

# Understanding & Managing Risk



**A Handbook for  
Environmental  
Consultants and  
Contractors**

**Second Edition**

**F**REBERG  
**E**NVIRONMENTAL  
**I**NSURANCE

INSURANCE PROGRAM MANAGERS

**RECIPIENT**



*Understanding &  
Managing Risk:  
A Handbook for  
Environmental Consultants  
and Contractors*

Second Edition  
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## *ABBREVIATION/ACRONYM LIST*

>	greater than
%	percent
ACM	asbestos-containing material
ADR	Alternative Dispute Resolution
ASTM	American Society for Testing and Materials
CGL	Commercial General Liability
CO	change order
CPL	Contractors Pollution Liability
ECC	Engineer, Consultant or Contractor
EPA	U.S. Environmental Protection Agency
FEI	Freberg Environmental, Inc.
LEL	Lower Explosive Limit
MEK	methyl ethyl ketone
MSA	master service agreement
OSHA	Occupational Health and Safety Administration
P & ID	process and instrumentation diagram
perc	perchloroethylene
PL	Professional Liability
RFP	request for proposal
SOQ	statement of qualifications
UST	underground storage tank



## PREFACE

Managing risk is a part of good business. Most environmental consultants and contractors realize that risk is present in every project no matter how large or small. The key to accepting risk is understanding and learning how to manage risk so that it is commensurate with the compensation received from the client. Before an environmental firm accepts a project, it should be evaluated for its merits, value, and risk to the firm. Firm owners and their workers are faced with decisions that affect the outcome of their projects. This handbook compliments your experience in making informed decisions about projects and risk. Management of risk is more than minimizing insurance claims. Risk management practices also reflect professionalism and contribute to profitability and customer satisfaction. Ultimately, the growth of the firm and prosperity of its principals benefit from good risk management.

While insurance companies certainly do not have all the answers, we can impart our experience in how other firms in your industry have made decisions – both to their benefit and unfortunately to their detriment. This handbook is written to help you make informed decisions and provide you with some basic information on how to avoid situations that lead to disputes.

We encourage you to read this handbook, and to think about ways to improve the risk management techniques that it describes. Our intent is to

provide a forum for collecting and sharing risk management experiences. Through our collective effort, we can better learn how to avoid costly and time-consuming risk situations.



Michael Hill  
President, FEI



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## ABOUT THE AUTHORS

Michael J. Hill, CPCU, founded and is President of Freberg Environmental, Inc. (FEI), an environmental insurance underwriting agency based in Denver, Colorado. Mike has over 20 years of insurance underwriting experience and assisted in the development of some of the first environmental insurance products. Mike's broad insurance experience includes research and development of innovative insurance products and managing underwriting and administrative operations. Mike works closely with brokers throughout the country to determine market needs and opportunities.

Stacy Brown, FEI's Environmental Manager, is responsible for reviewing technical specifications for environmental projects and reviewing qualifications for environmental consultants and contractors. Stacy obtained his experience with environmental construction projects as a Project Manager at Dames & Moore, an international environmental engineering firm. Stacy has managed a wide variety of environmental and construction projects including: scheduling and cost estimating, managing construction jobs, conducting compliance audits, writing sampling and analysis plans, conducting remedial investigations/feasibility studies, and implementing solid waste management plans.

# INTRODUCTION



*Managing risk is essential to good project management.*

This handbook is produced by Freberg Environmental, Inc. (FEI) for environmental consultants and contractors who have purchased insurance from an FEI insurance managed program. This handbook summarizes experiences that FEI has encountered with many of these environmental firms; we hope that our experiences will help you avoid some risks in your business activities. The real-world examples in this handbook should help your environmental firm identify and avoid potential risks.

The handbook is to:

- Help your environmental firm manage certain risks inherent to your industry
- Help you understand how to deal with some common situations that can create unnecessary daily risk
- Avoid potentially costly mistakes
- Effectively use your insurance, risk management, and legal professionals to avoid or minimize risk

Many of the risks discussed in this handbook highlight unnecessary risks that can negatively affect a routine project. The handbook provides examples of forms and procedures that can be used by your environmental firm to help avoid project-related risks. If you have any questions, you are encouraged to contact one of FEI's professionals to

address your specific concerns. This handbook is informational only and not intended to provide specific guidance for your business.

### *How the Handbook is Organized*

This handbook discusses topics related to some of the major activities that many environmental firms face. This handbook is organized into the following 12 sections:

- Marketing
- Preparing Proposals
- Procuring Supplies and Subcontractors
- Subcontracting
- Estimating Costs
- Contracting
- Communicating
- Maintaining Quality
- Maintaining Health and Safety
- Completing the Project
- Obtaining Permits and Inspections
- Billing

Appendices A through E provide sample documents and information to assist your firm in avoiding risk.

## *How to Use this Handbook*

FEI believes that the real world examples will help you anticipate and avoid potential risks. To obtain an overall sense of how risk management and loss control techniques can be applied to your environmental firm's practices, review the examples in this handbook. Analyze the techniques described and compare them to your environmental firm's experiences. You may find that the resolutions to the examples may mirror how you approach risks that you encounter in the future.

# MARKETING

## **Unclear Expectations, Lost Opportunity**

While conducting a routine Phase I for a building owner a young engineer eager to obtain work for the firm recognized that the building she was surveying had the potential to contain lead-based paint. She recommended to the owner that a lead-based paint survey be performed and offered to conduct the survey. The owner did not know that the engineer did not have lead-based paint training or certification, and had only read about surveying techniques in a trade journal.

Surveying was more complicated than she thought. After the engineer declared the building free of lead-based paint, the future purchasers of the building hired their own consultant to survey the building. The purchaser's consultant found that the building was full of lead-paint and would require \$75,000 in abatement. The purchasers backed out of the purchase and the building owner contemplated suing his consultant. Luckily, the owner did not sue but refused to pay his invoice - a \$15,000 loss to the small, engineering firm. If the engineer had realized the expertise required to conduct an accurate lead-based paint survey and hired a lead-testing expert, she would not have the threat of a lawsuit and could have had a contract for lead abatement oversight.

This section focuses on risks related to marketing your company and the services you provide. Directed and consistent marketing is the cornerstone to a successful consulting or construction firm. The manner in which you market prospective clients, present your firms' credentials and make promises significantly affect the success of a project and your company.

## *Do Not Make Promises You Can Not Meet*

One of the most common problems of environmental professionals is making promises that they cannot keep. Both new and established firms, eager for business, adopt the "can-do" approach to any situation or project. Resist the temptation to market projects that are not within your firm's core competency. Your core competency is your area of expertise, such as remediation engineering, soil excavation and treatment, or asbestos abatement.

Environmental firms also get into trouble when they overbook work. Do not promise to "fit in" a project that you realistically cannot complete within the client's time frame.

The single largest source of a firm's business is typically repeat business. Do not compromise relationships that are very difficult to cultivate by promising more than you can do. You and your client will benefit from turning down a project that

you cannot handle. If your firm consistently demonstrates that you can meet expectations, project schedules, and budgets, your repeat business opportunities will increase substantially.

### *Keep Expectations Clear*

When defining the client's needs, be sure you understand what the client needs and how your expertise can effectively and efficiently solve his or her problem. Discuss with your client all elements of the proposed work. The single most important aspect of interacting with an existing or prospective client is to ask probing, succinct questions, and then listen. Write down each proposed task and make certain the client agrees that the proposed scope of work is what they need and that it addresses their specific concerns.



*Clear communications with clients is one of the keys to successful marketings.*

At times many clients may not be able to articulate what they really need, and are relying on your expertise. One of your jobs is to consult with them and direct them to meet their objectives. Be honest and do not present an unrealistic scope for the project. Identify potentially significant costs for the client and clearly communicate this importance on the project.

### *Provide Realistic Costs*

Disclose the potential costs of your services to your clients. If the client insists on a rough estimate prior to a proposal, provide a conservative



estimate. While the ideal situation is to avoid providing rough estimates, an honest estimate is preferred over a surprise later. If you give a rough cost estimate and the client thinks that your costs are too high, you may avoid spending time and effort writing a proposal. At times, the no-bid decision is the most important cost-effective decision you can make.

If your firm consistently provides low bids with the intent of submitting change orders (COs), you will gain the reputation as a “low-ball” firm. Such a reputation reduces your chances to win new and profitable work. It is sometimes difficult enough to get clients to pay for scoped services. Why risk

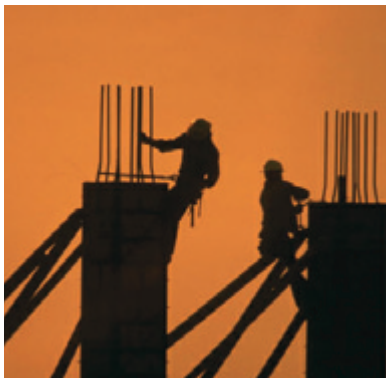
#### **What Does Consulting “Service” Mean to a Client?**

When marketing clients, realize that clients may have negative expectations about environmental services. Mitigate those expectations by understanding the client’s concerns and alleviate the following misconceptions about consultants:

- Fear that the consultant will be preoccupied with work for other clients. Demonstrate a commitment to the prospective client and assure him that his project is your top priority. Include the key personnel who will work on the client’s project in your marketing meeting with the client.
- Fear that a consultant may represent themselves professionally but may not have the expertise or resources to identify and address their needs. Provide the client with unsolicited examples of your work and provide references for those projects.
- Fear that the project will go on forever. Provide the client with a realistic estimate of costs and schedule for completing the project. Commit to sending the client daily or weekly updates on the status of a project.
- Fear that they are not receiving value for their money. Provide the client with assurance that your firm provides excellent service at a reasonable cost. Through regular project updates that include photos of their project or apprising client of important regulatory changes that affect their business. Government web sites for the U.S. Environmental Protection Agency (EPA), U.S. Department of Transportation, and Chemical Safety Board provide free updates on events, news and new regulations that can be forwarded to your clients with little time and effort. A full analysis of a regulation is not necessary; a simple fax of a newspaper article or an email attachment is all that is necessary for the client to be aware that you are thinking about their needs rather than trying to get another buck from them.

not getting paid at all by submitting multiple change orders? Clients do not want to pay more for your service since environmental-related tasks do not generate income for most clients.

# PREPARING PROPOSALS



*Understand the limits of your expertise - stick to your core competency.*

Preparing a proposal can be stressful due to deadlines and limited resources. This section describes some techniques that can help reduce inefficiencies in the proposal-writing process. Advance planning significantly improves your ability to quickly prepare a winning proposal.

Under the intense pressure of preparing a proposal, firms may commit to unrealistic schedules and budgets. You must understand the strengths and weaknesses of your firm to write a clear proposal that addresses the clients needs, provides an accurate project cost, and gives a realistic schedule. This process requires careful planning. The following subsections provide advice on how to organize the proposal process, define the scope of work, and create a project budget to minimize your stress.

## *Getting Organized*

There is much work that can be done before a request for proposal (RFP) arrives. While many small firms do not have a full-time marketing staff, take advantage of slow periods and get organized for proposal writing. The following tasks can be completed prior to responding to an RFP:

- Bid/No Bid Process
- Personnel Resumes
- Proposal Format
- Project Description

If these items are organized and maintained periodically, then many of the tedious and stressful tasks of preparing a proposal are out of the way.

### *Bid/No Bid Process*

Is your firm able to bid on a project? Do you have the qualifications?

Your firm should decide what types of work should or should not be pursued. Define the firm's core competency and stick to it! You may want to develop a Bid/No-Bid form to help you quickly and accurately determine if a prospective project fits your firm's skill base. An example of a bid/no bid form is in Appendix A.

### *Personnel Resumes*

Who are the best employees for the project? Carefully consider the personnel who will represent your firm. Assemble a team of key personnel in your office that have the skills to work on certain projects. Have these personnel edit their resumes to reflect their experience in working on these projects. The edited resumes can be kept in your firm's computer network for easy access. This approach avoids having key personnel rewrite their resume when they are busy on other project work. Resumes can also be placed into other resume formats for proposals that require governmental SF254 and 255 formats.

## *Proposal Format*

What is the best format to present your qualifications? How do you want your firm's qualifications to look to a prospective client? These are important questions that should be decided before you receive an RFP.

For nongovernmental work, decide on a proposal style and format. A proposal template can be outlined and saved on your firm's computer network. When an RFP is received, use it to prepare an outline or a content plan to specify the content and organization of all aspects of your proposal from resume formats and graphics to taglines and win themes. You can then apply the proposal template to the outline or content plan. Identify a proposal manager, and if required other staff members who will contribute to the proposal. Provide an internal schedule and writing assignments based on the outline or content plan, and follow the schedule.

Review past proposals for costs. Compare the costs for winning and losing proposals. Construct a database of costs for vendors, subcontractors, and suppliers. Having this list available will greatly speed and improve the accuracy of proposal estimating. Many firms purchase marketing software to keep track of past proposals and help them manage current proposals.

Prepare standardized cover letters for proposals. These letters can quickly be customized for each proposal providing project-specific details as needed.

### **Define the Scope and Minimize Disputes**

It is critical at the outset of any project to establish the scope of the work. At the root of almost every environmental contracting dispute is an ill-defined scope of work. When a project is poorly or incompletely defined, the consultant and the client invariably begin with different ideas and goals about what is expected from the consultant. A kick-off meeting with the client is a good way to ensure that both the client and the consultant have the same goals.

Organize and review the terms and conditions that will be in your proposal. Prepare standard contract language that can be readily incorporated into your proposals. You may wish to establish a General Services Agreement with clients you expect to work with on more than one project, where contractual terms and conditions are stated in advance. Have your legal counsel review your standard contracts.

### ***Project Descriptions***

What past projects are your most successful and best represent your capabilities? Prepare detailed descriptions of similar completed projects and their cost, schedule, location, key personnel, and client name. Contact past clients to obtain permission to use their name as a reference on your project descriptions.

### ***Responding to an RFP***

When an RFP is received, it's time to mobilize. Use your Bid/No Bid form to help decide if this project is suitable to bid. If you decide to bid, implement the plan of action.

Select a proposal manager that has the necessary technical expertise for the project and the organizational skills. The proposal manager must organize the proposal team and maintain the schedule to meet the deadline. The proposal manager is responsible to ensure that the finished proposal meets all of the elements of the RFP.

### **Strive for a Total “Expectation Match”**

Most professional liability claims arise from differences between what the consultant provided and what the client expected. This situation can be avoided by clear communication between client and consultant AT THE BEGINNING OF THE PROJECT! Sit down with the client and determine what the client needs, wants, and expects from your service. If at any point in the project it appears that the end result will deviate at all from the client's expectations, promptly communicate this deviation and work through it with the client. The goal is to identify the client's expected result at the outset, and meet that expectation throughout the project.

One of the most important start-up tasks of any proposal is defining the important elements of the proposal and developing a proposal outline or content plan. The outline or content plan simplifies and organizes the required tasks in the proposal. An outline or content plan greatly enhances the efficiency, understanding, and consistency of the finished proposal and makes it easier to assign writing of sections to team members. The proposal manager assigns team members specific sections of the outline or content plan and gets a commitment from each team member on the completion of their section.

### ***Creating a Project Budget***

Creating a complete and accurate project budget is many times a key component to a successful proposal. The following subsections provide a brief introduction on how to create project cost estimates. Cost estimating is comprised of several elements:

- Understanding the Proposed Scope of Work
- Estimating the Budget
- Determining the Need for Subcontractors
- Prequalifying Subcontractors
- Obtaining Vendor Quotes

There is a thin line between lowering costs to win the project and maintaining profitability. Carefully organized estimates are easy to track and maximize profit potential.

More detailed information on budgeting, procurement, and documentation are in the “Procuring Supplies and Subcontractors” Section of this handbook.

### *Understanding the Proposed Scope of Work*

When creating the project budget, be sure you understand the scope of the work. Understanding all of the elements of the project and their sequence is critical to creating the budget. If there are questions about the proposed scope of work, contact the client and discuss the project. Once the scope of work is understood, determine if you will require any subcontractors to assist your firm on the project. This critical step must be initiated early in the proposal to allow subcontractors time to respond to your request. Additional information concerning subcontractors is found in “Determining the Need for Subcontractors” Section of this handbook.

### *Estimating the Budget*

It is very important to keep a record of all the information used to estimate the budget. Good recordkeeping has several benefits:

- Enables others to work on the budget in your unexpected absence
- Provides documentation in the event of a dispute with a contractor, client, or co-worker
- Allows you to start a database of information on services and supplies that you may use for future budgets





*Contact subcontractors early in the proposal to determine their availability before including them in your proposal.*

Preparing a budget can be tedious and time-consuming. Do not burden your co-workers with messy records, especially when the proposal deadline is approaching. Invariably, messy records will catch up with you as you will need that one quote 2 hours before the proposal deadline and you cannot find it in the reams of paper on your desk!

