ABSTRACT

SHAW ENVIRONMENTAL AND INFRASTRUCTURE INTERNSHIP

by Cristy Evensvold

This paper reports an environmental consulting internship performed at Shaw Environmental and Infrastructure. The internship consisted primarily of consulting for a large retail commercial client. This report covers three separate projects for the client assigned during the internship. These were: the Environmental Permit Review project, the Spill Control and Countermeasure Plan project, and the United States Department of Transportation Employee Training project. Each project is described in detail, illustrating project overview, specific duties, and personal reflection of lessons learned. Also discussed is the role that the education and experience provided by Miami University’s Institute of Environmental Science played in succeeding during the internship period and obtaining a permanent employment position.
A REPORT:
ENVIRONMENTAL SCIENTIST I INTERN WITH SHAW ENVIRONMENTAL AND INFRASTRUCTURE IN DENVER, CO

An Internship Report
Submitted to the
Faculty of Miami University
in partial fulfillment of
Master of Environmental Sciences
Institute of Environmental Sciences

By
Cristy Evensvold
Miami University
Oxford, OH
2010

Major Advisor: Dr. Mark Boardman

Advisor: Dr. R. Hays Cummins

Advisor: Dr. John Maingi
# TABLE OF CONTENTS

## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>TABLE OF CONTENTS</td>
<td>ii</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>iii</td>
</tr>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>iv</td>
</tr>
<tr>
<td>INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>CHAPTER ONE</td>
<td>6</td>
</tr>
<tr>
<td>CHAPTER TWO</td>
<td>11</td>
</tr>
<tr>
<td>CHAPTER THREE</td>
<td>14</td>
</tr>
<tr>
<td>CHAPTER FOUR</td>
<td>16</td>
</tr>
<tr>
<td>CHAPTER FIVE</td>
<td>18</td>
</tr>
<tr>
<td>SUMMARY</td>
<td>19</td>
</tr>
</tbody>
</table>
LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Shaw Environmental employee position hierarchy</td>
<td>3</td>
</tr>
</tbody>
</table>
ACKNOWLEDGEMENTS

I would like to personally thank Dr. Mark Boardman, Dr. R. Hays Cummins, Dr. John Maingi, and Dr. Sandra Woy-Hazelton.
INTRODUCTION

The Shaw Group was established in 1987 as a pipe fabrication business by J.M. Bernhard Jr. Since its opening day, The Shaw Group is a Fortune 500 company with over 26,000 employees. The company today has a broad spectrum of ventures such as power plant design, environmental science, transportation systems, and manufacturing. The Shaw Group home office is located in Baton Rouge, LA, but there are branches of the company stationed around the globe. The company has been an integral part of major projects such as the restoration of the former Ohio uranium processing facility, Fernald, as well as restoring power to cities destroyed by Hurricane Katrina in 2005.

The Shaw Group currently has two branch office locations in the Denver, CO area, the office where I am employed. These branches consist of Shaw Power, and Shaw Environmental and Infrastructure. Shaw Environmental and Infrastructure is broken down further into subdivisions named Federal Group and Commercial Group. The Federal Group projects are restricted to those mandated by the Federal Government, such as military base remediation or National Park Service projects. The Commercial Group projects are geared toward corporations and privately owned businesses.

There are currently eight employees of this branch, including myself with a variety of specializations. Figure 1 is a flow chart depicting the employee position hierarchy for Shaw Environmental. Scientists, Engineers, and Client Program Managers are positions that have various promotion levels which can be obtained based on employee performance and experience. Levels are labeled one through five, with level one being the most entry level position, and level five being the most senior position. The majority of employees are Scientists, Engineers, or Client Program Managers. It is unusual for employees on the bottom of the hierarchy to cross into other positions. For example, if an individual is hired as a Scientist, it is not likely that they will move into another position such as a Health and Safety Office or a Client Program Manager. That individual will probably remain a Scientist for the remainder of her career at Shaw Environmental.
The company president, J.M. Bernhard Jr. is the founder of The Shaw Group and owns the majority of the company’s shares. The Chief Operating Officer manages the daily activities of the company and has the responsibility of reporting to the Board of Directors. The Commercial President has oversight over all commercial clients and projects that Shaw Environmental has acquired. The Client Program Managers (CPMs) are responsible for maintaining relationships and acquiring projects from specific commercial clients. Most CPMs have only one or two commercial clients to and they must oversee all consulting projects that come forth from those clients. They facilitate the business aspect of working with clients such as billing, scope of work, selecting project staff, and reporting the financial aspects of each project. It is their responsibility to ensure that their client is happy with work performed, and that project is making money for Shaw Environmental, not losing money.

