# Recommendations on verification from the Scientific Advisory Board (SAB): action proposed for States Parties

## Technical briefing on recommendations 4, 9, 10, 15 in SAB/REP/15/1

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## Which new or emerging technologies may add value to existing capabilities for verification purposes (such as data analysis/data mining, statistical analysis, attribution analysis)?

**Recommendation 4** — **Remote/automated monitoring technologies should be added to the list of approved inspection equipment**

Experience gained from missions to the Syrian Arab Republic demonstrated the value of such technologies

Where conditions make physical access difficult, and to optimise resources, specialised equipment for on-site monitoring should be available to the Secretariat

e.g. seals and cameras with remote data transmission

## Successful remote sensor use

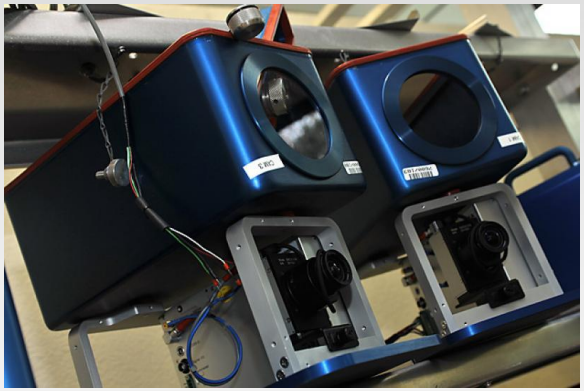
Fill CWPF area with materials and block ends with 2.5 m concrete

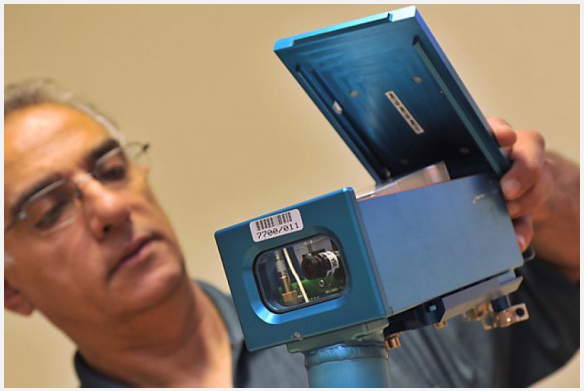
Install sensors to detect intrusion

Embed fibre optic cable inside

Illuminate in pulses by an LED

Block access with a pile of rocks



Photos courtesy of www.iaea.org

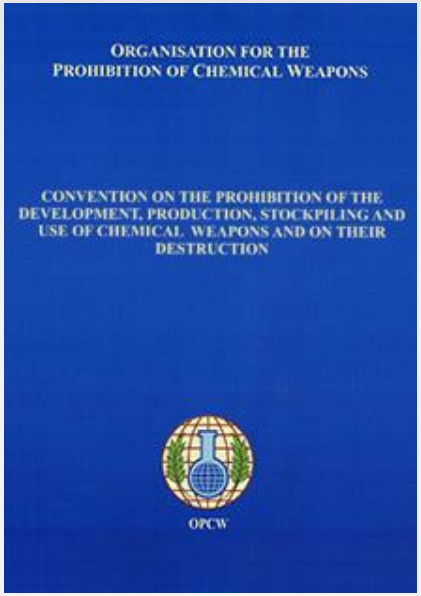
Remote/automated monitoring equipment has emerged in recent years as a new means for the purposes of collecting information remotely

Such equipment could possibly be used for on-site monitoring purposes in accordance with the provisions of the Chemical Weapons Convention

New technologies may reduce the need for on-site presence of inspectors and increase the efficiency and cost-effectiveness of verification activities

# What are the verification aspects of the meaning of "produced by synthesis"?

## Considerations




Regime for OCPFs in Part IX of the Verification Annex puts under verification facilities able to produce scheduled as well as non-scheduled toxic chemicals

Under this regime, OPCW can monitor relevant facilities in the chemical industry

Burden of on-site inspections is geographically broadly distributed and does not significantly hamper the operations of the chemical industry

Any recommendation should avoid imposing an unnecessary burden on the chemical industry

## Discrete Organic Chemical (DOC)

A DOC is a molecule comprising a definite number of atoms bonded together by chemical bonds and weak intermolecular forces

A DOC can exist in a pure form either in a mixture or a solution; “discrete” in the CWC definition does not imply that DOCs are produced in pure form

