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**PROPOSALS TO INTRODUCE
OPERATOR MONITORING ASSESSMENT
FOR EMISSIONS TO AIR
FROM PROCESSES REGULATED UNDER
INTEGRATED POLLUTION CONTROL**

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**This consultation document was prepared by the Environment Agency's
National Compliance Assessment Service, Cameron House, Lancaster.**

ENVIRONMENT AGENCY



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OVERVIEW OF PROPOSALS

INTRODUCTION

1. The Environment Agency has specific responsibilities for regulating major industries in England and Wales under environmental protection legislation and a duty to report on the state of the environment. Our strategy focuses on the need to address the state of the environment at any time, identify the pressures that are affecting it, consider options and, where required, ensure industries that we regulate implement appropriate controls.
2. The Agency requires the monitoring of many emissions because of their potential impact on people and the environment. We can then ensure actions are taken to prevent or minimise their impacts and prevent potential harm from occurring. In order to make informed, quality decisions we require reliable monitoring data that industry, regulators and the public can have confidence in.
3. Most of the monitoring of emissions from industrial processes regulated under Integrated Pollution Control (IPC) is carried out by process operators under self-monitoring arrangements. In order to ensure that these arrangements command the confidence of both the Agency and the public, the Agency audits these arrangements and commissions a proportionate amount of check monitoring.
4. The Agency proposes to strengthen its monitoring and auditing procedures by introducing a new scheme, known as Operator Monitoring Assessment (OMA), that will assess the quality of self-monitoring undertaken by operators.
5. This consultation document presents the Agency's proposals for the application of OMA to the monitoring of emissions to air from industrial processes regulated under IPC. In the longer term it is proposed to extend OMA to the monitoring of releases to air, water and land from industrial processes regulated under the Pollution Prevention and Control Regulations.

OBJECTIVES AND BENEFITS OF OMA

6. The OMA scheme has been developed to provide a consistent and transparent approach to auditing the quality and reliability of self-monitoring undertaken by industrial process operators.
7. The Agency will use the outputs from OMA to:
 - inform the targeting and prioritising of its check monitoring programmes;
 - provide a driver for process operators to improve their monitoring arrangements.

8. The introduction of OMA will also provide the following benefits:
- the Agency's requirements for operator self-monitoring arrangements will be more transparent and consistent;
 - operators and the Agency will be better informed regarding emissions and the quality of monitoring information will be of a higher standard;
 - improved monitoring data will assist process control and aid the identification of emission trends;
 - improved process control and management should lead to reduced emissions to the environment;
 - operators with good self-monitoring regimes will not normally incur the costs of Agency check monitoring.

BACKGROUND

9. The draft OMA scheme was developed by Agency staff including those with "hands on" experience of regulating under IPC.
10. During Summer 2000, trials were undertaken across England and Wales to develop and test the scheme. The processes were chosen to represent a diverse range of industry.
11. Check monitoring is commissioned by the Agency to provide checks on operator's data and compliance with authorised limits. The Agency recovers the costs of check monitoring from the operator. Approximately 35% of IPC processes are subject to Agency check monitoring each year at a cost to industry of about £2.5 million. The Agency intends to shift towards greater reliance on auditing of operators and operator self-monitoring, subject to the introduction of a robust OMA scheme.

DESCRIPTION OF THE OMA SCHEME

12. A more detailed description of the proposed OMA scheme is included in the appendix.
13. It is also the intention to produce a "Working towards a good OMA score" booklet, as guidance to operators to coincide with the launch of the OMA scheme.
14. The OMA scheme will award a score that reflects the quality and reliability of self-monitoring undertaken by the operator. Reliability includes such factors as the quantity and frequency of monitoring. It is proposed that the score will be used to benchmark operators' self-monitoring arrangements and prioritise the Agency's check-monitoring programme.

15. OMA comprises six attributes that will allow an Agency Officer to assess the reliability of monitoring carried out by an operator, or their contractor. The six attributes are:

- management and training of staff;
- fitness for purpose of monitoring methods;
- maintenance of monitoring equipment;
- calibration of monitoring equipment;
- QA/QC of monitoring effort;
- performance against limits.

16. Each attribute contains a series of elements, or questions, against which the Agency Officer will assess the operator's arrangements and award a score. Each element will be assigned a score of one to five. The higher the score the better. In addition, four of these elements are regarded as "fundamental" i.e. critical to monitoring. These are:

- health and safety;
- does the monitoring method measure what it should;
- is the sampling plane i.e. the location within the stack where sampling points are positioned, acceptable;
- acceptability of calibration methods.

