Ethics Lesson for the Water Module: Well, Well, Well

Purpose
Students will consider a case of potential water contamination by using a process of reasoned discourse about the definition of the problem, the relevant information, and the values behind different solutions.

Overview
Students are presented with a case of an individual who is faced with making a decision about repairing a broken well pipe that is too close to a septic tank drain field to meet current restrictions under the law. The case is less than obvious because the well driller offers to fix it anyway for a bribe. Students are challenged to consider the role of regulations in preventing harm, the ethics of sidestepping the law, and the potential health issue.

Time
2-3 class periods

Key Concepts
Ethical questions are about right and wrong, good and bad, just and unjust. Ethical questions are answered by considering the facts, the options, and the implications of each option. An action can be wrong whether or not it is legal. We have a general duty to obey the law. When an action causes harm, it can be blameworthy. People are responsible for the consequences of their actions. Moral decisions are based on what we value (for example, pretty lawns, or health).

Skills
Upon the completion of this activity, students will be expected to be able to:
1. Use reasoned discourse in a small group to think through this case.
2. Present a conclusion/decision for the case with the problem definition, analysis of the situation, and follow up actions.
3. Identify their own and other’s values related to their conclusions.
4. Apply what they have learned to a situation in their own lives.

Materials
The Case
Questions to Discuss

Background
Connection to the Water Module
The AMBIENT Water Module focuses on sewage treatment practices at the city level. These large waste treatment systems serve cities and towns, treating and disposing of liquid waste according to the values and capabilities of local government. However, many individual property owners are not served by these community waste treatment systems. These properties need to provide their own waste treatment and water, usually by means of a septic system and a well. There are laws that govern the installation and operation of these systems in order to protect public health. However, because these systems are individually installed, there is inherently less government oversight involved.
than in the case of municipal or county waste treatment. Decisions involving septic systems and wells offer an opportunity to explore the role of personal choice on practices that can impact environmental health.

The Case
You live in a house that has a septic tank and drain field. These work by collecting waste from sinks, showers and toilets and allowing it to settle in a large underground tank. Water from this tank passes through a series of underground, perforated pipes that are embedded in gravel. The gravel facilitates the flow of water from the pipes into the surrounding soil. In principle, by the time the liquid waste has passed through the filters (perforated pipe and surrounding soil); it is tolerably clean enough for introduction into the groundwater. Over time, solid waste and sludge build up and must be removed from the tank by septic tank cleaning companies.

One problem with septic tanks is when it rains, they tend to overflow, and the runoff pollutes recreational waters. It turns out that this is a major source of pollution. While states and counties try to deal with this issue for whole neighborhoods by creating sewage systems, homeowners sometimes have to make individual decisions about their septic systems.

Your septic tank is in the side yard. In the back yard you have a well: a pipe in the ground that is connected to a pump that pulls water from the aquifer and delivers it for irrigation – watering the lawn and garden, mostly, though neighborhood children enjoy playing in the sprinklers on hot days. The well was drilled 22 years ago, and is 55 feet away from the edge of the drain field. A worker removing a nearby tree stump accidentally breaks the well pipe. This is too bad, because you enjoy watering the lawn and garden with this well, and the sprinklers are a lot of fun on hot days. So you hire a well driller to repair or replace the pipe.

She arrives to evaluate the job and informs you that the law has changed since the well was drilled and now requires that wells be 75 feet from the edge of drain fields. You do not have a big enough lot to move the well and, in any case, that would require drilling a new well, which would be very expensive. You think you are in a tight spot until the well driller tells you she will repair the old well – even though doing so would violate city ordinance – if you pay her an extra $250.

Variation: The law requires only new wells to be 75 feet from drain fields. Since your well was drilled under the old law, you are permitted to repair it in its current location.

Problem definition – Central question(s) or issue(s)
Case studies raise many questions. We are interested in questions about right and wrong, good and bad, etc. We are, for now, not interested in other questions (for instance, how much the job will cost, whether the well driller is a nice person, etc.) Here the central question is, Should you pay the worker to repair the well? Before you can answer the question, you should review the facts and weigh them for importance.
Analysis – What are the facts? What can be done? How do we understand the problem through reasoning? How do we uncover them? What is relevant? Who are the stakeholders?

Here are some noteworthy facts:

- There is a (potential) health connection between well and septic tank placement. (This is the most important fact, perhaps best elicited over time. Its recognition should be a source of excitement.)
- The law tries to prevent harms from arising because of that connection.
- An offer to break or sidestep the law would be a convenience for the homeowner.
- In the variation, the law would actually permit the repair, raising the question of whether one should do so. This is the issue of wrongdoing in the absence of a social rule or law. That is, there is still a potential health problem; even in the absence of a law forbidding it, it might still be wrong to fix the well. Key point for students is that some things are right or wrong independent of whether the law permits or forbids them. (Other examples: lying, slavery when/where permitted, etc.)

Conclusions – What should be done? What do we value in a conclusion/solution? Appeal to values to choose the best option. Identifying what makes an option the best option.

If the well is repaired and if children are allowed to play in the water, for instance, there is a health risk from contaminants. Given that we tend to – and should – value health over pretty lawns, it follows that it would be wrong to fix the well. In cases in which it is illegal, there is a general duty to obey the law, and so the offer to sidestep or break the law in exchange for money is especially troublesome.

