OPERATION PLANNING TEAM BRIEF

E Coli Infiltration

of

Haines Water Lines

Brief Structure

- Problem Framing/Mission Analysis
- Course of Action Development
- Course of Action Testing
- Course of Action Comparison & Decision
- Orders Development
- Execution and Supervision

Mayor's Planning Guidance

- Keep elected officials and the public informed
- Identify options that will address the situation with least impact
- Prepare for likely and worst case scenarios
- Review the scenario after the fact and identify lessons and how we will learn from them

Problem Framing

Orientation

- On 24 June Haines Borough was notified by ARS Aleut Analytical, our contracted water quality testing service, that a sample obtained during the Borough's monthly water quality check tested positive for e coli. The Borough currently obtains water from two sources, Lily Lake and Piedad Springs. The water from Lily Lake is treated at our Water Treatment Facility while the water from Piedad Springs is treated with a chlorinating unit at the top of Piedad Road. Both of these sites feed into the Borough water system and it was the water from Piedad Springs that tested positive for e coli.

Threat Analysis: E Coli

E. coli is the name of a type of bacteria that lives in your intestines. Most types of E. coli are harmless. However, some types can make you sick and cause diarrhea. One type causes travelers' diarrhea. The worst type of E. coli causes bloody diarrhea, and can sometimes cause kidney failure and even death. These problems are most likely to occur in children and in adults with weak immune systems. You can get E. coli infections by eating foods containing the bacteria. Symptoms of infection include

- Nausea or vomiting
- Severe abdominal cramps
- Watery or very bloody diarrhea
- Fatigue
- Fever

To help avoid food poisoning and prevent infection, handle food safely. Cook meat well, wash fruits and vegetables before eating or cooking them, and avoid unpasteurized milk and juices. You can also get the infection by swallowing water in a swimming pool contaminated with human waste.

Most cases of E. coli infection get better without treatment in 5 to 10 days

Source: http://www.nlm.nih.gov/medlineplus/ecoliinfections.html

Notification

ARS Aleut Analytical, LLC
4307 Arctic Boulevard
Anchorage, AK 99503
Phone: 907-258-2155
Fax: 907-258-6634

Haines Borough Water and Sewer
Attn: Mr. Scott Bradford
P.O.Box 1209
Haines, AK 99827
907-314-0659
Fax: 907-766-2716

Client Sample ID: Piedad Meacock
Percent Moisture:
Sampling Location: **Piedad Meacock**
Client Project: HAINES - Lily Lake and Piedad - 2015 CMP
Sample Matrix: Finished - Chlorinated
COC #:
PWS#: 110619
Residual Chlorine: 0.36
Comments: Results submitted to ADEC

Report Date: 6/25/2015
Receipt Date: 6/23/2015
Sample Date: 6/22/2015
Sample Time: 10:20:00AM
Collected By: SB

Flag Definitions:
MRL = Method Reporting Limit
MCL = Maximum Contaminant Limit
B = Present also in Method Blank
H = Exceeds Regulatory Limit
M = Matrix Interference
J = Estimated Value
D = Lost to Dilution
** = RL higher than MCL; target not detected
TNC = Too Numerous to Count - result rejected
CF = Confluent Growth - result rejected
TCNG = Turbid Culture No Growth - rejected

Lab#: A1506304-01A

Analysis Method / Parameter	Result	Units	Flags	MRL	MCL	Dil Factor	Prep Date	Analysis Date		Analyst
9223B-PA (Aqueous) - Coliforms in DW					*Test was conducted by: ARS Aleut Analytical,LLC*					
E. Coli	Present	Present/Absent				1	6/23/2015	6/23/15	9:30	TR
Total Coliform	Present	Present/Absent				1	6/23/2015	6/23/15	9:30	TR

Medical Update

- **Medical Concerns:** As of 1000 on 26 June 2015 there were NO reported cases of symptoms consistent with e coli infection. A message from the Administrator of the Haines SEARHC Clinic to the Borough Manager of Haines Alaska reads as follows:

  - "as of Wednesday morning of afternoon 6/26/2015, the Haines Health Center had not observed anyone in the clinic with discernible symptoms consistent with e-coli infection. The clinic is monitoring patients carefully for symptoms and advises that community members remain vigilant and follow guidance from the city and the public health department."
- E coli present within 24-72 hours after being infected. It has been 120 since the sample was taken and no positive cases have been reported.
- Most people can recover without treatment within 5-10 days