### ***Determining the Need for Subcontractors***

If the RFP requires additional services that your firm does not specifically offer, you must identify qualified subcontractors to join your project team. When establishing a teaming arrangement with a subcontractor, ensure that all quotes are submitted on the subcontractor's letterhead and clearly state the subcontractor's scope of work. Read each quote carefully to determine if all elements of the subcontractor's scope are included. Be wary of weak assumptions and exclusions to the bottom line price. If you have questions, follow-up with a telephone call and written documentation stating your questions about the quote. If the subcontractor's portion of the work is large enough, it is advisable that you issue a bid package to obtain a quote.

A bid package details the scope of the project, anticipated schedule, the project organization, and contracting mechanisms. An example of a bid package and contractor contract is provided in Appendix C. Bid packages are useful because you have an opportunity to identify exactly what you expect from your subcontractor in a format that

you identify. Your evaluation of a subcontractor is easier with all subcontractor quotes and qualifications in a similar format. Bid packages also typically include a contract which the subcontractor can review and comment. Having the subcontractor review the contract during the bidding process can save time negotiating the contract once the contract is awarded. If the subcontractor disagrees with the contract, then he or she may choose not to bid on your project. If this situation occurs, you have likely saved a lot of negotiation time and effort.

Once you have selected a subcontractor, notify the other subcontractors who submitted quotes to you in writing that their services will not be needed. A form letter with the reason why the contractor was not selected is the best method for this notification.

### *Prequalifying Subcontractors*



*Prequalifying subcontractors is always a good idea.*

Prequalifying subcontractors is typical if the scope of work for the subcontractor is a significant portion of the project. To prequalify potential subcontractors, you may want to use a Subcontractor's Questionnaire, as shown in Appendix B. The questionnaire asks for information concerning the financial stability, relevant experience, personnel, and references to assist you in selecting a subcontractor. Sending this questionnaire to several subcontractors will help you learn the capabilities of subcontractors in your area. Many firms prequalify subcontractors when there are no pending proposals. Having pre-

approved subcontractors can speed future proposals. Details for prequalifying subcontractors is provided in the “Subcontracting” section of this handbook.

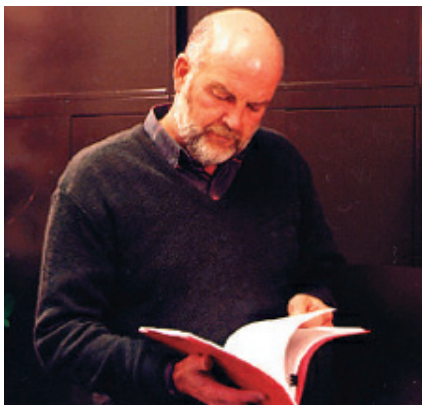
Some government agencies and many private companies require firms to be prequalified to be on their bidder’s list. Most companies have similar prequalification processes and it is a good idea to have all the prequalification requirements compiled prior to starting to work on a proposal. Typical prequalification items include financial statements, insurance certificates, resumes, references, and completed projects.

### *Obtaining Vendor Quotes*

Obtaining quotes from vendors is a relatively simple process similar to subcontractors. If possible, obtain written quotes from at least three vendors and document all telephone conversations with vendors. For consistency have a script of questions to ask the vendor when inquiring about a quote. Is the item in stock? Are there delivery charges? Is there a warranty on the items? How is the item serviced? Be sure to document the call.

When obtaining quotes, it is important that the correct documentation procedures are used. Following the appropriate procedures can be critical in winning work and have ethical and legal considerations as well. Detailed information regarding procurement is provided in the following section, “Procuring Supplies and Subcontractors.”

# PROCURING SUPPLIES AND SUBCONTRACTORS



*Carefully documented and sound procurement procedures can avoid troubles down the road.*

Ideally, procurement should be ethical, competitive, provide value, and be traceable. This section discusses generally accepted procedures for sound procurement of material supplies/equipment and subcontracting by addressing the following topics:

- Ethics and Supplier Relations
- Procurement Responsibilities
- Project Procurement Instructions
- Bidding Criteria
- Awarding Purchase Orders
- Issuing Change Orders
- Backcharging

Client and local regulations may dictate procurement procedures that are not addressed in this section. It is your responsibility to determine if any procurement regulations apply to you.

## *Ethics and Supplier Relations*

When obtaining bids, it is prudent to give all potential vendors an equal opportunity to respond and compete. It is not a good practice to ask a vendor to submit a quotation if it is known in advance that, for any reason, the quotation will not be given fair consideration. It is also important to solicit a variety of vendors because it helps promote competition among vendors. Vendors will compete for your business and your firm could

### **Going to the Well Too Many Times**

A consulting firm that did asbestos work projects suddenly found that there was only one contractor, "ABC," who would do business with them. Why? Simple. The firm always used ABC for their jobs. What's wrong with that? The firm got the reputation that ABC would only deal with one contractor in town. The result is that the other contractors felt that it was a waste of time to submit a bid since ABC would always get the work.

That was acceptable for a while. Then there was a project that ABC messed up and the relationship deteriorated. The firm did not want to use that contractor again and found that the other contractors did not want to work with him, or if they did submit bids, the prices were much higher because they knew he was desperate.

If you submit bid packages to several contractors honestly evaluate the bids and do not always give the work to one firm. There are justifications for giving work to a very good contractor, just do not get too cozy, as you may need other contractors in the future.

realize legitimate price advantages over your competitors. However, if your firm consistently uses the same vendor, in time other vendors may not provide you with a quote because of a reputation that you use the same vendor. While established business relationships with key subcontractors and suppliers is essential, maintaining good relationships with a number of vendors can be invaluable, especially if your preferred vendor is too busy to help your firm.

All procurement activities should be carried out in such a manner that suppliers value your firm's business. Award all purchase orders with the intent of obtaining maximum value and excluding personal prejudice or favoritism.

### ***Procurement Responsibilities***

The overall responsibility in procurement is to obtain maximum value at minimum cost for the client and/or your firm. The procurement effort must ensure that:

- Your buyers are using the most qualified and dependable sources of supply.
- Whenever possible, the buyer has the opportunity to obtain competitive bids.
- All vendors are given an equal opportunity to compete for available business.
- Negotiations with vendors are thorough and all agreements are carefully documented.

- Procurement decisions are made on the basis of price, delivery, quality, and reliability of service.
- A clear audit trail of the buyer's activity is maintained to assure that this procedure has been followed.

### *Project Procurement Instructions*

If your firm does not have a designated buyer, upon the award of a project, the project manager should assign one employee to be responsible for all project procurement. Having one employee responsible for project procurement helps to maintain consistent procurement procedures that can be critical when evaluating vendor bids. If other personnel assist the buyer, prepare project procurement instructions that include the following information:

- The type of contracts (lump sum, cost plus, etc.)
- A list of anticipated material/equipment purchases
- Information about a bidder's list
- Distribution of manufacturing data to the project manager or design engineer
- Purchase order number(s)
- Sales and Use Tax
- Shipping and invoicing instructions

- Required delivery date/schedule for delivery (one of the most critical issues!)
- Quality Assurance/Quality Control instructions
- List of forms to be used
- Distribution of documents and bids
- Any special instructions pertaining to procurement from the project manager or design engineer

A majority of this information is only necessary for a large project that requires extensive procurement; however, it is a good idea to develop good purchasing procedures for all projects.

### *Bidding Criteria*

When possible, obtain quotations from three or more qualified bidders for each requirement. Many firms have minimum price levels, so be sure to follow your company's competitive bid policy. Any departure from this competitive bid policy should be discussed with the client and carefully documented to satisfy the client's auditors or your firm's, if such a policy is in place.

There are legitimate exceptions to this competitive bid policy. Clients may specify a vendor or an application may dictate that a single source be used. If this is the case, write a memorandum to the project file that states the reasons why a single source is necessary. Carefully document all requests for single source approval and support the



request by statements from the project manager or the client.

### *Awarding Purchase Orders*

#### **Purchase Orders Tips**

- Use a standardized purchase order that has been reviewed by an attorney.
- Assign one buyer, typically an accountant or estimator, for all of the project's purchase orders.
- As each purchase order is used, provide documentation to the buyer as soon as possible after the transaction has taken place
- Perform periodic auditing of purchase orders

Purchase orders are legal contracts that many companies require for a transaction to take place. When your firm awards a purchase order or subcontract, it becomes a legal contract when the vendor accepts it by any of the following methods:

- Verbally
- Formally by signing it and returning the acceptance copy
- Beginning work
- Delivering material
- Performing the service

Purchase orders must be carefully worded and important features must be covered in the order to prevent future misunderstandings and minimize the necessity of additional correspondence between you and the vendor. A purchase order may be awarded one of the following ways:

- Verbal Purchase Orders - Although verbal orders are not an ideal approach to contracting, a verbal award is permitted to maintain the construction schedule, price, delivery, or to expedite critical manufacturer's data. If there will be a long delay before a written order is issued, the buyer should send a letter to the vendor confirming the verbal purchase order.



- **Formal Purchase Order** - A formal purchase order or subcontract should be issued immediately after a verbal award to ensure that the subcontractor commences work and to minimize misunderstanding. All agreements between your firm and the vendor should be stated on the purchase order or incorporated by standard and special attachments. Refer to any verbal award in a formal purchase order.
- **Electronic** - Purchase orders awarded electronically should be treated the same as verbal orders. It is advisable that you arrange electronic purchase orders in advance to make sure your computer system is compatible with the vendor's. If specific procedures are to be made for electronic purchase orders, include the procedures in a contract or master service agreement (MSA). Each time a new purchase order is electronically sent, reference the MSA in the new purchase order and confirm the date that the MSA was signed by both parties.

Purchase orders are typically numbered sequentially or in some cases given a random number. The numbers serve as a reference mechanism for tracking by both the vendor and your firm. Purchase order numbers can be issued in blocks or sequentially. If your firm does not have standard purchase order forms, purchase these forms through an office supply store. Many office supply store forms contain standard contractual items that may not apply to your business or type of project. Have your attorney review the forms

prior to purchasing or using any standardized purchase order form.

### *Issuing Change Orders*



*Clearly document all change orders and obtain the necessary approvals before the changed work starts.*

Whenever there is a revision to the original scope of work or any document associated with a purchase order, issue a change order (CO) in accordance with the following guidelines:

- Use the CO to transmit the revised documents to the subcontractor and to furnish instructions consistent with the revision.
- Have the subcontractor return a copy of the CO on which he or she has indicated whether or not price and delivery have been affected.
- If there is a change in price, review and approve the price prior to issuing a CO. Any changes to the project budget or the design of the project must be incorporated to account for any changes in price, delivery, or completion date.
- Obtain necessary approvals from the client, project manager, or regulatory agency prior to commencing the changed condition.

### *Backcharging*

The backcharge system is the means by which your firm can recover costs incurred at the job site for remedial work performed on equipment supplied by vendors, subcontractor installations, and

equipment damaged in transit. Typically, it is clear long before backcharging is necessary that a supplier or subcontractor is failing its duties and that there will be pattern of failing to meet obligations. If your field engineer or foreman is keeping daily reports and good records, the pattern of failure should be well documented. Having good documentation will support your claim for a backcharge.

Typically, it is the responsibility of the field engineer to identify the need for remedial work and notify the buyer in cases involving purchased equipment or material. The field engineer advises the subcontractor that a problem exists and discusses the details. The subcontractor should be urged to correct the problem using their own resources. If, for any reason, the subcontractor refuses to correct the problem, notify them in writing that the remedial work will be performed and the costs of this work will be accumulated to the subcontractor's account. After all remedial work has been performed and all costs accumulated, submit an invoice and supporting documentation to the subcontractor, and as appropriate, the client.

# SUBCONTRACTING

It is important to deal with well qualified subcontractors with the following qualities:

- Ability to provide competent supervision
- Financial stability
- Adequate manpower
- Sufficient experience and technical resources

Typically the project manager and/or the buyer assigns a person to thoroughly investigate to pre-qualify potential subcontractors. Carefully check past performance on similar work. For prospective clients, you may wish to conduct a credit check on a subcontractor using the Dun & Bradstreet system. Contact references listed in the pre-qualification to obtain further information about how the subcontractor has performed on other projects.

Procuring subcontractor services requires a pre-qualifying process, subcontractor insurance evaluation, a formal inquiry, and a bid evaluation. Each of these are discussed in following subsections.



*Prequalifying subcontractors can relieve many concerns about who will be working on your project.*

## *Obtaining Prequalification Information*

Decisions about subcontractor qualifications are based on information obtained through the use of the Subcontractor Questionnaire which is shown in Appendix B. This questionnaire is a company profile to be completed by the subcontractor's management. The completed questionnaire is good to have on file because it details the size of the

subcontractor's company, the types of projects it has completed, and referenced clients that you may contact to obtain further information about its performance. This information can be used on later projects and gives your firm a better understanding on the quality and types of services available in your area.

If prequalifying subcontractors, allow 2 to 3 weeks to obtain a response from the subcontractors in which your firm has interest.

### *Evaluating Subcontractor Insurance*

A well-qualified subcontractor must be able to demonstrate financial responsibility for damages that might arise out of their negligence or injury to their workers. This is accomplished with a quality insurance program provided by financially viable insurance carriers. Consider the types of policies and the clauses when evaluating the insurance of your subcontractors. Tables 1 and 2 describe the types of policies and clauses you should require from your subcontractors.

Even when you require these policies and clauses, claims may occur. Appendix D provides some examples of insurance claims from environmental projects.

Examine the quality and size of your subcontractor's insurance carrier. The ability of an insurance carrier to pay the claims can be estimated using insurance industry carrier rating services. The A.M. Best company is a well-known

**Table 1. Types of Policies.**

<b>Policy</b>	<b>Description</b>
Commercial General Liability (CGL) Policy	Protects in the event of: <ul style="list-style-type: none"> <li>• Bodily injury to nonemployees</li> <li>• Damage to property</li> <li>• Personal injury</li> <li>• Contractual liability and completed operations claims</li> </ul>
Automobile Liability Policy	<ul style="list-style-type: none"> <li>• Provides broad coverage for most requirements</li> <li>• Requires endorsement to provide pollution coverage hauling hazardous waste or materials</li> </ul>
Workers Compensation and Employers Liability Policy	<ul style="list-style-type: none"> <li>• Provides statutory coverage to compensate employees for work-related injuries</li> <li>• Provides defense in the event of an employee injury related suit.</li> </ul>
Contractors Pollution Liability (CPL) Policy	<ul style="list-style-type: none"> <li>• Protects in the event of bodily injury or property damage arising from a pollution incident related to a subcontractor's performance on your project site. Not all subcontractors will carry this coverage, for example, electricians or plumbers.</li> <li>• Required for excavating, drilling, dredging, etc. subcontractors</li> </ul>
Professional Liability (PL) Policy	<ul style="list-style-type: none"> <li>• Protects in the event of a subcontractor's error or omission in providing professional services</li> <li>• Required of subconsultants providing additional expertise on your project</li> </ul>

**Table 2. Types of Clauses.**

<b>Clause</b>	<b>Description</b>
Additional Insured Status	<ul style="list-style-type: none"> <li>• Require that your firm be given additional insured status on your subcontractor's CGL and CPL insurance policies</li> <li>• The commercial automobile policy contains an omnibus clause in the "who is insured" provision which automatically includes your firm if you are liable for the conduct of the subcontractor</li> <li>• Not appropriate for the subcontractor's Workers Compensation or PL policies</li> <li>• Provides an immediate defense by the subcontractor's insurer to maintain your limit of liability for other claims against your policies</li> <li>• Reinforces the intent of the indemnity provision in your subcontract by giving you direct rights in the subcontractor's policies</li> </ul>
Waiver of Subrogation or Waiver of Transfer of Rights	<ul style="list-style-type: none"> <li>• Request a waiver of subrogation on all of the subcontractor's insurance policies</li> <li>• Prevents the insurance carrier from instituting a suit against you for any damages that your firm may have contributed in the event that a subcontractor's insurance carrier pays a claim</li> </ul>
Notice of Cancellation	<ul style="list-style-type: none"> <li>• Require at least 30 days notice in the event that your subcontractor cancels the required insurance policies</li> <li>• Allows you the time to replace the subcontractor or correct the insurance deficiency</li> </ul>
Limits of Liability	<ul style="list-style-type: none"> <li>• Require a subcontractor to carry the same limits of liability on their insurance policies as you carry on yours</li> </ul> <p style="text-align: center;">-or-</p> <ul style="list-style-type: none"> <li>• Set a minimum, such as \$1,000,000 with your insurance agent's advice</li> <li>• Watch your contracts with your clients for insurance requirements that should be passed down to subcontractors</li> </ul>

rating service for the insurance industry. Ratings may be obtained at [www.ambest.com](http://www.ambest.com). The A.M. Best rating system is described in Appendix E. A minimum A.M. Best rating should be set for acceptability of subcontractor's insurance carriers. An A.M. Best rating of no less than A (Excellent) with a financial size rating of no less than VII should be considered a minimum. Discuss this with your insurance agent so that you can establish a minimum acceptable criteria for subcontractor insurance carrier rating.