In the variation, there is a good opportunity to underscore the difference between law and morality. If there is a risk of harm (illness) if the well is repaired, then in morally significant respects it does not matter if the law permits the repair or not – it will still be blameworthy … especially if a person falls ill.

Actions/Follow-up – policy, personal, advocacy, environmental justice. Who is responsible going forward? For what? Why? To what end?

One aspect of this case that could lead to student discovery is the very idea of well water use for landscaping, especially growth and maintenance of non-native flora or flora requiring hydration more than rainfall provides. This is more or less an issue/problem depending on the robustness of the aquifer.

Emphasizing stakeholders, debate can touch on esthetics, resale value of home, etc. It might also be possible for homeowner to promise to test well water for contaminants before exposing people to it. The question then could turn on test reliability, whether society should trust individuals to monitor health risks, etc.

Procedure
Grouping
Divide the students into heterogeneous groups of 3-5. Assign roles, or allow them to choose if they are used to working collaboratively. Roles might include:
1. Discussion leader - makes sure everyone contributes and all ideas are heard
2. Fact collector – keeps track of what we know, what we need to know
3. Provocateur – looks for the opposite viewpoint, asks, “what if?” and “so what?”
4. Recorder – writes down what is agreed upon by the group throughout the process
5. Presenter – presents the group’s conclusions

The Case
1. Identify and develop background knowledge: Depending on where you live, you may need to discuss wells, septic systems and drain fields (maybe even lawns and gardens) to support students’ understanding of the potential problem in the situation. Or, you can present the case to the groups and ask them to identify what they need to know. Then have the groups share what they know and need to know to fill in gaps for each other. If they still miss key ideas as a class, let them go on without filling in the gaps for them, since the gaps will be revealed when their conclusions are not supportable.

2. Define the problem: Ask the groups to list all the potential problems in the case, such as breaking the law, polluting the water, people getting sick… Share out the problems in the whole class. Then ask each group to develop a central question of the ethical problem, such as “Should you pay the worker to repair the well?” Again, different responses from the different groups show they are doing their own thinking. Encourage them to make their problem definitions unique.

3. Analysis: Use the following questions if students need prompting in what and how to analyze what they know about the case in terms of the central question.
   - What are the facts?
   - How do we uncover them?
   - What is relevant?
   - What makes sense in this situation?
   - Who are the stakeholders?
   - What can be done?

   Have each group analyze what they know in terms of their central question. Add the noteworthy facts if they do not come up. Allow the groups to work independently for a while without sharing so their solutions are less alike.

4. Conclusions: Ask each group to generate the options the homeowner has - given their problem definition and their analysis of the facts. Encourage them to come up with at least three solutions. Ask them to choose the best solution and tell why it is the best solution and why the others are less adequate.

5. Follow up: Ask each small group to consider what needs to be done about this problem and problems like it in the future from different perspectives. After the discussion, have them write their suggestions from one or more of the perspectives:
   - Policy/Law
   - Advocacy
• Environmental justice
• Personal

If time permits:
6. Presentation: Ask students to individually reflect on what would make a “great” presentation of their conclusions. You may wish to provide an audience such as a friend, a spouse, St. Peter, or the Department of Environmental Management representative who has shown up on the site. If the problem definitions are very similar, set different purposes for each group – advocacy groups, homeowners, policymakers, environmental justice defenders. As a whole group, create a list of all the criteria, group them, then develop a checklist or rubric.

7. Ask each small group to prepare to present their conclusion and back it up with the problem definition/central question, their analysis of the facts and their evaluation of the other options they considered.

Extension/Enrichment
1. Have students make up or write up other cases based on the laws about water use in your local area.
2. Have students create other variations that might affect the solution. Ask students to reflect (in writing or orally in small groups) what they noticed about this case in terms of their own lives.

Student Assessment
1. Use the student developed criteria to have them rate their own and each other’s presentations.
2. Ask students to write a one page reflection paper on what they would do individually if a case like this ever came up for them.
3. Ask students to reflect on the process they used to define the problem, analyze it, draw conclusions, and suggest follow up.
4. Introduce the variation: The law requires only new wells to be 75 feet from drain fields. Since your well was drilled under the old law, you are permitted to repair it in its current location. Ask each student if, how and why this information affects their decision, and how they would approach future problems.
You live in a house that has a septic tank and drain field. These work by collecting waste from sinks, showers and toilets and allowing it to settle in a large underground tank. Water from this tank passes through a series of underground, perforated pipes that are embedded in gravel. The gravel facilitates the flow of water from the pipes into the surrounding soil. In principle, by the time, the liquid waste has passed through the filters (perforated pipe and surrounding soil); it is tolerably clean enough for introduction into the groundwater. Over time, solid waste and sludge build up and must be removed from the tank by septic tank cleaning companies.

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Your task is to figure out what the ethical issues are in this situation, use reasoning, and discussion to come up with solutions and then present them. The following questions may be helpful in your thinking.
What do you know?

What do you need to know?

What is central question that defines the problem?

Analyze the case
- What are the facts?
- How do we uncover them?
- What is relevant?
- What makes sense in this situation?
- Who are the stakeholders?
- What can be done?
What are all the possible solutions to this problem as you have defined it?

What do you think is the best solution? Why?

What needs to be done about problems like this in the future from each of the following perspectives?
  - Policy
  - Advocacy
  - Environmental justice
  - Personal

What will make a presentation of your solution great?

When laws change, does this change the health risk? Does it change your ethical/moral duty?