



The Environmental Challenge Program

...a competition for university students

THE PROBLEM – 2009

November 3-6, Cle Elum, WA

“Sharpening our Environmental Focus in a Challenging Economy”

The Purpose

The Environmental Challenge gives student teams the opportunity to develop solutions to a mock environmental problem and have the experience of presenting their solution to a panel of environmental professionals. We do not give you a lot of numbers to crunch. We are more interested to hear about the issues involved, how you interpreted the problem, how you got to your conclusions, and how well you can communicate your thoughts. We want you to have fun! This exercise gives us all a chance to participate and gets the professionals of tomorrow to interact with the professionals of today.

The Problem

Coal mining was a huge industry in the mid-1800s in the Pacific Northwest, but with the launch of Roosevelt’s New Deal and the introduction of hydroelectric dams, coal mining in Washington would slowly become a vanishing industry. With the boom and bust of many coal mining operations, towns formed, many disappeared, and few found other ventures to survive the decline in mining operations. In many cases, much coal remained, but the extraction was no longer economically feasible. There are many areas where coal was king in Washington including Bellingham, Issaquah, Black Diamond, Cle Elum, and Roslyn. A large part of their economy was based on coal mining.

Nestled in the heart of Washington’s Cascade Mountains is the quiet and beautiful town of Clelyn (located near the towns of Cle Elum and Roslyn). Once a hustling and diverse mining town, it has continually struggled to endure a region with very little commerce. Logging, film making, and ski resorts have all been past profitable ventures for the region but low yield activities as recreation and tourism scantily keep the town alive.

“I have lived in this magnificent region my entire life. Things are simple, we don’t need much and summer months are vital for this area. I remember the stories my grandfather use to tell me about what Clelyn use to be; but what happened in those days has left a huge impact of what we are still dealing with today.”

-Ireme Berwhen, Resident

Mining around Clelyn slowly came to a halt following the Great Depression, and what mining remained was completely shut down in 1962. What was once an explosion to the

local economy is now an economical and environmental disaster that the town is now living in.

“Clelyn is a magnificent town in the heart of the beautiful Cascades and that is what most people see when they visit. What they don’t see is the remnants of an industry that has destroyed the land; giant holes in the ground have lead to massive amounts of erosion ruining our recreation areas, the decimation of habitat that once existed, and colossal billows of dust.

Not only has our environment suffered, but so has the safety of those who live here. When the mining stopped, it was as if the whistle blew and everyone went home for the day. The coal is still exposed, no one ever cleaned up, and even today people are still suffering from ‘black lung’, and the acidification of our drinking water, danger of open mine workings, and methane seeps.”

-Glen Itup, Citizens for a Cleaner Community

Over the years there has been a core group of citizens who have been extremely concerned over the environmental damage left from the mining industry. Until recently, this group has been relatively small and quiet but has drastically grown in numbers since Bigol Mining Company has stated that they will be re-opening a mine just outside city limits. Bigol Mining Company recently bought the claims that were held by several of the small mining companies in the areas in order to begin production.

“50 years ago the mining operations were shut down because it was not economical to continue operations. Mining operations were expected to be re-opening a few years later but the industry in the region never recovered. After 50 years, and the coal industry rebounding with the new presidential administration and the need for power, we are going to revitalize the Clelyn area to a once again flourishing region. There are still 80% reserves of the coal remaining.”

-Mora Moony, CEO Bigol Mining Company

In Washington, the last remaining coal mine closed in 2006, the primary coal source for the Mine-Mouth Power Plant located in Southwest Washington. Bigol Mining Company intends to be the inexpensive local supplier for the Plant and a proposed new power plant that was slated to use natural gas. This new plant is planning on re-submitting an application to the Energy Facility Site Evaluation Council for a modification to their permit to burn coal instead of gas. As Moony has stated in numerous press releases, there will be a need for more coal in the region. Additionally, Moony has cited that with the onset of climate change and the effects of El Nino, water may be scarce and hydroelectricity may not be a viable option of the future, not to mention that a recent study highlighted the high probability for catastrophic failure of the area dams!

