/n: N..	Dust removal frequency: Weekly ..
Any instruments not working (which): N	
What is the plan for malfunctioning instruments:	

2.3. Operations

Are necessary SOPs available y/n: Y	Are SOPs of latest version y/n: Y
Are necessary forms available y/n: Y	Are forms of latest version y/n: Y
Are the instrument Instruction manuals available y/n: Y	
Is the technician familiar with the QC documentation y/n: Y....	

Sheet Number:

2.4. Record keeping

Is the Station manual available y/n: Y.....
 Is the Station visit log maintained and signed at every visit y/n: Y.....
 Are the pages in the visit log numbered y/n: Y.....
 Are Site visit log forms, maintenance forms and other forms older then 3 months brought to the laboratory for archiving in the History log y/n: Y.....

2.5. Maintenance

Date of last maintenance visit: 12 Oct. 2004
 Actual maintenance frequency: Weekly.. Scheduled frequency: Weekly.....
 Is maintenance performed according to the SOP y/n: Y.....
 Air intake filter change frequency: Weekly.....

2.6. Calibration procedures

There is one sheet for each instrument.

Instrument: TEI 43C SO2.....
 Type of performance check unit: Zero calibrator and SO2 span gas cylinder.....
 Are the performance check acceptance criteria available y/n: Y.....
 Are the field calibration acceptance criteria available y/n: Y.....

	Last performed	Actual frequency	Scheduled frequency
Manual performance check	12. Oct. 04	Weekly	Weekly
Automatic Z/S check	–	–	–
Field calibration	No		3 months

Sheet Number:

Performance evaluation audit - Gas monitors

There is one sheet for each instrument.

Instrument: TEI 43C SO2..... Serial number: 58196-3316

Zero level check monitors.

Values recorded from two zero checks on the maintenance sheet:

Date	12 Oct. 04		3 Oct. 04
Parameter	SO2		SO2
Response	7.5 ppb		5.6 ppb
Acceptance criteria	-3-+5 ppb		-3-+5 ppb
AC ≤ Resp ≤ AC y/n	N		N

Remember to add measurement units!

Span check monitors.

Values recorded from two span checks on the maintenance sheet:

Parameter	SO2		Not done.
Response	891 ppb		
Working standard	1010 ppb		
Difference	129 ppb		
Dev = $\frac{100 * Diff}{Wrk. std.}$	12.773 %		
Acceptance criteria	15 %		
Dev ≤ AC y/n	Y		

Remember to add measurement units!

Comparison with travelling standard: **No travelling standard used at this station.**

Parameter	-		
Response	-		
Travelling standard	-		
Difference	-		
Dev = $\frac{100 * Diff}{Trv. std.}$	-		
Acceptance criteria	-		
Dev ≤ AC y/n	-		

Remember to add measurement units!

AC = Acceptance criteria.

Non-compliance report no 1.....

Place/area: Fum Al Khalig..... **Station id:** AQ 08.....

Reference document(s): Station audit 2.6.....

Name of auditor: Rolf Dreiem

Date: 16 Oct. 2004

<p>Non-compliance: No field calibration done.</p>		
Signatures:	Auditor: Rolf Dreiem	For the institution: Camela

<p>Corrective action(s): Starts from today.</p>
<p>Date when corrective action will be completed: 2 weeks.</p>
<p>Signature of manager responsible for place/area where the non-compliance is identified.</p>

Corrective action implemented:			
	Name	Signature	Date

Corrective action confirmed by auditor:		
	Signature	Date

Non-compliance report no 2

Place/area: Fum Al Khalig Station id: AQ 08.....

Reference document(s): Performance evaluation audit – Gas monitors

Name of auditor: Rolf Dreiem

Date: 16 Oct. 2004

Non-compliance: No span done by working gas cylinder for 2 weeks even if station has working gas cylinder for SO2 and NOx.		
Signatures:	Auditor: Rolf Dreiem	For the institution: Camela

Corrective action(s): Starts span from today.
Date when corrective action will be completed: Today.

Signature of manager responsible for place/area where the non-compliance is identified.

Corrective action implemented:	Name	Signature	Date
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Corrective action confirmed by auditor:	Signature	Date
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2.1.4 Abbasseya

Sheet Number:

Station audit

1. General information

Station: Abbasseya	St. Id: AQ03	Date: 16 Oct 2004
Auditor: Rolf Dreiem		Sign: RD
Audit institution: NILU		
Responsible technician: Madame Camela		Present y/n: Y
Institution: CEHM		
Local maintenance personnel: N		Present y/n:
Date of last audit: 26 May 2004		

2. Technical system audit

2.1. Facilities

Controlled access to station y/n: Y	Door always locked y/n: Y
Are there windows y/n: N	Windows always closed y/n:
Air condition y/n: Y	Is it running y/n: Y
	Normal temp. y/n: Y ...
Dust deposits y/n: N	Dust removal frequency: Weekly
From where is the dust coming: Door	

2.2. Equipment

Dust deposits inside instruments y/n: N	Dust removal frequency: 3 months
Dust deposits inside tubes/manifold y/n: N..	Dust removal frequency: 1 month..
Any instruments not working (which): Y	
What is the plan for malfunctioning instruments: Annual calibration at NIS	
.....	