The employees at the lower level of the hierarchy are responsible for carrying out the scope of work established by the CPM and the client. Any project performed by Shaw Environmental requires an initial evaluation of potential hazards in the workplace. The Health and Safety Officer reviews these hazards and drafts a report that discusses each hazard, methods to avoid employee accidents, and a contingency plan for any accidents that may occur. Most offices have one Administrative Assistant. Their responsibility is to ensure that the office is equipped with the tools needed for projects to operate smoothly. Scientists and Engineers are selected for projects by CPMs based on education, experience, and project interest. The scope of work performed varies greatly in each project. For example, a project that consists of remediating a site contaminated by radioactive material will require a Scientist(s) that are experienced in remediating these types of sites. The Scientist assigned to the project may be working in the field on the radioactive site, or working in the office developing a plan of action for the most successful and cost effective method of remediation.
Figure 1. Shaw Environmental employee position hierarchy.
I began and ended my internship with Shaw Environmental as a Scientist I. I was assigned projects focusing on environmental permitting and compliance for Company A. Company A is a large retail corporation that owns thousands of retail facilities across the United States and Canada. Each of these facilities requires extensive environmental permitting, due diligence, and compliance auditing. Due to this reason, they have chosen to hire a third party, Shaw Environmental, to research Federal, State, and Local regulations and implement any actions necessary to comply with standards.

Companies often hire third parties to handle their environmental consulting in order to avoid disciplinary action from regulatory agencies such as local environmental health agencies, or Federal agencies such as the Environmental Protection Agency. Companies are either proactive or reactive when it comes to hiring an environmental consultant. They may have the initial desire to prevent any regulatory non-compliance issues before they occur, or they may require help to solve their non-compliance issues due to governmental threat of disciplinary action. It is in the company’s best interest to be proactive rather than reactive. Non-compliance with regulations can cause facilities to receive a Notice of Violation (NOV) from regulatory agencies which carry hefty penalty fees or the revocation of a company’s business license. Hiring a third party such as Shaw Environmental ensures that regulatory requirements will be met in a timely manner.

Another reason for a company to hire a third party to perform their environmental consulting is due to the fact that any legal liabilities, such as fines, are passed on to the consultant if regulations are not followed. In the case of Company A, Shaw Environmental assumes all legal obligations for environmental compliance, and is responsible for any penalty fees that Company A may incur.

Shaw Environmental divides the Company A permitting and compliance projects into regions based on geographical location. The Shaw Environmental Denver, CO branch (Central Plains-West Region) is responsible for Company A projects in Colorado, Wyoming, Arizona, Nevada, California, and Hawaii. Since I have been an employee for The Shaw Group, I have worked on

1Shaw Environmental has a Non-Disclosure agreement with Company A, therefore the exact name of the company cannot be stated in this report.
three main projects for Company A. These projects have allowed me to specialize in environmental permit reviews in each state mentioned above, Spill Prevention Control and Countermeasure Plans for Company A facilities with bulk storage oil, and Department of Transportation Hazardous Waste Shipping requirements. This report describes each of these three projects in detail, including how my graduate work at Miami University’s Institute of Environmental Science helped me, aspects of projects I would have done differently, an my personal reflections.
CHAPTER ONE

Project 1 – Environmental Permit Review

Project Description

My first project consisted of performing environmental permit reviews for Company A store planning. Company A remodels many of their facilities across the United States every year, and the scopes of work for these remodels often requires some form of environmental permitting. The scope of work for the remodels generally consisted of relocating/replacing above ground storage tanks (ASTs) that contain new/used motor oil or cooking oil, converting old photo centers into dry systems, and refrigeration upgrades. Environmental requirements for these scopes of work vary greatly depending on state and local jurisdiction. The environmental requirements are based on the Code of Federal Regulations, state regulations, and municipal codes. All regulations from all agencies must be carefully examined to ensure that the permit review is done correctly.