There is a heated debate among the citizens of the Clelyn area. While most oppose the re-introduction of mining into the region, many believe it may be the only way to survive economically.

“The mines have shutdown and the lumber companies have long disappeared . There’s no industry. Our biggest export here is our children. I don’t know what to do?!? What I do know is that there is damage that needs to be reclaimed or restored by someone and we need to create a reason for people to stay in this region.”

– W. Tewdew, Mayor, Clelyn

In this problem your team represents a group of consultants who have been hired by the Mayor of Clelyn to address the economic climate and environmental issues in the surrounding region as a result of past mining practices and the potential to revitalize the mining industry. Further, you must address the concerns of the divided local population and their current and future concerns. This includes, but is not limited to, water quality, air quality, erosion, health and safety, wildlife, wetlands, and soil contamination. It is important to hear all stakeholders’ opinions and engage each person, rather than assuming groups of persons forming a union hold all of the same beliefs. There is a lot at stake and Clelyn may become ghost towns as many of the early mining towns have already become.

Your team might all be engineers and scientists in real life but in this Problem you morph into whatever and whoever you think you need to “win” the competition. Also realize that the natural environment is not the only issue in this problem, the vanishing local economy, the divided community, and health and safety are all important. Of the 3 original major open pit coal mines in the region, one has completely intersected multiple major streams, another has completely filled in a wetland, and all are causing major dust events during the dry months. Additionally, citizens are concerned about the red ooze that has been lingering in most of the streams in the region.

Your Assignment

The Mayor of Clelyn has hired you to investigate the current health and safety concerns associated with historical mining practices as well as reclaiming, restoring, or re-opening any of original mines, two of which are owned by Bigol Mining Company. Additionally, you must address current economic climate and determine if mining would re-invigorate, or even be practicable, to the local economy and determine if any other options may exist with the impending doom of Washington’s hydroelectric issues. You must also come up with a plan to address the community on your findings.

As hired consultants, you must demonstrate an understanding of the process and provide solutions to any and all potential environmental and economic issues. Questions you must answer in addition to other pressing issues:

- What is the best way to reclaim, restore, or re-open the existing mines?
- What regulations need to be addressed to reclaim, restore, or re-open the existing mines?
- Are the current health concerns of the citizens valid? How will you educate them on your findings when people are deathly ill?

- Where and how will Mine-Mouth Power Plant and the proposed coal plant get cheap clean coal?
- How will Clelyn prosper economically and environmentally?

Remember, Clelyn is a small town and there is no money available other than the study you are performing.

The Expectation

Numbers are not what is most important – logic train, process, conceptualizations, and creativity are the most important considerations for your **proposal** and **presentation** (described below) composition. You will be expected to present your thoughts in a public forum. Remember you can come up with assumptions, but they will need to pass the “straight-face” test. This is like the real world!

The Proposal (submit first day of conference at registration – November 3rd)

The proposal should outline the team members by name and the role they will have in the project (ie “Nilly Willy” is going to be engineer and will address waste issues, “Jim Beam” is going to be your air expert, “Justin Timberlake” is going to be our ‘architect’, and “Martha Stewart” is going to be your shaman etc, - you put in the disciplines that you think you need). The proposal should also illustrate the technologies and strategies your team has identified along with a clear approach of how you will be implementing them. The proposal should be in summary form and limited to three pages (this does not include title page or diagrams). Each proposal will be judged and given points as a factor in the competition.