2.3. Operations

Are necessary SOPs available y/n: Y	Are SOPs of latest version y/n: Y
Are necessary forms available y/n: Y	Are forms of latest version y/n: Y
Are the instrument Instruction manuals available y/n: Y	
Is the technician familiar with the QC documentation y/n: Y....	

Sheet Number:

2.4. Record keeping

Is the Station manual available y/n: Y.....
 Is the Station visit log maintained and signed at every visit y/n: Y.....
 Are the pages in the visit log numbered y/n: Y.....
 Are Site visit log forms, maintenance forms and other forms older then 3 months brought to the laboratory for archiving in the History log y/n: Y.....

2.5. Maintenance

Date of last maintenance visit: 12 Oct. 2004
 Actual maintenance frequency: Weekly.. Scheduled frequency: Weekly.....
 Is maintenance performed according to the SOP y/n: Y.....
 Air intake filter change frequency: Every 2. weeks

2.6. Calibration procedures

There is one sheet for each instrument.

Instrument: TEI 43C SO2.....
 Type of performance check unit: Z/S internal. Permeation tube.....
 Are the performance check acceptance criteria available y/n: Y.....
 Are the field calibration acceptance criteria available y/n: Y.....

	Last performed	Actual frequency	Scheduled frequency
Manual performance check	12. Oct. 04	Weekly	Weekly
Automatic Z/S check	-----		
Field calibration	No		

Sheet Number:

Performance evaluation audit - Gas monitors

There is one sheet for each instrument.

Instrument: TEI 43C SO2..... Serial number: 61048-316

Zero level check monitors

Values recorded from two zero checks on the maintenance sheet:

Date	12 Oct. 04		6. Oct. 04	
Parameter	SO2		SO2	
Response	1.1 ppb		1.3 ppb	
Acceptance criteria	-3-+5 ppb		-3-+5 ppb	
AC ≤ Resp ≤ AC y/n	Y		Y	

Remember to add measurement units!

Span check monitors

Values recorded from two span checks on the maintenance sheet:

Parameter	SO2		SO2	
Response	551 ppb		553 ppb	
Working standard	Perm. tube.		Perm. tube.	
Difference	-			
Dev = $\frac{100 * \text{Diff}}{\text{Wrk. std.}}$	-			
Acceptance criteria	-			
Dev ≤ AC y/n	-			

Remember to add measurement units!

Comparison with travelling standard: **No travelling standard used.**

Parameter	-	
Response	-	
Travelling standard	-	
Difference	-	
Dev = $\frac{100 * \text{Diff}}{\text{Trv. std.}}$	-	
Acceptance criteria	-	
Dev ≤ AC y/n	-	

Remember to add measurement units!

AC = Acceptance criteria

Non-compliance report no 1

Place/area: Abbasseya **Station id:** AQ 03

Reference document(s): Station audit 2.2

Name of auditor: Rolf Dreiem

Date: 16 Oct. 2004

Non-compliance: Ozone monitor at NIS. Annual calibration. Open around PM10 air inlet.		
Signatures:	Auditor: Rolf Dreiem	For the institution: Camela

Corrective action(s): Ozone monitor has to be sent to station after calibration at NIS. Silicone on air inlet.
Date when corrective action will be completed: 2 weeks.

Signature of manager responsible for place/area where the non-compliance is identified.

Corrective action implemented:	Name	Signature	Date
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Corrective action confirmed by auditor:	Signature	Date
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2.1.5 Quolaly

Sheet Number:

Station audit

1. General information

Station: Quolaly.....	St. Id: AQ 01	Date: 23 Oct. 2004
Auditor: Rolf Dreiem		Sign: RD
Audit institution: NILU		
Responsible technician: Ahmed		Present y/n: Y
Institution: CEHM		
Local maintenance personnel: No		Present y/n:
Date of last audit: 28 April 2004 ...		

2. Technical system audit

2.1. Facilities

Controlled access to station y/n: Y.....	Door always locked y/n: Y.....
Are there windows y/n: N.....	Windows always closed y/n:
Air condition y/n: Y.....	Is it running y/n: Y..... Normal temp. y/n: Y...
Dust deposits y/n: N.....	Dust removal frequency: months.....
From where is the dust coming: From the door	

2.2. Equipment

Dust deposits inside instruments y/n: N.....	Dust removal frequency: # months
Dust deposits inside tubes/manifold y/n: N..	Dust removal frequency: 1-2 months
Any instruments not working (which): TSP and NOx monitor	
What is the plan for malfunctioning instruments: Waiting for spare parts (TSP). ..	
Repair pump (NOx).....	

2.3. Operations

Are necessary SOPs available y/n: Y.....	Are SOPs of latest version y/n: Y.....
Are necessary forms available y/n: Y.....	Are forms of latest version y/n: Y.....
Are the instrument Instruction manuals available y/n: Y (at CEHM).	
Is the technician familiar with the QC documentation y/n: Y....	

Sheet Number:

2.4. Record keeping

Is the Station manual available y/n: Y.....

Is the Station visit log maintained and signed at every visit y/n: Y.....

Are the pages in the visit log numbered y/n: Y.....

Are Site visit log forms, maintenance forms and other forms older than 3 months brought to the laboratory for archiving in the History log y/n: Y.....

2.5. Maintenance

Date of last maintenance visit: 19. Oct. 2004

Actual maintenance frequency: Weekly.. Scheduled frequency: Weekly.....

Is maintenance performed according to the SOP y/n: Y.....