The review process consisted of determining the scope of exact scope of work for individual stores, researching regulations that are specific to that store’s region, and drafting three separate reports that outline all environmental permitting requirements for each store. To start the review process, I needed to determine the scope of work for each store. This would begin with the architect responsible for preparing the blue prints for the remodel emailing me a completed scope element questionnaire stating each of the remodel components and the specific work to be done to each component. Company A uses many architectural firms to draft remodel blue prints and it was my responsibility to acquire a separate questionnaire for each facility being remodeled. The questionnaire from the architect stated the quantity and volume of all oil above ground storage tanks in the facility, whether or not new tank venting was scheduled for each tank, the tank replacement schedule, new refrigeration plans, pressure vessel replacements or additions, new photo center plans, and used oil filter crusher installations. For example the architect’s scope of work may consist of: motor oil above ground storage tanks being relocated three feet, the used cooking oil tank being replaced with a larger model with compliant venting, the silver recovery unit removal from the photo center due to a conversion to a digital photo development system, and new pressure vessels installed to replace old models.
I was also required to perform a scoping visit to determine the exact scope of work for stores with oil changing facilities. I performed a scoping visit for each store assigned to me to assess all aspects of the facility that may be in violation of environmental regulations. I performed visual inspections on each motor oil tank in the oil changing area, the used cooking oil tank in the stockroom, and the silver recovery unit in the photo center. While inspecting the oil changing facility, I was looking for any above ground storage tank venting that was not composed of metal, spacing between tanks, signs of a compromised tank, and venting that was manifolded. When inspecting the used cooking oil tank, I looked the state of the existing tank and the current location of the tank in relation to proximity of any drains. The primary reason for inspecting the silver recovery unit in the photo lab was to determine the method of chemical disposal. Most silver recovery units capture the silver waste from the photo development process, than allow the remaining waste to be discharged into the sanitary sewer. Some silver recovery units discharge into buckets due to strict local sanitary sewer pretreatment standards which prohibit the discharge of any metal into the sewer system.

My project manager assigned me individual Company A stores located in the Shaw Environmental Central Plains-West Region that were scheduled to be remodeled in 2009. After receiving all of the information pertaining to the store remodel, I began researching specific environmental requirements for individual stores based on the scope visit I had performed and the scope element questionnaire from the architect. I called state regulatory agencies first so that I could obtain the information I needed for several stores in the same state at one time. I initially spent a substantial amount of time researching state information for states in the Central Plains-West Region, and talking with regulators so that I could specialize in their environmental regulations. This eventually saved me vast amounts of time on sequential reports which allowed our branch to operate at 50%+ margins. Colorado Oil and Public Safety was the only state agency that regulated any part of a Company A remodel. They required one environmental permit and an inspection to be performed by a state agent. However, it was also important to know the state exemption codes for other states pertaining to each aspect of the scope of work. These exemption codes must be documented in the instance Company A or Shaw Environmental is questioned about compliance in the future.
I also contacted county and city regulatory agencies to determine their environmental requirements for the scopes or work for the remodels. For remodels that consisted of changes to an above ground storage tank, such as tank relocation, replacement, or updated venting, I contacted the local fire department and health department. Depending on the location of the facility, I called either the city or the county jurisdictions. For example, if the facility to be remodeled was located in Broomfield, CO and the scope of work entailed the relocation of each motor oil tank and the replacement of the used cooking oil tank; than I would start research by contacting the City of Broomfield Fire Department. I would ask them if they have any environmental permits or inspections required to relocate or replace oil above ground storage tanks. I called the local fire departments first because often for smaller cities, the fire departments also oversee environmental health regulations. For facilities being remodeled in California, I contacted the Certified Unified Protection Agencies (CUPA) to determine their above ground storage tank requirements. CUPAs are overseen by counties in California and are in place solely to enforce environmental regulations. They have separate regulations from both local health departments and fire departments. California CUPAs usually required a permit and inspection for any remodel that included an above ground storage tank relocation or replacement.

For a remodel that included photo center changes, I contacted the local wastewater or public works department. Like the remodels including oil above ground storage tanks, I called either the city or county jurisdictions. Some cities also use private wastewater treatment facilities that are not directly associated with the city or county. These agencies were contacted in order to determine the requirements for removing a silver recovery unit from a photo center. Many Company A facilities have a wastewater permit. Most wastewater or public works agencies require a letter stating that the photo lab will no longer be discharging photo development chemicals into the sanitary sewer to update the wastewater permit.