The Tweak

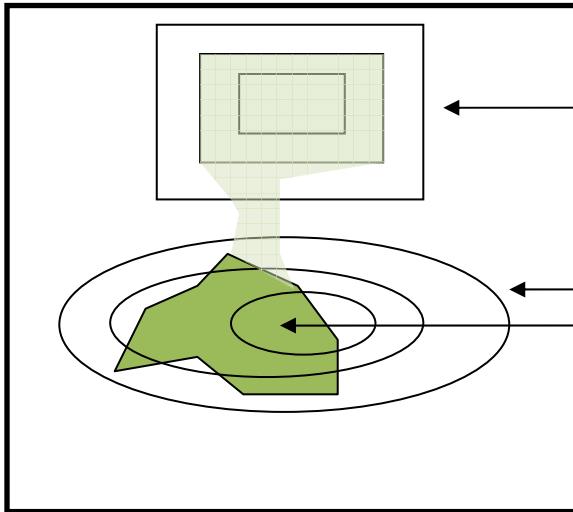
No matter how much you do and know, in real life unexpected events and expectations can and do occur. To this end, you should expect (when you pick up your registration package) some late breaking information that might alter your approach and/or require your plan to evolve. The problem and the tweak will require that you find and talk to “experts” and attend technical sessions, during the conference, for answers and important information. Remember, those who are most successful in the “real world” are those that can identify what resources they have and use them. You are at a professional conference, what resources do you have?

The Presentation

Your team will need to demonstrate your understanding of the issues that you addressed in your proposal. You must include not only your key elements from your proposal, but also demonstrate your adaptive management in dealing with the “Tweak.” Sustainable approaches for these and other site issues are of great interest to the owners. The winning team presentation will be strong in approach, logic, clarity, application, and creativity. Each team will present their problem solution on Friday morning the 6th of November as part of the technical session program that day. When we know how many schools will be presenting we will develop a schedule, but plan on presentations beginning at 8:30 AM

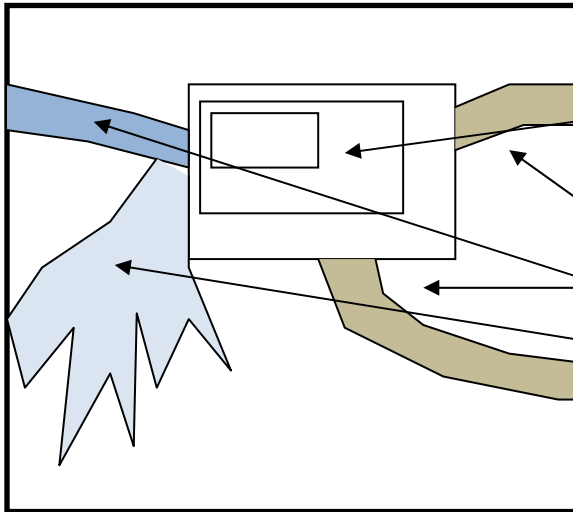
and conclude an hour before the Awards Luncheon. PNWIS will have a projector and a laptop (w/Microsoft Power Point). Please bring a data stick or disk burner so we transfer your presentation to the laptop. **Plan for on no more than 15-minute presentation followed by 5 minutes of questions and answers.**

**ATTACHMENT A
Existing Mine Sites**



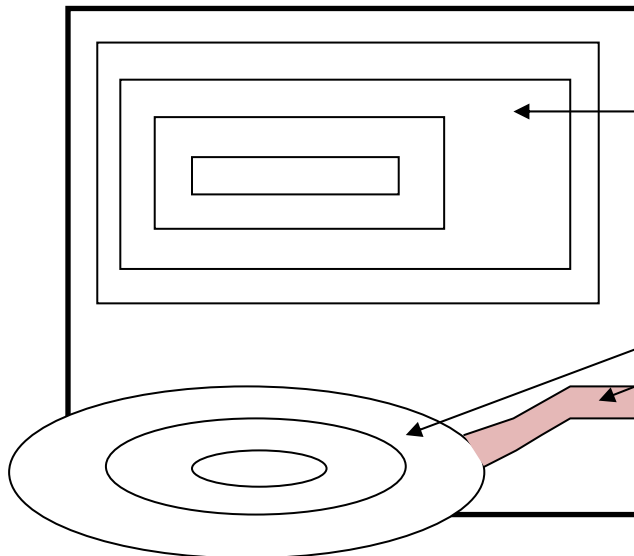
Site: #1
Owner: Bigol Mining Co
Mine (Open Pit): 16 acres (4x4)

