Visitor Safety Program
Volvo Truck Corporation

Blueridge High Performance Consulting
Executive Summary

This proposal outlines a visitor safety program for the Volvo plant in Dublin, VA. A need to produce and implement this program has been identified by both the client and the consultant. A training video is the proposed method, and it will be broken down into three sections: Introduction, General Safety Requirements, and Area Safety Requirements. Two budgets and video production options have been provided. The first option revolves around hiring Radford University students from the Media Studies department; this option will take longer and be of lesser quality while costing less. The second option involves hiring a professional video production team and film crew; this option will be shorter and be of higher quality while costing more. In order to evaluate the effectiveness of the safety program, a survey will be given to Volvo visitors. In addition, this proposal includes both practical and progressive recommendations for future training opportunities. The practical recommendations focus on safety features related to the Dublin plant. The progressive recommendations focus on two possible ways of utilizing augmented reality, a new technology that augments a real-world environment with digital input.
Needs Assessment

Based on Gene Dillon’s class visit and our initial client meeting with Robert Kelly, we have come to the conclusion that there is a need for safety training for visitors at the Volvo manufacturing plant in Dublin, VA.

Currently, visitors to the Dublin plant are provided with a brochure that covers environmental, safety, and quality guidelines. Additionally, visitors may also be shown a two-slide PowerPoint presentation discussing basic safety rules and guidelines. While these safety measures are in place, it is possible that a visitor may not be given a brochure or PowerPoint briefing before entering an area of the plant. Based on this and Volvo’s dedication to safety as an organizational value, our client has determined the need for universal safety training for all plant visitors.

In line with our client’s assessment, we have determined a need exists for universal safety training for plant visitors. Currently, not all visitors may receive safety information or visitors may receive different safety information (one visitor may receive a brochure while another visitor may view the PowerPoint presentation). Updating the current safety training will ensure 1) all visitors receive safety training and 2) all visitors will receive the same training.
Goals

Our primary goal is to provide safety training to all incoming visitors in order to familiarize them with safety regulations and precautions while in and around the Dublin plant. The safety regulations and precautions will include all federal and company requirements. Objectives are provided below as individual steps that will help this goal to be reached.

Objectives

1. Blue Ridge High Performance Consulting will create a five minute video that will cover the basic safety procedures for Volvo visitors. This video will be implemented by May of 2013.

2. Volvo safety managers will identify a 50% decrease in the number of safety violations performed by visitors as reported through an observation measure.

3. The trainee will be able to demonstrate a 90% competency rate on the safety precautions of the Volvo plant covered in the training video as reported through an assessment measure.
**Training Plan**

An informational video has been chosen as the method of training delivery. This method was chosen because it can demonstrate safety knowledge through audio and visual means in a short, concise manner. Because visitors are not employees, they do not require in-depth, operational safety training. Additionally, visitors are on a limited timeframe when they visit the plant; a short video is better suited than traditional classroom delivery. The video will be approximately five minutes long, and it will be broken down into the sections described below. The format of the video will consist of photos and video of the relevant sections of the plant as a narrator discusses the safety requirements. We would prefer to utilize Volvo employees as actors and narrators in order to introduce the safety video.

The video will be provided in a DVD format. The chapters of the DVD will be broken into the sections below in order for tour guides to be able to choose to either show the whole training video or simply certain areas of the plant based on the sections visitors will be entering. Additionally, the video will be provided in digital format, such as a thumb drive.

**Section 1: Introduction (30 seconds)**

This section of the video will introduce visitors to the plant and express Volvo's mission and dedication to quality and safety.

**Section 2: General Safety Requirements-Basic PPE Requirements (2 minutes)**

This section will cover the basic safety requirements. These requirements include safety glasses, proper footwear (closed-toed shoes), traffic safety (forklift awareness, staying on designated paths), transportation procedures, as well as emergency procedures.
Section 3: Area Safety Requirements (2 minutes)

This section will cover specific safety requirements for different areas of the plant.

| Assembly/Cab Area | • Intersection traffic  
|                   | • Walking under suspended loads  
|                   | • Hearing protection in certain areas  
| Paint Area        | • Observation mirrors  
|                   | • Hazardous material  
| Welding Area      | • Pacemakers  
|                   | • Sharp edges  
|                   | • Robot cells  
|                   | • Doors  
|                   | • Arc flash  
|                   | • Eyewash stations  
| Customer Care Building (CCB) | • Truck traffic  
|                   | • Pits  