A low score (one or two) awarded in any of the four fundamental elements will require immediate action to be taken by the operator to correct the situation. Further details are provided at paragraph A9 of the appendix.

17. An overall OMA rating is calculated from the combined scores calculated for each of the six attributes. Further details of the scoring scheme are included in the appendix at paragraphs A6 – A10.
18. Processes with a low OMA score would be more likely to be subjected to Agency check monitoring than those with a high OMA score.
19. There may be occasions when the Agency Officer decides that check monitoring is required at a process for specific and identifiable reasons such as site sensitivity or frequency of complaints from the public, despite a good OMA score being awarded. The reasons for undertaking check monitoring will be made clear to the operator prior to commencement.
20. There are processes with emissions so small in relation to their impact on the environment, or public health, that they could be considered as "*de minimus*". Such processes would not normally warrant consideration for inclusion in the Agency's check-monitoring programme. It is not proposed that OMA will change this situation. However, the OMA scheme will be used to identify shortfalls in the monitoring arrangements at such processes and identify areas for improvement.

Questions for consultation:

- *Are the six attributes appropriate?*
- *Are there any other fundamental elements?*

IMPLEMENTATION

21. The Agency will finalise the OMA scheme taking into account all comments received in response to this consultation.
22. The Agency proposes to have the OMA scheme ready for implementation during Summer 2001. Agency staff will receive appropriate training to deliver a consistent approach across the country. It is proposed that assessments of IPC processes will start in mid September 2001. In the first year i.e. 2001/02, it is likely that approximately 25% of processes will be audited using the OMA scheme. The remaining 75% of audits will be completed in 2002/03.
23. It is envisaged that OMA scores will be reviewed on an annual basis. The extent and timing of OMA reviews will depend on the scale of any changes to the process or associated monitoring arrangements. These reviews may be triggered by Agency inspection or at the request of the process operator.
24. The OMA scheme itself will be subjected to a continuous review process, and modified as appropriate.

FUTURE DEVELOPMENTS

25. The Agency intends to extend the OMA scheme to cover assessments of operators' self-monitoring of emissions to other media, and under other regulatory regimes.
26. The Agency has also been developing the use of Operator and Pollution Risk Appraisal (OPRA) for IPC as a move towards risk based regulation. The Agency's OPRA scores will be used as an essential part of allocating resources for compliance effort starting in 2001/02. In the short term the Agency will implement OPRA and OMA separately to ensure proper assessment and validation of the two schemes that are in different stages of development.
27. In the longer term the Agency intends to integrate the use of risk based methodologies within the Agency and will look to bring together OPRA and OMA within a single scheme. The Agency believes this is important to ensure clarity and transparency in the application of environmental regulation. The Agency is already working on the development of an integrated approach to risk based regulation for installations to be regulated by the Agency under the Pollution Prevention Control Regulations which builds on the experience gained within OPRA and OMA.

THE CONSULTATION PROCESS

28. Consultation documents have been issued to:

- relevant trade associations;
- operators of IPC authorised processes;
- Department of the Environment, Transport and the Regions;
- Scottish Environment Protection Agency;
- Department of the Environment, Northern Ireland;
- non - Governmental organisations including;
 - Friends of the Earth;
 - Greenpeace;
 - National Society for Clean Air.

If you have any suggestions about others who may be interested in the document the Agency would be pleased to receive them.

29. Comments are sought on the draft OMA scheme. The consultation document is also available on the Internet on the Agency web site www.environment-agency.gov.uk Please note that comments may be made public unless confidentiality is specifically requested.

30. A twelve week period has been allowed for consultation. Comments should be submitted by 7 May 2001 to the Environment Agency at the following address, marked for the attention of Nigel Jeal.

Environment Agency.
National Compliance Assessment Service.
Cameron House.
White Cross Industrial Estate.
South Road.
Lancaster.
LA1 4XQ.
Telephone: 01524 842704.
Fax: 01524 581908.

Or alternatively e-mailed to oma@environment-agency.gov.uk

FOOTNOTE

Any complaints or comments about this consultation process should be directed to Robin Chatterjee at the Environment Agency, Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol, BS32 2UD.

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APPENDIX

DESCRIPTION OF THE PROPOSED OMA SCHEME FOR EMISSIONS TO AIR

INTRODUCTION

- A1 The Agency intends to use the OMA scheme to audit operators self-monitoring arrangements, in a consistent and transparent manner to:
- assess operators self-monitoring (including monitoring undertaken on behalf of operators by contractors);
 - provide guidance for implementing necessary monitoring improvements;
 - establish a system to help prioritise the Agency's check monitoring.
- A2 The OMA scheme is intended for use by Agency Officers. Site operators may also wish to use it on other occasions, such as internal audits, or as a preparatory exercise prior to the Agency OMA audit.

