CEE/EHS 597B, Potable Water for Small and Disadvantaged Communities

General guidance for semester field project

Recommended Steps and Guiding Questions

A. Collect information on the present water system, its recent history, legal actions, planning documents, violations and other relevant data: (25% of effort)
   - SWAP and other info available on the web: your responsibility
   - DEP files –
     - We will provide you in a spreadsheet:
       - Recent DBP data (THM & HAA) for the surface water supplies, Fe/Mn data (all but Monroe), Pb/Cu data (all three)
       - Other WQ data from Oracle DB: secondary contaminants and DBP species for some
     - Your responsibility – to view and copy during file review day (9/27): permit files, sanitary surveys, lead and copper files, correspondence files, violations, etc.:
     - Your responsibility – online; Compliance monitoring schedule (http://www.mass.gov/eea/agencies/massdep/water/drinking/pws-documents-search-tool.html)
   - Files from current and past design, construction or studies; we will request these for you
   - Documents from the local public library; your responsibility
     - If the library has a reference librarian, talk to him/her first
     - This is a likely source for planning documents (master plan, capital improvement plant, etc.)
     - In addition to reports on the water system deposited with the local library, they might also have newspaper clippings or indexes to newspaper articles on the water system that can be located on archived paper copies, computer images, microfilm or microfiche
   - Documents from the operator, town water department, public works department or other town offices
     - This is the last source to mine, as we don't want to trouble these folks with too many inquiries

B. Identify key stakeholders (10% of effort)

Generic Category	Specific to your site	Who
Regulators	MA DEP, WERO	Doug Paine
	EPA	
Operator(s)		
Town political leaders	Paid/elected leaders	
	Citizen board members	
Local Health Officials	Paid/elected staff	
	Citizen board members	
Owners (if private)		
Consumers (including rate payers)		
Regional Planners		
Managers of public lands in watershed		
Water system material suppliers		
Service Providers	RCAP solutions	
	MA Rural Water Assn.	
Consulting Engineer		

C. Collect additional information from these stakeholder by electronic means (e.g., email), on-site meetings, or remote video meetings with key stakeholders (15% of effort)

- If you haven't already this is usually a good time to visit the community
- You already have the issues and needs as perceived by DEP, you will want to get similar information from other stakeholders
- When planning to talk to the operator or public prepare questions ahead of time, notify instructors when you plan to do this and submit the questions to them before you conduct any meetings

D. Develop a preliminary report on the system needs, problems, and solutions already proposed by the stakeholders (25% of effort). Some suggestions below:

- Full description of the case
- Some analysis and evaluation of compliance with federal and state water quality standards and compare to DEP's stated compliance status
    - Are there specific locations within the system that are problematic?
    - For surface water supplies:
        - did DEP calculate the LRAA correctly? What is the most recent OEL value?
        - Is the actual CT value sufficient for the inactivation credit needed?
- High level outline of key issues

- Compile problems/issues reported by the various stakeholders. Are there disagreements or conflicts among these groups regarding the most important challenges for your water system?
    - If so, how do you reconcile them?

E. Develop a plan for solutions to the identified problems. Present this plan in your final report along with a full review of the background information on your system, especially that information and analysis that led you to the proposed solutions (25% of effort).

- Given the problems identified in the mid-term report, how do you think your community water system should proceed in fixing them?
    - What are the most attainable and/or sustainable options in your view?
    - Do they need help from outside entities?
        - Who?
    - Will this create additional financial burdens and how will they accommodate these?
- If there are multiple problems with separate solutions, can you prioritize them?

Layout of reports and timeline:

Mid-term Reports should include:

Description of the case (see below), and include what you plan to use as subheadings with descriptive bullets for each of the "Analysis of Key Issues" section

Final Reports should include:

Description of the Case:

- Location & geography
- Population (socio-demographics)
    - Current and future projections
- Water source
    - Type, quality, availability, risks
- Water system
    - Physical properties (e.g., age, physical structure, etc)
    - Service properties (service area, number of connections, gallons per day etc)
    - Management and economic characteristics
- Other relevant information

Analysis of Key Issues

For each of the below, assess the current status, explain the challenges, discuss steps made to date to address the challenges

- Water supply availability
- Water quality and water treatment
    - Specific water quality objectives not being met
    - Treatment techniques and performance measures not achieved
    - Adequacy of facilities for monitoring and reporting
- State of the infrastructure (operations, maintenance, need for repairs, planned or needed upgrades or expansions, replacement of hazardous pipe materials)
    - Fixing public system vs home (premise) plumbing
- Planning documents
    - Master plans, asset management, capital improvement plan, rate study
- Finances
- Managerial and Administration Practices and Capacity
    - Monitoring and reporting protocols and oversight
    - Understanding of regulatory requirements
    - Technical capacity
    - Risk management
    - Coordination and collaboration with other entities (regional commissions, neighboring towns, etc.)
- Human resources & HQP
    - Replacing personnel and institutional knowledge: the "grey tsunami"

    - Motivating and rewarding employees
- Decision-making processes
    - Structure of institution and power dynamics
    - Opportunities for citizen engagement
    - Role of the operator, if any
    - Current disagreements or concerns

Recommendations

Schedule:

Date	Activity	Detail
9/18	Project sites assigned to groups	
10/10	Short group reports on information and stakeholder needs	Each group should be prepared to make a 5 minute presentation on the background data that they feel they still need (i.e., for Part A) and the stakeholder they still need to identify (i.e., Part B). faculty will offer their advice
10/25	Group mid-term reports with conclusions	
11/8	In class period and discussion	Each team submits challenges they've identified to date, and as a class together with faculty, we talk about potential ideas.
12/6	Final Project Presentations	
12/11	Final Project Presentations	