

Ad hoc Group of Governmental Experts
to Identify and Examine Potential
Verification Measures from a
Scientific and Technical Standpoint

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On-site measures: Views on the Use of Continuous Monitoring.

The possibilities of continuous monitoring will vary dependent on the facilities being either

- . Research laboratory
- . Production facility
- . Field trial facility

Continuous monitoring by instruments.

This may require that verification personnel is permanently in place to control the well functioning of monitoring instruments. Another possibility is remote reading of instruments that are sealed, and may be checked without notice at irregular intervals. Basically, best suited for continuous monitoring by instruments is activity that is regularly taking place, and not the improbable, odd accident as e.g. outside release of aerosolized agents. Examples of technical possibilities are given in the following:

Research laboratory

Temperature recorders in fermentors, autoclaves, walk-in incubators. These will give a measure of the general activity

Surveillance by closed-circuit television cameras stationed in laboratories, outside buildings etc. Will identify personnel, cars

Electronic checkpoints, automatically activated by personnel's badge. Will check personnel's movements. Same is possible with cars. That the electronic badges are actually carried will be verified by TV or by monitoring personnel.

Production facility

Same as above, with additionally:

Electricity consumption surveillance

Water consumption surveillance.

Field trial facility Closed-circuit TV cameras

Automated aerosol samplers.
In-situ analyzers are not
necessary. Sample containers
will be collected for lab
analysis to be done by third
party.

Continuous monitoring by personnel.

Any BTW-capable installation could theoretically be continuously monitored by personnel. To evaluate to what extent such measures may be successfully applied, continuous monitoring is in the following discussed with respect to the most self-evident target of inspection, namely an industrial-scale production facility. This facility would have fermentors, centrifugal- or cross-flow concentration and lyophilisation equipment, and would have installed appropriate P2-P3 safety level seals and air filters.

The monitoring personnel should ensure expert knowledge and experience in three fields, namely:

1. Detection and handling of biological agents
2. Production monitoring, technical inspections
3. Intelligence and inspectors' safety and working conditions.

The quality of the personnel should be such:

- . Broad experience, i.e. which covers two fields or more within the abovementioned 1,2,3
- . Could be civilian or military who actually work with advanced diagnostics, production, or intelligence on a daily base
- . Monitoring personnel should master the local language or, at a minimum, a team should include their own translators

Points to be controlled and procedures to be followed

- . Identification of previous and new activities and production steps, control the consumption of raw materials, chemicals and reagents, control the integrity of technical installations with respect to normal monitoring equipment as well as equipment installed for BTW verification purposes
- . Be ensured free access, any time, to all points of production, storage, R&D, archives, personnel files, and any other activity related or not related to BTW. In this, the team members will be surveyed by

representatives from the inspected institution

- . Free access to, and the possibility of confidential routine interviews with all the personnel employed, not to be surveyed by representatives from the inspected institution
- . The monitoring personnel should be easy to identify, and their presence and purpose should be clearly announced to all the employees of the production facility
- . The inspectors will be provided with office or similar space in situ so that they if so wished can provide physical presence on a 24 h, round the clock mode
- . Reporting will be based on forms to fill in. There will always be two official reports. One from the monitoring team on the general as well as the BTW-related activities of the inspected institution, and one from the production facility related to the acceptance of the team members and their working practices.

Composition and working schedule of continuous monitoring teams

- . Three-member teams is ideal for flexibility
- . They must be sufficiently well paid so that high-quality personnel from outside the military, i.e. from Universities and civilian companies, will apply
- . Not all (1,2,3) fields of expertise will necessarily be fully met by each team. Rather, the inclusion into one three-man team of two experts from the same field, may be favourable for in-depth surveying
- . The composition of the three-man monitoring teams, however, will vary quite often, maintaining the two + one constellation of experts
- . Information exchange meetings will take place frequently, at least weekly, with the Inspection Coordination Representative or -Centre
- . The monitoring teams should be allocated to the inspection target in two-weeks bouts, interspaced with R&R, for an enlistment period of e.g. one year. Longer bouts than two weeks may of course be considered, depending on the degree of welcome given by the production facility to be monitored
- . The monitoring personnel should not stay in the area in between tours of duty, but return home to their main institution to continue their ordinary activities. This is by far the best R&R, and also ensures that qualified personnel are easier to enlist, and willing to enlist

for longer periods

- . That the monitors are allowed to return home between each two-weeks bout, means that one can play on a larger number of experts without increasing the cost. Monitors may be paid on a the "weeks in the field"-basis and not for the time spent back home, whether this is one week or two months between each bout.

Additional remarks

- . Monitoring personnel must be vaccinated against probable B-agents
- . Correct behaviour towards the inspected production facility, and respect for local customs, should be strictly observed. Openness in this matter will be ensured by the "two-reports" system previously described
- . The cost of on-site monitoring by personnel, as opposed to inspection visits, will necessarily be very high.