THE ATTRIBUTES AND ELEMENTS

- A3 The OMA scheme comprises six attributes, which are considered to represent the key issues affecting operator self-monitoring. The six attributes are:
- OMA 1. Management and training of staff;
 - OMA 2. Fitness for purpose of monitoring methods;
 - OMA 3. Maintenance of monitoring equipment;
 - OMA 4. Calibration of monitoring equipment;
 - OMA 5. QA/QC of monitoring effort;
 - OMA 6. Performance against limits.
- A4 Each of the six OMA attributes contains a series of elements, or questions, against which the Agency Officer will audit and subsequently award a score. The principal elements of each attribute are identified below:

OMA 1 Management and training

- a) Corporate commitment to monitoring.
- b) Appropriate management structure in relation to monitoring.
- c) Production of monitoring schedules.
- d) Procedures for feedback of monitoring results.
- e) Training of operator's manager/engineer responsible for implementing monitoring.
- f) Training of consultants' or operators' staff carrying out stack monitoring to MCERTS standards.
- g) Understanding of Agency's monitoring requirements.
- h) Health and safety issues regarding stack testing personnel. *Fundamental*, see paragraph A9.

OMA 2 Fitness for purpose (continuous monitors, periodic monitors and surrogate methods)

- a) Does the monitoring method or surrogate method measure what it purports to? *Fundamental*, see paragraph A9.
- b) Is the monitoring method or surrogate method traceable to a relevant and validated standard?
- c) If a monitoring method is used, does the equipment conform to the appropriate minimum design and performance standards?
- d) If a monitoring method is used, does the equipment have acceptable performance characteristics, e.g. range, limit of detection, linearity, response speed, and uncertainty?
- e) Is the sampling plane technically acceptable? *Fundamental*, see paragraph A9.
- f) Is the measured frequency adequate to provide results representative of the long term release profile?

OMA 3 Maintenance of monitoring equipment.

- a) Is there a maintenance schedule and is the maintenance frequency acceptable?
- b) Existence of a documented maintenance procedure.
- c) Existence of maintenance records.
- d) Reliability of continuous monitors and percentage of data capture
- e) Spares held on site and general availability of equipment. Competence of persons undertaking repairs.

OMA 4 Calibration of monitoring equipment.

- a) Is there a calibration schedule in place?
- b) Acceptability of calibration frequency.
- c) Calibration procedure documentation.
- d) Acceptability of calibration methods. *Fundamental*, see paragraph A9.
- e) Traceability of calibration.

OMA 5 Quality assurance/quality control of monitoring effort.

- a) Use of documented procedures by organisation carrying out monitoring.
- b) Accreditation of monitoring organisation and personnel to MCERTS standards.
- c) On site auditing of monitoring work (including surrogate methods) against documented procedures.
- d) Degree of compliance with procedures.
- e) Reporting standard.

OMA 6 Performance against limits.

- a) How close are the releases to the Authorisation limit?
- b) Variability of releases.
- c) Overall uncertainty i.e. accuracy and precision.

- A5 Detailed guidance and training will be provided to ensure that a consistent approach is taken by Agency Officers.

SCORING

- A6 Each element will be awarded a score of 1, 2, 3, 4 or 5, with 1 being poor and 5 being good. "Not applicable" will only be used in exceptional circumstances and will need a supporting comment from the Agency Officer justifying the decision.
- A7 The six attributes contain different numbers of elements e.g. OMA 1 "Management and training" contains eight elements; OMA 3 "Maintenance of monitoring equipment" contains five elements. To allow relevant comparisons between attributes (which would help to identify areas of weakness) the score for each attribute will be calculated as a percentage.
- A8 The final OMA score for the process would comprise the mean of the six OMA attribute scores. This would allow comparisons between processes to be made. The following example using OMA 3 "maintenance of monitoring equipment" explains the system:

OMA 3 Maintenance of monitoring equipment

ELEMENT	SCORE 1 - 5
a. Is the maintenance schedule and frequency acceptable?	2
b. Existence of documented maintenance procedure.	3
c. Existence of maintenance records.	4
d. Reliability of monitors and percentage data capture.	5
e. Spares held on site and availability of equipment.	1
TOTAL =	15

The percentage score is calculated as: *actual score ÷ potential maximum score x 100*.

The maximum score for each element is 5.

