Fundamentals of Professional Ethics: Elements and Examples

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Compiler of AIPG’s *Professional Ethics & Practices* column
Consulting Geologist LLC

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Introduction: overview of course

- Basic concepts and definitions
- General morals and professional ethics
- Moral rules and moral ideals
- Integrity
- Honesty
- Best Practices
- Case histories discussions—generally not specialty specific
Questions and Comments

If you’d like to ask a question or make a comment, please use the Questions box on the webinar control panel.

There will various places in this webinar where comments will be requested.

The webinar moderator will let Mr. Abbott know when questions or comments are received.
Ethics and morals concern themselves with distinguishing right from wrong, with character, with actions or behavior, and the volition involved in the actions of responsible persons.

Dictionary definitions define “ethics” in terms of “morals” and “morals” in terms of “ethics,” so the terms are quite similar, and the definitions circular.
To whom do moral values apply?

- Rational/responsible people
  - Not the insane
  - Not to children, at least in part
- Members of a specific group (religion, profession, etc.)
- Others?
  - Mammals—PETA
  - Circus elephants
  - Orcas
  - Rodeo stock
Morals and ethics: general and professional

- Morals are informal statements
- Ethics are codified statements
- General morals or ethics apply to all aspects of one’s life
- Professional morals and ethics specifically apply to members of the particular profession.
An ethical coverage pyramid

- professional ethics
- religion
- law
- common morality
Ethical analysis requires discrimination

- Identifying the ethical principle(s) involved.
- Discriminating between relevant and irrelevant facts.
- Being logical
- Being objective
- Being consistent—all similar cases must be treated the same way.
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Moral Rules

Generally: “Do not…”

Moral Ideals

Strive towards…
Characteristics of Bernard Gert’s Moral Rules

- Informal: everyone knows the basic rules although they’re not written down
- Universal: recognized by all societies that we know about


*Common Morality—Deciding What to Do*, 2004, Oxford Univ. Press
Bernard Gert’s Moral Rules

_Morality: Its Nature and Justification_

1. Do not kill.
2. Do not cause pain or injury.
3. Do not disable.
4. Do not deprive of freedom.
5. Do not deprive of pleasure/the pursuit of happiness.
6. **Do not deceive.**
7. Keep your promises.
8. Do not cheat or violate rules of conduct.
9. Obey the law—including theft.
10. Do your duty.
Moral ideals are morally desirable activities. However, not everyone is required to comply with all these activities. They vary widely:

- contributing towards the cure of some disease
- feeding the hungry
- volunteering in a service organization
- volunteering in a professional organization
- writing professional articles and/or giving talks
Continuing professional development (CPD, CEU, PDH)

♦ Most professional ethics codes encourage enhancement of professional knowledge and skills but set no requirements for doing so. Encouragement is an aspirational statement.

♦ Increasing numbers of licensing bodies and professional associations are requiring at least some class of members to meet certain minimum requirements of CPD, CEU, or PDH. This requirement converts an aspiration to a rule.
AIPG Member & CPG CPD

♦ AIPG’s CPD program is currently voluntary for CPGs and others. (*Standard 5.1 Members should strive to improve their professional knowledge and skills.*)

♦ AIPG provides a CPD log on its website under “Education” then “CPD Program.”

♦ Regardless of CPD program, keeping a log of CPD activities is the critical first step!
# CPD log on OneNote™

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<td>2</td>
<td>DMC mineral baby talk</td>
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<td>2</td>
<td>CO Section AIPG student mentoring session</td>
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Exceptions to the moral rules

- Do not kill.
  - self defense, military, police, capital punishment
- Do not injure.
  - doctors performing surgery
- Do not deceive.
  - a knife-wielding thug asks you the location of an intended victim
Identifying a morally justified violation of a moral rule

- What moral rule(s) is involved?
- Who is harmed?
- What harm is avoided by the violation?
- Can everyone violate the rule in the same way?
- Is some sort of emergency involved?
- Was the violation intentional?
- Was coercion involved?
- Are you willing to publicly acknowledge and accept the consequences of the violation? (Integrity)

Bernard Gert, *Common morality—deciding what to do*
Example: standard, duplicate, and blank samples in sample stream

♦ Rule being violated: do not deceive
♦ Harm done: increased analytical costs
♦ Harm avoided: determining and verifying the reliability of your sampling and analytical processes
♦ Everyone can do, and should
♦ Although the identity of the standards, blanks, and duplicates should be hidden, their existence need not be.
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Integrity

“Integrity is like the weather: everybody talks about it but nobody knows what to do about it. … [I]ntegrity is like good weather, because everyone is in favor of it.”

Integrity requires three steps:

1. **Discerning** what is right and what is wrong;
2. **Acting** on what you have discerned, even at personal cost; and
3. **Saying openly** that you are acting on your understanding of right from wrong.

