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## Potential US/Italian Collaboration on 2,3,7,8-TCDD

### Background

In the summer and fall of this year, there have been discussions between US and Italian officials on the feasibility, form, and substance of collaboration of scientific research on 2,3,7,8-TCDD. On June 6, Dr. Alvin Young of the Office of Science and Technology Policy in the Executive Office of the President worked with officials in the Lombardy Regional Office in Italy to develop a proposed mechanism of cooperation.

Upon returning to the US, Dr. Young briefed officials in EPA who took the document under advisement. At subsequent meetings with personnel from ORD and OIA, it was decided that, from EPA's point of view, the early emphasis in developing a formal mode of cooperation with Italy should be on the substance of that cooperation. It was thought that a form could be found to fit any particular substance.

Consequently, in a brief memo to David Strother of OIA, Mike Cook identified 11 specific areas in which collaboration appeared to be both possible for and useful to EPA. Dr. Donald Barnes was instructed to discuss these areas with Dr. Young and the Italians during the international meeting in Milan in Sept. 1984.

### Discussions in Italy

Within five hours of arriving in Milan, Dr. Young and Dr. Barnes met with Dr. Umberto Fortunati, Dr. Vito LaPorta, Dr. Alberto Peopli, and others of the Lombardy Region Authority, the principal group involved with the study and clean up of Seveso, the site of the 1976 chemical plant explosion that resulted in widespread contamination with 2,3,7,8-TCDD. During a two hour meeting, the substance of the Cook-to-Strother memo was shared, together with a list of on-going ORD research efforts on chlorinated dibenzo-p-dioxins (CDDs) and chlorinated dibenzofurans (CDFs).

The Italian scientists subsequently discussed the materials with Italian officials, including Sen. Noe, a man who has played a pivotal role locally, nationally, and in the European arena, having served for 10 years in the European parliament.

On the afternoon of last day of the Conference, about two dozen scientists from the US (including Young, Barnes, Joe Lafonaro, and Paul desRosiers) and Italy engaged in a stimulating two-hour, roundtable discussion of scientific issues related to CDDs/CDFs.

At a rump session of this last gathering, Drs. Young, Barnes, Fortunati, LaPorta, and Piopla, reviewed the specific near-term and long-term topics which had been identified as potential areas of possible collaboration.

## Areas for Collaboration

1. Comparison of Analytical Methods -- US lead: EPA  
The Italians have quoted low levels of detection in a variety of environmental media:

Soil	1 ppt
Water	.01 ppt
Surface wipe	10 mg/m <sup>2</sup>
Vegetation	1 ppt
Biological	100 ppt
Sediment	100 ppt

In order to compare the values reported in our respective countries, there needs to be a strict comparison of the procedures utilized in the two countries. Therefore, a blind exchange of spiked, split samples between analysts (Dr. Fachetti of Italy, Dr. Troika of the US, and Dr. Yanders of the Univ. of Missouri) would provide the data to judge the comparability of the reported results.

2. Plant Uptake Studies -- US lead: Mo. DEC  
Independent, initial studies in the US and Italy clearly suggest the uptake of 2,3,7,8-TCDD by plants, at least into the root systems. This crude work should be validated and extended by repeat, duplicate studies in both countries in which seeds/soils are exchanged in order to quantitate the phenomenon and gain insight into the mechanisms of uptake and ultimate disposition.  
In an extension of the work, the Italians are planning to grow common crops on low-level contaminated land, feed the crops to animals, conduct an in-depth food consumption survey of people living in the area, and conducting an assessment of the risk associated with eating crops and animals fed on crops growing on contaminated soil.
3. Human Tissue Monitoring Following Known Human Exposure --  
US lead: Monsanto  
A small group of European scientists are planning to ingest single, small doses of 2,3,7,8-TCDD and trace its subsequent fate in their bodies by repeated sampling of urine, feces, blood, adipose tissue, etc. A non-government lab in the US has agreed to conduct the analyses. It is believed that the existence of a collaborative research mechanism would facilitate the conduct of this study, assuring EPA access to the results. The work has implications for agricultural use of 2,3,7,8-TCDD contaminated land.
4. Exchange of Personnel -- US lead: Univ. of MO and EPA  
Edison, NJ  
The possibility of Dr. S. Cerlesi's doing a post-doc at the

University of Missouri is being explored. Dr. Cerlesi would be in a position to apply her statistical modelling scheme, which was successfully applied in Seveso, to the soil data available in Missouri.