### *Making Inquiries*



*Clear contract terms and a well-defined scope of work helps avoid problems.*

Once you have a group of prequalified subcontractors and/or vendors that your firm would solicit bids from, send the subcontractors an Invitation to Bid letter. An example bid package is provided in Appendix C. The bid package includes the following items:

- Instruction to Bidders concerning proposal preparation, submittal, and due date.
- A fill-in-the-blank, preprinted proposal letter to be submitted to you by the bidder with their proposal.
- A fill-in-the-blank contract which constitutes the main portion of the bidder's proposal submittal and consists of preprinted proposal forms covering unit and lump sum pricing, equipment and labor rates, and any other pertinent information concerning the bidder and his qualifications.

- A Scope of Work that describes the work to be performed in detail to avoid later questions concerning the original scope and what constitutes a change order situation.

A subcontractor's exceptions to your firm's standard terms and conditions should be shown in the proposal in the form of alternative language. When this occurs, review and resolve all exceptions prior to award of the contract. Consult with your attorney if you are unfamiliar with the context of the proposed changes. Include new language or modifications on the contract or incorporate them as an attachment to the contract.

### *Evaluating Proposals*

Your buyer should evaluate subcontractors' proposals with input from the senior project manager, and at times, the client using the following procedures.

- Verify that proposals are complete and in accordance with instructions to bidders as they are received.
- After all proposals have been received, complete a formal analysis using a spreadsheet to compile and easily evaluate the proposals. The spreadsheet can include information gathered during pre-qualification and the costs provided by the subcontractor. Having this information all together on one sheet helps with comparisons of each subcontractor. The spreadsheet can be expanded to include some



of the pros and cons of each subcontractor. Once the spreadsheet has been completed, review it with the senior project managers and, if appropriate, the client for final selection.

- Place a copy of the approved proposal analysis in the project files.

### *Negotiating Subcontracts*

The goal of subcontractor negotiations is to reach mutual agreement on all essential features of a contract. If there are any questions regarding specific terms and conditions of the work, service, or equipment to be provided, contact legal counsel to review the documents prior to signing the contract. This effort is a small price to pay.

# ESTIMATING COSTS



*Standardizing your cost estimating procedures improves the accuracy of your estimates.*

When preparing cost estimates, it is a good idea that your estimate follows your firm's standard procedures. Standardizing estimating procedures is important because several employees may be working on one estimate. In this case, using standard types of cost estimates helps to maintain consistency and achieve more accurate estimates. This section discusses the types of estimates used by environmental firms and the basis of these estimates. Each of these are discussed in the following subsections.

## *Types of Estimates*

There are many ways to prepare a cost estimate depending on the desired accuracy of the estimate. Project costs are estimated for different purposes at various stages during project development. The estimate's purpose and level of available information determine the type of estimate, method of preparation, time required to prepare it, and the range of accuracy. The following types of estimates correspond with the general stages of project development:

- Detailed Estimate
- Budgetary or Conceptual Design Estimate
- Feasibility Estimate

A description of these estimates is provided in Table 3.

**Table 3. Types of Estimates.**

<b>Estimate Type</b>	<b>Description</b>	<b>Percent Accuracy</b>	<b>Time to Complete</b>
Detailed	<ul style="list-style-type: none"><li>• Required to perform methodical cost monitoring and project control effort during the construction of a project.</li><li>• Prepared when the scope of work has been developed to the point of representing the final quantitative evaluation of the project.</li><li>• Estimate requires 40 to 60 percent of engineering to be completed, and is prepared during the detailed design phase of a project.</li></ul>	+/- 7 to 10	Variable
Budgetary or Conceptual Design	<ul style="list-style-type: none"><li>• Estimate provides a basis for financial negotiation.</li><li>• Prepared after preliminary project information is known, such as a process flowsheet for an environmental remediation project has been established and the major equipment list has been developed.</li><li>• Scope of work, together with this information and historical data, constitute the basis for this estimate.</li></ul>	+/- 20 to 30	5 to 15 days
Feasibility	<ul style="list-style-type: none"><li>• Used for preliminary capital cost identification and rough project budgeting.</li><li>• Owner or client can quickly determine whether or not a proposed project is economically feasible.</li><li>• Based on a minimum amount of data.</li><li>• The capital costs are developed through the use of historical data from similar projects on a cost-per-unit quantity basis.</li></ul>	+/- 30 to 50	1 to 5 days

While there may be areas of overlap in each type of estimate, and the amount of data required for their preparation, the key to an effective estimate is an accurately defined scope of work (See “Understanding the Proposal Scope of Work” section of this handbook for more information.) Once the scope of work has been defined, the effectiveness of the estimate is determined by the appropriateness of the estimating method, and the validity, reliability, accuracy, and precision of the engineering data used.

## *Detailed Estimate*

### **Estimating**

Estimating is an expertise that many larger firms have in-house. But what about smaller firms that cannot afford to hire a full time estimator? Reasonable estimates can be made by using a variety of information sources:

- R.S.Means Construction Databook. This book lists the prices of commonly performed construction tasks. There are also other publications and databases for specific types of work that can be obtained for a fee.
- State and Federal regulatory agencies. Many states list “allowable costs” for certain types of remediation projects, like USTs. These cost are based on the “typical and expected” cost of certain tasks in that state.
- Your own data. Look through project files for cost data on past projects. Look for contractor invoices to obtain unit process for disposal, excavation, and equipment costs.
- Local suppliers. Call for free equipment and pricing catalogs.
- Local trade organizations. Contact them for local wage and cost data.

A detailed estimate, also known as a target or project estimate, is required to perform methodical cost monitoring and project control effort during the construction of a project. It is prepared when the scope of work has been developed to the point of representing the final quantitative evaluation of the project.

This estimate requires 40 to 60 percent of engineering to be completed, and is prepared during the detailed design phase of a project. The project schedule has been developed and construction lead times have been established. Purchasing commitments have been made on major pieces of equipment or have been bid on a firm basis. These commitments are typically made on the basis of engineering drawings, including process and instrumentation diagrams (P & IDs), electrical one-line drawings, and civil/structural drawings for major facilities. Detailed design is well underway which allows for an accurate survey of materials. Ideally, construction has been started.

The estimate is prepared using firm equipment prices from quotations or purchase orders. Basic material prices and their sources have been identified. Quantity take-offs from drawings are made. Calculations from drawings or sketches of the quantities of various levels of work are required.

The definitive estimate provides for all elements of the cost of construction which includes:

- Direct cost
  - Equipment
  - Material
  - Labor
  - Subcontracts directly related to the project
- Indirect cost
  - Temporary facilities
  - Construction camp
  - Utilities
  - Consumables
  - Construction equipment
  - Prime contractor's overhead
  - Supervision
  - Profit

Labor costs are subject to considerable variation and represent the largest single element of risk associated with the accuracy of the estimate. This type of estimate is the most detailed with an accuracy level of plus or minus 7 to plus or minus 10 percent.



*Never underestimate the cost of the equipment that will be used on the job. Obtain a detailed quote from a vendor or subcontractor.*

### *Budgetary or Conceptual Design Estimate*

A budget or preliminary estimate provides a basis for financial negotiation. It is prepared after preliminary project information is known, such as a P & ID has been completed and the major equipment list has been developed. Costs for major pieces of equipment can be obtained from

subcontractor bids or in-house pricing. In-house pricing is frequently conducted when data is readily available or when confidentiality is an important consideration. The scope of work, together with this information and historical data, is the basis for this estimate.

Factors derived from your firm's experience and historical data are used to develop the balance of the direct and indirect costs when hard data is not available. Costs are based on estimated labor hours and associated labor cost, office expenses, payroll burdens, and home office indirect cost.

A budgetary or conceptual design estimate can be prepared in 5 to 15 working days and represents an accuracy level of plus or minus 20 to 30 percent.

### *Feasibility Estimate*

A feasibility estimate is also known as an engineer's estimate, preliminary economic appraisal, or a preliminary evaluation. This level of estimate is used for preliminary capital cost identification and rough project budgeting. Using this estimate, your firm can quickly determine whether or not a proposed project is economically feasible.

This estimate is based on a minimum amount of data. Typically the general site locations, the commodity to be modified or produced, or other project-specific requirements are defined. Since engineering drawings are usually not available, the



capital costs are developed through the use of historical data from similar projects on a cost-per-unit quantity basis.

This procedure is known as quantity factoring. It is the fastest method of preparing an estimate but it is also hazardous in terms of accuracy. This estimate is prepared by comparing the quantities of the proposed project to that of a similar project for which costs are known. The data is escalated to current dollars. An experienced estimator, who has a good file of historical data available, will be able to adjust to special economic conditions, productivity, and site considerations.

### **What is a Contingency?**

When preparing estimates, contingency should not be viewed as simply a "fudge" factor to be thrown in on the last line of the estimate to cover overruns. View the contingency as a factor to cover items that are uncertain about a project that cannot be reasonably determined at the time the estimate is prepared. For some remediation projects the uncertainty lies in determining the total costs for excavating contaminated soils. This is a good place for using contingency to cover difficult to determine costs. The bottom line: contingency should be attributed to a specific task that has some uncertainty.

A quantity-factored estimate can be prepared in 1 to 5 working days. Its value exceeds its cost to prepare because it reflects a great amount of the company's past experience and judgment and relatively few labor hours. The accuracy of this level of estimate is considered to be plus/minus (+/-) 30 to 50 percent, depending on the level of information available to the estimator.

### ***Determining Contingency***

Contingency is a special monetary provision added to the estimated value to allow for increased costs due to unforeseeable elements within the scope of the project. It is not a fund to be used to cover total cost overruns, nor is it to be used to cover costs resulting from changes in scope or "force majeure" occurrences. The contingency relates to the level of confidence of an estimate in that it

covers a larger portion of possible outcomes of the final cost than are covered by the base estimate alone. In some cases a different percentage contingency will be applied to an estimate based on the contract terms. For example, a lump sum contract will usually require a larger contingency to accommodate potential unforeseen project costs compared to a time and materials contract.

In estimating, the level of confidence is the probability that the actual cost of a project will be less than or equal to the estimated cost plus its contingency. For each estimate a probability curve can be constructed which takes into consideration the type of estimate, the type of project, the major elements of risk, and statistical data.

As the project proceeds from conception to completion, the amount of contingency may be reduced to show increased confidence and lower anticipated levels of unforeseeable elements present in the final estimated project cost.

### *Basis of Estimate*

All estimates need to have supporting information that explains how the estimate was compiled. The information provided in the scope of work, estimate schedule, and data sheets are the support for the Basis of Estimate. Each estimate consist of the following three major categories:

- Direct costs
- Indirect costs



- Engineering, Procurement and Construction Management, known as EPCM

Include an explanation of information sources used in developing the estimate in the basis of estimate. The following is the information presented in an estimate basis:

- Type of estimate – Provide the level of accuracy stated as a percentage of overrun or underrun such as plus or minus 30 percent for a feasibility estimate.
- Direct cost – Explain the source of cost information for each cost category.
- Bulk materials – Quantify materials such as civil work, site work, structures, buildings, and other items that will become a permanent part of the facility. Permanent mechanical equipment is not included.
- Permanent equipment – Describe equipment which will remain as part of the permanent installation such as pumps, motors, tanks, conveyors, mobile equipment used in production, other process equipment, material handling equipment, and infrastructure equipment such as electrical systems, water supply and sewage treatment plants.
- Labor – Quantify cost for receiving materials, installation and checkout of the finished plant or delivery of the finished site to client operations.
- Subcontracts – Describe subcontract work which may include part or all of the bulk materials, permanent equipment labor, engineering,

construction management or other categories. Define the basis for subcontract pricing.

- Other – Describe items for which your firm has not been involved in developing design or costs. They may be included upon request by the client or for clarity. The source and nature of the information should be stated.
- Indirect field – Identify items that may not become a permanent part of the project. They may include field expenses, construction supplies, start-up, temporary facilities, craft benefits, and construction equipment.
- Home office – Quantify all home office labor and expense items such as general engineering, design engineering, engineering support, environmental sciences, process engineering, project administration, systems, field engineering, procurement project support, and expenses.
- Construction management – Describe costs for construction supervision, administration, and related expenses. They may include site management, superintendents, as-built engineering, environmental sciences, systems, procurement, construction support and expenses. Costing method must be addressed.
- Exclusions – Specify items which could be construed as part of the overall costs but have been specifically excluded due to client request, lack of time to identify, or other reasons.
- Estimate summary – Provide total costs for commodity, system, or major cost codes.



*Include costs for administration and overhead activities in your project budgets.*

# CONTRACTING



*Consult your attorney to develop contractual language that clearly defines your firm's obligations on a project.*

Many contracts used by environmental firms are on forms created for each individual firm. There is little uniformity in contract language. However, each firm's standard contract should contain many of the same key clauses. The specific wording of each clause will vary due to state statutory or common law or the advice of the attorney preparing the contract. Local, experienced legal counsel should develop the specific language of the firm's contract. Have your attorney review the recommendations in this handbook before you use them.

It is not uncommon for a firm's client to insist that its contract be used in place of your firm's contract. These contracts tend to shift liability to the environmental firm, and away from the client. Judge each contract on its own merits.

This section provides guidelines for contracts and key clauses and discusses negotiating risk.

## *Contracts*

A contract is a binding agreement between the firm and its client defining what is expected of each party involved in the project. In an environmental project, a common source of conflict is created when the project owner expects something different than the environmental firm intends to deliver. The formal contract may eliminate much of this potential conflict by clarifying, in writing,

what services are to be provided. The contract should define the work, timing, amount of fees, and terms of payment. It should be detailed enough to eliminate most questions regarding these items.

It is essential for a contract to carefully define the services that are included for the project. This is generally done in the “Scope of Work” or “Scope of Service” section of the contract. This section often incorporates by reference an addendum to the contract that details the specific services to be performed.

This section of the contract should outline in as much detail as possible the following topics:

- Description of the work to be performed
- Elements which are to be excluded from the work
- A schedule of fees agreed upon to complete the project and the timing of payments

### *Key Clauses*

There is substantial variability in the wording of many contract clauses. These sample clauses may not fully address each parties concerns. Pay special attention to clause wording to avoid unnecessary risks. Review of clause wording by legal counsel will help your firm avoid risk or loss in contracting.

This section presents the following sample contract clauses that have been negotiated in contracts:

- Limitation of Liability Clause
- Hold Harmless or Indemnification Clause
- Discovery of Unanticipated Hazardous Materials Clause
- Subsurface Structures and Utilities Clause
- Right of Entry Clause
- Ownership of Documents Clause
- Standard of Care Clause
- Health and Safety Clause
- Disposal of Waste Material Clause
- Alternative Dispute Resolution – Mediation or Arbitration Clause

### *Limitation of Liability Clause*

A limitation of liability clause may offer the most effective way for a firm to control its liability. Limitation of liability is a contractual method that limits risk based on the contractor's fee or some reasonable dollar amount. The firm using the limitation of liability clause states that the firm and the client can work together to set reasonable limits based on the fee that will be paid. It is unreasonable for a firm providing environmental services to assume an unlimited liability.

A limitation of liability clause in a contract may provide significant protection for your firm by

limiting the amount of damages you may have to pay to your client. These clauses are frequently used in professional consulting contracts but less frequently used in construction contracts.

In some states, limitation of liability may be enforced where it does not protect the environmental firm from its negligence or remove the incentive to perform with due care, and where the parties to the contract are sophisticated. Limitations in a limit of liability clause may not be enforceable in some jurisdictions.

Some environmental firms exercise particular caution to bolster the enforcement of the clause by calling special attention to it in the contract and ensuring that the client has read it and specifically agreed to it or negotiated changes to it. There are two methods for enforcing a limitation of liability clause. First, state that your firm's liability will be limited to a specific amount such as \$50,000 but that for an additional \$500 in fee, your firm will increase that limit to \$100,000. A blank is printed in the margin of the paragraph requiring the client to initial it as accepting the increase in limits. A client who initials the paragraph and accepts the higher limitation may find it more difficult to argue that it did not negotiate this limitation in an arms-length transaction.

Second, set the limitation to correspond with the fee charged to perform the project. An engineer performing a Phase I audit for a fee of \$1,400 would establish that amount as the limit of liability

for the project. Another project with a more complicated dimension and greater fee would carry a higher limitation.