Stephen L. Carter, 1996, *Integrity*
Integrity

Integrity “conveys not so much a single-mindedness as a completeness; not the frenzy of a fanatic who wants to remake all the world in a single mold, but the serenity of a person who is confident in the knowledge that he or she is living rightly.”

“Integrity…is not the same as honesty…it is clear that one cannot have integrity without also displaying a measure of honesty. But one can be honest without being integral.”

Stephen L. Carter, 1996, *Integrity*
Integrity

A professional who believes in ethical professional practice can honestly express that opinion but unless the professional also acts ethically, particularly where there is personal risk, the professional is not acting with integrity.

Mohandas Gandhi and Martin Luther King, Jr.

When faced with an unethical situation, one is obliged to either correct the situation or resign. (AIPG Code Standard 3.5)
The “Don’t tattletale rule” is something we all learned in the sandbox. The “rule” assisted our standing among our peers and helped us become responsible for our own actions.

However, the “rule” can cause us to sanction, to aid and abet immoral or unethical acts through our failure to act by blowing the whistle.

How many of the corporate ethics problems that have come to light over the past year were fostered by the “don’t tattletale” rule?
Examples of corporate cultures aiding incompetent practice

♦ NASA: 1968 Challenger explosion due to low temperatures. But this is the Teacher-in-space launch!
♦ 2014 General Motors ignition switch flaw; some GM engineers had known of the problem for years.
♦ 2014 Volkswagen faked diesel emissions tests
♦ Flint, Michigan lead in the water crisis—how many cities use lead supply pipes to homes?
♦ 2015 Gold King Mine spill near Silverton, CO.

PE magazine, May/June 2016
Case history: client confidentiality vs. protecting public’s health, safety, & welfare

A large company client asked a consultant to analyze a data set from a property the client was reviewing as part of a planned joint venture mine development with a junior mining company. The consultant’s analysis convinced him that the junior company was perpetrating a fraud and he reported these findings to the client, who withdrew from the JV without disclosing the fraud.

Does the consultant have an obligation to inform securities enforcement agencies about the fraud, his non-disclosure agreement with the client notwithstanding?
Short Break & Question & Answer Session

♦ What is your view of whistle blowers? Why?
♦ Answer using the Questions box on the webinar control panel

Do you have questions on anything that has been discussed so far? There is going to be a short break to stretch, etc. and to allow you to type in your answers and questions.
Moral/ethical analysis will not answer all moral/ethical questions

The ranking people give to moral/ethical principles can lead to differing conclusions.

♦ Public safety versus personal freedom since 9/11
♦ Abortion
♦ Death penalty
Moral/ethical analysis will not answer all moral/ethical questions

Professional Ethics Codes can answer some of these questions, e.g. AIPG CANON 2. Obligations to The Public. “Members should uphold the public health, safety, and welfare in the performance of professional services, and avoid even the appearance of impropriety.”

Rule 2.1.3 “If a Member becomes aware of a decision or action by an employer, client, or colleague which violates any law or regulation, the Member shall advise against such action, and when such violation appears to materially affect the public health, safety, or welfare, shall advise the appropriate public officials responsible for the enforcement of such law or regulation.”
Honesty: the fundamental scientific ethical principle

Quotes from the AIPG Ethics Code:

♦ “honesty, integrity, ..., candor, ...”
♦ “accurate, truthful, and candid”
♦ “shall not make false, misleading, or deceptive representations or claims”
♦ “shall not issue a false statement or false information”
♦ “shall not make unwarranted statements that may mislead or deceive”
Lying, faking, & deception: the greatest scientific sin

- Faked data led to the withdrawal of a USGS Water Supply paper by Robert Houghton (1989)
- Mining and oil & gas frauds
  - *De Re Metallica* (1556) includes cautions against frauds.
- Faked “bird ancestor” fossil from China (2000)
- Unreliable analytical results—Intertek in Texas (2000)
- Scientific misconduct and data manipulation by a mass spectrometer operator assigned to the USGS Energy Resources Program’s (ERP) Energy Geochemistry Laboratory in Lakewood, CO (2016)
Omissions of material facts: another form of deception

Consider the statement:

The Eureka gold deposit contains 10 million tons with an average grade of $\frac{1}{2}$ troy ounce of gold per ton ($17.14$ g/tonne). At a gold price of $1,300$ per troy ounce, the deposit is worth $13$ billion.

Why is this a misleading statement? A multiple choice question is on the webinar control panel.
Bend over backwards to avoid unrecognized bias or deception

♦ Scientists frequently do not properly acknowledge the limits of what they really know and the uncertainties involved (De Freitas, 2000).