Upon receiving all of the regulatory information for a particular Company A facility, the next step was to relay the information regarding environmental regulations to the architect, and the client. This task was completed by drafting three separate reports. These three reports are the Environmental Design Review Report, (EDRR) the Discovery Phase Report (DPR), and the Permit Application Package (PAP). The EDRR was sent to the architect, and it described any requirements for the architect or the general contractor responsible for the remodel. Also
included in the EDRR were elements of the facility that were noted during the scoping visit that are not in compliance with current environmental regulations. This information was given to the architect so that changes could be incorporated into the blueprints before the construction start date. The DPR and the PAP were given to Company A. The purpose of the DPR was to allow Shaw Environmental and Company A to communicate environmental regulations via an on-line portal. The DPR gave a descriptive report of each regulatory agency called during the research phase, a summary of each conversation held with regulators, and any environmental codes that pertained the scope of work in the remodel. The PAP is sent directly to Company A Licensing Managers with information pertaining to specific requirements or procedures, such as permits or registrations that they must follow through with to comply with regulations.

**Project Reflection**

The main aspect of the project that I would have done differently is the organization of my research documents. I started the internship with only one Company A facility to review for permitting requirements, but by the end of the internship I had approximately 40 facilities. I initially had all of my facility research information, from the scoping visit and regulator contacts, as well as previously written reports in a big pile on my desk, and my pile was growing daily. When I needed to find regulatory information that I had previously researched, I had to sift through hundreds of pages. Most of the other employees converted all of their information to a digital form and saved it on their computer. Although it is not quite as environmentally friendly, I prefer my documents to be in a paper version. In order to resolve this issue, I searched the office for any extra filing cabinets and organizational tools. I filed each research article by state, county, and city so that if I had any more Company A permit reviews to perform in the future in the same region I could use some of my prior contacts.

Discussing permit requirements on the phone with regulators was difficult due to the Non-Disclosure agreement Shaw Environmental had with Company A. I was not permitted to state the name of the facility that I was asking questions about, nor was I permitted to give the address of the facility. Regulators would often ask me the name of the company I was calling about and when I told them that I could not provide it for them; they became defensive and refused to give me any information. To resolve this, I had to become in tune to what the regulator wanted to hear.
from me, based on their tone of voice, which would elicit the response that I desired. I developed a repertoire of several responses that I felt comfortable giving to the regulator when asked this question without lying to them.

The IES’s Public Service Project (PSP) helped me to do well in completing environmental permit reviews for Company A. Cold calling regulators and drafting reports was an integral component of the Union County Parks and Recreation Public Service Project. These two factors were also the main tasks for successfully completing environmental permit reviews. Due to the Public Service Project (PSP), I was accustomed to discussing important topics with people whom I had never met, and because of the reports required for the PSP, I became an efficient report writer.
CHAPTER 2

Project 2 – Spill Prevention Control and Countermeasure Plans

Project Description

Spill Prevention Control and Countermeasure plans are a Federal requirement (CFR 40 Part 112) for any facility that stores more than 1,320 gallons of oil in above ground storage tanks (ASTs). SPCC plans are required by the Environmental Protection Agency (EPA) as a means of protecting navigable waters from being polluted by oil spills. These plans are used as a proactive means to prevent pollution. Each SPCC plan gives a detailed description of all ASTs that are located on a property. The description includes the AST size, location, and means of secondary containment. SPCC plans must be updated once every five years.

Shaw Environmental and Company A have an ongoing agreement to update SPCC plans for each store in the U.S. as they are needed. This is a large project considering that there are thousands of Company A facilities across the U.S. in almost every city and most of them have an oil storage capacity greater than 1,320 gallons due to their on-site oil-changing operation. SPCC plans must be updated for each store that has either undergone a recent remodel of their oil-changing operation, or that have a current SPCC plan that was has been out-dated by more than five years.

My responsibility for the SPCC project was to ensure that all Company A stores in the U.S. with 1,320 gallons of oil stored on-site had a recently drafted SPCC plan. I worked with my supervisor to devise a system that would allow me to identify stores in need of a new plan and draft plans accurately and efficiently. We started the SPCC project in December 2008 and set a goal to complete the project by July 2008.