Some clients are reluctant to sign a contract that contains a limitation of liability clause. The environmental firm must be able to clearly explain to the client how the limitation of liability clause provides an equitable distribution of risk. It is not exculpation or indemnification that allows your firm to escape its legitimate responsibility. It is a clause that prevents your firm from assuming excessive responsibility but allows it to assume legitimate risk for its negligence in proportion to the fee it is paid. Encourage the client to have an attorney review the contract. This will increase the likelihood that the contractual provisions will be enforced.

In the sample limit of liability clause that follows, the environmental firm is referred to as ECC.

#### *SAMPLE LIMIT OF LIABILITY CLAUSE*

*Client agrees that, to the fullest extent permitted by law:*

*Engineer, Consultant or Contractor's (ECC's) total liability to Client for any and all injuries, claims, losses, expenses or damages whatsoever arising out of or in any way related to this Agreement from any cause or causes, including but not limited to ECC's negligence, errors, omissions, strict liability, breach of contract or breach of warranty shall not*

*exceed the total amount of \$\_\_\_\_\_. (Client initial here \_\_\_\_\_). ECC shall not be liable to Client for any special, indirect or consequential damages whatsoever, whether caused or alleged to be caused by Consultant's negligence, errors, omissions, strict liability, breach of contract or warranty, or performance of services under this Agreement.*

### ***Hold Harmless and Indemnification Clause***

The transfer of liability is subject to the position of the party that is attempting to obtain preferential treatment. Sometimes called the Golden Rule, or "He who has the gold makes the rule."

A mutual hold harmless and indemnification clause defines the responsibility of parties to a contract for losses stemming from each party's own negligence. Any broader form of a hold harmless and indemnification clause transfers liability to the one party which is not under its control and should be avoided.

In the sample hold harmless and indemnification clause that follows, the environmental firm is referred to as ECC.

#### ***SAMPLE HOLD HARMLESS AND INDEMNIFICATION CLAUSE***

*ECC agrees to defend, indemnify and hold harmless Client from all claims and reasonable expenses resulting therefrom, including court costs and reasonable attorneys fees, (arising solely from*



*services performed by ECC.) If and to the extent that a subcontractor defends and indemnifies client, ECC shall have no obligation to provide such indemnification. Client agrees to give ECC prompt notice of any claim or action and shall cooperate with ECC, or its subcontractor, in the defense of such claim.*

*Client agrees to defend, indemnify and hold harmless ECC and its subcontractors from all claims and reasonable expenses resulting therefrom, including court costs and reasonable attorneys fees, arising from: (1) environmental conditions whose existence or source was not previously disclosed by Client; (2) the condition of the Client's property; (3) execution of hazardous waste manifests as agents on behalf of the Client; or (4) otherwise arising out of the Client's acts, omissions or breach of warranty or representation hereunder. ECC agrees to give Client prompt notice of any claim or action and shall cooperate with Client in the defense of such claim.*

### ***Discovery of Unanticipated Hazardous Materials Clause***

It is common for certain types of hazardous materials to exist at a site where there is no reason to believe that they should or could be present. The clause of the contract that specifically addresses what happens when unanticipated waste materials are discovered at a construction site is the discovery of unanticipated hazardous materials clause. It might also be referred to in a contract as

the changed condition clause or the differing site conditions clause.

The parties acknowledge that hazardous substances are beyond the scope of the contract and constitute a changed condition requiring either the renegotiation of the contract or the termination of the environmental firm's services. The responsibilities concerning health and safety are stated and the client agrees to indemnify the environmental firm for losses arising from hazardous substances.

The discovery of these materials may also create other issues for your firm. For example, immediate measures may be required to protect human health and your firm may want to notify appropriate environmental agencies.

In the sample discovery of unanticipated hazardous materials that follows, the environmental firm is referred to as ECC.

#### *SAMPLE DISCOVERY OF UNANTICIPATED HAZARDOUS MATERIALS CLAUSE*

*ECC and Client agree that the discovery of unanticipated hazardous materials constitutes a change in the condition of the job site mandating a renegotiation of the scope of work or termination of the project. ECC and Client also agree that the discovery of unanticipated hazardous materials will make it necessary for ECC to take immediate*

*measures to protect human health and safety. ECC agrees to notify Client as soon as practicable if such materials are encountered. Client encourages ECC to take any and all measures that in ECC's professional opinion are justified to protect ECC's personnel and the public. Client agrees to waive any claim against ECC and to indemnify, defend and hold harmless ECC from any and all claims arising out of ECC's encountering unanticipated hazardous materials or suspected hazardous materials. Client agrees to compensate ECC for all costs associated with such an event based upon ECC's prevailing fee schedule.*

### ***Subsurface Structures and Utilities Clause***

Many claims for damages arise out of striking underground electrical, gas, steam, or other utility lines. Buried structures such as underground storage tanks, piping and pumping equipment may also be damaged during drilling or excavation work.

These claims can encompass many different issues such as the cost of repair to the utility or structure; the loss of use of the facilities at the project site or adjoining premises; pollution caused by the damaged utility or structure; or bodily injury due to explosion, fire, or electrocution.

Your firm has responsibility for avoiding damage to these buried structures and utilities. However, liability for these claims may be properly assigned with the use of the subsurface structures and utilities clause.

In the sample subsurface structures and utilities clause that follows, the environmental firm is referred to as ECC.

#### *SAMPLE SUBSURFACE STRUCTURES AND UTILITIES CLAUSE*

*In the performance of the scope of services indicated hereunder, ECC will take reasonable precautions to avoid damaging buried structures and utilities. ECC will offer Client the opportunity to approve all sites for subsurface investigation and/or excavation in the field. Client assumes all liability for claims allegedly arising out of damage to buried structures and utilities that were not called to ECC's attention, which were not properly located on plans furnished to ECC or which were not properly located by locating companies called to the site by or on behalf of Client to identify such structures and utilities.*

#### *Right of Entry Clause*

Your firm must have the legal right of entry to all parcels and property which are part of the project. Numerous claims occur which relate to parts of property to which the environmental firm was not given access. Not surprisingly, unidentified underground storage tanks (USTs) or other environmental contamination are frequently discovered on the parcel of land to which the firm was not allowed access or told it could access at a later date. The right of entry clause states the rights of your firm to enter client property to perform project work.

In the sample right of entry clause that follows, the environmental firm is referred to as ECC.

#### *SAMPLE RIGHT OF ENTRY CLAUSE*

*Client agrees to provide for ECC's right to enter from time to time property owned by Client and/or others in order for ECC to fulfill the scope of services indicated hereunder. Client agrees that any part or parcel of property to which ECC is not provided access will not be subject to claim by Client against ECC under this agreement. Client further understands and agrees that ECC shall not be responsible to pay any costs incurred by Client to correct any damage to the surface of client's property caused by ECC's equipment.*

#### *Ownership of Documents Clause*

Your firm should attempt to control the use of their reports and documents by clients and unrelated third parties to the project. The use of incomplete documents by the client and the use of and reliance upon documents by unrelated third parties may create unnecessary liability for your firm. The ownership of documents clause retains your rights to non-public project documents.

In the sample ownership of documents clause that follows, the environmental firm is referred to as ECC.

## *SAMPLE OWNERSHIP OF DOCUMENTS CLAUSE*

*Client agrees that all original documents and drawings produced by ECC in accordance with this agreement, except documents which are required to be filed with public agencies, shall remain the property of ECC. Client agrees to be liable and responsible for the use of unsigned plans, drawings or other documents not signed by ECC and waives liability against ECC for their use. Further, Client agrees to waive any claim against ECC and to indemnify, defend and hold harmless ECC from any and all claims arising out of any use, not authorized in writing by ECC, of these documents by third parties not related to this agreement.*

### *Standard of Care Clause*

The standard of care that has historically been applied to services provided by environmental firms is that the services be provided in a non-negligent manner. This is judged by comparing the environmental firm's performance to the manner in which other firms would have performed under similar conditions at the same time and place. These services are not guaranteed or warranted. Not every failure in an environmental project that results from the services performed will justify a judgment against the environmental firm based on negligent performance. Sometimes, despite diligent efforts and performance consistent with the appropriate standard of care, a project may fail to perform as intended. The firm, in such an event,

will typically not be liable to the client for damages based on negligence. However, if the firm, in its contract, agrees to be bound by a higher standard of care than a negligence standard or guaranteed or warrants its services, the firm could be liable for breach of contract.

Environmental firms do not generally agree to higher standards or guarantees. Professional errors and omissions insurance policies contain an exclusion barring insurance coverage for damages arising out of warranties and guarantees or for any other damage that is not attributable to negligence.

A construction subcontractor also will be held to an ordinary negligence standard unless it has contractually agreed to a higher standard. Unlike the environmental firm, subcontractors are often called upon to provide express warranties and guarantees of their work.

In the sample standard of care clause that follows, the environmental firm is referred to as ECC.

#### *SAMPLE STANDARD OF CARE CLAUSE*

*Services performed by ECC under this agreement will be conducted in a manner consistent with that level of care and skill ordinarily exercised by members of the profession in the same locality under similar conditions. No other representations, express or implied, and no warranty or guarantee is included or intended in the agreement, or in any report, opinion, document or otherwise.*

## *Health and Safety Clause*

Site safety is a major concern on environmental projects, especially where environmental hazards potentially exist. Although it may be logical that the environmental firm and the subcontractors should each be responsible for their employees, the courts have imposed liability based on the fact that a party had the authority to control the work. A number of cases have held environmental firms liable for injuries to subcontractor's employees on the basis that the environmental firm knew of potential danger and had the authority to prevent it and failed to do so. To avoid a contractual inference of a duty to subcontractor's employees, environmental firms may use a health and safety clause in their contract to help prevent such liability.

In the sample health and safety clause that follows, the environmental firm is referred to as ECC.

### *SAMPLE HEALTH AND SAFETY CLAUSE*

*Insofar as jobsite safety is concerned, ECC is responsible solely for his own and his employees' activities on the jobsite, but shall not be construed to relieve Client, Owner or any construction contractors from their responsibilities for maintaining a safe jobsite. Neither professional activities of ECC, nor the presence of ECC or his employees and subcontractors, shall be construed to imply ECC has any responsibility for methods of work performance, supervision, sequencing of construction, or safety in, on or about the jobsite.*



## *Disposal of Waste Material Clause*

Under Section 107 of the federal Superfund law, a party may have strict liability for releases occurring from disposal or treatment sites that they selected for the treatment or disposal of hazardous wastes. For this reason, it is important that your firm not select the treatment or disposal site on behalf of clients.

It is to your firm's advantage to include a disposal of waste materials clause stating that the client is responsible for selecting disposal sites and making necessary arrangements for disposal of wastes at such a site. Some contracts, however, put this responsibility on the contractor.

In the sample disposal of waste material clause that follows, the environmental firm is referred to as ECC.

### *SAMPLE DISPOSAL OF WASTE MATERIAL CLAUSE*

*ECC is not responsible for the transportation, handling, storage or disposal of hazardous substances or suspected hazardous substances. It is Client's responsibility to select lawful disposal sites and arrange for the proper transportation to such sites. Client is advised that, in all cases, prudence and good judgment should be applied in selecting and arranging for lawful disposal of hazardous or suspected hazardous substances*

## *Alternative Dispute Resolution -- Mediation or Arbitration Clause*

No matter how carefully contracts are written, disputes are inevitable. These controversies seldom involve great legal issues. Consequently, most differences can be settled privately and informally. This is the purpose of Alternative Dispute Resolution (ADR) -- mediation and arbitration. Mediation and arbitration provide several advantages to the parties to a contract and to the environmental firm's liability insurer. Reasons for using ADR include the following.

- **Avoiding Juries** - One of the most immediate reasons for using ADR is the emergence of large jury awards in litigation.
- **Speed** - Prompt scheduling, expeditious procedures, and established time frames may make ADR substantially faster and more flexible than litigation in some cases.
- **Economy** - Many of the costly procedures associated with formal court procedures may be eliminated or reduced with mediation and arbitration. One insurance industry study indicated that the savings may be as much as 75 percent of the cost of litigation.
- **Privacy** - Hearings and awards are private and confidential.
- **Absence of Exemplary Damages** - Some states specifically prevent arbitrators from awarding punitive damages. The nature of ADR makes awards of this type much less likely than in litigation.

- Expertise of Arbitrators - Judges, much less jurors, cannot be expected to be knowledgeable in the highly technical environmental services industry. With arbitration, the decision-makers have experience and expertise in the complex areas of the dispute.

Many times ADR clauses should be more elaborate than the sample that follows, such as including a procedure to select arbitrators, to impose deadlines and to limit discovery.

A sample ADR clause follows.

*SAMPLE ALTERNATIVE DISPUTE  
RESOLUTION CLAUSE*

*If any controversy or claim arises out of or relates to this contract, or breach thereof, and if said dispute cannot be settled through negotiation or mediation, the parties shall submit to arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association, and judgment upon the award rendered by the arbitrator(s) may be entered in any court having jurisdiction thereof.*

## *Negotiation of Risk*

An environmental firm should never accept risk for which it has no control, without negotiation. The firm must take the time to explain to the client that it is the client who has control of the risk and, consequently, it is the client who rightfully should assume a fair portion of the liability. The firm

must explain that assumption of the client's risk by the firm will require that the engineer raise the fee accordingly to cover the cost associated with the transfer of liability. Most clients will agree to assume their share of liability. Those who do not should be refused.

# Communicating



*Record project-related telephone conversations to maintain good project records.*

Whenever possible document all records of communication in writing to reduce your firm's liability exposure. Good written communication provides an excellent project history. Guidelines for important project communications and their documentation are provided in the following subsections:

- Correspondence Control
- Telephone Calls
- Meetings
- Diaries
- Daily Reports
- Trip Reports

## *Correspondence Control*

The project manager should sign all correspondence to the client or other outside sources. Keep copies of both incoming and outgoing correspondence and establish a numbering system to serialize and duplicate correspondence for filing or organizing on your computer system.

## *Telephone Calls*

Record all telephone conversations related to a project on a log of some kind. Bound notebooks may be used for this purpose, but more commonly, telephone record forms are used. Distribute the

Telephone Record Form shown in Figure 1 to all project team members who make or receive project-related telephone calls. File copies of telephone conversation records in the project file. Resist the temptation to scratch notes on a blank notepad during a telephone call; keep a stack of telephone record forms on your desk.

**Figure 1. Record of Telephone Conversation Form.**

<b>ABC &amp; XYZ Engineering</b> Record of Telephone Conversation			
Date:	8/5/2003	Time:	9:45am
Recorded By:	SDB	File Location:	BSED-4
Talked to:	Joe Brown	Company:	CDPHE
		Phone:	800-555-1212
cc:	SDB, DN, MH, File	Updated on:	
Subject: New guidance on BTEX Standards			
State is stating that the BTEX standards are not changing. The 5ppb benzene standard for the site will be the action level.			
SB			

If you have engineers or foremen in the field with cell phones, have them record conversations in bound notebooks written in ink.

## *Meetings*

Prepare an agenda for all scheduled meetings between your firm and the client. Add agendas and meeting minutes to the project files. Clearly identify action items identified in the meeting, the responsible team member identified to complete the action, and a response date scheduled in the meeting minutes. Document decisions reached during the meeting in the meeting minutes. If approval of specific items is required, identify these with the required response date. Include copies of meeting minutes in your firm's central and project files.



*Recordings in daily diaries can be the source of information in daily reports to the client.*

## *Diaries*

Field management and inspectors should keep a daily diary in bound notebooks written in ink with no erasures or pages removed. If an error is made, draw a single line through it and initial. Record all significant project happenings of each day in the diary.

## *Daily Reports*

Keeping in touch with the client during a project can sometimes be difficult. Once you start a project there are so many things to do it seems that

the last thing you need is to bother your client with unnecessary details. While many clients prefer not to be bothered, it is critical that you establish the communication rules between you and the client during the project. One of the best communication methods is the Daily Report.

Sending clients Daily Reports is a simple, cost-and-time effective method of keeping the client and other interested parties apprised on the status of the project. Accurate Daily Reports are a good record of the day-to-day activities on a project. If you are having problems with a subcontractor, having a good record in the Daily Report could help support a backcharge claim.

The Daily Reports can also be good motivators. The field engineer or foreman who is responsible for writing the report is keenly aware of who is reading the report. Nobody likes to report bad news so there is some motivation for the field engineer to keep the project rolling along.

Copying the client with the Daily Reports and keeping him or her apprised about project issues is paramount. If the client's conduct raises questions of legality or subverts sound design or construction practice, the Daily Report can help to demonstrate the engineer or contractor was acting at the direction of the client. This documentation does not preclude the duty of the engineer or contractor to inform the client of unsound practices.



## *Trip Reports*

All client-related travel should be followed within 3 or 4 days with a written trip report. File copies of trip reports in your firm's central and project files.

