



## **TROY RISK, INC.**

### **RISK ASSESSMENT AND ENVIRONMENTAL CONSULTING**

8673 Bash Street, Indianapolis, IN 46256

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## **An Attorney's Guide to Environmental Consulting**

### **Engineers and Geologists and Scientists, Oh My!**

When contracting with an environmental consulting firm, you trust them to provide the experience, knowledge, and capability to manage your project within the budget and timeframe agreed upon. Similar to the practice of law, it is important to hire the environmental project manager as well as the firm. The ability of the firm to perform the work is important, whether it be engineering a cleanup of groundwater or a site assessment, but the experience of the technical project manager is most critical to the success of your project. Often the senior-level person responsible for the project spends the least amount of time with it. The economic reality is that senior technical people must delegate the field work and the more time consuming tasks reporting to less experienced staff. The senior project manager usually determines the scope of work, reviews testing results and the final report. The technical report is often only as good as its weakest work. Conclusions based on poor field methods, inappropriate testing or faulty interpretation or test results are often rejected by the state or federal regulators who may review a report.

When contracting for environmental consulting services match previous experience to your project and seek recommendations for technical project managers' from other attorneys. The backgrounds of environmental consultants are as varied as the field itself. Common held degrees include:

Industrial Hygiene  
Public Policy  
Geology  
Hydrogeology

Chemistry  
Biology  
Environmental Science  
Chemical or Environmental Engineering

### **Environmental Investigation Scope of Work**

The importance of an appropriate scope of work cannot be under estimated. The best-written report cannot save an investigation that answered wrong questions and the proposed scope of work must be appropriate. In the case of a soil or groundwater investigation take time to understand why each boring location, each sampled media, each sample interval and each sample analysis were chosen. The scope of work should be flexible to change to meet changing project objectives.

Often the scope of work is determined by the requirements of a regulatory program. Many regulatory programs either specify how the subsurface investigation should be conducted, or the scope of work negotiated with the regulators. Prior to beginning a project the client and the consultant should ask themselves:

- Will the scope of work answer the project objectives?
- What regulatory requirements apply and does the scope answer each requirement?



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- Is IDEM approval of the Scope of Work required or prudent?
- What are the possible outcomes based on analytical results and what would be the logical next step if contamination were found?

If the scope of work has not been dictated through a regulatory process (i.e. property transfers), the client and consultant should ask themselves:

- Does the scope of work make sense?
- Does the scope of work address the concerns of all buyer and seller?
- What is the potential for contamination due to other responsible parties (i.e. off-site concerns, prior owners, prior operations) and what are the ramifications of the discovery of contamination?
- What would be the logical next step if contamination were found?

Whether dictated by a regulatory process or not, once the scope of work is initiated it is often changed. Conditions such as weather, characteristics of the subsurface environment (i.e. depth to groundwater, depth to bedrock, presence of confining layers, etc), nature or extent of contamination discovered and financial concern are often factors in deciding how the scope of work can or should be modified. Your consultant should communicate and get approval for significant changes to the scope of work prior to implementation.

### **Components of an Environmental Report**

Once the work has been completed the findings of the study need to be documented in some form of a report. At a minimum the report should:

- Clearly present the “facts” (Tables, Figures, Boring Logs, Analytical Reports)
- Meet the reporting requirements outlined by either the regulatory agency or opposing counsel
- Provide a clear description of the methods used to perform the work.
- Provide enough detail for someone else to duplicate the investigation

Environmental consultants can be very creative with the format of a technical report. However, many regulatory programs either specify or suggest report formats. Often it is helpful to format the report to exactly match what the regulatory agency has requested. The regulatory agency reviewing the report with a checklist should be able to easily check off each required item.

### **Figures**

Figures and map usually depict the technical findings of subsurface investigations. A Figure is generally not acceptable in a sampling investigation if labeled ‘not to scale’ or if scale is not included.

Consultants to pictorially represent some aspect of the project site or the findings of a study often use figures.

At a minimum site figures should:

- Be to scale and the scale should be indicated on each drawing.



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- Include a north arrow
- Provide an Accurate legend indicating the nature of symbols used in the drawing

A person should be able to take the site figures and reasonably duplicate the findings of the study.