I began the project by determining which Company A stores required a new, updated SPCC plan. Each store that required a new plan had to be visited by a Shaw Environmental Employee to guarantee that the new plan had the most recent AST information. This project had a tight budget, so I dispatched the most inexpensive Shaw Environmental employees to perform the store visits and required them to send the store visit information they obtained to me. Using this information, I drafted the SPCC plan and sent it to one of Shaw Environmental’s Professional Engineers for certification. Once the SPCC plan was certified, my supervisor posted the plan on
a portal that would allow Company A to have access to the plan, and to distribute it to the correct store.

**Project Reflection**

This project did not go as well as we had anticipated. There were many set-backs which were the result of several factors. The largest contributing factor was the state of the U.S. economy at the time we began this project. We were in the midst of a recession and The Shaw Group, like many other corporations, tightened budgets and performed nationwide layoffs. Most of the inexpensive personnel were retained by the company, where-as the lay-offs mostly affected mid-level pay grade employees. The amount of work, however, unexpectedly sky rocketed and there was a sudden shortage of low-level pay grade employees. This made it extremely difficult for me to recruit qualified, cost-effective employees to perform Company A store visits for the SPCC plans. The quality of the store visits suffered as a result. Reflecting on this occurrence now I am not sure what I could have done differently. We did not have enough of a budget to properly train all of the individuals that performed store visits.

The poor quality in store visits made it difficult to draft correct SPCC plans. Many calls to the store visitors were made and long hours were spent trying to decipher if stores had the correct means of secondary containment for their ASTs. We often had to extend our budget limitations to recruit a more expensive, but trained employee to perform a second store visit. We did, however, manage to finish drafting all of the SPCC plans by our deadline, but it did not end there.

One of our key Professional Engineers responsible for certifying the SPCC plans had been terminated three-quarters of the way through the project on a day’s notice. We were scrambling to locate another Professional Engineer that had experience certifying Company A SPCC plans, but all qualified employees had either been terminated, or were busy working on another project. We resorted to sending the SPCC plans to Professional Engineers that were not familiar with Company A projects. However, due to the poor store visit documentation received from the store site visits, and their unfamiliarity with Company A SPCC plans, they would not certify our plans. My supervisor decided to ask our District Manager (DM) for some assistance with this matter. To solve this problem, our DM identified some of Shaw Environmental’s Professional Engineers
that had experience with certifying Company A SPCC plans, but who had declined our initial requests for assistance, and required them to certify our SPCC plans.

We eventually finished this project, but not without lessons learned. The most important lesson I learned is that it is not effective to recruit employees based solely on their pay grade. I also learned that I am accountable for any documentation that I present to senior employees, regardless if I created the document or not. I had never met any of the Professional Engineers that certified our plans in person and they often believed that it was me that performed the inadequate store visit. Many of them were insulted that I would ask them to stamp a plan with such poor store visit documentation. I did not want to throw any of the employees who had performed the store visits “under a bus,” so I assured the Professional Engineers that we would have someone perform another store visit to their specifications. Additional store visits hurt our budget margins, but we still made a profit from this project.
CHAPTER 3

Project 3 – Department of Transportation Project

Project Description
The U.S. Department of Transportation (DOT) has strict guidelines as to the proper packaging of hazardous materials and the manner in which these materials are shipped on U.S. roadways. Vehicles used to transfer hazardous material are registered through the U.S. DOT and are subject to search at anytime to confirm that proper shipping and handling techniques are being administered. If it is determined by a search of a DOT registered vehicle that improper shipping and handling has taken place, the company responsible for the packaging of the hazardous material is given a Notice of Violation (NOV), and is penalized with a fine. If the responsible company continues to violate DOT hazardous material shipping regulations after the initial NOV, the DOT can prevent any vehicles that are registered with the DOT and associated with the company from transporting any materials via roadway. This is the situation that Company A was in December 2008.

Company A requested Shaw Environmental’s assistance in resolving their issue with compliance of DOT hazardous material shipping regulations. Shaw Environmental had one year to send one employee to every Company A store in the U.S. for one month to train Company A associates how to properly package and ship items. This meant that huge numbers of Shaw employees had to be gathered quickly, trained on how to properly ship hazardous material, and dispatched to a Company A facility to start training their associates. Shaw Environmental and Company A decided to launch the project by splitting it into six different phases. Each phase was centered in a different region of the U.S. based on the location of Company A distribution centers.