## MAINTAINING QUALITY



*Quality control is imperative to maintaining a good image and avoiding mistakes that can result in a claim against your firm and damage to your reputation.*

Quality controls are those actions taken to maintain a level of quality that is consistent with the project objectives and client requirements. Quality assurance is an audit function implemented to verify that quality control checks are taking place and are properly documented. This section addresses avoiding risks associated with quality control and quality assurance for environmental projects.

All project team members should have the ability to perform their own quality control activities. The easiest thing that a project team member can do to improve the quality of work and decrease liability is to make sure that all calculations and documents are reviewed by senior personnel prior to submittal to a client or agency. Senior personnel review the item for consistency with the scope of work, calculation errors if applicable, liability concerns, and regulatory compliance.

### *Calculations*

All environmental firms should have a review process by which they have all calculations checked by peers and senior personnel. The specifics of checking calculations depends on the type of work being engineered or estimated. If your firm does not have calculations review guidelines, develop and document the methods that you will use. At a minimum, calculation review should have the following components:

- Statement of what is required
- Given data
- Assumptions
- Solution - list steps required to obtain solution, including all formulae and references and attach references
- Brief summary of results of analyses

### *Documents and Drawings*

As appropriate, all environmental project documents and drawings should be reviewed for special areas of concern or compliance. Record these formal reviews as they take place.

## MAINTAINING HEALTH & SAFETY



*Take a close look at your health and safety procedures to be sure that you meet applicable OSHA requirements for the work your firm performs.*

Health and safety is a critical aspect of any environmental firm and cannot be ignored. By law, health and safety training is required for all employees who work in the field in and around potentially hazardous situations or materials. Occupational Safety and Health Administration (OSHA) regulates worker safety and failure to comply with OSHA can result in heavy fines and shut-down of operations.

If you will be doing work in hazardous environments, obtain health and safety advice from competent internal or external experts. At a minimum, your firm should have a company health and safety plan.

If your firm is involved in hazardous waste operations, then typically a site-specific health and safety plan is required for each project which will involve potential exposures to OSHA-listed hazardous materials. There may be specific requirements for other potentially hazardous conditions not related to hazardous material. For example, if a worker enters a confined space, OSHA has numerous regulations to assure a safe working condition. Confined spaces can be extremely dangerous and failure to follow OSHA regulations can result in a worker's death. Fines for violations of the confined space regulations are very stiff and OSHA is not likely to be lenient to firms who violate these rules.

Another area that OSHA stringently regulates is trenching. OSHA requires that a trained individual, or “competent-person” oversee trenching operations where workers have the potential to be covered or buried by dirt in the event of a collapse. Generally, any trench that is greater than 3 feet in depth requires following specific OSHA trenching rules. If you are bidding on a project that will involve deep trenching, account for the cost of worker safety during trenching operations. Environmental firms that fail to allocate cost for trenching safety can find the costs of shoring or cutting back slopes very expensive.

# COMPLETING THE PROJECT



*Punch lists are important for completing any project - do not be satisfied until every item is checked off your list!*

This section provides guidelines for the following three aspects of project completion:

- Punch List
- Project Start-up
- Release and Waivers

## *Punch List*

The final 5 percent of the project seems to take the most effort to complete. Preparing a punch list and addressing each item is essential to the project success. The longer items linger on the punch list, the more difficult and potentially costly they will be to complete.

When the project is nearing completion, discuss with the client the last portion of work to be completed. Develop your own punch list and compare the punch list with the client's expectations for completion. If necessary, jointly prepare the punch list with the client. Be sure that the punch list conforms to the scope of work for the project. After the punch list is developed, prioritize the items that require completion before others. Ensure that each item is completed. Once the items are complete, meet with the client for their sign-off.

## *Project Start-up*

Ideally start-up should not occur until the punch list items are complete. Start-up is an exciting and

anxiety-causing time. Will the project work? Are there construction flaws that will manifest themselves during start-up? You will never know until the project is started. Prior to start-up, have your key subcontractors available to fix minor problems during start-up. Their availability during start-up should be negotiated into the scope of work. A simple leaky valve is easily corrected by the subcontractor. Resist the temptation to fix small problems yourself because if there is a problem or your “fix” creates another problem, your firm could be liable to fix the problem. Of course the engineer has ultimate authority over the site; however, you hired subcontractors because they are competent in the trade. Do not circumvent their expertise.

### *Releases and Waivers*

Releases and waivers are important so that a subcontractor does not try to charge you for additional costs, or worse, issue liens. Waivers are similar to a release except they are between your firm and the subcontractor.

A release is simply a form which states that the environmental firm has satisfactorily completed work at the site and that the client releases the subcontractor from all the obligations of the contract. It means the subcontractor has finished the work. If you have done a good job, the client will be happy to sign the release form. If there are problems, they need to be addressed so that the release can be signed. Failure to get a signed release can result in mechanics liens against you or your equipment - a situation you want to avoid.

## OBTAINING PERMITS AND INSPECTIONS



*Having a good relationship with regulators is paramount to keeping your project progressing smoothly.*

Getting a permit for a project can be frustrating. Many times there are lengthy delays and clarifications which seem to take more time than the project itself. Carefully plan and schedule permits for a project to reduce these delays. Before you need a permit, have someone in your firm determine local permit requirements and the permitting process. Obtain all the necessary forms and identify key contacts at the permitting agencies. Many jobs are unnecessarily delayed because some odd permitting requirement was not known prior to submitting your permit application. Many clients will not care if you did not plan the permitting process adequately; they assume that as a professional in your field, you understand the permitting process.

When selecting a subcontractor, consider selecting a subcontractor that has experience in the city or town where your project is located. Local subcontractors will likely understand the permitting process and the effort required to obtain the permit. Many projects have a variety of permits, or at least require sign-off from various agencies. Be sure that all your subcontractors are aware of the permitting requirements. Make permitting requirements a portion of your contract and impose penalties on subcontractors for failure to meet start-up schedules.

Know the inspection regulations before you start your schedule. If possible share your schedule



with local inspectors and keep them apprised of your progress. Although the availability of inspectors varies, it is best to provide at least 48-hours notice, if possible, to get an inspection. When the inspector arrives, be ready for the inspection. If the inspector is expecting to look at a completed phase of work, have it done or risk delaying the project because the inspector cannot get back to the site until next week. Be courteous and professional. Note any deficiencies that are identified and promptly correct them.

## BILLING



*A frequent result of a suit for fees is a counterclaim for failing to provide the expected services. Explore all options before the suit is filed.*

Billing can seem to be a contentious issue. No one enjoys calling a client about a late payment on an invoice, but it is imperative that all project managers understand the concept and importance of accounts receivable. For many environmental firms, consistent cash flow is critical and the importance of getting paid in a timely manner must be impressed on every project manager.

Environmental firms typically do not view themselves as accountants or collection agents, but their technical staff play a crucial role in getting clients to pay their invoices. The project manager's relationship with a client is often the most important link in getting paid. The project manager, in many cases, understands how the client operates and reacts to an invoice. Because the project manager will be the person most likely to discuss billing questions with the client, it is very important that he or she understand the billing and collections practices of your firm.

To maintain a high rate of collections, you should establish a formal system for monitoring open balances and accounts receivable and clearly defined collection procedures.

One of the problems in collecting aging invoices is that project managers do not address the problem directly. The unpleasant task of contacting clients for payment makes procrastination easy. The best advice is to address nonpayment problems promptly.

Make sure you know the real reason why the client has not paid the bill. Reasons can vary from dissatisfaction with the work performed to a lack of available funds. Once the real reason has been identified, payment strategies can be tailored to address the reason. If your client is short on funds, repeated calling will only exacerbate the client's discomfort. Consider offering the client a payment plan as a partial payment is better than no payment. Good clients will eventually pay their bills and they will remember your firm in the future if you work with them in a respectful and understanding manner. As understanding and patient as you may be, in the end your firm may have to consider hiring a collection agency, or filing suit.

The following sections provide guidance to assist your firm with billing issues:

- Screen Potential Clients
- Billing Tips for Engineering Firms
- Regular Billing
- Billing Situations to Avoid

### *Screen Potential Clients*

Develop written guidelines for accepting clients. Include a basic profile of a client that the firm does and does not want. These guidelines can include background and reference checks of potential clients. Client financial records can be cheaply obtained from agencies like Dun & Bradstreet. Learn to analyze these statements and screen potential clients that may cause you payment problems in the future.

In small to medium size firms, adopt the "two partner rule" whereby at least two partners must approve all new clients. In larger firms, a new business committee should be established to review and approve new clients.

### *Billing Tips for Engineering Firms*

The topic of consulting fees and billings is relevant to effective client relations since a significant number of claims emanate from either fee disputes or from client dissatisfaction with some aspect of the firm's fees or billing procedures. The use of effective billing and collection procedures will reduce the firm's exposure and will also provide other benefits to the firm.

Your firm's invoice reflects the way that you do business. A clear, concise, and professionally prepared invoice presents a good image. A clear invoice also increases the chances that you will be paid. View your invoice as an important marketing tool.

Communication is the key in successful billing. Ensure before the project starts that the client understands that he is paying for more than just an environmental firm's time. Items like computer and long-distance phone charges need to be clearly communicated early in the project. You do not want to learn that your client has a policy of not paying for cellular phone charges after the invoice has been sent. Make sure that all items to be billed are clearly explained to the client prior to starting the project.

Invoices that contain no explanation usually create tension with the client. The best approach may be to ask each client what items they want documented on the invoice, and how they want them presented. Many clients require that very specific information be itemized on their invoices for corporate or tax reporting purposes. It is the responsibility of the project manager to discuss these issues with the client and present him or her with the invoice that they require. Examples of invoice detail include time records, copies of invoices from outside vendors, equipment records, and even copies of expense reports.

Identify and meet your client's needs with your billing. Match your billings to your client's budget or cash flow whenever possible. Your client will appreciate your efforts to make their bill paying easier and strengthen your relationship with your client.

The following items should be clearly understood and agreed to by the client before the project starts and at the beginning of billing on the invoice:

- Fee structure - what the fee is based upon or how it is calculated.
- Explanation of additional types and amounts of expenses that client is responsible for items such as travel time, supplies, computer time, copying charges, and other expenses.
- The frequency and type of billing.
- Discounts for early bill payment, for example a 2 percent discount if the invoice is paid within

10 days of invoicing, which is sometimes referred to as “2/10, net 30” billing.

- Due date for payment of bills and terms for late payments.

### *Regular Billing*

Effective periodic billing is crucial since it enables clients to budget and pay for moderate bills.

Monthly seems to be the optimal period. From an accounts receivable standpoint, frequent periodic billing enables your firm to identify a collection problem and address it before it gets out of hand.

Standardize invoices and include the following items:

- Total amount of bill
- Dates work was performed
- Breakdown of billing amounts by hour or by work performed with clear and complete description of work performed
- Breakdown of services and supplies used in the performance of the project as required by the client
- The total hours, rate, and name of each employee that worked on the project with rates that match the rates that were presented to the client in your proposal or contract
- Any service or handling fees

## *Billing Situations to Avoid*

Make sure that all invoices are accurate and include all relevant information. Sloppy billing practices lead to client perception that work performed was sloppy. Make sure that the invoice is sent to the correct person in the client's organization. Sending bills to a wrong party and/or wrong address can cause client confidentiality breaches and other embarrassing situations.

Avoid "runaway bills." If a project appears to be going over budget, it is the project manager's responsibility to quickly inform the client of the situation. Before calling the client, have a project completion budget in hand. Avoid sending one large bill at the end of the project. If it appears that one invoice will be larger than the other invoices during a project, inform the client before sending the larger invoice. Avoid extending credit to clients. Let the bank or finance company handle the loan business.

Mail or present the final invoice with a cover letter that serves as a tactful disengagement letter and also as a thank you letter to the client for using your firm's services. An evaluation survey form can also be included in this mailing. The cover letter should clearly state that this is the final bill, and should mention that the firm is available to perform services in the future if needed by the client or anyone the client can refer.

UNDERSTANDING & MANAGING RISK:  
A HANDBOOK FOR ENVIRONMENTAL  
CONSULTANTS AND CONTRACTORS

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*APPENDIX A*

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EXAMPLE BID/NO BID FORM





## APPENDIX A

### *Example Bid/No Bid Form*

This appendix provides an example of a form in Figure A-1 to use to determine if your firm should bid on a business opportunity. If you use this type of form your bidding decision will be consistent and documented.

**Figure A-1. Bid/No Bid Form.**

## BID/NO BID FORM

Client: \_\_\_\_\_ Date: \_\_\_\_\_

Procurement Name: \_\_\_\_\_

Contract Value: \_\_\_\_\_ Proposal Due Date: \_\_\_\_\_ Estimated Proposal Cost: \_\_\_\_\_

Proposal Type:      ( ) RFP                      ( ) SOQ                      ( ) OTHER  
                                  ( ) WE ARE THE PRIME                      ( ) OTHER SUB(S)                      \_\_\_\_\_  
                                  ( ) WE ARE THE SUB                      ( ) OTHER PRIME:                      \_\_\_\_\_

#	Category	Possible Points					Points
		5	4	3	2	1	
1	What is the client's knowledge about our company?	We are the incumbent	We are a former client	We have marketed this prospective client	We are not well known to the client	We have never marketed this prospective client	
2	What is the client's perception of our company?	The client perceives us as outstanding	We are well respected	The client is indifference to us	We are unknown to the client	We are not well respected by the client	
3	Do we have applicable project/scope experience?	Identical experience with this client	Identical experience with this client	Similar experience with this client	Similar experience with this client	No experience with this type of project	
4	Do we have staff with applicable experience with scope/project?	Identical experience with this client	Identical experience with this client	Similar experience with this client	Similar experience with this client	No experience with this type of project	
5	Do we know the proposal decision makers?	Yes and they favor our company	Yes and we have marketed them	We know who the decision makers are	We know some of the decision makers	We do not know any decision makers	
6	Do we have the technical/proposal staff available to complete the proposal on time?	All personnel are ready and prepared to work on this proposal	All personnel are available to work on this proposal	Some personnel are available to work on this proposal	Limited personnel are available	We have little or no time to work on this proposal	
7	What is the strategic value of this proposal to our company?	Not submitting will eliminate our company from future opportunities in this area	Not submitting may eliminate our company from future opportunities with this client	Submitting may position our company for future opportunities	Not submitting can be explained by our work load	Not submitting has no effect on our strategic position in this market	
8	How do we compare to our competition?	Strongly favored	We understand client and we are favored	We understand client but there is stiff competition	The incumbent is strongly favored	Not marketed; competition unknown	
9	What are the costs factors to winning the project?	Client is willing to negotiate a winning price	We are willing to bid a competitive price	We will attempt some risk through discounted rates	We will accept little risk through discounted rates	We are not willing to discount	
10	What is our chance of winning?	90 – 100%	50 – 90%	25 – 50%	10 – 25%	<10%	
11	What is the proposal cost?*	<2% of revenue	2 – 5% of revenue	5% of revenue	5 – 8% revenue	>8% of revenue	
12	Will we need subcontractors and are they available?	Current, well known subcontractor is available	Well known subcontractor who is marginally available	Known subcontractor is available	Unknown Subcontractor is available	Unknown subcontractor is marginally available	
TOTAL POINTS							

### Scoring Guidelines

>49 If concurrence by all parties on a winning strategy, Bid.  
 35-49 Potential No Bid: Obtain manager's approval before a Bid decision may be made.  
 >35 No Bid: Must obtain Regional Manager's approval to Bid.

	<b>Bid</b>	<b>No Bid</b>	
Recommended By _____	_____	_____	Date _____
Authorized By _____	_____	_____	Date _____

UNDERSTANDING & MANAGING RISK:  
A HANDBOOK FOR ENVIRONMENTAL  
CONSULTANTS AND CONTRACTORS

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*APPENDIX B*

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EXAMPLE SUBCONTRACTOR  
QUESTIONNAIRE



## *APPENDIX B*

### *EXAMPLE SUBCONTRACTOR QUESTIONNAIRE*

This appendix provides an example of a form in Figure B-1 to use to prequalify subcontractor and learn the capabilities of subcontractors in your area.