Waste rock
Previous wetland



Site #2
Owner: Unknown
Mine (Open pit): 60 acres (10x6)

Old stream bed
Stream
Stream runoff



Site #3
Owner: Bigol Mine Co.
Mine (Open pit): ~100 acres (12x8)

Waste rock
???

ATTACHMENT B Role Players

During the conference you will be required to speak with role players involved with the problem. These role players will be project proponents or opponents. Role players will offer insight and clarify any additional questions each team may have in relation to the problem.

Role Players may be approached at any time but please use professionalism during all business meetings and technical sessions and have fun while remembering your environment.

Role players in the problem will be identified, with real names and pictures, in the EC packet picked up at the Registration Booth upon registration and will also be introduced at the initial meeting. Below is a list of the role players that each team should consider when formulating your proposal and final solution.



W. Tewdew
*Mayor of Clelyn
Stacey Glenwinkel*



Ireme Berwhen
*Roslyn Resident
Kyle Heitkamp*



Glen Itup
*Citizens for a Cleaner Community
Emily Weiler*



Mora Moony
*CEO, Bigol Mining Co.
Beth Hodgson*



Iwill Regulate
*Regulator
Kim Marcus*

THE TWEAK – 2009

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The Tweak

Unanticipated Discovery at Old Mine Site #3

It is widely known that there are a significant amount of small cemeteries in and around Clelyn. Many of these cemeteries are testaments to the dangers of coal mining and abundance of culture that once populated the area. Recently, Bigol Mining Co. was conducting preliminary assessments of the three mine sites and discovered unknown human remains at Old Mine Site #3. Specifically, the bodies were found under the waste rock pile. Initially, it was thought that it was related to an unsolved police investigation in the late 1970's but further exploration uncovered additional human remains. The final investigation yielded that the site was a cemetery for the remains of coal workers who had perished in Foggy Day Disaster of 1903.

“The Foggy Day Disaster is a day that will never be forgotten in Clelyn and is one of the most unfortunate historic events in our town and the state. Many descendants of the individuals affected by the disaster still live in Clelyn today. The families can now know the final resting place of their loved ones.”

W.Tewdew, Mayor of Clelyn

New Park in Clelyn? Van Slyke Off-Road Adventure Park

Clelyn has been identified as one of 4 spots in the United States that may be home of the new Van Slyke Off-Road Adventure Park. The new park would offer miles and miles of off-road mayhem and pure “get down and dirty” excitement! The conveyor of this information, who has remained anonymous, has stated that discussions with Bigol Mining Company have been ongoing to determine what it would take to acquire the abandoned mine sites. The source has stated that the year-round pleasure park will bring hundreds to the area and offer jobs to local citizens. It is not clear what Van Slyke's park would look like but many citizens and environmental groups are disgruntled based on

Van Slyke's other ventures. Van Slyke's Pretty Petting Zoo, is similar in nature to Jurassic Park, a natural arena for mega fauna where you can "get up close and personal." Many thought it was a great idea, until the giant Panda got loose. Most of Van Slyke's entrepreneurial ventures have been shut down do to outrage in nearby communities and the damage to the local environment.

The Expectation

Detailed calculations are not the most important part of this challenge; logic train, process, conceptualizations, and creativity and **integration of the Tweak** are most important to the presentation composition. Logic of your vision and clarity in your presentation are critical. Remember you can come up with assumptions, but they will need to pass the "straight-face" test. This is like the real world!