The potential maximum score for each of the six attributes will differ according to the number of elements it includes.

In the example of OMA 3 there are 5 elements therefore the maximum score possible would be 5 (elements) x 5 (max score) = 25.

In this example the total score for OMA 3 would be:

$$\text{Actual score (15) } \div \text{ potential maximum score (25) } \times 100$$

OMA 3 score therefore = 60%.

To then calculate the final OMA score for the process would involve repeating the above process for each OMA attribute. The mean is then calculated. For example:

ATTRIBUTE	SCORE
OMA 1	21%
OMA 2	45%
OMA 3	60%
OMA 4	70%
OMA 5	35%
OMA 6	55%
Final OMA site score 286 ÷ 6 =	<u>48%</u>

A9 Four of the elements are regarded as fundamental to monitoring i.e. if any of these elements are awarded a poor score it indicates the monitoring arrangements are critically flawed. Should a score of 1 or 2 be awarded then the Agency Officer will take appropriate action to ensure that the identified shortcomings are addressed by the operator as a matter of priority. The fundamental elements are detailed in the following table:

Attribute	Element	Justification
OMA 1 Management And training	H Health & Safety	Health & safety of the monitoring team is critical. Immediate action is required if a safe working environment is not provided.
OMA 2 Fitness for purpose	A Does the monitoring method measure what it should	Unless the monitoring method/equipment measures what it is supposed to, the whole exercise is pointless.
OMA 2 Fitness for Purpose	E Is the sampling plane acceptable	If the sampling plane is in an inappropriate location, samples will not be representative
OMA 4 Calibration	D Acceptability of methods	If the calibration procedure is flawed, no reliance can be placed on the results.

A10 Each of the individual elements (including the fundamental elements) will have specific guidance providing an indication of which score the Agency Officer should award. The guidance for each element will be split into three sections indicating whether a score of 1, 3 or 5 is applicable. Specific guidance will not be provided for scores of 2 or 4. However a score of 2 or 4 will be awarded in circumstances that fall in between the 1, 3 or 5 guidelines. The Agency Officers will use information gathered during the audit alongside their process knowledge to decide which score provides the best evaluation of the self-monitoring arrangements. Using the four fundamental elements as examples:

OMA Attribute 1, Management and training.

Element H, Health and safety issues regarding stack monitoring personnel.

- SCORE 1 No formalised safety management system. Inadequate induction training. Safety control measures at the minimum acceptable safe level. Moderate level of risk to stack monitoring personnel.
- SCORE 3 General safety management system but not specific. Induction training does not address all relevant areas. Information available to carry out safety risk assessments and acceptable control measures provided. Low to moderate level of risk.
- SCORE 5 Formalised safety management system. Induction training appropriate. Information available to carry out comprehensive risk assessment and control measures provided. Low level of risk to stack monitoring personnel.

OMA Attribute 2, Fitness for purpose.

Element A, Does the monitoring method measure what it should?

- SCORE 1 Monitoring method not specific to the determinand of interest and/or significant interference. Limits of detection not appropriate for concentrations of interest.
- SCORE 3 Monitoring method is suitable to the determinand of interest with acceptable levels of interference. Limits of detection acceptable for the concentrations of interest.
- SCORE 5 Monitoring method specific to the determinand of interest with no interference. Limits of detection match concentrations of interest.

OMA Attribute 2, Fitness for purpose.

Element E, Is the sampling plane acceptable?

- SCORE 1 The sampling plane is at an inappropriate location, the ports are inappropriate in number, size, position and the access is poor.
- SCORE 3 The sampling plane and ports do not meet the applicable standards in all respects, but are the best available. Access is reasonable.
- SCORE 5 The sampling plane and ports meet the applicable standard in all respects. Access is reasonable.

OMA Attribute 4, Calibration.

Element D, Acceptability of calibration method.

- SCORE 1 Monitoring equipment (or surrogate methods) are not calibrated to a minimum standard.
- SCORE 3 Monitoring equipment (or surrogate methods) are calibrated using an adequate method but there is room for improvement.
- SCORE 5 Monitoring equipment (or surrogate methods) are calibrated using a high quality standard calibration method.

MULTIPLE RELEASES

- A11. Many processes have multiple emissions. The Agency Officer will prioritise the emissions such that OMA audits are carried out of the monitoring of those that are likely to present the highest potential impact on the environment. An OMA audit on a multi emission process will establish a baseline of information on certain aspects e.g. OMA 1 Management and training. Further OMA audits on emissions from the process, and other processes on the same site should be able to utilise this information and therefore avoid unnecessary repetition.