NATIONAL INSPECTORATE FOR ENVIRONMENT, NATURE AND WATER

Director General

Case number: 14/00020/5/2009

Subject: Consultations in transboundary context for "Amendment of the Zone Urbanism Plan for Rosia Montana Industrial Area"

Dorina Mocanu
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Dear Dorina Mocanu,

According to the Hungarian government decree 2/2005 (I. 11.) on the environmental effects of plans and programmes (the SEA decree, which is the Hungarian adaptation of the directive 2001/42/EC of the European Parliament and of the Council on the assessment of the effects of certain plans and programmes on the environment, with other name the SEA Directive), the regional Inspectorates for Environment, Nature and Water (IENW) are the authorities who have competence in the cases of the Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment (hereinafter referred to as SEA cases).

In the case of the Strategic Environmental Assessment (SEA) of the Zone Urbanism Plan for Rosia Montana Industrial Area, my organization, to the National Inspectorate for Environment, Nature and Water (**NIENW**) is the competent authority. The NIENW is responsible for co-ordination of the comments of the Hungarian party in SEA cases.

I have received Doru Laurian Badulescus letter (Number: 12187/DLB/03.09.2009) concerning the case: Consultations in a transboundary context for "Amendment of the Zone Urbanism Plan for Rosia Montana Industrial Area". I have received the attached Compact Disk with the document containing the answers to the comments of the Hungarian party.

The Hungarian party had 20 comments. The Romanian party answered all the 20 comments. Until now all Hungarian experts who made the 20 comments earlier made new comments to the answers of the Romanian party.

The new Hungarian comments are the following:

Comments to the answer to question 1.:

The answers of expert group of Rosia Montana SEA concerns waste management questions of safe construction and operation of installations, and gives a more detailed

additional description of waste management installations and their operation, than the previous expert document.

Based on the additional technological information of certain installations, these installations and waste management techniques generally comply with waste management requirements, and based on risk assessment, their operation will only generate cross-boundary effects with a small probability.

Based on the above mentioned information we ask for the original expert descriptions to be finalized together with the detailed additional information in the document sent recently.

Questions remind to answer 1:

According to the document sent to us there is a significant amount of polluted leechate produced at present from residual waste originating from previous mining activities. By what extent does the establishment of the new installation affect the waste located in the abandoned mine?

Based on the documentation sent, available Weak Acid Dissociable (WAD) cyanide concentration is 5-7 ppm in case of the ore in Verespatak. Do you consider it realistic that lower values from experiments can be achieved on an operational level?

To prevent environmental catastrophes one has to be very cautious when establishing a waste management installation. Is there a possibility to control the safe implementation of technical construction during establishment?

Is there a possibility that we can get to know the safety engineering plan according to Directive 96/82/EC of the Council on the control of major-accident hazards involving dangerous substances?

Comments to the answer to question 4.:

The response still does not contain any data concerning the amount of produced wastewater sludge during the planned mining activity, or the estimate of the probable concentration. It is not considered an EU-conform solution disposing wastewater sludge, which is categorized as explicitly hazardous waste to TMF basins without the isolation required for hazardous waste, and to an opencut pit planned to be flooded in Cetate.

Comments to the answer to question 6.:

We did not receive any substantive response to our question, namely what technical solutions there will be as a secondary emergency reservoir against effluent pollutants in case of a dam break.

Comments to the answer to question 7.:

Waterpollution caused by dam break of a slurry reservoir represents a one-time and short-term occurrence indeed, compared to the „zero-alternative" long term waterpollution. But as the accident in Nagybánya/Baia Mare proves, in case of watercourse a one-time and relatively not too large pollution can have a significant impact in space and time.

Comments to the answer to question 9-11.:

To evaluate the appropriateness and acceptability of the answers, the referred document called „entire report annex2: Hazard Assessment of Corna Dam in Tailings Management Facility", May 2008 by NGI would be needed. This contains the significant elements that support their answers.
Without the knowledge and review of the detailed „occurrence tree" model the answers can't be accepted entirely from an experts point of view, however the answers referred to the results of analysis carried out can be considered as satisfactory.