DEC Requirements

Alaska Department of Environmental Conservation
Division of Environmental Health – Food Safety and Sanitation

Food Establishment Boil Water Notice Guidelines **October, 2011**

BOIL WATER NOTICE, by Authority of 18 AAC 31.500, Alaska Administrative Code
These procedures must be observed while a boil water notice is in effect:

TAP WATER

- Do not serve water from faucets until ADEC-Drinking Water Program advises the water is safe for consumption. Use only water from an alternate approved source and/or boiled tap water. Boil water at a rolling boil for two minutes to kill infectious organisms.
- Another method for areas without power is to mix 8 drops (1/8 teaspoon) of unscented household bleach per gallon of water and allow to stand for 30 minutes. If the water is cloudy in appearance, add 16 drops (1/4 teaspoon) and let stand for 30 minutes. (Water will not be toxic, but may have a chlorine odor and taste.) Note: Using bleach will not kill all parasites that may be present; however boiling will kill all parasites.

ICE, ICE-MAKING, BEVERAGE & WATER VENDING

- Ice bagged or made prior to the issuance of the boil water notice may be used.
- Ice produced in ice machines after the issuance of a boil water notice must be discarded and machines not restarted until the water supply is deemed safe by the ADEC Drinking Water Program. Sanitize the interior of the ice machine, ice trays and built-in ice-makers with two teaspoons (100 + ppm) of household bleach in one gallon of water prior to restarting the ice machine or ice-maker.
- Disconnect or turn off water vending machines, drinking fountains, misters, ice-making units and soda machines to prevent their use.
- Filters in water lines should be replaced if the water supplier detected bacteria in the water samples or if debris accumulation is observed in the filter(s). Information regarding the presence of bacteria will be provided by your water supplier or through the news media.

HANDWASHING

- Do not use tap water for handwashing. Use only water from an alternate approved source and/or boiled tap water (safely cooled).
- Set up temporary handwash sinks using water from an alternate approved source and/or boiled tap water.

COOKING AND FOOD PREPARATION

- Discard any ready-to-eat food prepared with water prior to the discovery of the water contamination. *Contact your local Environmental Health Officer to help you assess which foods must be discarded.*
- Prepare/cook read-to-eat food using the drinking water alternatives listed above.
- Wash fruits and vegetables with boiled or alternate approved source only.
- Do not use tap water for food processing or food preparation until the "BOIL WATER NOTICE" is lifted by State authorities. Use only water from an alternate approved source and/or boiled tap water for these purposes.

CLEANING

- Food equipment, utensils and food-contact surfaces that must be cleaned in place (does not fit into a three-compartment sink), should be cleaned using the proper clean in place procedures using an alternate approved source and/or boiled tap water.
- Maintain sanitizer buckets for wiping cloths at 100ppm.

DISHWASHING/WAREWASHING

- Manually wash, rinse and sanitize dishes, food equipment and utensils with water from an alternate approved source and/or boiled tap water utilizing a three-compartment sink in the approved manner. Use single-service articles when possible.
- Mechanical dishwashers may be used only to remove food residue and debris, if followed by a manual wash, rinse and sanitization as described above.

RESCINDING THE BOIL WATER NOTICE

- You will be advised by ADEC- Drinking Water Program directly or through the news media when a "BOIL WATER NOTICE" has been rescinded (lifted). AFTER the "BOIL WATER NOTICE" is lifted, allow water to run for five minutes at each tap to flush the lines with safe water. Remember to include misters, drinking fountains, ice makers (discard the first binful), soda machines, etc., when flushing the lines. If you require further information, please contact your local water supplier.

If you have questions about the BOIL WATER NOTICE Guidelines, please contact the DEC Food Safety Hotline 1-877-233-3663.

Public Health Advisory – Drinking Water Warning
Haines Borough
Public Water System ID#: AK2110619

BOIL YOUR WATER BEFORE USING

The Alaska Department of Environmental Conservation (DEC) Drinking Water Program has issued this public health advisory notice for the Haines Borough public water system because DEC has been notified that our water has recently tested positive for a fecal indicator.

A routine total coliform bacteria water sample was collected on June 22, 2015 and tested by a certified laboratory for fecal indicators. This sample tested positive for total coliform bacteria as well as E.coli bacteria and reported to the water system and DEC on June 24, 2015.