CWC defines a DOC as “any chemical belonging to the class of chemical compounds consisting of all compounds of carbon except for its oxides, sulfides and metal carbonates, identifiable by chemical name, by structural formula, if known, and by CAS registry number, if assigned”

There is a lack of consistency in how States Parties declare plant sites which produce DOCs (including mixtures of DOCs and DOCs made by bio-methods)

Selection of facilities for inspection is thus inconsistent between States Parties

## Findings for "produced by synthesis"

Biological process steps to produce DOCs will continue to increase for certain classes of chemicals

To optimise verification resources, some DOC facilities producing particular categories of chemicals should be considered lower priority

The TWG could also envisage excluding certain product types from declaration requirements, as done for facilities producing only hydrocarbons or explosives

Other facilities may be of higher relevance and should have a higher probability to be selected for inspection

To assess relevance of an OCPF, the Secretariat may require more information

## Recommendation 9

**Not all facilities falling under Part IX of the Verification Annex should be considered of the same relevance to the object and purpose of the Convention**

**The TWG recommends a practical approach for enhancing the utilisation of verification resources for OCPF declaration and on-site inspection processes**

## Recommendation 9a

**OPCW policy-making organs should exempt certain OCPFs from declaration requirements**

Secretariat should explore whether such an exemption could be product- or industry-based

These could include facilities producing methanol, urea, formaldehyde, methyl-*tert*-butyl ether, soap produced by saponification of a fatty acid, and human food and beverage production

Exempted facilities that begin the production of non-exempted chemicals would have a subsequent declaration responsibility

All OCPF facilities not so exempted should be declared, regardless of production of mixtures of DOCs or bio-mediated manufacturing route

## Recommendation 9b

**The Secretariat should reassess which product group codes are highly relevant to the Convention**

**Facilities declared within these product group codes should be subject to a higher probability to be selected for inspection**

**Consistent with the approach used in site selection Algorithm A15, under which certain group codes are more heavily weighted based on relevance**

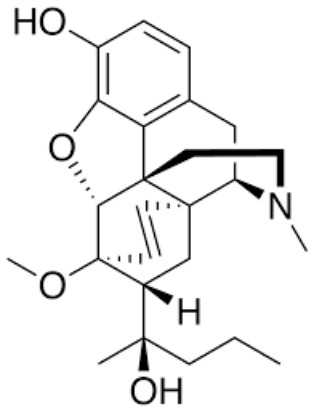
## Recommendation 9c

**For facilities that are in product group codes that are considered less relevant, the Secretariat should identify appropriate mechanisms to augment the declared information with validated and credible sources to allow for an assessment regarding the need for on-site inspections**

**Less relevant facilities may include those producing oils, perfumes, cosmetics, starches, gluten, glues and additives for mineral oils**

# What are the verification aspects of the meaning of "produced by synthesis"?

## Recommendation 10



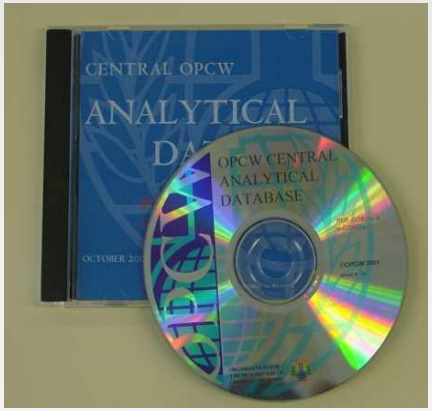

**Verification thresholds for OCPFs producing highly relevant chemicals, and the possibility of revision of the product group codes, should be addressed by the SAB and industry cluster**

**Increasing number of facilities produce DOCs at low production volumes**

**Products, such as highly active pharmaceutical ingredients, including opioids used in anaesthesia and toxins used in cancer therapy, may be highly relevant to the purpose of the Convention**

# How can sampling and analysis most effectively be utilised for verification purposes?

## Recommendation 15





**Continuous additions to OCAD are recommended to allow the OPCW to meet all its mandated inspection aims, including investigation of alleged use (IAU)**

**Identification of relevant non-scheduled chemicals – e.g. incapacitants and riot control agents – whose spectra are not in OCAD, may be important in an IAU**

**Additions to OCAD will allow OPCW meet all its mandated inspection aims**