**Figure B-1. Subcontractor Questionnaire.**

SUBCONTRACTOR QUESTIONNAIRE			
Name of Business: _____			
Address: _____			
City/State _____	Zip Code _____		
Province _____	Country _____		
Contract _____	Position _____		
Telephone Number: (     ) _____	Fax Number: (     ) _____		
<b>A. ORGANIZATION</b>			
1. Indicate your type of business organization:			
a. <u>Corporation</u> . List names of officers.			
President: _____		Secretary: _____	
General Manager: _____		Treasurer: _____	
Place of Incorporation: _____		Date: _____	
b. <u>Partnership</u> List names of partners. If partners are companies, provide the information requested completed by each company of the partnership and describe the participation of each company.			
_____			
c. <u>Sole Owner</u> . Name: _____			
2. What is the construction experience of the principal individuals of your organization?			
a. Individual's Name: _____			
Present Position or Office: _____			
Years of Construction Experience: _____			
Typical Dollar Amount and Type of Work for Which Responsible: _____			
In What Capacity? _____			
b. Individual's Name: _____			
Present Position or Office: _____			
Years of Construction Experience: _____			
Typical Dollar Amount and Type of Work for Which Responsible: _____			
In What Capacity? _____			
c. Individual's Name: _____			
Present Position or Office: _____			
Years of Construction Experience: _____			
Typical Dollar amount and Type of Work for Which Responsible: _____			
Individual's Name: _____			
In What Capacity? _____			
3. Date Business Founded: _____ Under Present Management Since: _____			
4. Net Worth: _____ Dun & Bradstreet Rating: _____			
Include Financial Statement: _____			
5. State revenue and net profit for the last 5 years?			
19 _____		19 _____	
19 _____		19 _____	
19 _____		19 _____	
6. Indicate the minimum and maximum job cost range within which you prefer to tender.			
Minimum: _____		Maximum: _____	
7. List the following generic information. (Attach an extra sheet if required).			
a. Banking References: _____			
b. Bonding Surety Company: _____			
c. Bonding Capability: _____		Dollar Limit: _____ Fee Basis: _____	
8. Indicate the number of permanent employees on your payroll?			
Graduate Engineers: _____		Office: _____	
Draftsmen: _____		Other (Explain) _____	
Field Supervisors: _____		_____	
Total Employees _____		_____	
Page 1 of 2			

## Figure B-1. Subcontractor Questionnaire (Continued).

### SUBCONTRACTOR QUESTIONNAIRE (CONTINUED)

9. Do you use your own employees for site supervisory positions, or are they hired for specific jobs?

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#### B. INSURANCE

Please state your current insurance coverage.

General Liability	_____	limits
Pollution Liability	_____	limits
Professional Liability	_____	limits

#### C. PROPOSAL INTEREST

1. List classes of work in which you are interested.

2. If you plan to bid as apart of a Joint Venture, indicate the name, or names, of your collaborator(s)

\_\_\_\_\_

List types of work you usually subcontract to others.

What is the limit on the dollar amount of a contract you can handle? \$ \_\_\_\_\_

#### D. EXTRA

State your company's philosophy on extra cost claims: \_\_\_\_\_

#### E. OTHER OFFICES

Attach list of sales offices, representative, or contacts that are authorized to act on behalf of your organization, indicating addresses and telephone numbers.

#### F. WORK HISTORY

1. List jobs completed, including contract amounts (Attach an extra sheet if required.)

2. List the important jobs completed by your firm within the last 5 years, including contract amount. (Attach an extra sheet if required.)

3. List the major projects now underway or committed for at the present time, including contract amount (Attach an extra sheet if required.)

4. List any other "special" jobs you want to bring to our attention.

#### G. EQUIPMENT

Attach a list of the owned equipment, capacity, age, type, attachment.

#### H. MINORITY BUSINESS

1. Are you considered a minority contractor?: \_\_\_\_\_
2. If the possibility presents itself, would you work in a joint venture with a minority? \_\_\_\_\_

This Questionnaire Completed By:

Printed Name: \_\_\_\_\_

Title: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_





UNDERSTANDING & MANAGING RISK:  
A HANDBOOK FOR ENVIRONMENTAL  
CONSULTANTS AND CONTRACTORS

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*APPENDIX C*

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BID PACKAGE AND CONTRACTOR  
CONTRACT



## *APPENDIX C*

### *BID PACKAGE AND CONTRACTOR CONTRACT*

This appendix provides an example of a bid page and contractor agreement consisting of the following elements:

- Bid Request Letter
- Section 1 Instructions to Bidders
- Section 2 Bid Letter
- Section 3 Service Contract
- Section 4 Bid Submittals
- Section 5 Scope of Work

March 1, 2003

Mr. Joe Johnson  
ABCD Environmental Services, Inc.  
1000 E. Main, Suite 200  
Anytown, USA 10000

Subject: Bob's Power and Industrial Systems  
Bid for Contract No. 38149-001-019, Soil Remediation - Request for Bids

Dear Mr. Johnson:

XYZ, INC., on behalf of Bob's Power and Industrial Systems (BPIS), is requesting bids for remediation of hydrocarbon impacted soils at their facility located at 1000 Highway 2, Wyoming. Barring weather or changes to the enclosed Scope of Work, BPIS would like to commence site work on April 13, 2003 and must be completed by April 17, 2003.

BPIS is in the process of terminating their lease of a property located at 1000 Highway 2, Wyoming. As a corporate policy, BPIS initiated lease close-out procedures which included a detailed environmental assessment of the property. During the environmental assessment, BPIS discovered, on the east side of the building, a small area of soil stained with used oil in an area where used oil was stored. On discovery of the impacted soil, BPIS contacted the Wyoming Department of Environmental Quality (WDEQ) to develop an approach to remediate the soil.

In cooperation with WDEQ, BPIS will remediate the used oil under the State Voluntary Corrective Action (VCA) program. The Scope of Work and attached corrective action plan details the work to be completed to meet the requirements of the VCA.

Please find enclosed for your use in preparation of your bid the following documents:

- ◆ Section 1 Instructions to Bidders
- ◆ Section 2 Bid Letter
- ◆ Section 3 Contract Agreement
- ◆ Section 4 Submittals
- ◆ Section 5 Scope of Work
- ◆ Exhibit A – Bid/No Bid Decision Form
- ◆ Exhibit B – Bid Package and Contractor Agreement

Any questions regarding the content of this proposal can be faxed to 303-299-7901, attention Mr. Joe Smith. Telephone calls are discouraged.

Please submit your completed bid and qualifications to the attention of Mr. Smith by Thursday, March 26, 2003 at 4:30 p.m. Any bids which are late, or deemed nonresponsive by BPIS or XYZ, INC. will not be accepted. All bids will be privately opened and the contract awarded by Friday, March 27, 2003.

Sincerely,  
XYZ, INC.

Joe Smith  
President

JS:thas

## SUBCONTRACTOR QUESTIONNAIRE

Name of Business: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 City/State: \_\_\_\_\_ Zip Code: \_\_\_\_\_  
 Province: \_\_\_\_\_ Country: \_\_\_\_\_  
 Contract: \_\_\_\_\_ Position: \_\_\_\_\_  
 Telephone Number: ( ) \_\_\_\_\_ Fax Number: ( ) \_\_\_\_\_

### A. ORGANIZATION

1. Indicate your type of business organization:
  - a. Corporation. List names of officers.
 

President: _____	Secretary: _____
General Manager: _____	Treasurer: _____
Place of Incorporation: _____	Date: _____
  - b. Partnership List names of partners. If partners are companies, provide the information requested completed by each company of the partnership and describe the participation of each company.  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
  - c. Sole Owner. Name: \_\_\_\_\_
2. What is the construction experience of the principal individuals of your organization?
  - a. Individual's Name: \_\_\_\_\_  
 Present Position or Office: \_\_\_\_\_  
 Years of Construction Experience: \_\_\_\_\_  
 Typical Dollar Amount and Type of Work for Which Responsible: \_\_\_\_\_  
 In What Capacity? \_\_\_\_\_
  - b. Individual's Name: \_\_\_\_\_  
 Present Position or Office: \_\_\_\_\_  
 Years of Construction Experience: \_\_\_\_\_  
 Typical Dollar Amount and Type of Work for Which Responsible: \_\_\_\_\_  
 In What Capacity? \_\_\_\_\_
  - c. Individual's Name: \_\_\_\_\_  
 Present Position or Office: \_\_\_\_\_  
 Years of Construction Experience: \_\_\_\_\_  
 Typical Dollar amount and Type of Work for Which Responsible: \_\_\_\_\_  
 Individual's Name: \_\_\_\_\_  
 In What Capacity? \_\_\_\_\_
3. Date Business Founded: \_\_\_\_\_ Under Present Management Since: \_\_\_\_\_
4. Net Worth: \_\_\_\_\_ Dun & Bradstreet Rating: \_\_\_\_\_  
 Include Financial Statement: \_\_\_\_\_
5. State revenue and net profit for the last 5 years?
 

19 _____	19 _____
19 _____	19 _____
19 _____	_____
6. Indicate the minimum and maximum job cost range within which you prefer to tender.  
 Minimum: \_\_\_\_\_ Maximum: \_\_\_\_\_
7. List the following generic information. (Attach an extra sheet if required).
  - a. Banking References: \_\_\_\_\_
  - b. Bonding Surety Company: \_\_\_\_\_
  - c. Bonding Capability: \_\_\_\_\_ Dollar Limit: \_\_\_\_\_ Fee Basis: \_\_\_\_\_
8. Indicate the number of permanent employees on your payroll?
 

Graduate Engineers: _____	Office: _____
Draftsmen: _____	Other (Explain) _____
Field Supervisors: _____	_____
Total Employees _____	_____

### SUBCONTRACTOR QUESTIONNAIRE (CONTINUED)

9. Do you use your own employees for site supervisory positions, or are they hired for specific jobs?

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#### B. INSURANCE

Please state your current insurance coverage.

General Liability	_____	limits
Pollution Liability	_____	limits
Professional Liability	_____	limits

#### C. PROPOSAL INTEREST

1. List classes of work in which you are interested.

2. If you plan to bid as apart of a Joint Venture, indicate the name, or names, of your collaborator(s)

\_\_\_\_\_

List types of work you usually subcontract to others.

\_\_\_\_\_

What is the limit on the dollar amount of a contract you can handle? \$ \_\_\_\_\_

#### D. EXTRA

State your company's philosophy on extra cost claims:

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#### E. OTHER OFFICES

Attach list of sales offices, representative, or contacts that are authorized to act on behalf of your organization, indicating addresses and telephone numbers.

#### F. WORK HISTORY

1. List jobs completed, including contract amounts (Attach an extra sheet if required.)

2. List the important jobs completed by your firm within the last 5 years, including contract amount. (Attach an extra sheet if required.)

3. List the major projects now underway or committed for at the present time, including contract amount (Attach an extra sheet if required.)

4. List any other "special" jobs you want to bring to our attention.

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#### G. EQUIPMENT

Attach a list of the owned equipment, capacity, age, type, attachment.

#### H. MINORITY BUSINESS

1. Are you considered a minority contractor?: \_\_\_\_\_
2. If the possibility presents itself, would you work in a joint venture with a minority? \_\_\_\_\_

This Questionnaire Completed By:

Printed Name: \_\_\_\_\_

Title: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

**SECTION 2**  
**BID LETTER**

To: XYZ, INC., OWNER'S REPRESENTATIVE

For: \_\_\_\_\_

Subject: \_\_\_\_\_

The undersigned hereby proposes to enter into a contract for the performance of the WORK will be performed in accordance with the provisions of CONTRACT NO.38149-001. If awarded, said WORK will be performed in accordance with the provisions of CONTRACT NO. 98149-001, as modified by any special provisions or clarifications accompanying this Bid and at the prices set forth for each item herein below.

Attached hereto and made a part of the Bid, by reference, are the following documents:

- 2-1 Schedule of Prices
- 2-2 Unit Price Information for Extra Work
- 2-3 Bidder's Proposed Equipment Listing
- 2-4 Bidder's Experience Documentation

Bid Dates:

\_\_\_\_\_  
Owner

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Type or Print Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Bidder's Address and Phone Number

\_\_\_\_\_  
Bidder's State of Incorporation

\_\_\_\_\_  
Bidder's Contracting License Number

\_\_\_\_\_  
License Expiration Date

Initials\_\_\_\_\_

2-1



**2.1 SCHEDULE OF PRICES**

**(List the Schedule of Prices)**

Initials: \_\_\_\_\_

2-2

## 2.2 UNIT PRICE INFORMATION FOR EXTRA WORK (Force Account)

Full compensation for any and all extra work which is not covered under Section 5 Scope of Work, or as previously provided will be paid for on a force account basis using the following rates. All force account work will have the written approval of the OWNER'S REPRESENTATIVE prior to commencement of the work. Overhead and profit will be distributed in each of the prices below.

Bidder is to complete the following or attach a copy of Bidder's Labor Rates.

### A. LABOR RATES

Item	Craft	Gross Hourly Straight Time Rate	Gross Overtime Rate (all inclusive)
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			

Initials\_\_\_\_\_

2-3

**B. EQUIPMENT RENTAL RATES**

Bidder is to complete the following or attach a copy of Bidder's Rental Rates as requested below.

Item	Equipment Description	Capacity Size or HP	Rental Rate	Standby Rate
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				

Any equipment not listed above, but required to properly perform the WORK, will be provided by CONTRACTOR according to the following formula:

\_\_\_\_\_ (e.g., \_\_\_\_\_ percent of DataQuest Blue Book)

Initials \_\_\_\_\_

## 2-5 BIDDER'S PROPOSED EQUIPMENT LISTING

The Bidder proposes to use the following equipment for this project.

[illegible]

Use additional sheets if necessary.

Initials\_\_\_\_\_

2-5

**SECTION 3  
SERVICE CONTRACT  
BETWEEN  
XYZ, INC. AND CONTRACTOR**

**3-1 PARTIES TO CONTRACT**

This Contract is made on March 31, 2003, between XYZ, INC. (hereinafter XYZ, INC.), and ABCD Environmental (hereinafter Contractor). The period of performance of this Contract shall be from March 31, 2003 through June 30, 2003.

**3-2 SCOPE OF WORK**

Contractor represents itself to be experienced and competent to perform the services under this Contract as set forth in Section 5, Scope of Work. These services are in connection with XYZ, INC.'s engagement by Bob's Power and Industrial Systems (Client), and are to be rendered in partial discharge of that engagement and in accordance with the terms thereof. Contractor agrees to be bound by the terms of the Client-XYZ, INC. contract with respect to performance of this XYZ, INC.-Contractor Contract, except as otherwise expressly provided herein.

**3-3 COMPENSATION**

- A As compensation for all services satisfactorily rendered by Contractor for XYZ, INC. pursuant to this Contract, XYZ, INC. agrees to pay Contractor as set forth in Section 2, Bid Letter.
- B Contractor, at Contractor's expense, shall pay all taxes and other expenses incurred by reasons of the job or work to be performed by Contractor, including but not limited to all sales and use taxes, licenses, fees, and personal property taxes, and all employment taxes or contributions imposed by any law or trade union contracts or regulations.
- C All statements rendered to XYZ, INC. by Contractor shall indicate the number of hours worked, date worked, and such additional information as XYZ, INC. shall reasonably request. The compensation shall in no event exceed \$11,500.00 without express written approval by XYZ, INC. The compensation provided for in this Article 3 shall be the total consideration to Contractor, and shall include all of Contractor's expenses incurred in rendering the services.

**3-4 PERFORMANCE OF SERVICES**

Contractor agrees to render its services at such time and places as XYZ, INC. may reasonably request. Contractor shall render services only upon the specific request of XYZ, INC. Contractor shall not be entitled to compensation for any services rendered in excess of those specifically requested by XYZ, INC. XYZ, INC. may modify any prior request for services at any time. Contractor shall give immediate notice where any event occurs or conditions arises which the Contractor considers to constitute a basis for any modification of this Contract. XYZ, INC. and Contractor shall mutually agree on cost and completion date adjustments suitable for any such modification.

### **3-5 DELAYS**

Neither XYZ, INC. nor Contractor shall be liable for default or delay under this Contract caused by acts of God, or other events beyond the control of such party. Such acts or events shall include storms, floods, fires, epidemics, war, riot, strikes, lockouts, or other labor disputes, and acts of the government, its agencies or officers, federal, state, or local.

### **3-6 SUSPENSION OF SERVICES**

XYZ, INC. may suspend performance of services hereunder at any time by written notice to Contractor. All suspensions shall extend the Contract completion date commensurately. XYZ, INC. shall pay Contractor necessary and reasonable costs incurred by Contractor directly attributable to the suspension in addition to other compensation provided for by this Contract.

### **3-7 TERMINATION FOR DEFAULT**

XYZ, INC. may terminate this Contract by written notice to Contractor of any of the following events:

- A. Contractor fails to commence its services hereunder, or any portion thereof, within the specific time, or fails to complete its services within the specified time, or otherwise fails to comply with any term of this Contract or any request of XYZ, INC. made in accordance with its terms, provided that XYZ, INC. has given Contractor written notice of such failure and Contractor has not within forty-eight (48) hours remedied such failure, or commenced such remedy and thereafter continuously proceeds to complete such remedy; or
- B. After two prior written notices by XYZ, INC. pursuant to Article 3-7.A Contractor thereafter fails to comply with any term of this Contract or any request of XYZ, INC. made in accordance with its terms; or
- C. Contractor becomes insolvent, petitions for any bankruptcy court proceeding, or has an involuntary bankruptcy proceeding for it filed by any creditor or group of creditors.
- D. In the event of termination under this Article 3-7, no further payment shall be made to Contractor until the services provided for hereunder have been completed by another party or other parties selected by XYZ, INC. and paid for. If the total amount paid to all parties for services contracted for hereunder has been less than the maximum compensation provided for in Article 3-3.C herein, the difference (but not more than the contract amount otherwise earned by Contractor) shall be paid to Contractor; and if said total amount paid to all parties has been more than the maximum compensation, Contractor shall repay the deficiency to XYZ, INC.