I was sent on Phase 2 of the DOT project, which was located in the northeastern region of the U.S. I was sent to Philadelphia, PA for hazardous material training and then I was sent to the far northwest corner of upstate New York. I was given four Company A stores with associates I needed to train. It was my responsibility to guarantee that all packages that left the store were in compliance with DOT regulations. I had to put a bright orange sticker on every package with my signature and date. To make sure that every box was in compliance, I had to open each box,
remove all of its contents, and go through each item with a Company A associate to teach them the proper handling of that item. I visited each of the four stores at least twice per week for one month and documented every item that I came across that was out of compliance with DOT regulations.

Project Reflection
Most of the Company A associates had been packaging boxes the exact same way for the past 15 years or more and did not understand why I was there telling them that they now have to do their job completely differently. None of the associates wanted an outside person telling them how to do their job and they were not shy in telling me this. However, this challenge is what made this project interesting and rewarding. I explained to the associates that I was not there to criticize their work, but that I was there to be of assistance to them in any way that I could. I told them that they could call me at anytime to ask questions and that I would get them answers quickly. I wanted them to understand that I was there only to help, not to be a burden to them. After about a week and a half, the Company A associates at the stores began to trust me and accepted my presence. They enjoyed having someone that they could ask questions of at any time. Prior to my arrival, all packaging questions were directed to a DOT compliance hotline. They would not receive answers to their questions for many weeks, if at all.

Working on this project has been my favorite experience with Shaw Environmental. My experiences in the IES at Miami University helped me tremendously in being successful during this project. Most notably, were the courses that I took that involved extensive travel. My travel experiences during my time at Miami University completely prepared me for my adventures that I had with the DOT project. This project involved getting a ticket to somewhere in the U.S. (which wasn’t disclosed to anyone on the project until the last minute), flying there alone, and then working alone with people whom I’ve never met for one month while living in a hotel. I later learned that many Shaw employees who were also working on the DOT project left the company after working only a couple weeks. It had never occurred to me at the time that leaving my home and family to work on a project could be anything other than a fun adventure. This is not the type of work I would like to participate in all of the time. I think that traveling for such extensive periods of time at such short notice would be stressful if obligated to do it often.
CHAPTER 4

Client/Consultant Financial Contracts

Company A requires, through a contract, that Shaw Environmental perform all projects at a lump sum price. This means that Shaw Environmental will be paid a predetermined amount of money for a specified project, regardless of the time taken by Shaw Environmental employees to complete the project, overhead costs, or the cost of travel. For example, if the contract states that Shaw Environmental will be paid $1,400 per Company A facility permit review performed, than Shaw Environmental will be paid that amount, even if it cost the company $100 to complete the project or $2,000. Because of this, Shaw Environmental requires that its’ employees complete projects quickly with the least amount of costs possible. The less money that Shaw Environmental needs to pay for employee time and for travel, than the more money they are able to keep.

Shaw Environmental needs to keep track of how many hours are billed by employees for both lump sum and time/materials projects. Time/materials projects are those in which Shaw Environmental bills a client after the project is complete for the exact amount of time employees billed and traveled, as well as any materials associated with the project. Each project is assigned a specific project number and cost code. The project number is the general number given to the project and the cost code the number that specifies the type of work that was actually performed by the employee. For example, the project number may be 142009 which would represent the company for which Shaw Environmental is providing consulting services. The cost code could be 639801 which could represent anything from the location of the project or the type of work performed such as data management. Each Monday when time sheets are due, employees must enter the project number and cost code for each project that they worked on that previous week. Time must be entered to the quarter of an hour and if an employee worked on 10 different projects the previous week, completing the time sheet can be very time consuming. This is the method that Shaw uses to track either how many hours the employee used from a lump sum project, or how many hours they need to bill the client.

It is important for Shaw Environmental employees to always have a project number and cost code to bill 40 hours to each week. This means that the employee is an asset to the company
because he/she is making the company money. Sometimes employees, who are on a salary pay system and are guaranteed 40 hours per week pay, are not able to bill to a project for each hour of the week. In this case, they must bill to overhead which means that they are a direct cost to Shaw Environmental. Depending on how much an employee needs to bill to overhead to retain 40 hours per week, they can actually cost the company money. Always having a project to bill to for all 40 hours of the work week is called “fully billable.” If an employee can only bill 20 hours per week to a project he/she worked on and then needs to bill 20 hours to overhead, than this is called “50% billable.” Once an employee has been less than fully billable for an extended period of time, it is likely that they will be laid-off. It is generally not employees’ fault when they are no longer fully billable. It is common after an employee completes a large project that may have lasted months or years, to no longer having a project to work on, therefore billable hours. Shaw Environmental supervisors do not give their employees more work to perform. It is up to the employee to find more work within the company so that they can stay fully billable and prevent being laid-off.
CHAPTER 5