What should I do? What does this mean?

DO NOT DRINK THE WATER WITHOUT BOILING IT FIRST. Bring all water to a boil, let it boil for two minutes, and let it cool before using, or use bottled water. Boiled or bottled water should be used for drinking, making ice, brushing teeth, washing dishes, and food preparation until further notice. Boiling kills bacteria and other organisms in the water.

- *Fecal coliform and E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, and people with severely compromised immune systems.*

- The symptoms above are not caused only by organisms in drinking water. If you experience any of these symptoms and they persist, you may want to seek medical advice. People at increased risk should seek advice about drinking water from their health care providers. General guidelines on ways to lessen the risk of infection by microbes are available from EPAs Safe Drinking Water Hotline at 1-800-426-4791.

What is being done?

We will be collecting repeat samples and sending them to a certified lab for analysis as soon as possible. These repeat samples will help us determine if a problem exists with our water system. If any of the repeat samples are positive for total coliform or E. coli bacteria, we will work to disinfect the water system, flush it, and collect additional repeat samples to verify our system is free from bacterial contamination.

You should not use the drinking water for any potable purpose without boiling it first until further notice. We will notify you when the problem has been addressed and the boil water notice has been rescinded by DEC.

For more information, please contact the Scott Bradford at (907) 766-2200, or the DEC Office at (907) 262-3420.

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly. Please post this notice in a public place.

This notice is being sent to you by the Haines Borough public water system.
State water system ID# 110619 Date distributed: 6/24/2015

ML/MD Outcome

- **Most Likely:** the most likely outcome is that e coli sampling reveals that the impact is localized to Piedad. This could result in less overall impact to the community and will be relatively easy to over come in 48-96 hours. **THIS OUTCOME IS ASSESSED AT A HIGH ORDER OF PROBABILITY**

- **Most Dangerous:** There is a systemic impact requiring a complete purge of the system resulting in low/reduced water levels. Worst case is that the bacteria begins causing illness and poses a significant impact to public health. **THIS OUTCOME IS ASSESSED AT A LOW ORDER OF PROBABILITY**

