Activity 2.1.3 Ethics and Safety

Introduction

You see them everywhere – warning labels. Why do they show up on every product that we use? Safety is a significant reason for warning labels. Some products, if used incorrectly, may result in injury. In other cases warning labels exist to protect the manufacturer in the event that the product is used in a manner inconsistent with that for which it is intended.

In this activity you will be asked to find products with ethical or safety issues and identify the issue that may not have been addressed by the manufacturer. You will also be presented with an ethical and safety scenario that you will analyze.

Equipment

- Computer with Internet access
- Calculator

Procedure

1. Use the Internet to search for two products that possess ethical or safety issues. Give a description of each product below. Then describe the ethical or safety issue involved.

<table>
<thead>
<tr>
<th>Product</th>
<th>Example</th>
<th>Product 1</th>
<th>Product 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description of Product</td>
<td>Baby toys</td>
<td>Paintball Guns</td>
<td>Baby Cribs</td>
</tr>
<tr>
<td>Ethical or Safety Issue</td>
<td>Because they contained lead, the toys placed human welfare at risk. In addition, the issue brought into question the competence of the engineers involved.</td>
<td>The CO2 canister would fly off and hit people. This was causing numerous cases for Blunt-Force Trauma, and even lead to two deaths.</td>
<td>The slots on the head/footboard were too big and babys heads were getting trapped in them.</td>
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</tbody>
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Scenario
Blansett Plant manufactures grilquarks. Derek is a manager on one of the assembly lines. Derek requires all line workers to throw every defective grilquark into a maintenance bin. Derek’s supervisor, his good friend Jason, complains to the VP that Derek is costing the company too much money. Derek’s area has the highest number of defective grilquarks in the plant. The following are facts:

- Grilquarks are sold at $11.75 each.
- Each grilquark costs $10 to manufacture.
- It costs $5.00 per grilquark to repair the defects.
- The company can manufacture 1,000,000 grilquarks a year.
- Past history has shown that customers do not return defective grilquarks.

Jason wants Derek’s workers to stop repairing defects. Derek has explained that defects are occurring at the rate of one defect per 200 grilquarks made.

Answer the following questions:

a. If The Maulden Group purchases 645,000 grilquarks, what percentage of grilquarks will be defective? How many grilquarks is this? Show your work.

645,000/200 = 3225. There will be 3225 grilquarks
3225/645,000 = .005 .5% of the grilquarks will be defective.

b. What is the difference in profit for Blansett Plant between ordering no repairs and ordering repairs for all defective grilquarks? How can this be used as an argument for or against ordering repairs? Show your work.

1,000,000/200 = 5000 (defective)
5000*5 = $25000 (repairs)
Not repairing defective grilquarks will save the company about $25000 a year. Since people don't tend to send back defective grilquarks, you wont have to export any extra money away for the defective grilquarks that are sold to customers.

c. Assume that the grilquark is a medical device used in treating patients with heart disease. Defective grilquarks could cause death in 1 out of every 200 patients. How does this change the decision to order repairs?

This changes the decision because if your killing 1 out of every 200 of your customers, then people are going to buy a different product. Also if your customers die because of bad quality control, then you have the chance of a lawsuit.

d. Jason and Derek are good friends. Why do you think this statement was made?

This statement was made to show that there are no hard feelings between these two employs and jason just wants to save the company money.

e. Statistically speaking, how close is the company to meeting the standards of six sigma? (Lesson 1.1 presented achieving six sigma means that a company must produce less than 3.4 defects per million opportunities.)
This company is very far off from reaching six sigma, they are producing 1 defect per every 200 opportunities. Six Sigma calls for there to be less than 3.4 defects per every millions opportunities.

2. Choose a scenario from below and create a 2-3 slide presentation, a poster, or a narrated movie (using movie maker). Summarize the event and answer these questions: What were the ethical issues involved? What other, if any, factors contributed? Other factors might include weather, improper use of device, poor material choice, etc.

- Space Shuttle Columbia disaster
- Space Shuttle Challenger disaster
- Tylenol tampering
- Lead in baby toys
- Kansas City Hyatt Regency walkway collapse
- Aqua Dots
- Pack and Play
- Minnesota bridge
- Three Mile Island incident
- Citigroup Center
- Ford Pinto
- Minamata disease
- Chevrolet Corvair
- Boston molasses disaster
- Quebec Bridge collapse
- Johnstown flood
- Tay Bridge disaster
- Ashtabula River Railroad disaster

Conclusion

1. Find the Engineering Code of Ethics on the Internet and print it for your engineer’s notebook. (http://www.mtengineers.org/pd/NSPECCodeofEthics.pdf)
   Briefly describe what canon #5 means in your own words.

Avoid deceptive acts means that you should not try to trick someone, or even go as far as selling some one a product that you know is defective.

2. Attack or defend the statement, “When matters of life and property are at stake, not knowing should be equivalent to we have a problem.”

I agree with this statement. When it comes to someone's life, you need to know what is going on so that their life isn't in danger. Not knowing is a problem because when things go wrong, you need to know how to react accordingly to fix the problem.