Safety Video Outline

A. Introduction:

1. Introduce visitors to the plant.

2. Explain Volvo’s mission in relation to safety and quality.

B. General Safety Requirements (Basic PPE Requirements):

1. Closed toed shoes are required.

2. Stay in the designated area to walk.

3. Watch out for forklift traffic because forklifts are quiet.

4. Safety glasses are required at all times.

5. Keep hands and feet inside the golf cart at all times.

6. If an emergency occurs while on tour, the tour guide will give instructions.
C. Area Safety Requirements:

1. Assembly/Cab Area:
   a. Be aware of the striped intersection because a great deal of traffic comes through this area.
   b. Do not walk under a suspended load.
   c. If crossing into a light gray area marked by yellow and black lines, you must wear hearing protection.

2. Paint Area:
   a. Look at observation mirrors at every corner in order to see around the corner for oncoming forklift traffic.
   b. Do not touch hazardous material.

3. Welding Area:
   a. Be aware that welding affects pacemakers.
   b. Do not touch equipment because there are very sharp edges.
   c. Do not enter into an area with a robot because this stops the equipment.
   d. Do not touch the door of any area because this stops the equipment.
   e. Do not stare at an ‘arc flash’ because extended exposure can burn your eyes.
   f. If an eye related injury occurs, there is an eyewash station located in every section of the welding area.

4. Customer Care Building (CCB):
   a. Watch for the truck traffic.
   b. Avoid pits when walking in the area.
Training Requirements and Budget

After meeting with video production professionals, they determined that the video may be filmed, edited, and produced in a one day visit to the plant. At the initial meeting, our client stated the budget to be approximately $5,000-$6,000. Based on this, we have organized two options and budgets for Volvo to choose from. The first option is to hire a professional video production team with the tentative prices quoted in the table below.

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<thead>
<tr>
<th>Professional Grade Video Equipment Budget</th>
<th>Rental Rate per Day</th>
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<tr>
<td>Sony HDWF900 Cinealta HD Camera with Lens</td>
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<tr>
<td>Sachtler trip and head</td>
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<td>Fisher dolly</td>
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<td>Sound kit</td>
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<tr>
<td>Dolly track</td>
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<td>Grip track</td>
<td>$400</td>
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<tr>
<td>2 grip kits</td>
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<td><strong>Total Production Equipment Budget</strong></td>
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<table>
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<th>Professional Production Labor Budget</th>
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<tr>
<td>Director</td>
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<td>Director of Photography</td>
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<td>Production Designer</td>
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<td>2 Camera Assistants</td>
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<tr>
<td>2 grips</td>
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<td>2 Electricians</td>
<td>$400 ($200/each)</td>
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<tr>
<td>Video Editor</td>
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<td>Audio Engineer</td>
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<td><strong>Total Production Labor Budget</strong></td>
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Grand Total Production Budget $6,490

Implementation Budget

<table>
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<th>Cost per item</th>
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<tr>
<td>VIZIO 24&quot; Class LED 720p 60Hz HDTV (2.1&quot; ultra-slim)</td>
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<td>Articulating Wall Mount for 10&quot; to 37&quot; Flat Panel TVs</td>
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<tr>
<td>VIZIO 32&quot; Class LCD 720p 60Hz HDTV</td>
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<tr>
<td>Tilting Wall Mount for 37&quot; to 70&quot; Flat Panel TVs</td>
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<tr>
<td>VIZIO 47&quot; Class LCD 1080p 60Hz HDTV</td>
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<td><strong>Grand Total Budget with Equipment Option #1</strong></td>
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<td><strong>Grand Total Budget with Equipment Option #2</strong></td>
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<td><strong>Grand Total Budget with Equipment Option #3</strong></td>
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The second option is to utilize students from Radford University’s Media Studies department through either an internship program or credit for a class project as designated by the professor. This option may take up to one semester (16 weeks) to be completed. If Volvo were to utilize students from Radford University and given the project meets standard requirements and expectations, they should agree to serve as a company sponsor for the particular project within the student’s professional portfolio. The option would still require the implementation budget as outlined above to account for the wall mount and television in the lobby to display the finished safety video.
Evaluation

To determine the benefits that both Volvo and its visitors will receive from the safety training program, a training evaluation will be conducted to measure its outcomes and to determine its effectiveness. Since this specific safety training program will be very brief prior to the visitor’s tour, only a summative evaluation will be initiated at the conclusion of the program. The specific outcomes that will be measured in this evaluation will include: the trainee’s satisfaction, cognitive learning, and behaviors. Moreover, the program’s effectiveness will be determined by how satisfied the trainees were, the trainee’s acquisition of knowledge, skills, attitudes, and behavior, and the improvement of the visitors’ behaviors while on a tour of the Volvo plant.