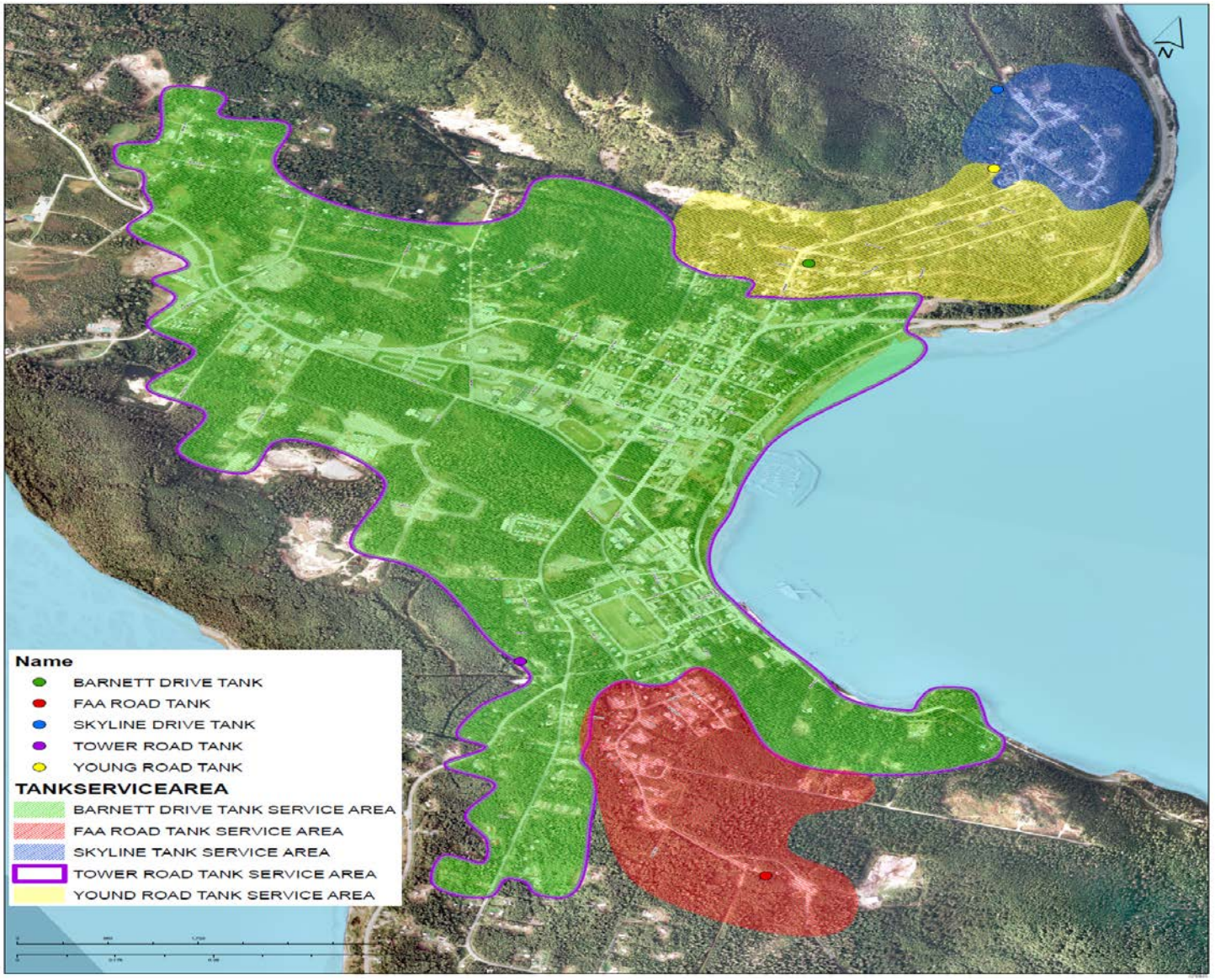
Actions

- **Initial Actions:**
  - In accordance with DEC requirements the Water Sewer Team added more chlorine to the system.
  - A quick emergency meeting was then held between the Borough Manager, Mr. Bradford, and Mr. Lemcke to develop a notification and response plan.
- **Notification Process:**
  - The Borough immediately sent official notification to the Assembly, Local Media, and local environmental groups to increase awareness.
  - The local radio station KHNS issued a public service announcement.
  - Borough Manager posted the notification on the Borough web site and liked that notification to facebook to ensure that the message got out as quickly as possible.
  - The Tourism Department contacted local businesses and Mr. Lemcke called restaurants to ensure that they were notified as soon as possible.
  - The Borough Manager also met with staff form the SEARHC Clinic to advise them of the situation so that they could evaluate patients with this information in mind.
  - Borough employees began going door to door to hand official DEC sanctioned leaflets out to community residents advising them of the situation.
- **Subsequent Actions:**
  - On the morning of 25 June Borough initiated additional sample (5 Samples) collection and those samples were be sent to a testing lab in Juneau for analysis.
  - Planning for further actions continued on 25/26 June
  - Borough Manager notified State Dept of Emergency Management in the event external support is required
- **Pending Actions (Next 24):** The following actions have been identified for the next 24 Hours
  - HELP Committee Meeting at 1000 on 26 June 2015 (Borough Conference Room)
  - Determination of requirement to stand up Emergency Operation Center
  - Issuance of Water Conservation Notice
  - Continued notification and updates to local residents and businesses
  - Development of a structured plan for a full system purge with branch plans for partial purge (Complete NLT 1500 26 June 2015)
  - Determination of leave cancellation of essential Borough Personnel

Resources & Support Available

Level	Unit	Asset	Availability
Local			
Regional	Skagway Water Sewer Juneau Water Sewer	Personnel and Miscellaneous Equipment	TBD
State	DEC Div of Emergency Services		
National	NO SUPPORT ANTICIPATED		

Service Area Graphic



Local Impact

Severity	Category
High	•Food Handling •Food Processing, •Medical Facilities
Medium	•Lodging Facilities, •Local Business
Low	•Residential Use • Emergency Services (Fire) •Construction

Impact of Terrain & Weather

- There is no anticipated impact from terrain or weather.
- 5 Day forecast call for cloudy skies with moderate temperatures and some rain through Tuesday 30 July
- Rain will reduce demand for lawn watering and make it somewhat easier to purge tanks

Limitations

Restraints (Can't Do)

- Do not drink water without boiling
- Cannot take action without DEC approval

Constraints (Must Do)

- Must maintain water for sewer uses
- Must maintain water for fire suppression (can we do this?)
- Must maintain a sufficient supply of water for personal use after boiling
- Must provide updates and notification to public
- Final plan must be approved by DEC
- Must de-chlorinate water before discharge after super-chlorination

Assumptions

- We can gain access to the resources we require for action
- We will receive a positive sample
- We have the financial means to resolve the situation
- All options involve super-chlorination (different levels)
- We will receive DEC approval for action
- There will be some citizen complaints (set up a hotline)

Request For Information

- Can we drain and flush a line while maintaining fire suppression? Answered and there is a plan to address this
- Do we need specialized training to clean the tanks? (confined space action)
- Do we need to cancel leave for critical personnel? Who are they? How long?
- Are there normal functions that we can cease?
- Should we stop selling water to cruise ships?