Institute of Environmental Science Contribution

I could not have succeeded at this internship without the skills given to me by Miami University’s Institute of Environmental Science. The education and experience provided to me proved to be invaluable. The aspect of the IES program that I feel has helped me the most is the hands-on experience that we were given. At least half of the time spent as a graduate student was spent actually performing the type of work an environmental scientist would do in the work place. We first learned in classes the sorts of skills we were going to need, and then we were given plenty of opportunities to hone in on those skills. Students were also given excellent instruction which was available to us at almost any time of day to help guide us to where we needed to be in our projects and coursework.

At the start of the academic year, new IES students are taken on various tours around southwest Ohio to show them local environmental issues that people are currently solving, and potential career ideas. It is a great way to get to know the other incoming students and to discover what working people are doing to make a difference in environmental science. One of the businesses we toured was an environmental consulting firm in Dayton, OH. We were given the opportunity to interview current consultants and to understand what it is they actually do on a daily basis. The key point that sticks out to me is something one of the employees said during her presentation to the students. She stated that in environmental consulting, it is a “sink or swim” atmosphere. Meaning that either there is so much work to perform and 60+ hour work weeks are required, or there are no projects to work on and people are losing their jobs. I quickly realized while working for Shaw Environmental that she was correct. There were many weeks in which I had no work to perform and it was difficult to remain fully billable. Many other employees, especially those new to consulting were extremely stressed during the slow times. They were in constant fear that they were either going to lose their jobs or they were going to have to constantly travel to help other Shaw Environmental offices with other projects in order to be fully billable. Many of these people found this rollercoaster lifestyle at work to be too much pressure and eventually quit. It was advantageous to know the type of work environment I was
getting into before I started the internship so that I could prepare myself for the slow times at work.

The Public Service Project, which is a requirement to complete the IES graduate program, was the most beneficial aspect of the program. Our PSP group was assigned a project in which none of us had any experience: drafting a Master Parks Plan for a community. I had no idea where to begin, or where our group needed to end in order to complete the project. Our team of three had outstanding guidance by the professors in the IES to help us succeed at this project. The skill that I obtained that proved most valuable to me was feeling comfortable working on an unfamiliar project of which I have no prior training. While working on our PSP, I always had the feeling that there was something else that I needed to and that I did not know how to do it. However, over time, I got used to this feeling and felt comfortable knowing that our team would work together to accomplish anything we needed to. During my internship, there were many instances in which I was asked to complete tasks for which I did not have any prior experience. An example of this was the U.S. DOT project. I had no prior knowledge or experiencing in handling hazardous materials. Due to the PSP, I was used to this feeling so I volunteered to help out with the project and I am very glad I did. This project connected me to many other employees throughout the company which has helped me to network and assist with other projects.

**SUMMARY**

Each of these three projects: the Environmental Permit Review project, the SPCC project, and the DOT project, assisted me to further develop skills that I acquired as a student at Miami University. Some of these skills include working efficiently, problem-solving, writing, and working effectively with a milieu of personalities. The first of these came easily to me. I discovered that the latter of these was the most difficult, mostly because it is the one thing that I cannot do alone. I feel comfortable when I am working alone, and I am more productive. However, this is where the requirement of the Public Service Project (PSP) that the IES requires shined. The PSP taught me how to work effectively with others, how to be myself at the same time, and enjoy it.

My internship experience at Shaw Environmental has been an eye opening experience, and there has been many lessons learned. I have learned about the way that corporate America works, and
how to deal with the daily stresses that come my way. One of these lessons, which are funny to me now, is that not everyone wants to be my friend. In fact, it is exactly the opposite. When I started my internship with Shaw Environmental, I invited people over to our house for supper and board games (I am laughing to myself right now just thinking about this). I learned quickly that this sort of behavior is very unusual, and that no one calls it “supper.” However, strange as I guess I was to people, this behavior allowed them to view me as a trustworthy person, which I have found to be a useful asset in a large corporation than friendship.