In order to ensure the evaluation of this training program maximizes its internal validity, the evaluators will use a comparison group to determine its effectiveness. Half of the visitors who tour the plant within the first five months of the program’s implementation will be asked to view the safety training video. The other half of visitors will only be given the current safety brochure prior to their tour.

All of the visitors will be asked to complete a posttest quiz after completing the training. This quiz will only focus on information within the training program to ensure the trainees understand the safety information presented in the program. The program will look to incorporate technology to make their posttest more interactive for the trainees. The trainers will develop an evaluation application for the iPad, which will allow the trainees to answer a question individually and then the rest of the trainees’ answers will be displayed on the screen at the front of the room. This will allow the trainers to clarify any misunderstandings some trainees may have, and it will also open the floor up for discussion to ensure the trainees really understand the safety precautions they must following during their time at the Volvo plant.

At the conclusion of the Volvo plant tour, visitors will be asked to provide feedback via a questionnaire in regards to their satisfaction with training, effectiveness of training, and
satisfaction with the tour. The trainees or visitors who take part in the second questionnaire will be given a Volvo product (e.g. t-shirt or mug) as an incentive and a form of compensation, which will encourage sufficient feedback as well as help in spreading Volvo's brand when the trainees use the product they are given. An example of this questionnaire is located at the end of the proposal.

To guide the transfer of training to the visitors and to help with the retention of the information presented in the video, visitors will repeat the training after six months have passed. If six months have not passed, visitors may be given the option of watching the entire training video again or only specific chapters of it if they feel they need to review the information.
Recommendations

In order to best serve the needs of our client, we would like to offer you recommendations that benefit the progress of the program. These recommendations are results of the needs assessment performed by the consulting team, and are based on client knowledge and our consulting opinion. The recommendations will be broken down into two routes. The practical route can be implemented using minimal resources and includes our client’s preferences. The progressive route is an alternative that includes both client preferences and additional consultation, but it requires more flexibility with resources allotted in the budget. Both routes yield benefits, but the latter allows for the client to take the safety program to the next level in mobile learning and transfer of training.

Practical

- One of the needs we found is that our client should notify visitors via safety video and tour guide of the fumes in the paint area of tour. Our client should provide the option for safety equipment such as a personal protective mask in case visitors may be sensitive even to the low or minimal level of the paint fumes. If this is done, our client should add this safety hazard to Personal Protective Equipment (PPE) standards for the safety video and additional safety material. Although this is a normal occurrence within the plant, potential risks can be avoided if visitors are provided this information.

- Our client should also provide badges that note a visitor’s last visit to the plant, which will gauge whether a visitor needs a review version for the safety video or a full version. This can be provided by Volvo’s database that already compiles a listing of those visitors that have been to the plant. This can lead to improved efficiency and allow training to be more productive.
• To assist with the transfer of training for visitors, safety signs should be posted visually depicting what safety equipment is necessary for every entrance into a new area of the plant. See Appendix for an example of a safety sign that would serve this function.

• Safety posters are also needed and should be posted in the waiting room where the safety video will be played. This will act as a tool of retention for those visitors that return to the plant and may need a review after a period of time has passed from the first training session. Posters should align with the format of the safety video showing the possible safety concerns if equipment is not properly utilized, e.g. a stick figure crossing a light curtain.

• In order to ensure that visitors are following safety precautions from the video, we suggest that our client should re-paint safety caution lines and pedestrian walkways so that visitors have clear marks for designated areas they should and should not be in. Visitors may not be aware of the light curtains and could possibly stop a machine’s function if Volvo does not have the area clearly marked where visitors should not walk.