Tasks

Specified Tasks

- Restore normal water operations (W/S)
- Safeguard public health

Implied Tasks

- Maintain all other normal operations (all)
- Establish a hotline for complaints (F&PW)
- Communicate with the Public (Admin)
- Communicate with other agencies (as required)
- Review manpower status (leave Plan-Dept heads)
- Identify and line up emergency hires (F&PW/Finance)-paperwork?

Restated Mission

- NLT XXXX Haines Borough eliminates the threat of e coli in the public water utility through DEC approved action in order to provide safe drinking water and provide for public health.
  - Must maintain water for sewer uses
  - Must maintain water for fire suppression
  - Must maintain a sufficient supply of water for personal use after boiling
  - Must provide updates and notification to public
  - Final plan must be approved by DEC
  - Must de-chlorinate water before discharge after super-chlorination

Public Information Outlets

- Website
- facebook
- PSA (KHNS)
- Hotline (in progress)
- Cable TV (F&PW)
- Mass E-mail to businesses (Tourism)
- Word of mouth

MCIR

- Notification that there is no residual contamination in the system (requires public notification)
- Notification of a systemic contamination to the system
- If patients report to medical facilities presenting with symptoms

Course of Action Development

All COA's must be Feasible, Acceptable, Distinguishable, & Complete

- Insert Chart Here

Course of Action 1: Maximum Chlorination

Description: Raise CL2 to 4ppm and maintain at the higher for XX days

- **Advantages:**
  - **Addresses contamination**
  - **Less man power than other options**
  - **less CL2 than other options**
  - **No need to Drain system.**
  - **Partial flushing of lines,**
  - **lower cost,**
  - **Does not require outside help**
  - **No impact to fire fighting.**
- **Disadvantages:**
  - **Additional testing,**
  - **Employee increased hours**
  - **monitoring CL2 level in system**
  - **additional chemical purchases, need chemicals for de-clorination when flushing lines,**
  - **long term additional monitoring and testing,**

- Insert Chart Here

Course of Action 2: Partial Purge

Description: This plan involves a partial purge focused on Piedad Springs and the isolation of Piedad Springs from the rest of the water system.

- **Advantages:**
  - **Less impact than option 3**
  - **Less testing than option 3**
  - **lower cost than option 3**
  - **Effectively treats the problem**
- **Disadvantages:**
  - **Longer impact to customers**
  - **May need outside help if tanks have to be cleaned.**
  - **Longer public communication**
  - **increased cost over option 1**
  - **Impact to normal borough operations**
  - **More long term monitoring and testing than option 1**

- Insert Chart Here

Course of Action 3: Full Purge

Description: If there is a systemic positive result the course of action will likely require an full purge and cleaning of all tanks. This option will likely take in excess of 120 hours to complete

- **Advantages:**
  - **Effectively treats problem**
- **Disadvantages:**
  - **Highest cost**
  - **Significant requirement for outside help**
  - **High impact to customers**
  - **High economic impact**
  - **High impact to normal borough operations**
  - **Increased chemical cost with long term monitoring and testing**

Course of Action Testing

Testing Guidance

- Each COA will be evaluated against the most likely and most dangerous outcomes

Course of Action Comparison & Decision

Staff Estimates of Supportability

	COA 1	COA 2	COA 3
F&PW			
FINANCE			
FIRE			
HARBOR			
PLANNING			
POLICE			
WATER/SEWER			
MANAGER			

External POC's

- DEC:
  - Jamie.bjorkman@alaska.gov 262-3423
  - Amy.hill@alaska.gov 376-1861
- State Emergency Management:
  - David Lee: david.lee@alaska.gov

Actions

- Slide updates due at 1 PM
- Next HELP Committee Meeting at 2 PM