Some regulatory programs have reporting requirements that specify what figures must be included. Often it is up to the consultant to decide what figures to include in a report. Below is a list of commonly used figures in environmental assessment reports:

**Vicinity Map:** Shows the location of the site within a city or regional area. Often times this figure is a USGS topographical map that shows surface elevations and contours.

**Site Plan:** This figure shows the project site. This figure shows the physical features of the project site grounds and buildings. Often this figure shows the location of underground utilities, surface drainage features and adjoining property use.

**Boring Plan/Sampling Plan:** This figure shows the sampling locations in relation to other site features. Sometimes this figure is combined with the Site Plan.

**Groundwater Flow Map (Potentiometric Surface Map):** Often provided when groundwater-monitoring wells have been installed. This figure is a pictorial representation showing the estimated location of contour lines of groundwater surface elevations. These are somewhat subjective and can often be interpreted in more than one way.

**Geological Cross Sections (Fence Diagrams):** Cross sections are useful in gaining an overall understanding of subsurface soils. Cross sections are made by interpolating between boring locations. The geologist makes an interpretation of how soil units are connected between borings. These are often subjective and can be interpreted in more than one way. Often depths to groundwater, monitoring wells, and analytical results are included on these figures.

**Soil Analytical Maps:** If included in environmental reports these show laboratory results next to each sampling location. These figures are helpful in picturing the contaminant distribution of the property. Data label should include the depth at which the samples were collected.

**Groundwater Analytical Maps:** If included in an environmental reports these maps of groundwater laboratory results. These figures are helpful in picturing the horizontal distribution of contaminant concentrations in groundwater.

### **Boring Logs**



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A description of the soil materials encountered in the sampling device at each sampled interval. The two commonly used systems of describing soils are the Unified Soil Classification System and United States Department of Agriculture. Often consultants will use a combination of both of these two systems. Certain regulatory programs specify which system should be used.

#### **Analytical Data**

The analytical data is one of the most important aspects of site investigation. Presentation as well as interpretation of analytical data is required in most environmental reports. Significant results should be labulated and compared to regulatory 'clean' levels. Field or laboratory errors must be discussed.

Common mistakes cited by IDEM include:

- Wrong Analysis (Different than specified in the regulations or guidance)
- Wrong Detection Limits
- Samples Outside of Holding Times
- Wrong or miss-reported units

RCRA: The analytical methods to be used are most often spelled out in facilities Permit.

If laboratory analysis does indicate the presence of a compound, the first question asked is what concentration. To be able to compare the detected contaminant to regulatory action levels it is important that you are not comparing apples to oranges. Environmental laboratory results are often reported in units of parts per million (ppm) or parts per billion (ppb). Be aware that consultants may switch units of measurement between the analytical report, tables, text and site figures.

1 part per hundred = % percent

1 part per million = ppm (wt/wt or vol/vol)

1 part per billion = ppb (wt/wt or vol/vol)

1 ppm = 1 mg/L (This is only true since 1 Liter of water = 1,000,000 mg)

1 ppb = 1 ug/L (This is only true since 1 Liter of water = 1,000,000,000 ug)

1 ppm = 1000 ppb

1 ppb = 0.001 ppm

The reporting of concentrations of compounds in a gas sample is somewhat more complicated. The numbers are often reported as ppm but they must specify whether they are calculated on a weight/weight or volume/volume basis. Again the critical point being that when comparing site analytical data to regulatory action limits that you are comparing two numbers with the same units.



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### **Conclusions and Recommendations**

Although a consultant cannot change the facts of an investigation, he can determine how these facts are presented. The consultant should put the results in some context. To the extent that they benefit the client, For example, the results are below regulatory cleanup levels, or the contamination is limited in horizontal and vertical area. Sometimes a presentation of facts with no commentary is the best you can offer your client. If not told otherwise, the consult will usually provide conclusions and recommendations.

Consultants will often provide recommendations for further work or for corrective action for the identified problem. These recommendations may go beyond what is appropriate or prudent for the given situation. Use drafts reports to “filter-out” un-wanted or un-needed commentary.