Comments to the answer to question 12.:

The knowledge and boundary conditions of models and their precise input data are crucial to evaluate the calculation models and results of chain of events. To evaluate the reliability of instrumentation and monitoring system, the knowledge of detailed reliability models and their results would be needed. To evaluate the appropriateness and acceptability of the answers, the documents cited earlier called „entire report annex 2: Hazard Assessment of Corna Dam in Tailings Management Facility"; May 2008, by NGI és annex 1: „Clean-up Strategy, Risk Assessment and Analysis of Accidental Pollution at Rosa Montana" would be needed.

Comments to the answer to question 13-14.:

When looking at the results of the „occurrence tree" analysis the statement concerning frequency values (namely that there is no larger frequency value among the accidental chain of occurrences than 10^{-6}/year), these do not seem really well established. Chain of occurrences of nuclear power plants operating around the world could give a larger value than 10^{-6}/year. To evaluate the appropriateness and acceptability of the answers, the document cited earlier called „entire report annex 1: „Clean-up Strategy, Risk Assessment and Analysis of Accidental Pollution at Rosa Montana"would be needed. The knowledge of initial occurrences and input probability data, their sources and assumptions is needed to assess and evaluate the results.

Comments to the answer to question 15.:

Answers show that the question is still not understood. Individual and social risk can't be represented within the same frame of reference even as an example.

Comments to the answer to question 16.:

From the answers to questions in point 16 concerning earthquake risk it seems, that further examinations will be elaborated, and on the basis of those answers can be given.

Comments to the answer to question 17.:

Comment
The analogy was misinterpreted. The similarity between the two cases is clearly not meant for the present situation, rather for the case when the reservoir will be filled up with slurry.

Comments to the answer to question 18.:

Comment
We can't question whether the appropriate care will be taken during the preparation of final construction drawings and building of the dam, and corrections on significant matters will be made, if necessary.
This examination will be a task during checking of the plan and monitoring.

Comments to the answer to question 19-20.:

No simulation of a measured set of data proves that the model in concern is able to forecast what will happen in a not yet encountered future case (any good model and any good modeller can achieve nice fits). A long procedure of calibration and verification is needed to end up with useful forecasting models. Therefore the referred good fit to measurement data proves nothing, and especially not in a case when extremely hazardous substances are in concern. This evidently refers also to the "proofs", given below, of the good simulation of the Nagybánya/Baia Mare cyanide catastrophe. Namely, I do not have a calibrated and verified simulation model of the Tisza River catchment, and neither has the Romanian party. Nobody can have such a model, and therefore **no simulation results of expectable catastrophes can be used for the justification** of the creation of such extremely hazardous industrial operation.

A special feature of catchment (watershed) models, including that part of INCA, is that they are **conceptual models, which cannot be calibrated** as they are having many more model parameters and coefficients (e.g. unknowns) than the number of equations of state variables, and thus any calibration attempt would be a mathematical nonsense.

Regarding the answers on page 43

The answer given on page 43 as a criticism to the Hungarian modelling results is just a nicely provided support to, or rather repetition of, the Hungarian modelling study (no wonder as all data and all models were the same).
Quoting from the answer:

> *The Figure below shows the cyanide concentrations along the river given a 29.4 tonne release of cyanide from the Dam. This is equivalent to scenario 2b in the EIA with 5,880,800 cubic metres of water with a concentration of 5 mg/l. The velocity and dispersion coefficient are 1 m/sec and 82 m^2/sec, respectively, for the simulations and in the Figure below three results are shown for decay rates of 0.0, 0.1 and 0.3 $days^{-1}$. The simulations show high initial concentrations, much higher than the Dam and this proves that it is simply an artefact of the dispersion model due to the assumption of instantaneous discharge. As it is stated above, due to the basic laws of chemistry it is impossible for the concentrations to increase from 4 mg/l to 27 mg/l.*

