**Overview:**

The US Chemical Safety Board (CSB) reports that the investigation into the August 2008, deadly explosion at the Bayer Crop Science plant near Charleston, West Virginia could yield a recommendation for alternative methods of producing and storing methyl isocyanate. US Environmental Protection Agency (EPA) records show the company has stored 100,000-999,999 lb (45-453 tons) of methyl isocyanate at the plant. The explosion at the Bayer plant occurred near a large tank that held about 40,000 lb of the chemical. Had fragments from the explosion in Bayer’s methomyl unit struck the methyl isocyanate tank, the committee “might be examining a catastrophe rivaling the Bhopal disaster,” said US Representative Bart Stupak (Democrat-Michigan).(www.icis.com)

As a result of this report Bayer plans to construct a new manufacturing plant for methyl isocyanate in the City of Yamhill. They have chosen a plot of land that belongs to Fruithill, Inc. The city will host an open forum to announce the construction and manufacturing schedule.

**Project:**

Your group will take a position and prepare a multimedia production for the forum according to the delegation that you have been assigned. You will be asked to argue your point based on your position. The group will be assigned one of the following points of view:

* You have been hired by the city of Yamhill to examine the area and the manufacturing history of this chemical and report at the forum.
* You live directly across from the proposed site of the plant.
* You are unemployed and need a job.
* You are a member of an environmental group.

**Environmental Chemistry Project Checklist**:

*Your final project should contain the following details. Please check each item as it is completed.*

\_\_\_\_\_1. List the group that you represent to the City Council meeting.

\_\_\_\_\_2. Type of chemicals needed to prepare methyl isocyanate.

\_\_\_\_\_3. Amounts of chemicals in metric units that will be stored on the plant site.

\_\_\_\_\_4. The production rate per day of methyl isocyanate.

\_\_\_\_\_5. The chemical reaction that occurs when mixed with water

\_\_\_\_\_6. The soil quality in Yamhill and how it would affect this chemical plant (using research and soil sensor)

\_\_\_\_\_7. The acid rain potential and effects in Yamhill (may require some tests of actual rain here)

\_\_\_\_\_8. The local air quality (using database research)

\_\_\_\_\_9. Effects of heat/sunlight on methyl isocyanate and amount of sunshine at the site (using solar sensor)

\_\_\_\_\_10. The chemical reaction that is necessary to produce methyl isocyanate.

\_\_\_\_\_11. The uses of methyl isocyanate and any other products.

\_\_\_\_\_12. Use mole calculations to demonstrate amounts of chemicals that would be present.

\_\_\_\_\_13. Proposed transportation routes through Yamhill.

\_\_\_\_\_14. Bhopal historical record.

\_\_\_\_\_15. Charleston historical record to relate to potential disasters in Oregon.

\_\_\_\_\_16. Your group’s interpretation of the historical information on how the plant will affect Yamhill

\_\_\_\_\_17. Any other useful information to help argue your point of view

## Project Debrief

Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Spend a few minutes to analyze your performance on group and individual tasks.

|  |  |
| --- | --- |
| **What is the most important thing you learned during this project?** |  |
| **What do you wish the class had spent more time on?** |  |
| **What do you wish the class had spent less time on?** |  |
| **Where there any assignments (or parts of assignments) you didn’t understand? Provide details?** |  |
| **Was there a part of the project you didn’t enjoy? Why?** |  |
| **Which part of the project should be dropped? Why?** |  |
| **What could be added to make this a better project?** |  |
| **Was their any part of the project that was graded unfairly or worth too few or too many points? Explain.** |  |

**Note: You will receive full points (work ethic) for completing this assignment in a thoughtful manner. Points will be given for both critical and positive comments ONLY when they are supported by details/specifics.**

## SELF-REFLECTION ON LEARNING

Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Spend a few minutes to analyze your performance on group and individual tasks.

|  |  |
| --- | --- |
| **Describe the project in a sentence or two:** |  |
| **What is the most important thing you learned during this project:** |  |
| **What do you wish you had spent more time on:** |  |
| **What big idea(s) did this project help you understand?** |  |
| **What do you wish you had done differently:** |  |
| **What part of the project did you do your best work on:** |  |
| **What was the most enjoyable part of this project:** |  |
| **What was the least enjoyable part of this project:** |  |
| **How could your teacher(s) change this project to make it better next time:** |  |