### **Indiana Cleanup Program Requirements**

#### **UST**

The UST division is really not a cleanup program but a compliance-tracking program for underground storage tanks. The UST division is in charge of:

- Tank System Registration and Notifications
- Tank Compliance
- Tank Removals, Upgrades, Changes in Service

Once an underground storage tank has been removed a UST closure report must be written. IDEM has very specific guidelines for this submission. The UST division uses a checklist to determine if each point of the requirement as been adequately document. A copy of this checklist is included in attachment XX. The completed checklist with adequate is the only regulatory sign-off that you will receive. Note if contamination has been detected, the UST closure report will be checked for adequacy and a copy of the report will be forwarded to the Leaking Underground Storage Tank division for review.

#### **LUST**

Once contamination has been detected, IDEM will request an initial site characterization (ISC) that determines the nature and extent of the contamination. The naming of these reports can be extremely confusing. Names commonly used for these investigations include:

- Initial Site Characterization
- Leaking Underground Storage Tank Investigation
- Further Site Investigation
- Phase II Subsurface Investigation

Regardless of the names and regardless if it takes one or 10 separate investigations, the consultant must delineate the horizontal and vertical extent of soil and groundwater contamination and must address each item



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outlined in the IDEM UST Guidance Manual for an ISC investigation. A copy of a checklist for ISC investigations is included in Appendix XX.

Once the problem has been defined IDEM will request a Corrective Action Plan (CAP). The reporting requirements for a CAP are clearly defined in the IDEM UST Guidance Manual. A copy of a checklist for CAP investigations is included in Appendix XX. The corrective action plan must provide some site history; a health and safety plan for site work, examples of treatment technologies, a plan for remediation the site and timelines. IDEM approval is need if expenses incurred for CAP implementation are to be covered by the excess liability fund (ELF).

Once the CAP has been initiated, the consultant will continue to submit corrective action plan progress reports on a quarterly basis until remediation of the site is complete. Once the site has been remediated to the satisfaction of IDEM, a no further action letter will be written for the site.

#### **Tough Questions for Consultants**

**Lump Sum or Tune and Materials?** A lump sump contact can serve to cap costs however, often authority perform additional field work can prevent the need for an addition episode of field investigation, The best plan is to develop an appropriate Scope of Work, negotiate good billing rates, and require verbal and authorization for ascendance of the scope of work.

**What will the consultant recommend if contamination is found?** A recommendation in the report that the regulatory agency be notified, or that a cleanup is required, may be unacceptable to the property owner. The consultant should be wary of interpreting the law regarding spill notification and reporting. When contra ting for environmental testing it is prudent to consider the 'worst-case scenario'.

**Is there a possibility of conflict of interest?** Has the consultant worked on the subject property before? Has the consultant worked or adjacent or neighborhood properties before?



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#### **Report Types**

1. Transaction Screen: \$300 - \$1000
2. Phase I Environmental Site Assessment: \$1000 - \$3000 This report is often used by a seller to disclose the condition of a property or the buyer's bank may also use this type of report to evaluate the collateral security of the property.
3. Baseline Environmental Assessment: \$ 500 – \$10,000 This report is often used by lease to establish subsurface conditions where underground storage tanks or plating operations are in use.
4. Phase II Soil and Groundwater Investigation: \$3000 - \$10,000 Use to determine whether a proper is contaminated. Will not make property clean only investigate conditions.



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#### **How to Control Your Environmental Consultant**

Control of the information provided by an environmental consultant is one of the best services an attorney can provide his or her client. If an environmental investigation is performed by order of a regulatory agency, investigation contaminated and contamination is found, the information provided to the regulators may be used to assess violators of environmental regulation and to assess fines. Often, disclosure of contamination will result in a Notice of Violation and an order to more fully investigate the nature and extent of the alleged release, even if the source is offsite, or from prior use of the property.

The result may be a slippery slope of evidence developed and interpreted for the prosecution.

If a sampling investigation is performed by the seller of the property, to disclose environmental conditions, any evidence of contamination will likely limit the marketability of the property and rule-out use of the property title to secure a buyer's mortgage.