Air intake filter change frequency: 2 Weeks....

2.6. Calibration procedures

There is one sheet for each instrument.

Instrument: TEI 43C SO2.....

Type of performance check unit: Zero calibrator/ No span gas at station.....

Are the performance check acceptance criteria available y/n: Y.....

Are the field calibration acceptance criteria available y/n: Y.....

	Last performed	Actual frequency	Scheduled frequency
Manual performance check	23 Oct. 04	Weekly	Weekly
Automatic Z/S check	Zero only	Every night	Every night
Field calibration	Never done	Never done	3 months

Sheet Number:

Performance evaluation audit - Gas monitors

There is one sheet for each instrument.

Instrument: TEI 43C SO2..... Serial number: 58164-316

Zero level check monitors

Values recorded from two zero checks on the maintenance sheet:

Date	23 Oct. 04	7 Oct. 004	
Parameter	SO2	SO2	
Response	1.5 ppb	2.5 ppb	
Acceptance criteria	-3-+5 ppb	-3-+5 ppb	
AC ≤ Resp ≤ AC y/n	Y	Y	

Remember to add measurement units!

Span check monitors

Values recorded from two span checks on the maintenance sheet: **No cylinder. No span check.**

Parameter	-			
Response	-			
Working standard	-			
Difference	-			
Dev = $\frac{100 * Diff}{Wrk. std.}$	-			
Acceptance criteria	-			
Dev ≤ AC y/n	-			

Remember to add measurement units!

Comparison with travelling standard: **Not done.**

Parameter	-	
Response	-	
Travelling standard	-	
Difference	-	
Dev = $\frac{100 * Diff}{Trv. std.}$	-	
Acceptance criteria	-	
Dev ≤ AC y/n	-	

Remember to add measurement units!

AC = Acceptance criteria

Non-compliance report no 1.....

Place/area: Quolaly Station id: AQ 01.....

Reference document(s): Station audit 2.2.....

Name of auditor: Rolf Dreiem

Date: 23 Oct. 2004

<p>Non-compliance:</p> <p>NOx monitor at CEHM to be repaired.</p> <p>TSP not working.</p>		
Signatures:	Auditor: Rolf Dreiem	For the institution: Ahmed

<p>Corrective action(s):</p> <p>NOx pump will be repaired this week.</p> <p>TSP waiting for spare parts (ordered).</p>
<p>Date when corrective action will be completed: 30 Oct. 2004 (NOx).</p>

Signature of manager responsible for place/area where the non-compliance is identified.

Corrective action implemented:	Name	Signature	Date
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Corrective action confirmed by auditor:	Signature	Date
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Non-compliance report no 2

Place/area: Quolaly Station id: AQ 01.....

Reference document(s): Performance evaluation audit – Gas monitors

Name of auditor: Rolf Dreiem

Date: 23 Oct. 2004

Non-compliance: No SO2 working gas at station. No NOx working gas at station. No travelling gas cylinder used at station.		
Signatures:	Auditor: Rolf Dreiem	For the institution: Ahmed

Corrective action(s): Bring cylinders from CEHM to station.
Date when corrective action will be completed: Next week.

Signature of manager responsible for place/area where the non-compliance is identified.

Corrective action implemented:			
	Name	Signature	Date

Corrective action confirmed by auditor:		
	Signature	Date

2.1.6 El Shouhada

Sheet Number:

Station audit

1. General information

Station: El Shouhada	St. Id: AQ24	Date: 10 Oct. 2004
Auditor: Rolf Dreiem	Sign: RD	
Audit institution: NILU		
Responsible technician: Mohamed Rassad	Present y/n: N	
Institution: IGSR		
Local maintenance personnel: Hossam	Present y/n: Y	
Date of last audit: 24 May 2004		

2. Technical system audit

2.1. Facilities

Controlled access to station y/n: Y	Door always locked y/n: Y
Are there windows y/n: N	Windows always closed y/n:
Air condition y/n: Y	Is it running y/n: Y
	Normal temp. y/n: Y
Dust deposits y/n: Y	Dust removal frequency: Monthly
From where is the dust coming: From the door	

2.2. Equipment

Dust deposits inside instruments y/n: N	Dust removal frequency: Monthly
Dust deposits inside tubes/manifold y/n: Y	Dust removal frequency: 1 year? ...
Any instruments not working (which): No	
What is the plan for malfunctioning instruments:	

2.3. Operations

Are necessary SOPs available y/n: Y	Are SOPs of latest version y/n: Y
Are necessary forms available y/n: Y	Are forms of latest version y/n: Y
Are the instrument Instruction manuals available y/n: Y	
Is the technician familiar with the QC documentation y/n: Y	

Sheet Number:

2.4. Record keeping

Is the Station manual available y/n: Y.....
 Is the Station visit log maintained and signed at every visit y/n: Y.....
 Are the pages in the visit log numbered y/n: N.....
 Are Site visit log forms, maintenance forms and other forms older then 3 months brought to the laboratory for archiving in the History log y/n: N.....

2.5. Maintenance

Date of last maintenance visit: 31 March 2004
 Actual maintenance frequency: Unknown Scheduled frequency: Weekly
 Is maintenance performed according to the SOP y/n: N.....
 Air intake filter change frequency: No.....

Only filter change on Air Metrics. No action on NOx and SO2 monitors.