♦ “…you should report everything that you think might make it invalid—not only what you think is right about it: other causes that could possibly explain your results; and things you thought of that you’ve eliminated by some other experiment, and how they worked—to make sure the other fellow can tell they have been eliminated.” (Feynman, 1974-2000)
Honesty: avoiding misuse of models

- Geology is heterogeneous and non-linear—if the mathematics conflict with geology, suspect the math.
  
  A t-test shows that one can move from weathered to unweathered granite; a geologic impossibility.

- Models can never be validated, they can only be invalidated by comparison with actual data.

- Models can be tweaked to fit the actual data—does the tweaking hide a bad model or improve a good model?

- 3D models are interpretations, not necessarily the “truth.”
Questions and Comments

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The problem with models

Virtually all geological inputs that feed into Mineral Resources are estimates and interpretations, not facts. It is readily accepted that geology is the critical input into the estimation of Mineral Resources and therefore an assessment of the uncertainties associated with these geological inputs is paramount when undertaking a risk assessment of a Mineral Resource estimate.

The “black box” inside the computer

This is most important when applying computer-based algorithms to produce geological surfaces that are spatially incomplete and difficult to refine. In particular, I draw attention to the inherent limitations of geospatial interpolation techniques used in most software packages to create 3D surfaces.

In brief, geospatial interpolation is the technique used to join data points (such as strata depths from boreholes) in order to create continuous geological surfaces. Interpolation techniques range from: (i) Deterministic or Exact methods (e.g. Splines, Inverse Distance Weighting), where estimates of a variable at unknown locations are based on the spatial attributes of known locations, to (ii) Geostatistical/Inexact methods (e.g. Kriging), where variables at unknown locations are estimated, based on quantified values of autocorrelation between known points.
Geach’s geological surfaces can have any geometric orientation and are frequently not planar. Geach illustrates his observations by using three commonly used estimation algorithms (ordinary kriging, inverse distance weighting, and radial basis function) to measure the volume of a geological feature using the same data set. Table 1 presents Geach’s results.

<table>
<thead>
<tr>
<th>Algorithm used</th>
<th>Volume (km³)</th>
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<tbody>
<tr>
<td>Ordinary kriging</td>
<td>15,564</td>
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<tr>
<td>Inverse distance weighting</td>
<td>15,239</td>
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<tr>
<td>Radial basis function</td>
<td>37,794</td>
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</table>
Mathematical “proof” of exponential decline

The initial assumptions of the proof—a isotropic, homogeneous layer of infinite X, Y and constant Z dimensions—are never valid.
Contouring algorithms

The same data points and grid were used for both maps

Triangulation algorithm

(Inverse Distance)$^4$ algorithm

David M. Abbott, Jr., 2017
Predicted storm tracks:

Tropical Storm Bonnie
5/29/16
Avoiding misuse of models
Avoiding misuse of models
“Best Practices” and Standard Procedures

- May be correct most of the time, but not always.
- Techniques and practices evolve
- Legal tar pit

Examples:
- Misleading character of fire assays for placer samples; over reports gold content
- High-grade samples during fraud investigations
- Improper application to differing conditions
Standard Procedure for swelling soil tests

- soils
- shales
- bentonite beds
Standard Procedure for swelling soil tests: doesn’t work for changed conditions along mountain front.
Best practice exception: core splitting
Honesty summary

- Achieving the degree of honesty required of us as geoscientists is difficult to achieve but must be pursued with diligence.
- It is not enough to avoid conscious lies or deception, we must strive to avoid the subtle deceptions.
- We must describe what we don’t know as much as what we know.
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Professional Codes of Ethics and Conduct

♦ Apply specifically to members of an association
♦ Do they apply to all members of a profession?
♦ Who sets the standards?
♦ Extraprofessional standards—American Statistical Association
♦ Limits to professional competence; e.g. sexual harassment and discrimination
AIPG Code of Ethics

Canon 1: General Obligations. Members should be guided by the highest standards of personal integrity and professional conduct.

Canon 2. Obligations To The Public. Members should uphold the public health, safety, and welfare in the performance of professional services, and avoid even the appearance of impropriety.

Canon 3: Obligations To Employers And Clients. Members should serve their employers and clients faithfully and competently within their overall professional and ethical obligations.
AIPG Code of Ethics

Canon 4: Obligations to Professional Colleagues. Members should respect the rights, interests, and contributions of their professional colleagues.

Canon 5: Obligations to the Institute and the Profession. Members should continually strive to improve the profession of geology so that it may be of ever increasing benefit to society.

