

Risk Assessment of Shipyard Emissions Conference Call Minutes – February 27, 2003

Members Participated

EPA

Dr. Mohamed Serageldin, Project Manager – Shipbuilding Sector
Dr. Roy Smith, Toxicologist, Risk Exposure & Assessment Group
Ms. Maria Pimentel, Modeler, Risk & Exposure Assessment Group
Mr. Mike Dusetzina, EPA Risk & Exposure Assessment Group
Mr. Joe Touma, Modeler, Emissions Measurement Center
Mr. Tony Wayne, Policy, Planning & Standards Group
Mr. Dave Reeves, Research Triangle Institute (EPA Consultant)

NAVSEA

Mr. Charles Null, NAVSEA

MERIC/UNO

Dr. Bhaskar Kura, MERIC/UNO

Introductions

Meeting started with introductions of members during the first few minutes of the conference call. Details are listed below:

EPA risk assessment group consisted of several individuals specializing in different areas. Dr. Mohamed Serageldin is the program manager for the shipbuilding and ship repair sector who heads the regulatory issues. Dr. Roy Smith is the toxicologist in the group who organized the conference call and is responsible on toxicological assessment of the work. Mr. Dave Reeves is EPA's consultant who assisted EPA in gathering the shipyard information for the risk assessment and continues to assist EPA in that effort. Ms. Maria Pimentel is the modeler who is responsible for assessing the ambient concentrations and overall risk calculations.

Mr. Charles Null of NAVSEA has 32 years of experience in shipyard / Navy yard metal welding, cutting, and gouging processes. In addition he is leading the Navy/Industry Task Group to address the risk associated with shipyard / Navy yard air emissions by bringing the stakeholders together.

Dr. Bhaskar Kura is a registered professional engineer (Environmental), serves as an associate professor of environmental engineering at the University of New Orleans (UNO). In addition, he serves as the Associate Director of Maritime Environmental Resources and Information Center (MERIC). He has nearly 20 years of environmental engineering experience including 9 years of experience within the shipbuilding industry. He teaches undergraduate and graduate courses in air pollution / environmental engineering and

conducts research in environmental management, risk assessment, and dispersion modeling.

Briefing by EPA on Their Recent Risk Assessment Approach

Dr. Roy Smith of EPA gave an overview of the approach used by EPA, outcome, scope of the work, and an overview of the residual risk test approach. Highlights of his briefing are listed below:

In EPA's screening assessment, it used the best data that was available to them. The purpose of the assessment was to determine if the information currently available to EPA will support a decision not to develop a residual risk rule for the source category. Available information included emission data from various processes, blasting, painting, solvent cleaning (which includes degreasing), and welding processes. Because the assessment was intended to support a decision not to proceed with a new standard, data gaps were filled by conservative assumptions.

Dr. Smith said that nine largest shipyards and one navy yard was selected to represent the entire cross-section of the shipbuilding industry in their residual risk analysis. Another reason for selecting these big yards was to identify the information necessary for future decision making. If these yards pass this conservative risk assessment, the shipbuilding sector could be dropped from further residual risk analysis.

He further mentioned that out of 10 yards, seven exceeded the 1 in 1 million life-time carcinogenic "ample margin of safety" criterion and five exceeded the proposed 0.2 hazard index (HI) level criterion.

Mr. Null asked why EPA used a level of 0.2 for Mn instead of commonly used levels closer to 1.0. Dr. Smith said that it is EPA's current policy in view of the possible-presence of other pollutants emitted by other-than shipyard sources. Dr. Smith indicated that this level could possibly be changed to a higher index (greater than 0.2 limit) if the studies indicate that no other toxics are present in those areas that affect the common organ such as the central nervous system which is also affected by Mn.

Dr. Serageldin said that the data from [1999] TRI, [1999] NTI, and shipyard sources were used in their preliminary (screening) assessment. He further said that EPA intends to perform more advanced (detailed) modeling if better input is available from shipyards. If shipyards are unable to supply refined data/facts, the results obtained will be used in the decision-making. If further assessments indicate that there is no significant risk from the shipbuilding sector, then this industry sector could be dropped from further assessment and any rule-making.

Dr. Serageldin said that EPA is sending out letters to shipyards asking for specific process and emissions information which will help evaluate the risk using more advanced modeling approach. He also indicated that EPA plans to visit some shipyards to better assess how Cr (VI) and Mn emissions occur at a later date.

Mr. Reeves explained about the data collection effort. He also mentioned that the shipyard selection addressed the issues of types of work performed (construction versus repair) and covering various geographic regions within the United States.

Ms. Pimentel of EPA explained the modeling approach she used based on the information that was made available to her. Shipyard specific location data (longitudes and latitudes), site specific meteorological data (nearest Weather Station data), actual census data (2000 population data) was used for assessment. Single stack with an emission height of 6.1 m (20 ft), 1 m diameter, 0.1 m/sec flue gas velocity were considered. This single stack was assumed to exist within a dry dock closest to the census tract and the longitude and latitude values were assigned accordingly. Calculations thus were site specific as the analysis used site specific (1) emission data, (2) emission location, (3) meteorological data, and (4) census tract information.

Dr. Smith added that in order for the shipbuilding sector to be dropped from further residual risk analysis, all yards selected should pass the cancer and non-cancer risk analysis in the detailed assessment. Then the floor was opened for questions and answers by Dr. Smith.

Questions/Answers/Clarifications

Mr. Null asked about EPA's schedule on this topic. Dr. Serageldin said that a letter with a questionnaire will be sent to shipyards in a few weeks asking for information on the number and locations of emission sites in the yards and amount of Cr(VI) and Mn emissions from these sites and some other information. He also indicated that they have been working on the questionnaire and it will have to be reviewed internally before being sent out to the 9 shipyards. Shipyards will have about 60 days to respond to EPA with more accurate data to evaluate risk using more advanced modeling approach which will take about two months. EPA will move forward on this project with the best information available to them. EPA is committed to develop a policy on the shipbuilding industry before the end of the year (12/31/2003) based on their further analysis/effort.

It was also indicated that if one shipyard fails to meet the risk assessment limits then a Rule or document will be issued. Mr. Null asked if only one of the emission in question, for example Mn, is over the risk limit, would the requirements be focused only on Mn? Dr. Smith indicated that was correct.

Dr. Kura said that the group has several concerns on EPA's approach and the most important being: (1) the analysis considered only one stack instead of a number of distributed sources throughout the facility (point, area, and volume), (2) actual Cr(VI) accounts to only a fraction of the total Cr, and (3) TRI emissions provide an over estimate of actual emissions. EPA clarified the question stating that the assessment carried out by EPA earlier was a screening assessment and the better data and the better assumptions will be helpful in more advanced analysis in evaluating the risk correctly. EPA said they will be seeking this information from various yards.

Dr. Kura asked whether the risk assessed is due to all pollutants/all processes or not. Ms. Pimentel clarified that the risk calculated is due to all pollutants and all processes. There was a continued discussion on the generation of cancer risk estimates and how the risk modeling accounts for the various toxicity factors for each of the pollutants emitted from the various emission points identified in the shipyards. Dr. Kura commented that he understood and agreed with the explanation.

Mr. Null asked EPA about the dispatch of the information/files that were used by EPA in their assessment and read the list of eight specific items requested by e-mail to Dr. Serageldin on 2/10/03. Dr. Serageldin said that they are working on the details, and the files/information will be sent out by letter very soon.

The conference call ended due to shortage of time but EPA suggested that more clarifications can be pursued later based on individual availability and schedules.