### **3-8 TERMINATION FOR CONVENIENCE**

In addition, XYZ, INC. may terminate this Contract by written notice to Contractor in the event client terminates XYZ, INC.'s engagement, or modifies it in such a way to make this Contract inappropriate for accomplishing the modified engagement, or at any other time. In that event,

XYZ, INC. shall pay Contractor for services performed to the effective date of termination plus necessary and reasonable termination charges directly attributable to termination.

### **3-9 PROPRIETARY INFORMATION**

Contractor agrees that, during and after the term of this Contract, it will not directly or indirectly disclose to any third person, nor use for its own benefit or the benefit of anyone other than XYZ, INC., any inventions, discoveries, developments, trade secrets, techniques, methods, processes, formulae, specifications, specialized knowledge, data, records, customer lists or data, or other confidential or proprietary information or ideas of XYZ, INC. or Client, encountered or originated by Contractor and arising out of its rendering services to XYZ, INC.

### **3-10 OWNERSHIP OF MATERIALS AND DOCUMENTS**

All materials resulting from Contractor's or XYZ, INC.'s efforts in connection with this Contract, including documents, reports, calculations, maps, photographs, computer programs, computer printouts, notes, soil samples, specimens, and any other pertinent data are the exclusive property of XYZ, INC. They shall be retained by Contractor for a minimum of three (3) years, and shall not thereafter be disposed of without prior written notice to XYZ, INC. Reuse of these materials by Contractor on projects other than with XYZ, INC. is prohibited without written permission. Contractor agrees to indemnify and hold harmless XYZ, INC. from all claims, damages, and expenses, including attorney's fees, arising out of such unauthorized use by Contractor. Any reuse or adaption of this property occurring with or without XYZ, INC.'s permission shall entitle XYZ, INC. to compensation in an amount to be agreed upon with Contractor.

### **3-11 ACCOUNTING AND AUDITING**

Contractor shall prepare and maintain accounting records in support of all amounts billed to XYZ, INC. Contractor's files and records relating to performance of this Contract and billing therefore shall be subject to audit at all times during the course of the project and for a period of three (3) years after project completion.

### **3-12 SUBCONTRACTING**

The services under this Contract shall be rendered by Contractor, and shall not be subcontracted to be performed by any other party without the prior written consent of XYZ, INC.

### **3-13 INDEPENDENT CONTRACTOR STATUS**

Contractor shall perform its work as an independent contractor. Contractor shall have responsibility for and control over the details of and means for performing the work assigned and shall be subject to the directions of XYZ, INC. only with respect to the scope of work and the general results required. Nothing in this Contract shall be construed to make Contractor or any of its employees or agents to be XYZ, INC. employees or agents.

### **3-14 LIABILITY AND INDEMNITY**

As an independent contractor, Contractor shall respond for its own operations in accordance with the following conditions:

- A Contractor assumes all liability for work to be performed and for breach of any of the terms of this Contract. Contractor agrees to indemnify, hold harmless and defend XYZ, INC. and any and all of its affiliates, partners, directors, officers, agents or employees from and against all loss, injury, damage and legal liability including attorneys' fees and other costs of defense, arising out of any negligent act, error or omission of Contractor, its employees or representatives.
- B Contractor assumes all liability for workers' compensation and employers liability coverage for its own employees.
- C Contractor shall be responsible for and shall hold XYZ, INC. harmless from loss of or damage to Contractor's or its subcontractor's construction tools and equipment and rented items which are used or intended for use in performing work, and for any consequential, special or indirect damages, or loss of anticipated profits sustained by Contractor or its subcontractors, and shall indemnify XYZ, INC. for loss of or damage to Client's or XYZ, INC.'s property intended to be incorporated into or used in the construction while in Contractor's care, custody, or control.

### **3-15 COMPLIANCE WITH APPLICABLE LAWS**

Contractor shall comply with all applicable provisions of federal, state and local equal employment opportunity laws, rules, regulations and orders described in the Client-XYZ, INC. contract and with all other applicable laws, rules, regulations, and orders.

### **3-16 INSURANCE REQUIREMENTS**

Contractor shall maintain in effect at all times during performance of services described in this Contract the following coverages and limits of insurance:

- A. Workers' Compensation and Employers Liability  
Statutory workers' compensation limits required by law and \$500,000 per occurrence employers liability.
- B. Liability Insurance  
The following required liability policies shall be endorsed to include XYZ, INC. and Client as additional insured, and shall also include a waiver of subrogation against XYZ, INC.:



<u>Type of Insurance</u>	<u>Limits Each Accident &amp; Aggregate</u>
1. Comprehensive general (including premises/operations, explosion/ collapse/underground xcu hazards, products/completed operations, independent contractors)	\$1,000,000
2. Automobile (including any owned, non-owned, or hired vehicles)	\$1,000,000
3. Watercraft (if applicable)	\$1,000,000
4. Aircraft (if applicable)	\$1,000,000
5. Professional (if applicable)	\$1,000,000
6. Contractors Pollution (if applicable)	\$1,000,000

Contractor shall maintain the above insurance, or renewals or replacements thereof, for not less than three (3) years after completion of work under this Contract.

Certificates of insurance including additional insured and waiver of subrogation endorsements shall be furnished to XYZ, INC. immediately upon execution of this Contract and prior to Contractor's commencing work. All certificates shall provide not less than thirty (30) days advance written notice to XYZ, INC. prior to cancellation, termination, or alteration of said policies of insurance. All insurers and policy forms must be satisfactory to XYZ, INC.

The foregoing requirements as to types and limits of insurance coverage to be maintained by Contractor are not intended to and shall not in any manner limit the liabilities and obligations assumed by Contractor under this Contract.

### **3-17 GUARANTEE**

Contractor guarantees all work and materials against original defects and against failure under ordinary usage, exclusive of ordinary wear and tear, and under such guarantee Contractor agrees to repair or replace defective work and materials at no expense to XYZ, INC. when notice of defects or failure is given to Contractor within one (1) year from the date of final acceptance of the work by XYZ, INC. Contractor also makes such further guarantees as may be provided in the specifications.

### **3-18 TESTS**

If the specifications, XYZ, INC.'s prior instructions, laws, ordinances or any public authority require any part of the work to be tested or approved, Contractor shall give XYZ, INC. and such public authority, as required, timely notice of its readiness for inspection. If any such part of the work is covered up without XYZ, INC.'s approval or the required approval of public authority, it must be uncovered for inspection at Contractor's expense if directed by XYZ, INC. or such public authority. XYZ, INC. shall have the opportunity of witnessing all tests.

### **3-19 LIENS**

Contractor agrees to furnish, at XYZ, INC.'s request, a list of all fabricators, materialmen, subcontractors, suppliers and workmen involved in Contractor's performance, together with evidence satisfactory to XYZ, INC. that all claims for labor and material have been satisfied and paid and that there are no unsatisfied claims for injuries to persons or properties. XYZ, INC. retains the right to withhold from any payments to Contractor such amounts as XYZ, INC. deems sufficient to protect XYZ, INC. and its property against any claim by Contractor's employees, fabricators, materialmen, subcontractors, suppliers, and workmen which could or may become a lien or claim against XYZ, INC., or the property of either. XYZ, INC. may at any time pay and discharge such lien or claim and deduct the amount so paid, together with costs and attorneys' fees, from any payment then due or thereafter to become due to Contractor. If any lien or claim remains unsatisfied after payment has been made by XYZ, INC., Contractor shall refund to XYZ, INC. the entire sum that XYZ, INC. may be compelled to pay in discharging such lien or claim, together with all costs and attorneys' fees.

### **3-20 DISPUTE RESOLUTION**

- A. Except to the extent it may invalidate or prejudice any insurance coverage of either party; (i) all disputes between the parties arising out of or related to this Contract shall be decided by alternate dispute resolution procedures as mutually agreed, and (ii) in the absence of such agreement, disputes shall be decided by arbitration in accordance with the existing Construction Industry Arbitration Rules of the American Arbitration Association.
- B. Written notice of demand for arbitration must be given to the other party and to the American Arbitration Association within a reasonable time after the dispute has arisen, in no event after the date when the institution of court proceedings based on such dispute would be barred by the applicable statute of limitations.
- C. Unless otherwise agreed by the parties, the arbitration hearings shall be held at 111 South Street, Anytown, USA. Costs of arbitration shall be appointed between the parties as the arbitrator(s) may decide, consistent with the parties' intent that the non-prevailing party should bear said costs.
- D. The award shall be final. The award and this agreement to arbitrate may be specifically enforced by any court having jurisdiction thereof.

### **3-21 SAFETY**

- A. Contractors shall place the highest priority on safety and health during the progress of work. Therefore, it shall be the responsibility of Contractor to provide and maintain a safe working environment for its employees during the progress of work and to adequately protect the health and safety of Contractor's agents and subcontractors and their respective employees, Client's and XYZ, INC.'s employees, the public and any other third parties. All tools, equipment, facilities, and other items used by Contractor, and practices employed by Contractor in accomplishing the work, are considered to be part of the working environment.

- B. Contractor shall provide a health and safety plan for its employees covering any exposure to hazardous materials (as defined in RCRA, 40 CFR, Part 261) shall complete all work in accordance with that plan.

In addition to general health and safety guidelines, Contractor may elect to use the site-specific XYZ, INC. Health and Safety Plan in developing its own plans. In any event, Contractor shall hold XYZ, INC. harmless from, and indemnify it against, all liability in the case of any injury arising out of such use. Contractor shall provide safety equipment in accordance with Health and Safety Plan requirements. When respirators are necessary, Contractor shall provide certificate of respirator fit test and physician's "fit for respirator use" declaration.

Contractor shall appoint one or more of its supervisory personnel to be, at all times during the work, responsible for Contractor's compliance with the safety and health practices and procedures for performing the work covered by this Contract and all applicable governmental laws and regulations.

- C. The requirements of this Article are applicable to all subcontractors hired by Contractor and Contractor's contract with such subcontractor shall provide that subcontractor will be subject to the requirements of this Article.
- D. Article 3-21.A through 3-21.D above are agreed by both XYZ, INC. and Contractor to be of the highest importance. A breach or violation of any of the terms of said paragraphs by Contractor shall be considered to be a material and substantial breach of this Contract. If Contractor fails to promptly take the necessary steps to cure said breach or violation or to otherwise comply with this Article, XYZ, INC. may seek removal of Contractors as provided for in Article 7 and may take any other action permitted by the terms of this Contract or under law including termination of this Contract. Nothing contained in this section of the Contract shall be interpreted as enlarging the legal duty of XYZ, INC. to Contractor or Contractor's agents, employees, subcontractors, or third parties or altering the status of Contractor as set forth in Article 3-13.

### **3-22 ATTORNEYS' FEES**

In the event of arbitration or litigation between the parties to this Contract, all reasonable attorneys' fees and other costs to protect or enforce the prevailing party's rights shall be paid or reimbursed by the other party.

### **3-23 SIGNATURES**

Unless otherwise specified below, the following signatories are the authorized representatives upon whose decisions and information each party may rely in performance of this Contract.

Any information or notices required or permitted hereunder shall be deemed to have been sufficiently given to either party if given to these signatories or to such other parties and/or address as they may subsequently designate.

This Contract is effective the day and year written in Article 3-1.

Contractor

**XYZ, INC.**

\_\_\_\_\_  
Name

\_\_\_\_\_  
Name

\_\_\_\_\_  
Address

\_\_\_\_\_  
Address

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date:

\_\_\_\_\_  
Date:

## **SECTION 4 BID SUBMITTALS**

### **Contractor must provide proof/verification of the following:**

- All personnel working on the project site must have current 40-Hour OSHA Health and Safety training (29 CFR 1910.120). Please provide proof of successful completion of this requirement.
- Health and Safety Plan, as required in Section 3-21 of the AGREEMENT.
- Location of backfill material and specification/gradation certificate. All imported backfill must be free of environmental contaminants.
- Current State of Wyoming Contractor license

## **SECTION 5**

### **SCOPE OF WORK**

In accordance with the terms and conditions of this CONTRACT, the CONTRACTOR is to provide all labor, material, supplies, tools, equipment, and supervision as required by the CONTRACT. The major scope of work items are as follow.

#### **Mobilization**

- Complete Health and Safety Plan
- Construct berm, on the east side of the facility, using clean site soils for temporary stockpile of contaminated soils. Bermed area shall be sized to hold up to 70 yards of contaminated soil. The berm shall be lined with a minimum of 6 mil visqueen. Berms will be of sufficient height to prevent rain water from running-off the stockpile in the event of rain. The stockpile shall be covered with visqueen and anchored at the end of each working day, or as directed by the Field Engineer. At the conclusion of remediation, the area where the berm was located will be recontoured to the pre-existing condition.
- Excavation of approximately 60 yards of used oil impacted soil. Excavation of impacted soils will be directed by XYZ, INC. field engineer. The maximum depth of the excavation is approximately 6 feet. No shoring or deep excavation is anticipated. An overhead crane in the vicinity of the excavated is not expected to interfere with the excavation. A fence where the used oil was stored may have to be removed to gain access to the impacted soils. All excavated soil are to be placed within the bermed area. The Field Engineer will collect soil samples to determine when the excavation is complete. Contractor should assume up to four hours of stand-by-time.
- With Field Engineer's approval, load and dispose of all contaminated soils and visqueen to the Campbell County Landfill. The method of measurement will be 1.4 tons per yards as measured by an certified scale.
- Backfill excavation with certified-clean soils, similar to material excavated at the site. Backfill material shall be placed in 12 inch lifts. Compact soils with vibratory roller or hand tamper. The total quantity of material placed and compacted shall be equal to the total tonnage determined during excavation activities.
- Replace/repair any fencing disturbed during excavating.

**Demobilization**

Other work requested by Field Engineer for which CONTRACTOR is qualified. This work shall be reimbursed for actual labor and equipment hours and materials provided per the unit rates for extra work presented

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CONSULTANTS AND CONTRACTORS

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*APPENDIX D*

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EXAMPLES OF CLAIMS





## APPENDIX D

### EXAMPLES OF CLAIMS

This appendix provides examples of environmental contractor and consultant claims that FEI has reviewed. Factual background on each claim is provided so that you may understand how routine issues become claims. An analysis of the claim is provided when the outcome of the claim is known. Additionally, we have provided claims briefs that have not yet been resolved. The background and conclusion for each claim is provided and several claims are provided for you to discuss with your co-workers to identify ways to prevent these claims.

#### *Excavation Causes Gas Line Rupture*

It is easy to focus on the big picture -- analyzing soil samples, determining the extent of the contamination, developing a remediation plan. However, the inherent hazards involved in simple tasks, such as collecting soil samples, should not be minimized.

#### *Background*

An environmental engineering firm was hired by a major oil company to complete a site assessment to determine the extent of petroleum contamination of soil adjacent to one of the oil company's facilities and on property owned by a local municipality. The municipality was constructing a civil project on the site and was intending to hold the oil company responsible for remediation of contaminated soil.

The engineering firm prepared a sampling plan for the site assessment. Based on the results of the

sampling an excavation plan was developed. The oil company had hired a general contractor to be responsible for the site. This responsibility included the actual excavation of the soil to be used for sampling. The engineering firm assisted the backhoe operator with sample location based upon the established sampling grid map.

During one of the excavations a live gas main was struck. Fortunately, there was no explosion. However, the resulting evacuation of the area resulted in business interruption claims exceeding \$1,000,000 and the repair of the gas line cost \$30,000. The safety of the environmental engineering firm's personnel and the backhoe operator were put in jeopardy.

## *Conclusion*

The contract between the environmental engineer and the Oil Company clearly established that the general contractor would be responsible for locating existing utilities. That firm had assured the environmental engineer that there were no live utilities in the area and the engineering firm had documented that conversation. In addition, the general contractor had hired the backhoe operator and was responsible for the operator's work.

## *Phase I Contractual Relationship Is Limited*

This claim points out the importance of a clear contractual relationship between parties to a transaction no matter how nominal the compensation.

### *Background*

An environmental engineering firm was hired by a pension fund's real-estate department to perform a Phase I audit on a large tract of land that was under consideration for sale or development. The environmental engineering firm completed the project without finding any indications of environmental contamination. However, the firm recommended that further testing should be performed.

A developer who was interested in purchasing the property from the retirement fund approached the environmental engineering firm to discuss the work they had performed at the location. Eventually, the developer purchased a copy of the environmental engineer's report for a nominal sum.