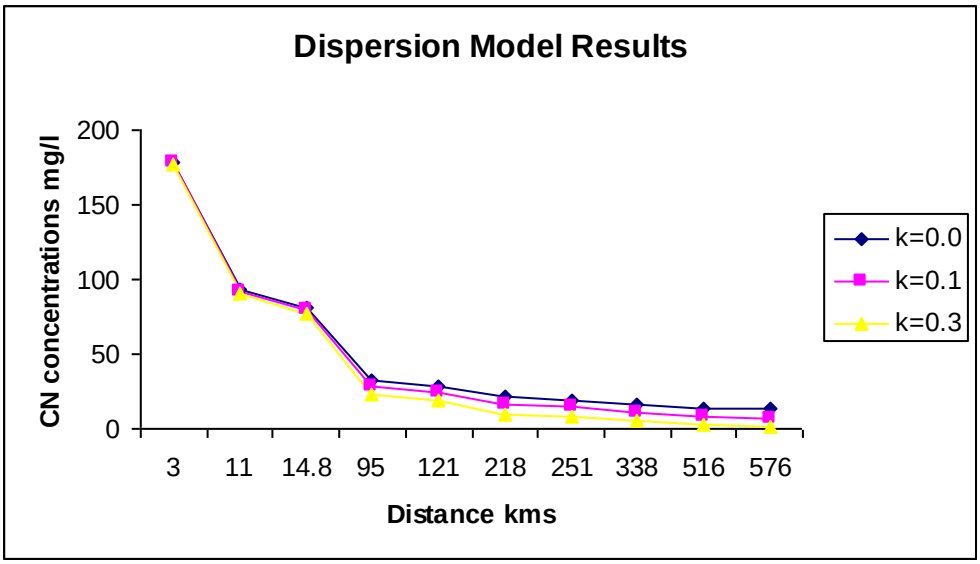


Figure quoted from the Romanian answer (modelling by Capra)

This figure copied from the Romanian material (not allowing a correct reading of the data of the plot) yields at K=0.0 roughly the same result at Nagylak/Nadclac of 9 mg/l Cyanid as the Hungarian result (Jolánkai's simulation) presented earlier in Bucurest (see the Figure below).

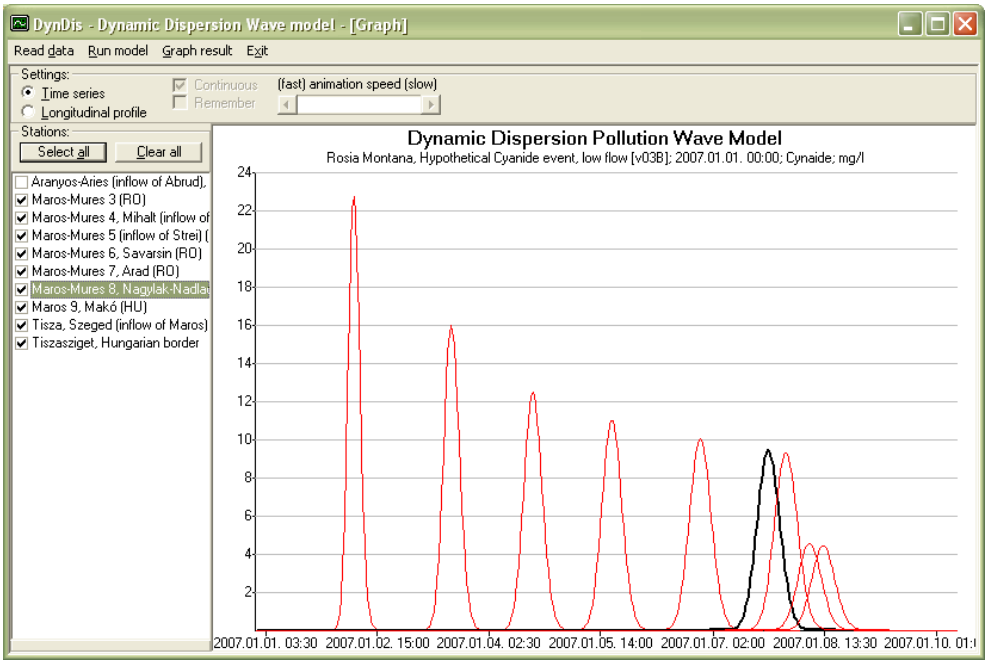


Figure quoted from Hungarian presentation (simulation by model DYNDIS of Jolánkai and Biró)

Thus the **two results are practically identical**, an obvious result as the same assumptions and same basic model theories are used. Correctly interpreting the simulation results of Prof Capra the answer is as follows:

The **assumption of instantaneous mass release** (called „*an artefact of the dispersion model*" in the document) **is the only allowable assumption** in this case, as one more or less certainly **knows the total quantity of CN that would be behind the dam and nothing else**. Nevertheless the criticism „*due to the basic laws of chemistry it is impossible for the concentrations to increase from 4 mg/l to 27 mg/l*„ would be correct if one were allowed to

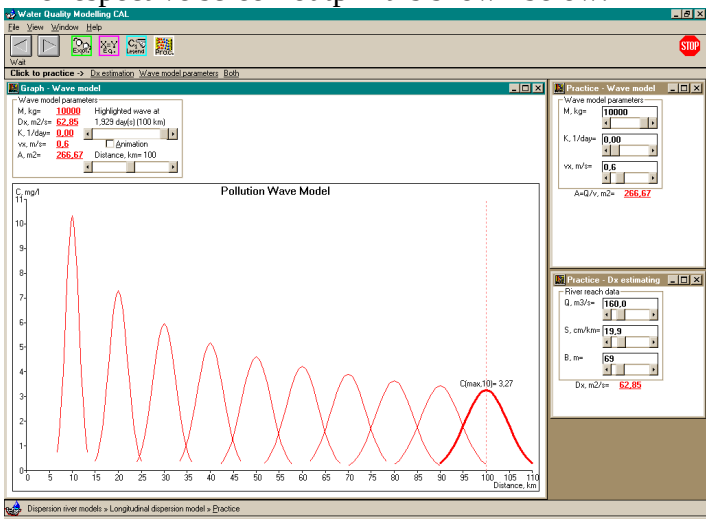
assume (as the worst possible case) that behind the dam no higher concentrations than 4 mg/l could be formed at any time and under any conditions and little pollution waves of 4 mg/l max plateou concentrations would be released through the break of the dam. But this, however, is not the case. As discussed by other experts earlier the chances that practically any other concentrations may be formed from the mass of cyanide used in the process, **the only possible and acceptable input assumption remains that of the instantaneous mass release.** (Just let it assume multiple possible environmental and chemical conditions, a technological breakdowns, human neglections etc., just remember the series of incidences-negligences that resulted in the atomic catastophe of Europe at Chernobil.).

Another quite reassuring fact (but not a proof as was stated by the Romanian Party) of the Hungarian assumption of instantaneous mass release is that **perfect simulation of the actual Nagybánya/Baia Mare cyanide spill** (very accurately monitored within Hungary with several points for each stations, see www.tiszariver.com) was made. This assumption may be easily checked by using the Computer Aided Learning facility WQMCAL, Basic River and Lake Water Quality Models, developed by Jolánkai G and Biró I for UNESCO (downloadable at:

http://portal.unesco.org/en/ev.php-URL_ID=39385&URL_DO=DO_TOPIC&URL_SECTION=201.html

only one should enter 10 times less total mass (10 tonnes instead of 100 tonnes), as this teaching aid allows only 10 tonnes input as maximum (as at the time of making this computer aided learning material the cyanide catastrophe had not yet happened).

The respective screen-outprint is shown below:



The figure shows the simulation of the BaiaMare/Nagybánya spill until station Csenger, Hungary (at 100 km distance from the source), using the WQMCAL teaching aid (result should be multiplied by 10), the measured maximum cyanide concentration at Csenger was 32,4 mg/l

Prof. dr. Jolánkai, Hungarian expert thinks, no other proof for correctness of the assumption of instantaneous mass release is needed. Especially not when **the worst possible case should be investigated** as in the case of an ecologically deadly dangerous industrial operation, what is the Rosia Montana case.

He thinks, while assuming all of the relevant scientific responsibilities, **that not any models can and should be used for justfying the harmlessness of the Rosia Montana gold mine operation in the case of a dam break catastrophe.**

Summary:

As a consequence of the new comments of the Hungarian experts above, it can be seen that there are still some elements of uncertainty in this case. After the information available until now, the mining activity could be dangerous across the Maros/Mures-river for Hungary also, so Hungary don't advocate this mining project.

Budapest, 6 November 2009

Yours sincerely

dr. Ildikó Filotás