"official request by the Italian Government"

2) Donna will discuss the mutagenicity issue with Kerry Preete/Mike Sterns

3) The group recommended testing the full formulations

- However before any testing begins on a formulation, generation and/or review of the mutagenicity data on each of the individual components must be completed first. If the individual component data is not sufficient it was recommended that studies be conducted on the individual components prior to initiating any testing on the full formulation.

- MON 52276 - Larry Kier will review results of mutagenicity tests on each of the components (MON 8151/Dodigen 4022, and Tween 20). [Donna will get references to Larry.] If the data look reliable - recommend beginning the following tests on the formulation ASAP (Results of the mutagenicity tests are needed by 4/26 in time for the ECCO Tox evaluations):

AMES assay
In vivo Mouse Micronucleus assay
In vitro human lymphoctye cytogenetic assay

* Donna will contact Hema Murli at Covance for cost and starting dates for the studies

- MON 35012 - as no mutagenicity data could be found on the cocoamine surfactant it was recommended to put the cocoamine surfactant into the following screens:

MicroAmes
MicroMicronucleus

*Donna will contact Monsanto's Investigative Tox Group regarding cost and starting dates

- MON 35050 - this is the Italian formulation used in the Peluso and Bolognesi papers. While it is no longer on the market it was deemed valuable to conduct an in vivo mouse micronucleus study.

* Donna contact Hema Murli at Covance regarding study cost and starting date

4) The development of a "positive" press release was requested. Please comment on the DRAFT below.

DRAFT DRAFT DRAFT DRAFT

"Several genotoxicity studies have been conducted on glyphosate, the surfactants in glyphosate formulations, and other closely-related surfactants. Studies have also been performed on Roundup herbicide and other glyphosate formulations. None of these studies have shown any adverse findings. Based on all these results, we are confident that glyphosate herbicide products are not genotoxic and therefore to not present a mutagenic or carcinogenic risk to humans and animals. We will continue to diligently consider concerns raised in this area and will support our conclusions on the safety of Roundup herbicides with appropriate scientific

information and studies."

5). A "detergent molecule" testing program was recommended to better understand and address the SCE (sister chromatid exchange) findings in some of the studies. Further meetings will be necessary to work out the details, however a 6/99 start date was projected.

6). External global network of genotox experts:

- EU
  - While Dr. Parry is a recognized genotox expert what is not known is how he views some of the "non-standard endpoints" (such as SCE, DNA P-32 postlabling, Comet assays etc) evaluated in the genotox articles by Rank, Bolognesi etc.
  - Therefore it was recommended that before we ask him to get more deeply involved (reviewing all the literature, glyphosate data; represent us as a consultant with regulators, etc) we would ask him to review a subset of the articles.
  - It was proposed that Mark Martens would contact Dr. Parry and ask him for a written review the articles by Rank, Bolognesi, Peluso & Lioi
  - Based on his critique of the the genotox papers a decision would be made as to expanding or terminating his involvement.
  - Regarding Dr. Jim Bridges, no further contact will be made at this time. When a clear role has been identified for Dr. Bridges Alan will contact him.
  - Money for this initial consultation will come from Mark Martens budget. A bigger initiative will require additional funds to be located.
- NA
  - Expanded discussions with Dr. Gary Williams on genotox issues will occur as part of the CANTOX meetings (2/5,6&7). Dr. Williams is recognized internationally as a genotox expert and might be used in Europe on a contingency basis.
- LA/SEA - no action at this time

7). There is a concern that the papers by Lioi et al, may present an even bigger problem because the studies are with glyphosate and are on a more standard endpoints. The results of the human lymphocyte test by Lioi do not agree with the toxicity and data in the human lymphocyte study by Agrichem at NOTOX therefore it was recommended that:

- Larry Kier will finalize his rebuttal
- Include the Lioi papers in the articles to be reviewed by Dr. Parry
- Bill/Donna will draft for Larry a letter to the editor or a short publication to be submitted to the journal upon receipt of Parry's evaluation

8). While there is $90K in the glyphosate toxicology testing budget for mutagenicity testing, this may not be enough. Further

Author: MARK A MARTENS at MONLLN01
Date: 1/28/99 3:50 PM
Priority: Normal
TO: ALAN G E WILSON at MONSL125
TO: LARRY D KIER at MONSL701
TO: DONNA R FARMER at MONSL125
TO: WILLIAM F HEYDENS at MONSL216
Subject: Re[8]: DRAFT of Minutes - 1/15 Meeting
---------- Message Contents ----------

Bill,

That's true, let's have a look at it.

Regards, Mark.

---------- Reply Separator ----------
Subject: Re[7]: DRAFT of Minutes - 1/15 Meeting
Author: WILLIAM F HEYDENS at MONSL216
Date: 1/28/99 7:34 AM

Mark,

I hear you. But that's what we said about alachlor (UDS follow-up), and look what we got after 12 hours.

Bill

---------- Reply Separator ----------
Subject: Re[6]: DRAFT of Minutes - 1/15 Meeting
Author: MARK A MARTENS at MONLLN01
Date: 1/28/99 2:05 PM

Bill,

I wonder whether we would already see important changes in serum enzyme levels after such a short time.

Regards, Mark.

---------- Reply Separator ----------
Subject: Re[5]: DRAFT of Minutes - 1/15 Meeting
Author: WILLIAM F HEYDENS at MONSL216
Date: 1/28/99 6:40 AM

All,

I have no problem examining liver and kidney on MON 35050 as Mark suggests. In concept, this is what we did with alachlor and were somewhat surprised and delighted that we found such a marked response. Would we want to include serum enzyme analysis too as long as we are going this far?

Bill,

Reply Separator

Subject: Re[4]: DRAFT of Minutes - 1/15 Meeting
Author: MARK A MARTENS at MONLLN01
Date: 1/28/99 11:51 AM

Donna,

Sorry to jump in so late but I had first to get a triallate problem in the UK out of the way.

I reviewed the minutes and find the text in agreement with the discussions we had in St Louis. Something for which we didn't formulate a conclusion during the meeting was whether we shouldn't look in the histopathology of the liver and the kidneys in the I.P. micronucleus test of MON 35050. If we would find severe lesions (e.g. infammatory) then this could help us in putting the Peluso findings in a better context.

I fully support the text that was prepared for the public statement (brochure) in Denmark.

In the meantime I contacted Parry and a letter of authorisation with the papers is underway to him. A report is expected by mid February. As soon as I get it I will submit it to you for critical review and assessment of further action.

Regards, Mark.

Reply Separator

Subject: Re[3]: DRAFT of Minutes - 1/15 Meeting
Author: DONNA R FARMER at MONSL125
Date: 1/27/99 3:03 PM

Please find revised minutes with comments incorporated from Alan, Larry and Bill.

If there are no more comments/changes etc. I will distribute them in the morning to Hjelle, Fuhremann, Fuller, Graham, Preete/Stern (have asked to meet with them no time set up yet), Dirks, Wratten, GGRST? others add/delete?

Donna

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In attendance:

Donna Farmer
Bill Heydens
Larry Kier
Mark Martens
Alan Wilson

1) Donna will ask Bill Graham for clarification on exactly what was the