2.6. Calibration procedures

There is one sheet for each instrument.

Instrument: TEI 43C SO2.....
 Type of performance check unit: Zero calibrator and span gas cylinder.....
 Are the performance check acceptance criteria available y/n: N.....
 Are the field calibration acceptance criteria available y/n: N.....

	Last performed	Actual frequency	Scheduled frequency
Manual performance check	21 Aug. 04	Unknown	Weekly
Automatic Z/S check	-----	-----	-----
Field calibration	16 March 04	Unknown	3 months

Sheet Number:

Performance evaluation audit - Gas monitors

There is one sheet for each instrument.

Instrument: TEI 43 C SO₂..... Serial number: 58165-316

Zero level check monitors

Values recorded from two zero checks on the maintenance sheet:

Date	31 Aug. 04			
Parameter	SO ₂			
Response	0.1 ppb			
Acceptance criteria	-3-+5 ppb			
AC ≤ Resp ≤ AC y/n	Y			

Remember to add measurement units! **No zero found after 31 Aug. 04.**

Span check monitors.

Values recorded from two span checks on the maintenance sheet: **No span check found after 16 March 2004. Span gas cylinder at station. Last time used 16 March 2004.**

Parameter	SO ₂			
Response	–			
Working standard	–			
Difference	–			
Dev = $\frac{100 * Diff}{Wrk. std.}$	–			
Acceptance criteria	–			
Dev ≤ AC y/n	–			

Remember to add measurement units!

Comparison with travelling standard:

Parameter	–	
Response	–	
Travelling standard	–	
Difference	–	
Dev = $\frac{100 * Diff}{Trv. std.}$	–	
Acceptance criteria	–	
Dev ≤ AC y/n	–	

Remember to add measurement units!

AC = Acceptance criteria

Non-compliance report no 1.....

Place/area: El Shouhada..... **Station id:** AQ 24.....

Reference document(s): Station audit 2.1, 2.2 and 2.4.....

Name of auditor: Rolf Dreiem

Date: 10 Oct. 2004

<p>Non-compliance:</p> <p>Dust deposit inside station.</p> <p>Dust deposit inside air intake.</p> <p>Pages in visit log not numbered.</p> <p>Forms older than 3 months are in the visit log.</p>		
Signatures:	Auditor: Rolf Dreiem	For the institution: Hossam

<p>Corrective action(s):</p> <p>Cleaning.</p> <p><u>New responsible for the station from this week is Hossam.</u></p>
<p>Date when corrective action will be completed: 1 week.</p>

Signature of manager responsible for place/area where the non-compliance is identified.

Corrective action implemented:	El Sayed Shalaby		12. Oct. 04
	Name	Signature	Date

Corrective action confirmed by auditor:		
	Signature	Date

Non-compliance report no 2

Place/area: El Shouhada..... Station id: AQ 24.....

Reference document(s): Station audit 2.5 and 2.6.....

Name of auditor: Rolf Dreiem

Date: 10 Oct. 2004

<p>Non-compliance:</p> <p>2.5 Last visit 6 weeks ago, not weekly. Maintenance is not done on monitors, only on Air Metrics samplers.</p> <p>2.6 Performance check is not available. Field calibration is not available.</p> <p>Skalaby claims the operator was at station every week. He changes filter on Air Metrics sampler.</p>		
Signatures:	Auditor: Rolf Dreiem	For the institution: Hossam

<p>Corrective action(s):</p> <p>Hossam becomes the responsible for all Alexandria stations instead of Mohamed Rashad.</p>
<p>Date when corrective action will be completed: 1 week.</p>

Signature of manager responsible for place/area where the non-compliance is identified.

Corrective action implemented:			
	Name	Signature	Date

Corrective action confirmed by auditor:		
	Signature	Date

Non-compliance report no 3

Place/area: El Shouhada..... **Station id:** AQ 24.....

Reference document(s): Performance evaluation audit. Gas monitors

Name of auditor: Rolf Dreiem

Date: 10 Oct. 2004

Non-compliance:		
No zero check found after 31 August 2004.		
No span check found after 16 March 2004.		
Signatures:	Auditor: Rolf Dreiem	For the institution: Hossam

Corrective action(s):
Zero/span check starts next week.
Date when corrective action will be completed: 1 week.

Signature of manager responsible for place/area where the non-compliance is identified.

Corrective action implemented:			
	Name	Signature	Date

Corrective action confirmed by auditor:		
	Signature	Date

2.1.7 IGSR

Sheet Number:

Station audit

1. General information

Station: IGSR.....	St. Id: AQ 30	Date: 12 Oct. 2004
Auditor: Rolf Dreiem	Sign: RD	
Audit institution: NILU		
Responsible technician: Heba.....	Present y/n: Y	
Institution: IGSR		
Local maintenance personnel: N	Present y/n: -	
Date of last audit:.....		

2. Technical system audit

2.1. Facilities

Controlled access to station y/n: Y.....	Door always locked y/n: Y.....
Are there windows y/n: N.....	Windows always closed y/n:
Air condition y/n: Y.....	Is it running y/n: Y
	Normal temp. y/n: Y ...
Dust deposits y/n: N	Dust removal frequency: Weekly
From where is the dust coming: Door no seal.....	

Water can come inside along air inlet tubes. PM 10 Anderson is destroyed by water along inlet.

