

THE PROBLEM

The Purpose

The Environmental Challenge (EC) is designed to provide student groups the opportunity to view a problem set that mirrors a real life problem and gives teams the opportunity to develop solutions to the situation presented. The final solution will be judged by a panel of environmental and business professionals and the team will be asked to explain and/or defend solutions recommended by the team. Each competing team receives the same problem and the expert panel will provide a grade for each competing team. The problem set is minimally quantitative, but solutions do require justification on both an environmental quality/impact and fiscal cost basis. The objective is to prepare a solution to the various aspects contained within the EC problem set, and to explain the underlying rationale for your recommendation and the clarity with which your solution is communicated to the expert panel. Good luck and have fun. We look forward to your presentation in April at our Scholarship Dinner at Lehigh University Mountaintop Campus - Iacocca Hall 2nd Floor – Governor's Suite 111 Research Drive, Bethlehem, PA 18015.

The Problem

STNKY & Co., a waste management company, is making plans to increase their waste disposal network in the Mid-Atlantic region to accommodate the increasing population of Mountain View County (currently 230,000 people) and expand their energy services sector. They plan to build a new 900 ton per day (tpd) municipal waste incinerator to burn trash from local municipalities and generate electricity for the community. The design 900 tpd capacity will accommodate the town's 600 tpd generation and will also allow for an additional 300 tpd from surrounding communities.

Residents will comment on different aspects of the plan, but the item that will probably draw the most attention is that the counties could opt to import trash from other areas for the plant to operate at maximum efficiency and that installing the incinerator may hurt the local ski & recreation economy.

"This is the first time I've seen in print or heard publicly that imported trash from other areas is accepted, and welcomed. This simply opens the door to other counties in other areas, which I think is a huge mistake. An incinerator will also pollute the clean air that tourists expect when visiting our county's two major ski resorts and associated tourist businesses." Mountain View resident Susan Hanson said.

The plant construction would require obtaining air emissions and solid waste permits from the Pennsylvania Department of Environmental Protection. Currently Mountain View and surrounding counties are considered in an attainment area for all source pollutants. In addition to the state permitting requirements, the facility will also need to meet federal national emission standards (i.e. NESHAP). Each of these regulatory requirements need to be considered in design of the air pollution control system and budgeting for the facility.

Although STNKY & Co. will require permits for air emissions and solid waste they also need to address Pennsylvania's requirement for 35 percent recycling. Pennsylvania does not credit waste to energy (WTE) facilities as completely recycling the materials. Rather only a portion is eligible for inclusion in the mandatory recycle percentage. Both Mountain View and Snow counties, will pay for and use the WTE plant.

Encina Rator, the executive director of STNKY & Co., said she will comply with all of the state and Federal emission and permitting requirements and will prepare the Material Separation Plan required by the State of Pennsylvania for anyone who wants to build a new WTE plant. The plan deals mostly with how the counties plan to continue recycling.

Mike Trasch, the county's director of Utilities and Solid Waste Management Division, said the preliminary plans mentioned importing trash. The Mountain View County commissioners have said they would consider importing trash from other counties, but they would want to control or potentially limit importation to address public concerns, Trasch said.

"Unlike a school which fills up immediately after building it, this won't fill up that fast because it's planned for a very long horizon," Trasch said. He also said importing a small amount of trash could save residents a lot of money for trash disposal, so the commissioners would have to balance the cost savings with the public concerns.

Today, Mountain View County generates about 600 tons of waste per day. STNKY requires 900 tons per day to operate the plant, so at a minimum, they will need to import 300 tons of waste daily. Snow County's commissioners have recently discussed sending some of their waste to Mountain View for disposal, and other communities could be approached as alternative sources for the necessary demand. Mr. Trasch pointed out that the amount of waste import should decline as time passes, since the generation from Mountain View County is expected to steadily increase as the population increases.

Attending the hearing, Mountain View County Commissioner Mike Ski said the counties would import waste only when their own waste streams are down, so the same number of trucks would be dropping off trash. He also pointed out that if Mountain View County continues shipping its waste to Ohio, waste trucks would be traveling I-80 and other roads that they would not need to travel if the local WTE plant were built.

Commissioner candidate Gus Noburns, a local politician opposed to the incinerator, said commissioners could choose to be more aggressive with recycling goals than assumed in the plan. If that happens, they will end up reducing waste and having less to burn, eventually importing more and more to maximize electrical generation and plant capacity.

"It would be extremely ironic if Mountain View County were to become energy independent but trash dependent," Noburns said.

While residents opposed to the incinerator asked why importing trash hadn't been debated at more length, others spoke up in favor of the project.

George Prorator, a Mountain View County resident, said he supported the project and is pleased that the plant has been designed so future population and waste disposal needs will be addressed. He does not think burying waste is a good solution.

"I feel Mountain View and Snow Counties have exhaustively studied the project over five years and concluded that this project is both environmentally sound and cost-effective," Prorator said.

Your team represents a group of consultants who have been hired by STNKY & Co., Inc. and their investors to prepare a plan that answers the questions of the County government and officials as well as the issues raised by the public. Your team must also advise the client regarding the political and economic implications of the WTE facility including cost of the facility and methods whereby the facility is to be financed. STNKY will only be the operator and financing must be provided by Mountain View County, therefore, adequate cost data must be provided to allow the County to make budgeting decisions. In addition, the study must address environmental impacts including those to the air, water, and waste. Emission estimates will be necessary to determine the cost of and strategy for compliance. Any strategy will require the facility and equipment to meet local, state, and federal requirements.

As consultants, you must understand the processes and provide solutions to any potential environmental issues. You must also address all public relations concerns and any environmental justice issues that may arise. While STKNY and Mountain View County are not looking for a detailed budget or design at this time, it is important to grasp the conceptual design of the system to make sure that the design can fit within the budget limitations that exist.

The Expectation

In preparing your solution, your logic (train of thought), process, conceptualizations, and creativity are most important to the proposal and presentation composition. Logic of your vision and clarity in your presentation are critical. Remember all assumptions will need to pass the "straight-face" test and be based on defensible logic including selection of

equipment and/or technology that is clearly applicable to the solution. Furthermore, you must present your thoughts in a public forum where the team will be subjected to a question and answer session. This is the process environmental professionals face in the real world!

The expectations for team proposals and presentation are presented in the following paragraphs. The proposal expectations should identify each team member by name and the role he/she will have in the presentation (i.e., “Nilly Willy” is going to be the engineer and will address waste issues, “Jack Bean” is going to be the air expert, “Bill de Mup” is going to be the architect, etc. Any disciplines that you think you need shall be identified. In your solution the team should have an outline of the approach that is taken and the issues that will be discussed and for which an opinion is expressed.

For the presentation, your team must demonstrate your understanding of the issues that you addressed in your proposal. Sustainable approaches for the plant design and other site/media issues are of great interest to the owners. The winning team presentation will be strong in approach, logic, clarity, application, and creativity.

Finally, there is a strict 4 page limit for the written submittal (exclusive of graphs, tables and photos) and a maximum time of 10 minutes for the presentation.* For further guidance, please refer to the PROTOCOL document on the DVC A&WMA site (<http://www.mass-awma.net/dvc.html>).

The Tweak

No matter how solid your presentation and how confident in your solutions, in real life unexpected events and expectations can and do occur. To this end, expect (when you arrive at the Environmental Challenge Competition) some late breaking information that might alter your approach and/or require your plan to be altered. The problem and the tweak will require that you find and talk to “experts” (i.e., environmental professionals that have agreed to participate) for answers and important information

* Note presentation time may change slightly (+/- 5minutes) based on number or participating student entries.