• To assist in effective evaluation, it would be a good idea to incentivize evaluative procedures for visitors. If visitors are donating their time and effort into filling out the post-test questionnaires, they will likely want to be rewarded for their time. It can be as simple as Volvo paraphernalia or a gift bag. This will increase the likelihood that visitors will complete the evaluation.

    Taking this approach will allow our client to still reap ample benefits while still remaining cost effective. The progressive approach will allow more long-term payoffs for Volvo, which is why we would like to recommend that our client chooses that approach. However, if Volvo chooses the practical approach, our client can still have the advantages of implementing these recommendations quickly without using maximum resources. These recommendations will guarantee that the safety training video will be more effective by reinforcing the concepts presented to visitors through our video.
Augmented reality (AR) is a tool that gives a live view of a physical, real-world environment that is amplified by computer-generated sensory input such as sound, video, graphics, or GPS data. Essentially, a user can have training program that can be viewed on top of the physical world they are in. As visitors walk through the plant, the augmented reality will be visible on a tablet or other device. Taking this approach, we can create two programs that could be applied to this safety training program.

a. One approach our client can take is purchasing tablets, such as iPads, and designing an AR software program or mobile application. Visitors can use the on-board camera in areas of the plant where they can access details of the area’s functions, safety information, and emergency or important Volvo updates. For example, a visitor may enter the weld shop on the tour. As the visitor holds their iPad up to a machine or truck, the AR application will dissect it on screen, highlighting each part, its unique function, and its quality. It can show the visitor a truck’s progress in real-time and the purpose of each area’s machinery. It can also remind them of any safety issues and equipment needed. This may decrease the level of safety violations because they can control and visualize the plant in the palm of their hands.

b. Google Glass is a second option for an AR program development. Google Glass is Google Corporation’s endeavor to build an augmented reality consumer product titled Project Glass. Google Glass is hardware in the form of lightweight glasses where normal lenses are replaced by a head’s up display (HUD) that feeds real-time information through a screen above your right eye. This information is linked to the location of the user and can be used with applications such as messaging, weather, friend locator, etc. For example, if a visitor wears Google Glass as they tour the plant, an application with real-time information for each area of the plant can display a
variety of information in video and audio format, such as machine functions, safety information, PPE requirements, as well as any of Volvo’s current events and emergency updates. Because Google Glass is still developing its prototype, our client should wait for the final development of Google Glass, which is estimated to be available to the public in 2014. However, our client should currently have a plan for investing in an AR safety training program using Google Glass. After Google Glass has developed, our client should purchase the product and implement this training program.

The benefits of using Augmented Reality (AR) are endless since it is at the beginning stages of its development. Five benefits of using AR technology that can be essential in this safety training are as follows: increased engagement, collaborative problem solving, positive interdependence, shared responsibility, and individual accountability. Taking the safety video training and enhancing it with augmented reality technology can allow Volvo to be a leader in innovation. Any visitor can consider themselves a part of history because they will be taking their mobile learning into the future of safety training. We can work together in being creators and leaders in using this technology to increase transfer of training for safety training video material. For this reason, our consulting team highly recommends that Volvo take advantage of the progressive route.
Appendix

PPE Safety Sign Example

[Image of PPE safety sign]

PROTECTIVE EQUIPMENT
THE FOLLOWING MUST BE WORN
IN THIS AREA
(PLEASE CHECK APPROPRIATE BOXES)

- Ear Protection
- Eye Protection
- Hard Hat
- Gloves
- Safety Shoes
- Respirator
- Face Shield
- Protective Suit
- Apron
- Splash Glasses
Safety Training Satisfaction Survey

<table>
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<tr>
<th>Statement</th>
<th>Very Unsatisfied</th>
<th>Unsatisfied</th>
<th>Neutral</th>
<th>Satisfied</th>
<th>Very Satisfied</th>
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</thead>
<tbody>
<tr>
<td>1. The safety training was effective and meaningful.</td>
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<td>2. I could clearly understand and comprehend the material.</td>
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<td>3. The length of the training was appropriate.</td>
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<td>4. The presentation of the training was professional.</td>
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<td>5. The majority of the safety questions I had prior to entering the plant were answered in the training provided.</td>
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Please provide any additional comments or recommendations to improve the safety training program we offer to our visitors.

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Thank you for taking the time to help us keep our customers and visitors safe!