2.2. Equipment

Dust deposits inside instruments y/n: N.....	Dust removal frequency: Monthly.
Dust deposits inside tubes/manifold y/n: N..	Dust removal frequency: Monthly.
Any instruments not working (which): NOx and PM10	
What is the plan for malfunctioning instruments: NOx in Cairo at CEHM. PM10 in shelter.	
Waiting for Maher to repair.....	
.....	

2.3. Operations

Are necessary SOPs available y/n: Y.....	Are SOPs of latest version y/n: Y.....
Are necessary forms available y/n: Y.....	Are forms of latest version y/n: Y.....
Are the instrument Instruction manuals available y/n: Y.....	
Is the technician familiar with the QC documentation y/n:.....	

Sheet Number:

2.4. Record keeping

Is the Station manual available y/n: Y.....
 Is the Station visit log maintained and signed at every visit y/n:Y.....
 Are the pages in the visit log numbered y/n: Y.....
 Are Site visit log forms, maintenance forms and other forms older then 3 months brought to the laboratory for archiving in the History log y/n: Y.....

2.5. Maintenance

Date of last maintenance visit: 4 Oct. 2004
 Actual maintenance frequency: Weekly.. Scheduled frequency: Weekly.....
 Is maintenance performed according to the SOP y/n: No, span gas cyl. is missing.
 Air intake filter change frequency: 2-3 weeks.

2.6. Calibration procedures

There is one sheet for each instrument.

Instrument: TEI 43C SO2 monitor

Type of performance check unit: Zero calibrator. No SO2 working standard at station.

Are the performance check acceptance criteria available y/n: Y.....

Are the field calibration acceptance criteria available y/n: Y.....

	Last performed	Actual frequency	Scheduled frequency
Manual performance check	4. Oct. 04	Weekly	Weekly
Automatic Z/S check	----	-----	-----
Field calibration	30. Sept. 04	3 months	3 months

Sheet Number:

Performance evaluation audit - Gas monitors

There is one sheet for each instrument.

Instrument: TEI 43 C..... Serial number:.....

Zero level check monitors

Values recorded from two zero checks on the maintenance sheet:

Date	–			
Parameter	–			
Response	–			
Acceptance criteria	–			
$AC \leq Resp \leq AC$ y/n	–			

Remember to add measurement units!

Span check monitors

Values recorded from two span checks on the maintenance sheet:

Parameter	–			
Response	–			
Working standard	–			
Difference	–			
$Dev = 100 * \frac{Diff}{Wrk. std.}$	–			
Acceptance criteria	–			
$ Dev \leq AC$ y/n	–			

Remember to add measurement units!

Comparison with travelling standard:

Parameter	–		
Response	–		
Travelling standard	–		
Difference	–		
$Dev = 100 * \frac{Diff}{Trv. std.}$	–		
Acceptance criteria	–		
$ Dev \leq AC$ y/n	–		

Remember to add measurement units!

AC = Acceptance criteria

Sheet Number:

Performance evaluation audit - PM₁₀ monitors

There is one sheet for each instrument.

Instrument: Serial number:

Values recorded from two flow rate checks on the maintenance sheet:

Date	-	
Flow rate	-	
Design flow rate	-	
Difference	-	
$Dev = \frac{100 * Diff}{Wrk. std.}$	-	
Acceptance criteria	-	
$ Dev \leq AC \text{ y/n}$	-	

Remember to add measurement units!

Evaluation of deviation from flow sensor acceptance criteria:

Flow rate	-
Travelling standard	-
Difference	-
$Dev = \frac{100 * Diff}{Trv. std.}$	-
Acceptance criteria	-
$ Dev \leq AC \text{ y/n}$	-

Remember to add measurement units!

Sheet Number:

Evaluation of deviation from PM₁₀ inlet acceptance criteria:

Flow rate	-	
Design flow rate	-	
Difference	-	
Dev = $\frac{100 * \text{Diff}}{\text{Wrk. std.}}$	-	
Acceptance criteria	-	
$ \text{Dev} \leq \text{AC y/n}$	-	

Remember to add measurement units!

Evaluation of deviation from mass density acceptance criteria:

Mass density	-	
Foil mass density	-	
Difference	-	
Dev = $\frac{100 * \text{Diff}}{\text{Wrk. std.}}$	-	
Acceptance criteria	-	
$ \text{Dev} \leq \text{AC y/n}$	-	

Remember to add measurement units!

AC = Acceptance criteria

Sheet Number:

Performance evaluation audit - High volume samplers

There is one sheet for each instrument

Instrument: Serial number:

Evaluation of deviation from flow rate acceptance criteria:

Flow rate	-	
Design flow rate	-	
Difference	-	
Dev = $\frac{100 * \text{Diff}}{\text{Wrk. std.}}$	-	
Acceptance criteria	-	
$ \text{Dev} \leq \text{AC y/n}$	-	

Remember to add measurement units!

AC = Acceptance criteria

Non-compliance report no 1

Place/area: IGSR..... Station id: AQ

Reference document(s): Station audit 2.1

Name of auditor: Rolf Dreiem

Date: 12 Oct. 2004

<p>Non-compliance:</p> <p>Water can come inside along air tube inlets.</p> <p>This can destroy PM10 Anderson.</p> <p>Need action immediately.</p>		
Signatures:	Auditor: Rolf Dreiem	For the institution: Heba

<p>Corrective action(s):</p> <p>Make a seal by silicone rubber.</p>
<p>Date when corrective action will be completed: 2 days.</p>

Signature of manager responsible for place/area where the non-compliance is identified.