The Italians have expressed an interest in some of their technical people's receiving training at the Emergency Response Team headquarters in Edison, NJ.

5. Exchange of Information -- US lead: OSTP

On the procedures for analyzing 2,3,7,8-TCDD in plant tissue  
On the proposed protocols for investigations of plant uptake of 2,3,7,8-TCDD.

On the protocols for the analysis of 2,3,7,8-TCDD in human tissue.

On the depth profiles of 2,3,7,8-TCDD in soil.

On air sampling methods

On protocols for short-term, low cost analyses of 2,3,7,8-TCDD.

On protocols for soft tissue sarcoma studies

On construction of long-term underground storage facilities.

On protocols to determine the integrity of plastic liners at long-term storage facilities.

On the protocols for epidemiological studies.

6. Exchange of studies -- US lead: OSTP

CDC risk assessment paper

Derivation of the agricultural area level of concern

Water Quality Criteria document

Approach to assessing complex mixtures of CDDs/CDFs

Risk assessments for municipal waste combustors and sites containing contaminated soil.

7. Possible Studies Involving Human Tissue -- US lead: Univ. of Mo.

Investigation of samples from exposed humans to investigate the presence of a biological marker which might serve as an indicator of exposure.

Qualities Any Formal Mechanism Should Have

There has been considerable discussion as to what form a mechanism for collaboration between the US and Italy should have. While the precise mechanism remains to be identified, we can at least specify attributes that we would expect the mechanism to have.

1. It should provide for rapid, official exchange of personnel.

2. It should provide for rapid, official exchange of experiment material.

3. It should provide for rapid, official exchange of information.

4. It should provide for tasking of one party to conduct studies for another.

5. It should provide for inclusion a number of countries.
6. It should provide for the participation of entities from within the participating countries; e.g., Lombardy Region, the State of Missouri, and Monsanto Chemical Co.

### Possible Mechanisms

Among the mechanisms discussed as possibilities were the following:

1. A subcommittee of the OECD group on Hazardous Waste.

Discussions with Mr. H. Smetz of the OECD suggested that such an arrangement might be possible.

Such an arrangement would have the advantage of an already existing organizational support structure. Inter-country interaction over a wide base would be assured.

Concern was expressed that the representative from a given country under such an arrangement might not be the most appropriate and that there was a danger of over-bureaucratizing any exchange. It was unclear how entities such as States might engage in the exchange under such conditions.

2. A NATO CCMS committee

Such an arrangement would be focused and product oriented. The potential for widely based inter-country participation was there.

Concern was expressed about the need for developing essentially a new structure which would have to be formed, funded, and maintained. It was suggested that Germany might have an interest in taking the lead on such matter. Under such an arrangement, control of the content and direction of the enterprise might be a concern.

3. A bilateral approach

Such an arrangement would undoubtedly be the most direct.

Concern was expressed about the fact that there are a number of other countries who should/would be interested in the topic and some means should be devised to include them as well. This arrangement would also require the gearing up and maintaining of an on-going relationship. Success under these conditions would be increased if all parties were charged with formally presenting quarterly progress reports. There was some question as to whether the Region or the national Italian government would have the lead under such an arrangement.

4. Letter of intent

In discussions with Larry Finch, scientific attache at the US embassy in Rome, the idea of a letter of intent was broached. This letter would express the interest of the US in developing collaborative ties with the Italian scientists and would specify some of the projects envisioned and mechanisms of collaboration being explored. The letter would be sent from OSTP to an appropriate party in Italy.

Finch has advised that within the next two weeks he will

obtain soundings on this approach from his contacts within the Italian government.

5. "Not to worry" approach

In discussions with the EPA Office of International Affairs prior to the meeting, the idea was put forth that once the substance of a collaborative approach identified, some mechanism could be devised to facilitate the work's being done. This avenue should now be explored more intently.