AIPG does have Disciplinary Procedures for alleged violations of its Code of Ethics
Other Ethics Codes and Codes of Conduct

♦ State licensing boards have Codes of Conduct.
♦ The American Geosciences Institute Guidelines for Ethical Professional Conduct (2015); has two parts:
  ▪ In day-to-day activities geoscientists should:
  ▪ As a member of a professional and scientific community, geoscientists should:
♦ The AGI Guidelines “address common ethical topics across the geoscience community; the ethics statements of individual societies may expand beyond these guidelines.” Enforcement/discipline is not required.
Is it unethical to support state licensing of geologists and engineers?

♦ Regardless of your view of state licensing, is this a correct statement about geoscience and engineering ethics? Why?

♦ What is the difference between an opinion about how things should be done and ethics?

♦ Are there general views of what is ethical?

♦ Do state licensing programs deliver on their promise to protect the public?
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How do you report a suspected fraud?

“If a Member becomes aware of a decision or action by an employer, client, or colleague which violates any law or regulation, the Member shall advise against such action, and when such violation appears to materially affect the public health, safety, or welfare, shall advise the appropriate public officials responsible for the enforcement of such law or regulation.” AIPG Code of Ethics, Rule 2.1.3.

♦ Is a public company involved? State securities regulator, SEC, Canadian province
♦ Provide as much specific detail for your opinion as possible.
♦ Don’t “report” by press release.
A mining company gave an identical data set to 5 different consulting firms and asked for their estimates of mineral reserves. One of the consulting firms had confidential data on an adjoining property and used it, thereby generating a better result with a significantly higher estimate.

Did the use of this confidential information constitute a breach of professional ethics?
Abandoned property data

A consultant worked on a property for a company that later abandoned the property. Can the consultant use the non-public information about the property for another client?

♦ Is there a difference between disclosing data and one’s interpretations?
Case history: location of practice

One of my jobs involved:

- a Texas client,
- a Maine tourmaline-bearing pegmatite, and
- and an opinion on whether a report on the value of the tourmaline was a valid reserve estimate, which was prepared entirely in Colorado. A field inspection was not requested nor required.

In what state(s) did practice occur?
Case history: practicing within one’s competence—tourmaline value

The last example addressed the issue of where I practiced. The same example, opining on the validity of a valuation of a tourmaline-bearing pegmatite, also is an example of practicing within one’s technical competence.

What competencies are required to render an opinion on the validity of a reserve valuation?
Case history: subpoena for confidential reports

Susan received a subpoena for her testimony and a copy of a confidential report prepared for a client. The subpoena called for compliance in two days from the date of receipt. Susan’s last conversation with the client suggested to her that client was no longer interested in the property covered by the report.

What should Susan do?
Case history: bribe or facilitating payment?

In many countries, payments of varying size are commonly paid to officials in order to obtain permits, clearance for equipment and supplies, and a variety of other purposes. Such payments are known as “grease,” “baksheesh,” “facilitating payments,” “bribes,” etc.

Is it ethical to make such payments? If so, when?
Case history: free lunch?

♦ A contractor offers to take you to lunch. Should you accept?
♦ Can you go out to lunch or dinner with friends who work with a competing firm?
♦ Are golf games or sporting events different from meals?
♦ Does frequency make a difference?
♦ What about industry partners?
♦ What about royalty interest owners?
Protecting the public or defaming a colleague?

Smith states that Wesson’s statistical analysis had the effect of ‘salting’ his samples. What does this imply to you?

Assume that Smith has some evidence supporting his claim, is Smith justified in using the term ‘salting’?

Can Smith claim that in using ‘salting,’ he was trying highlight what he believes is a threat to the public’s financial welfare and the reputation of the profession. Is this an adequate defense?

Instead of using ‘salted,’ Smith states that “Wesson’s sample results are challenged.” Is Wesson’s professional reputation less damaged than when salting was alleged?

Is libel or slander involved here? If so, what does this mean?
Case history: who is the “client”? 

Given a corporate employer or client, for whom do you work? Who is the ultimate “client”? 

♦ the officers? 
♦ the directors? 
♦ the shareholders? 

Why is this an important issue?
Transitioning from Student to Young Professional Status

Student members have been an increasing percentage of total AIPG membership since 1998 and currently comprise 33% of the total membership, as shown in Figure 1.1 The next step in AIPG membership is the Young Professional (YP) category. While YP

Topical Index-Table of Contents to the Professional Ethics and Practices Columns

A topically based Index-Table of Contents, “pe&p index.xls” covering columns, articles, and letters to the editor that have been referred to in the PE&P columns in Excel format is on the AIPG web site in the Ethics section. This Index-Table of Contents is updated as each issue of the TPG is published. You can use it to find those items addressing a particular area of concern. Suggestions for improvements should be sent to David Abbott, dmageol@msn.com

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CD of AIPG’s ethics articles, columns, etc.

continually updated

see publications on the AIPG website
Wrap-up Question & Answer Session

Thank you for your participation.

The moderator has a couple of closing slides on getting your CEUs, etc.