Corrective action implemented:			
	Name	Signature	Date

Corrective action confirmed by auditor:		
	Signature	Date

Non-compliance report no 2

Place/area: IGSR..... Station id: AQ 30.....

Reference document(s): Station audit 2.2

Name of auditor: Rolf Dreiem

Date: 12 Oct. 2004

Non-compliance: NOx monitor at CEHM for repair (cooler). PM10 Anderson gives error 26.		
Signatures:	Auditor: Rolf Dreiem	For the institution: Heba

Corrective action(s): Waiting for NOx monitor from CEHM. Maher will repair PM10 Anderson.
Date when corrective action will be completed: 1 month?

Signature of manager responsible for place/area where the non-compliance is identified.

Corrective action implemented:			
	Name	Signature	Date

Corrective action confirmed by auditor:		
	Signature	Date

Non-compliance report no 3

Place/area: IGSR..... **Station id:** AQ 30.....

Reference document(s): Station audit 2.5, 2.6 and Performance Evaluation audit – Gas mon....

Name of auditor: Rolf Dreiem

Date: 12 Oct. 2004

<p>Non-compliance:</p> <p>No working NOx gas cylinder at the station.</p> <p>No working SO2 gas cylinder at the station.</p> <p>No working CO gas cylinder at the station.</p>		
Signatures:	Auditor: Rolf Dreiem	For the institution: Heba

<p>Corrective action(s): Waiting for CEHM.</p> <p>Depend on EEAA.</p>
<p>Date when corrective action will be completed: ???</p>

Signature of manager responsible for place/area where the non-compliance is identified.

Corrective action implemented:			
	Name	Signature	Date

Corrective action confirmed by auditor:		
	Signature	Date

2.1.8 Alexandria regional site

Sheet Number:

Station audit

1. General information

Station: Alexandria background	St. Id: AQ33	Date: 10 Oct. 2004
Auditor: Rolf Dreiem	Sign: RD	
Audit institution: NILU		
Responsible technician: Heba	Present y/n: Y	
Institution: IGSR		
Local maintenance personnel: N	Present y/n:	
Date of last audit: ?		

2. Technical system audit

2.1. Facilities

Controlled access to station y/n: Y	Door always locked y/n: Y
Are there windows y/n: N	Windows always closed y/n: ---
Air condition y/n: Y	Is it running y/n: Y
Dust deposits y/n: N	Normal temp. y/n: Y ...
Dust removal frequency: Weekly	
From where is the dust coming: Door	

2.2. Equipment

Dust deposits inside instruments y/n: N	Dust removal frequency: 2 weeks ...
Dust deposits inside tubes/manifold y/n: N..	Dust removal frequency: 6 months
Any instruments not working (which): Met. station.	
What is the plan for malfunctioning instruments: New sensors and plugs from CEHM.	

2.3. Operations

Are necessary SOPs available y/n: Y	Are SOPs of latest version y/n: Y
Are necessary forms available y/n: Y	Are forms of latest version y/n: Y
Are the instrument Instruction manuals available y/n: Y	
Is the technician familiar with the QC documentation y/n: Y	

Sheet Number:

2.4. Record keeping

Is the Station manual available y/n: Y.....

Is the Station visit log maintained and signed at every visit y/n: Y

Are the pages in the visit log numbered y/n: Y

Are Site visit log forms, maintenance forms and other forms older then 3 months brought to the laboratory for archiving in the History log y/n: Y

2.5. Maintenance

Date of last maintenance visit: 9. Oct. 2004

Actual maintenance frequency: Weekly.. Scheduled frequency: Weekly

Is maintenance performed according to the SOP y/n:Y

Air intake filter change frequency: 2-3 weeks .

2.6. Calibration procedures

There is one sheet for each instrument.

Instrument: TEI 49C Ozone monitor

Type of performance check unit: Internal zero/span

Are the performance check acceptance criteria available y/n: Y

Are the field calibration acceptance criteria available y/n: Y

	Last performed	Actual frequency	Scheduled frequency
Manual performance check	9. Oct. 2004	Weekly	Weekly
Automatic Z/S check	N	-----	-----
Field calibration	N	-----	-----

Sheet Number:

Performance evaluation audit - Gas monitors

There is one sheet for each instrument.

Instrument: TEI 49C Ozone monitor..... Serial number: 58139-316

Zero level check monitors.

Values recorded from two zero checks on the maintenance sheet:

Date	30 Sept. 04	8 Sept. 04	
Parameter	Ozone	Ozone	
Response	1.8 ppb	2.1 ppb	
Acceptance criteria	-5-+5 ppb	-5-+5 ppb	
AC ≤ Resp ≤ AC y/n	N	N	

Remember to add measurement units!

Span check monitors.

Values recorded from two span checks on the maintenance sheet:

Parameter	Ozone	Ozone	
Response	171.2 ppb	169.2 ppb	
Working standard	173.9 ppb	173.9 ppb	
Difference	2.7 ppb	4.1 ppb	
Dev = $\frac{100 * \text{Diff}}{\text{Wrk. std.}}$	1.5526	2.3576	
Acceptance criteria	-15-+15 ppb	- 15-+15	
Dev ≤ AC y/n	N	N	

Remember to add measurement units!