The developer purchased the property and subsequently began grading the site for residential development. During the site preparation work, a previously undiscovered disposal site was located. The developer was required to allocate an additional \$500,000 to the clean up of the environmental contamination and filed suit against the environmental engineering firm to recover the cost of the remediation.

## *Conclusion*

At trial it was determined that the environmental engineering firm could not rely on the limitation of liability clause that was present in their contract with the Pension Fund because the real-estate developer was not a party to that contract. Additionally, it was determined that because a fee was charged for the copy of the report the developer could rely on the environmental engineering firm's professional expertise. As a result, the environmental engineering firm was required to pay a large part of the remediation cost.

## *Be Aware Of Sites With A Long History*

It is important that the consultant understand the type of operations that they will be auditing.

## *Background*

A recent professional liability claim resulted from a consultant who conducted a Phase I Environmental Assessment on a dry cleaning facility. The consultant was hired by the prospective owner to determine if there was any existing contamination at the property prior to purchasing the facility.

After visiting the site and reviewing records, the consultant determined that the property was used as a dry cleaning operation for the past 25 years. The consultant's visual inspection did not discover any obvious signs of contamination around the property. The consultant did not make any further

recommendations for any Phase II sampling and considered the site free of contamination. The prospective owner, based on the recommendations of the consultant, did not do any further environmental investigation and purchased the property.

Three months later the new owner was sued by an adjacent land owner who found perchloroethylene (perc) in his drinking water well. The new owner in turn sued the consultant for negligence and failing to recommend further environmental investigation at the property.

### *Conclusion*

This claim might have been prevented had the consultant recommended further sampling of the property that could have detected the presence of perc in the groundwater.

Dry cleaning operations have a bad history of spills. Consultants who conduct Phase I assessments on dry cleaners, should in most cases, recommend sampling. Visual identification of pollution is not a good indicator as to whether a site is contaminated. If the consultant has any doubt about the history of a site, it is prudent to recommend further investigations of the property to protect the client and manage risk.

## *A Clean Scope Of Work Provides Protection*

A clearly defined, well-written scope of work that is subsequently executed by the consultant is the best defense against a lawsuit.

### *Background*

A real estate developer retained an environmental consultant to conduct a Phase I assessment on a large building built in the 1950s. The developer was going to purchase, renovate, and sell the property. The consultant was specifically hired to conduct an American Society for Testing and Materials (ASTM) Phase I (E1527) and the consultant clearly defined the scope of work to the client. The result of the Phase I indicated that there was no contamination on the property. The developer subsequently purchased the property and initiated renovation.

A short time after the purchase, the contractor for the developer informed the developer that cost would be substantially higher due to the presence of asbestos in the building. The developer brought suit against the consultant for failure to identify the presence of asbestos in the building.

### *Conclusion*

This case was eventually brought to court that held in favor of the consultant. The court ruled that the consultant was only required to meet the terms of the ASTM standard that was clearly spelled out in the scope of work provided to the client. The client clearly agreed to the scope of work and the consultant delivered a report based on the scope.

This is a clear case where the scope of work saved the consultant from significant liability. However, the consultant in this case incurred significant time and expense defending this claim. In this case the consultant, even though the court ruled in its favor, may have been prudent to disclose the possibility of asbestos containing materials considering the building's age. A consultant does not have the duty to disclose every possible condition, but in this case it might have been warranted to communicate with the client that the presence of asbestos was likely. Such a disclosure may have earned the consultant additional work in lieu of the aggravation of a lawsuit.

### *All Subcontractors Need Contracts*

Check the qualifications of the subcontractors.

### *Background*

An abatement contractor hired a demolition subcontractor to remove selected portions of walls, cabinets and flooring from a single floor of an office building that was going to be remodeled. The abatement contractor was then going to remove friable asbestos from the floor prior to renovation.

Because the project was on a very tight schedule the abatement contractor hired a small local demolition contractor without checking references, requiring a contract or proof of insurance. The demolition contractor was allowed to work at night to avoid interfering with tenants on other floors.



During the latter stages of demolition, the demolition contractor removed a kitchen and all cabinets. During the removal, the demolition contractor broke a water line that was used in the kitchen area. Because the water line was located inside of a wall partition the leak was not detected until 8 hours later when the tenant on the floor below opened their office the next day. The leak caused over \$25,000 in water damage to computer equipment, documents, and furniture.

### *Conclusion*

This is a classic case where requiring the subcontractor to work under a contract could have limited the abatement contractor's liability. Because there was no contract between the abatement contractor and the demolition contractor, and the fact that the subcontractor did not have any insurance, the abatement contractor was held responsible because they hired the uninsured demolition subcontractor and were obligated to pay the claim. Check the qualifications of the subcontractors and require contracts with subcontractors. If the abatement contractor had checked the demolition subcontractor's references, they would have discovered that this demolition firm was a high risk and sought a more qualified subcontractor with better qualifications and insurance. A contract could have limited the abatement firm's liability on this incident and shifted the claim to the responsible party. The abatement contractor's reputation with its client would have been improved, also.

## *Know Your Client's History Of Paying Consultants*

There are some clients that are not worth the effort!

### *Background*

A consulting firm was hired to conduct an extensive asbestos survey and abatement design project for a large, well known corporation. The project took place over several weeks and the consultant prepared detailed studies, drawings, and a bid package so that an abatement contractor could be hired.

Everything was fine on the project and all reports were delivered to the client on time and under budget. All correspondence from the client up to this point was favorable. The consultant expected that the client would extend their contract on the project to provide oversight for the project.

A week passed after presenting the reports to the client but there was nothing but silence from the client. Then the consulting firm received a call from the client stating that they wanted all the reports, drawings, and bid documents sent to them electronically. A day after the client received the documents they fired the consultant and stated that they would not pay for the work that was performed because the work was inadequate. Several weeks later, the fired consultant learned that all of the reports were used verbatim and were sent out for bid to local abatement contractors.

The consultant obtained copies of the bid documents and discovered another consultant's name was placed on copies of their original document.

### *Conclusion*

This is a case where the consultant could have protected themselves in three ways. First, prior to initiating work with this client the consultant should have researched this corporation. Their research would have shown that this client had a history of late payments and failure to pay their vendors. This information could have been easily obtained from a Dunn & Bradstreet report. Second, the consultant should have placed an ownership of documents clause in their contract with the client. This clause could have provided protection to the consultant and given them ammunition in a lawsuit. Third, the consultant did not copyright their work. Having a copyright could have given them a basis for seeking recovery from the client given the fact that they did not pay for the work that was completed.

### *Know Backfill And EPA Regulations*

Obtain clean fill certificates prior to using fill from unknown suppliers.
--

### *Background*

An environmental engineering firm was part of a large project involving the remediation of contaminated soil. Fill dirt was purchased to

replace the contaminated soils removed from the property. Before backfill testing was performed on the fill dirt and no environmental contamination was identified. Subsequently, the environmental engineering firm became aware that certain EPA tests for polychlorinated biphenyls did not include the spectrum for pesticides unless specified.

### *Conclusion*

The regulatory authority rescinded that closure. A new round of soil sampling identified that the fill dirt was contaminated and a settlement conference was convened. The environmental engineering firm contributed \$100,000 to the settlement including \$25,000 from their deductible.

### *Secondary Containment Is A Requirement*

Never underestimate the need for secondary containment.

### *Background*

An environmental engineering firm was hired to perform an upgrade and replacement on aboveground storage tanks owned by a circuit board manufacturing firm. A temporary tank was brought in to hold methyl ethyl ketone (MEK) during the project. A valve on the temporary tank leaked resulting in a spill of 600 gallons of MEK. A neighborhood, school and adjacent small businesses were evacuated.

## *Conclusion*

Dikes around the temporary tank contained most of the MEK. However, some of the chemical was allowed to leak into a nearby storm water drain. The engineering firm contributed \$45,000 to the settlement including a \$25,000 deductible.

## *Be Thorough In Your Investigations*

Use the most qualified personnel whenever possible.

## *Background*

An environmental consulting firm was hired to perform a Phase I audit and an asbestos building materials survey. Subsequent to the delivery of the reports the property was purchased and remodeling was begun. The remodeling contractor informed the property owner of the existence of Transite Panels that contained asbestos.

## *Conclusion*

The environmental consultant had not identified these panels. The environmental consultant contributed \$85,000 to the settlement including a \$10,000 deductible.

## *There Is No Substitute For Thorough Documentation*

The following claim is open at the time of writing with a small reserve for the expense of answering the suit.

### *Background*

A consultant was hired to perform an inspection of a single-family dwelling that was currently under construction. Numerous deficiencies were identified including cracks, dips, crowns and valleys in concrete slabs. Tile contractors were required to use up to 2 inches of thin-set to bring floors to level. Sheetrock bowed outward. Closet openings were off-center in relationship to rooms. The heating, ventilation, and air conditioning system was installed in such a manner that filters could not be changed. Foam board was used as forms during concrete pours and the foam remained in the concrete. The foam allowed outward bow of footing and other concrete structures. Vertical trueness of walls had inconsistencies ranging to 4 inches. Ponding of water was noted at certain locations of the roof. The contractor filed suit against the consultant alleging the report and commentary offered during the inspection constituted libel and slander.

### *Conclusion*

The consultant's report was documented with extensive photographs of the subject property. In this case, a photograph is worth a million words.

## *Strong Contract Language Helps Avoid A Significant Claim*

Include strong and clear language that addresses subcontractor health and safety responsibilities.

### *Background*

A local bank hired an environmental consulting firm to conduct an asbestos survey to quantify asbestos-containing materials (ACM). The results of the investigation concluded that ACM was present in several areas of the bank and the consultant recommended that the ACM be removed. The consultant was hired to complete an asbestos project design for the removal of the ACM.

The consultant prepared a comprehensive bid document that included the following language in the contract section:

“The successful bidder, having been awarded this contract, has and assumes the responsibility of proceeding in such manner that he offers his employees a workplace free of recognized hazards causing or likely to cause death or serious injury...(and)...will be responsible for site safety and security.”

The bid document was sent to several qualified abatement contractors and subsequently a contract for abatement was awarded.

As a part of the Scope of Work, the abatement contractor was required to remove asbestos and lead-based paint from a bank vault. The abatement contractor set up containment and air handling around the bank vault and started work. The abatement contractor decided to use a volatile paint stripper to remove the lead-based paint inside the vault. As work proceeded, paint stripper vapors accumulated inside the bank vault.

The workers using the paint stripper were wearing respiratory protection and could not smell the stripper. Approximately 1 hour after the workers started using the stripper an explosion occurred inside the vault, severely injuring both employees working inside the vault.

### *Conclusion*

The abatement contractor employees subsequently brought suit against the consultant for negligence for failing to maintain a safe working environment. The case was heard in court and the case was dismissed before the trial started.

Because the consultant used a bid document that contained clear language regarding the responsibilities of the subcontractor at the site, they avoided a potentially significant claim. The consultant argued that the abatement contractor, not the consultant, was responsible for health and safety. The court agreed. This case clearly demonstrates the need for clear and concise contract language in bid documents and contracts with subcontractors.



It is impossible for a consultant to be expected to understand all of the nuances of a subcontractor's work: that is why consultants utilize subcontractor services. Be sure to place the appropriate responsibility on subcontractors to conduct their work in a safe and professional manner.

*Attention To Detail On All Phases Of The Job Is Important To Controlling Claims*

This claim demonstrates the need to pay attention to detail and make sure that every employee is well trained in all phases of his or her job.

*Background*

A small gasoline station hired a tank lining contractor to perform on-site operations for the purpose of relining an underground fuel storage tank. Toward the end of the project, one of the contractor's employees reassembled the gasoline pump. The employee failed to properly torque down the gasoline pump cover plate. That night, approximately 1,500 gallons of commercial-grade gasoline spilled from the pump cover onto the premises of the retail gasoline station. The gasoline also contaminated surrounding soil and groundwater.

The owner of the property on which the gasoline station was located and the operator of the station filed claims against the tank-lining contractor. In addition, the State's Department of Environmental Conservation placed the tank-lining contractor on notice.

The state hired an independent consultant to investigate the spill. That consultant determined that significant soil and groundwater contamination resulted from the release. A soil vapor and air sparging system was installed to remediate the site. It was determined that the installed remediation system, without upgrade, would take 10 years to remediate the site.

In addition to the cost of the remediation, the independent operator of the gasoline station claimed he was forced to completely close his business during the installation of the remediation system. As a result, he has pursued business interruption claims against the tank lining contractor.

### *Conclusion*

The claim against the tank lining contractor totaled over \$335,000. The proximate cause of the loss was the failure to properly torque down the pump cover plate. Unfortunately, the gasoline began to spill during the evening and was not immediately observed and stopped. These simple actions resulted in significant environmental damage and monetary claims.

### *Claims To Discuss*

The following claims provide examples of actual claims that have been encountered by environmental engineers and consultants. Discuss these claims with your co-workers and identify

ways in which these claims may have been prevented.

### **Confined space entry required caution.**

An environmental consultant was hired to oversee a tank lining operation at a gasoline station. The consultant tested the tank with a Lower Explosive Limit (LEL) oxygen meter and found the LEL level to be zero. Subsequently, employees of the lining contractor and a tank-testing contractor entered the tank to perform a Holiday Thickness Testing. When the meter was turned on an electrical arc ignited fumes present inside the UST. Both employees were flown by helicopter to nearby hospitals suffering from third degree burns.

### **Care during all phases of a project is a must.**

To remove an underground storage tank near a police station a local municipality hired an environmental engineering firm. Following the excavation and closure of the UST a subcontractor was using a front-end loader/backhoe to remove small amounts of dirt and debris remaining in the area. The operator inadvertently hit a concrete curb breaking a portion of the curb. The curb contained a previously unidentified fiber-optic cable used by the municipal police.

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*APPENDIX E*

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A.M. BEST RATING OF INSURANCE  
COMPANIES



## APPENDIX E

### *A.M. BEST RATING OF INSURANCE COMPANIES*

This appendix provides general information about how insurance companies are evaluated by the A.M. Best Company. This information is helpful in determining which insurance companies are financially sound and best suited for your insurance needs. This appendix also explains A.M. Best rating of insurance companies for financial strength and lists how insurance companies are ranked according to their financial size relative to other insurance companies. More detailed information can be obtained from A.M. Best's web site at [www.ambest.com](http://www.ambest.com).

Each year the A.M. Best Company reviews the financial status of thousands of insurers, culminating in the assignment of Best's ratings. These ratings reflect the current opinion of the relative financial strength and operating performance of an insurance company in comparison to the norms of the property/casualty insurance industry. A.M. Best has an enhanced rating rationale as follows:

A++ and A+ is Superior, A and A- is Excellent  
B++ and B+ is Very Good, B and B- is Good  
C++ and C+ is Fairly Good, C and C- is Fair  
D is Below Minimum Standards), E is Under State Supervision  
F is In Liquidation

Best's ratings are assigned after an extensive analysis utilizing a series of Profitability, Leverage

and Liquidity tests, which measure the performance of each company in such vital areas as:

- Competency of underwriting
- Control of expenses
- Adequacy of reserves
- Soundness of investments
- Capital sufficiency

The size of insurance companies is important to consider when obtaining insurance. Generally, insurance companies that are rated in good financial status and have a larger financial size are considered to be more sound. Companies obtaining insurance are very concerned with the carrier's rating and their financial size because it relates to the carriers long-term financial strength. To help you understand the strength of an insurer, Table E-1 lists A.M. Best Financial Size Categories and the amount of surplus capital they hold.

**Table E1. A.M. Best Financial Size Categories and Surplus.**

<b>Financial Size Category</b>	<b>Adjusted Policy Holder Surplus (Thousands of Dollars)</b>
Class I	\$ Up to \$ 1,000
Class II	\$ 1,000 to \$ 2,000
Class III	\$ 2,000 to \$ 5,000
Class IV	\$ 5,000 to \$ 10,000
Class V	\$ 10,000 to \$ 25,000
Class VI	\$ 25,000 to \$ 50,000
Class VII	\$ 50,000 to \$ 100,000
Class VIII	\$ 100,000 to \$ 250,000
Class IX	\$ 250,000 to \$ 500,000
Class X	\$ 500,000 to \$ 750,000
Class XI	\$ 750,000 to \$ 1,000,000
Class XII	\$ 1,000,000 to \$ 1,250,000
Class XIII	\$ 1,250,000 to \$ 1,500,000
Class XIV	\$ 1,500,000 to \$ 2,000,000
Class XV	\$ 2,000,000 or more

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Engineers

Consultants

Contractors

Laboratories

Site Specific Pollution

Petroleum Storage Tanks

Hazardous Materials Trucking

Local

Long Haul

Intermediate

**F**REBERG  
**E**NVIRONMENTAL  
**I**NSURANCE  
INSURANCE PROGRAM MANAGERS