

Kyriakopoulos

To: Nick Kyriakopoulos
At: kyriak@seas.gwu.edu
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Dear Nick,

Thankyou for sending me the draft summary of the TDG report. Here are the main points that you asked me to write down for consideration in finalizing the report:

1) I agree that a systematic mass balance scheme able by itself to provide very high probability of detecting significant diversions would be prohibitively expensive and intrusive.

2) This leaves the question of whether the probability of detection and/or the deterrent effect of other, less systematic schemes might nevertheless be sufficient to justify the various costs of a schedule II regime for TDG. This question we have not addressed. The balancing of benefits and costs is a political judgement, not for us to make. But we do have some obligation as scientists to estimate the magnitudes of costs and benefits or at least to give some idea of how such estimates might be approached. I do not see how to do this except in the context of a concrete scenario or two. Cannot we do this?

Consider, for example, a facility that declares annual production of 10 tons of TDG per year. In actuality, they make 500 tons, with all but 10 going to a mustard factory elsewhere. Inspectors come on 24 hours notice. What evidence could there be of undeclared production? Some possibilities are: Caught in the act with too much TDG on hand, or too much precursor, or too much waste, or evidence of too much waste discharge, or MS detection of traces of TDG or its break-down products in a larger total reactor capacity than needed for the declared production, or evidence of production more recently than the declared last run, or even deliberate or inadvertent revelations by facility personnel, etc.

The above indicators of violation and others that might be considered could all result from "snapshots" and would certainly raise serious questions.

In the above example, the facility declared an annual production considerably less than the amount that even Iraq is believed to have provided itself with. Obviously, if declared annual production was 5000 tons, the detection of 500 tons of undeclared production would be more difficult. This means that we must address the question of scale. What is the international spectrum of annual production levels likely to look like? And are the facilities that make more than, say, a few thousand tons per year located in countries with particularly low transparency? We are not justified in making assertions about the ease or difficulty of detecting violations without some consideration of this issue of scale.

In another example, involving diversion rather than undeclared production, say that a facility accurately declares a production of 1000 tons during the past year but 500 tons goes to an illegal mustard factory elsewhere. Is it not possible that checks of the declared major consumers fail to account for anything like the

declared production, thus triggering further inquiry? Obviously, questions of scale are highly relevant here too.

Even with minimal on-site verification, the mere declaration of TDG facilities means that the threat of discovery of an undeclared facility, by challenge or other means, has deterrent value. Without schedule II declarations, this effect would be lost.

In summary, the present draft could very easily be read as concluding that schedule II and its associated verification regime are not worth the trouble. Quite aside from whether or not that conclusion is correct, we have not given an adequate basis for evaluating the schedule II regime for TDG one way or the other.

Sincerely,

Matthew

Matthew

CC Julia Robinson