Comparison with travelling standard: **Ozone have no travelling standard.**

Parameter	-		
Response	-		
Travelling standard	-		
Difference	-		
Dev = $\frac{100 * \text{Diff}}{\text{Trv. std.}}$	-		
Acceptance criteria	-		
Dev ≤ AC y/n	-		

Remember to add measurement units!

AC = Acceptance criteria

Non-compliance report no 1

Place/area: Alexandria Background Station id: AQ 33.....

Reference document(s): Station audit 2.2

Name of auditor: Rolf Dreiem

Date: 10 Oct. 2004

Non-compliance: Meteorological station is not working. Need new sensors from CEHM. Old sensors removed.		
Signatures:	Auditor: Rolf Dreiem	For the institution: Heba

Corrective action(s): Waiting for CEHM.
Date when corrective action will be completed: 1 month?

Signature of manager responsible for place/area where the non-compliance is identified.

Corrective action implemented:			
	Name	Signature	Date

Corrective action confirmed by auditor:		
	Signature	Date

2.1.9 El Mahalla

Sheet Number:

Station audit

1. General information

Station: El Mahalla	St. Id: AQ 37	Date: 10 Oct. 2004
Auditor: Rolf Dreiem	Sign: RD	
Audit institution:		
Responsible technician: Mourad Khamis	Present y/n: Y	
Institution: IGSR		
Local maintenance personnel: No	Present y/n:	
Date of last audit: ?		

2. Technical system audit

2.1. Facilities

Controlled access to station y/n: Y	Door always locked y/n: Y
Are there windows y/n: N	Windows always closed y/n:
Air condition y/n: Y	Is it running y/n: Y
	Normal temp. y/n: Y
Dust deposits y/n: Y	Dust removal frequency: Month
From where is the dust coming:	

2.2. Equipment

Dust deposits inside instruments y/n: N	Dust removal frequency: Month
Dust deposits inside tubes/manifold y/n: Y	Dust removal frequency: Month
Any instruments not working (which): PM10 monitor and SO2 monitor	
What is the plan for malfunctioning instruments: PM10: Waiting for Maher since 18 Aug. 2004. SO2: At CEHM since 19 June 2004	

2.3. Operations

Are necessary SOPs available y/n: Y	Are SOPs of latest version y/n: Y
Are necessary forms available y/n: Y	Are forms of latest version y/n: Y
Are the instrument Instruction manuals available y/n: Y	
Is the technician familiar with the QC documentation y/n: Y	

Sheet Number:

2.4. Record keeping

Is the Station manual available y/n: Y.....

Is the Station visit log maintained and signed at every visit y/n: Y.....

Are the pages in the visit log numbered y/n: Y.....

Are Site visit log forms, maintenance forms and other forms older than 3 months brought to the laboratory for archiving in the History log y/n: Y.....

2.5. Maintenance

Date of last maintenance visit: 29 Sept. 2004

Actual maintenance frequency: Month * Scheduled frequency: Week

Is maintenance performed according to the SOP y/n:

Air intake filter change frequency:.....

* Only dust fall sampler is working.

Non-compliance report no 1

Place/area: El Mahalla..... Station id: AQ 37.....

Reference document(s): Station audit 2.2.....

Name of auditor: Rolf Dreiem

Date: 11 Oct. 2004

Non-compliance: PM10 monitor was not running. Waiting for Maher to repair since 18. Aug. 2004. SO2 monitor at CEHM since 19 June 2004.

Signatures:	Auditor: Rolf Dreiem	For the institution: Mourad Khamis
-------------	----------------------	------------------------------------

Corrective action(s): Waiting for CEHM.

Date when corrective action will be completed: ?

Signature of manager responsible for place/area where the non-compliance is identified.

Corrective action implemented:			
	Name	Signature	Date

Corrective action confirmed by auditor:		
	Signature	Date

2.1.10 Kafr El Zayat

Sheet Number:

Station audit

1. General information

Station: Kafr El Zayat	St. Id: AQ35	Date: 11 Oct. 2004
Auditor: Rolf Dreiem		Sign: RD
Audit institution: NILU		
Responsible technician: Mourad Khamis		Present y/n: Y
Institution: IGSR		
Local maintenance personnel: N		Present y/n:
Date of last audit: 25 May 2004.		

2. Technical system audit

2.1. Facilities

Controlled access to station y/n: Y.....	Door always locked y/n: Y.....
Are there windows y/n: N.....	Windows always closed y/n:
Air condition y/n: Y.....	Is it running y/n: Y.....
	Normal temp. y/n: Y ...
Dust deposits y/n: Y	Dust removal frequency: Monthly.....
From where is the dust coming: Door	

2.2. Equipment

Dust deposits inside instruments y/n: N.....	Dust removal frequency: Monthly .
Dust deposits inside tubes/manifold y/n: N..	Dust removal frequency: 6 months
Any instruments not working (which): PM10 monitor	
What is the plan for malfunctioning instruments: Repair at CEHM	
.....	

2.3. Operations

Are necessary SOPs available y/n: Y.....	Are SOPs of latest version y/n: Y.....
Are necessary forms available y/n: Y.....	Are forms of latest version y/n: Y
Are the instrument Instruction manuals available y/n: Y	
Is the technician familiar with the QC documentation y/n: Y....	

Sheet Number:

2.4. Record keeping

Is the Station manual available y/n: Y.....

Is the Station visit log maintained and signed at every visit y/n: Y.....

Are the pages in the visit log numbered y/n: Y.....

Are Site visit log forms, maintenance forms and other forms older then 3 months brought to the laboratory for archiving in the History log y/n: Y.....

2.5. Maintenance: *Shelter is very rusty, needs repair. Grab rail gone, need new.*

Date of last maintenance visit: 29. Sep. 2004

Actual maintenance frequency: Weekly.. Scheduled frequency: Weekly.....

Is maintenance performed according to the SOP y/n: Yes, if span gas cylinder is at station.

Air intake filter change frequency: Y.....

2.6. Calibration procedures

There is one sheet for each instrument.

Instrument: TEI 42C NOx

Type of performance check unit: 11.Oct. 2004

Are the performance check acceptance criteria available y/n: Y

Are the field calibration acceptance criteria available y/n: Y

	Last performed	Actual frequency	Scheduled frequency
Manual performance check	11 Oct. 04	Weekly	Weekly
Automatic Z/S check	-----	-----	-----
Field calibration	11 Oct. 04	?	3 months

Sheet Number:

Performance evaluation audit - Gas monitors

There is one sheet for each instrument.

Instrument: TEI 42 C NOx Serial number: 61470-331

Zero level check monitors

Values recorded from two zero checks on the maintenance sheet:

Date	11 Oct. 04		14 Oct. 04	
Parameter	NO	NOx	NO	NOx
Response	1.3 ppb	4.0 ppb	4.6	5.4
Acceptance criteria	-3-+5 ppb	-3-+5 ppb	-3-+5 ppb	-3-+5 ppb
AC ≤ Resp ≤ AC y/n	Y	Y	Y	Y

Remember to add measurement units!

Span check monitors. No working standard at cite.

Values recorded from two span checks on the maintenance sheet:

Parameter	-			
Response	-			
Working standard	-			
Difference	-			
Dev = $\frac{100 * Diff}{Wrk. std.}$	-			
Acceptance criteria	-			
Dev ≤ AC y/n	-			

Remember to add measurement units!

Comparison with travelling standard:

Parameter	-	
Response	-	
Travelling standard	-	
Difference	-	
Dev = $\frac{100 * Diff}{Trv. std.}$	-	
Acceptance criteria	-	
Dev ≤ AC y/n	-	

Remember to add measurement units!

AC = Acceptance criteria

Non-compliance report no 1

Place/area: Kafr El Zayat..... Station id: AQ 35.....

Reference document(s): Station audit 2.1 and 2.2.....

Name of auditor: Rolf Dreiem

Date: 11 Oct. 2004

Non-compliance: <u>Shelter very rusty. Holes in the roof. Needs repair.</u> <u>Grab rails on roof rusted away. A new must be made.</u> PM10 monitor at CEHM for repair.		
Signatures:	Auditor: Rolf Dreiem	For the institution: Heba

Corrective action(s): Repair will be done as soon as possible. (Shelter). PM10 is waiting for spare parts.
Date when corrective action will be completed: 3 months?

Signature of manager responsible for place/area where the non-compliance is identified.

Corrective action implemented:	Name	Signature	Date
--------------------------------	------	-----------	------

Corrective action confirmed by auditor:	Signature	Date
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3 Conclusions

A main conclusion is that the sites in Alexandria and the Delta need to be updated. Shelters are in bad condition and calibrations at El Shouhada had not been properly undertaken since March 2004. This has now been corrected for.

The site at Tabbin was working satisfactory except for the TSP sampler, while the other sites in Cairo had failures and errors, which mainly were caused by instruments not perfectly operated, and missing spare parts.

Generally it has been noted that the follow-up programme from the QA/QC officers does not seem to work properly. The field operators have to file station logs and history logs, which again will have to be checked and verified by the QA/QC manager.



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TITLE EIMP Phasing-out Phase, 2003-2004 Audits to selected monitoring sites in Egypt, October 2004		PROJECT LEADER Bjarne Sivertsen	
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AUTHOR(S) Rolf Dreiem		CLASSIFICATION * A	
		CONTRACT REF.	
REPORT PREPARED FOR: COWI/EIMP EEAA Building, 30 Misr Helwan Street Maadi, Cairo, Egypt			
ABSTRACT During the last mission in EIMP Phasing-out Phase in October 2004 some selected monitoring sites were audited by Rolf Dreiem. The results from the audits are from very good sites to bad. Details in the work and equipment vary a lot at different sites. Most of the technicians are doing a good work, but do not have all tools, gases and transportation they need to perform better.			
NORWEGIAN TITLE Revisjon av utvalgte luftmålestasjoner i Egypt oktober 2004.			
KEYWORDS Air quality	Monitoring	Audit	
ABSTRACT (in Norwegian) Ved siste oppdrag i EIMP Phasing-Out Phase i oktober 2004 ble det gjennomført revisjon av utvalgte luftmålestasjoner av Rolf Dreiem. Resultatene fra revisjonene varierer fra svært bra til dårlig. Detaljer i arbeid og utstyr varierer en del ved de forskjellige målestasjonene. De fleste av teknikerne utfører bra arbeid, men har ikke alt verktøy, gass og transport de trenger for å gjøre en bedre jobb.			

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 B *Restricted distribution*
 C *Classified (not to be distributed)*