Staying Ahead of the Curve: Providing Continued Safe Water Service Near the CRWF TCE Plume

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June, 2015
Purpose of Project

• Prepare now so we’re ready if/when the CRWF is impacted by the plume
• Also, this preparation allows everyone to feel secure in the future water supply of the system, as well as
• Allowing us to continue using the CRWF using slow, controlled pumping – which may extend its life
Work to Date

- $300K appropriated Nov. 2012
- Analyzed three options for future solutions
- MAWSA had water project in progress
  - Provided opportunity for more testing
    - Indicates strong aquifer for proposed Option 3 well
- Meetings March & July 2013
  - Selected Option 3
Connect to existing high pressure watermain

Cedar River: Proposed water storage tank & booster station

Proposed water main extension

Watermain extension to Shanty Creek

Watermain ext. to connect Mancelona and CR tank
Anticipated Plume Changes Over Time
Rate of movement: Approx. 350'/year since 2008
Schuss/Cedar Village Service Area Map: 2015-2016 Proposed Improvements

- Future Low-Pressure Service Area
- Proposed 300,000 gal. Ground Storage Tank & Booster Station
- Cedar River Wells
- High Pressure Tank Service Area
- 12" Watermain (New)
- Low Pressure Tank Service Area
- Water Supply from Mancelona
- Plume Area
Selected option includes new wells in Mancelona upgradient from plumes.
The Next 12 Months (Jun.-Dec. 2015)

• Complete design:
  – 1) High-Pressure Schuss Mtn. Loop (June 2015)
  – 2) CRWF Water Tank and Booster (June 2015)
  – 3) Deskin Drive/Alpenhaus Watermain Extension (July 2015)

• Complete water system model (June 2015)

• Original appropriation of 300K spent by June, 2014, includes:
  – High-Pressure Schuss Watermain Loop Design
  – Water Tank/Booster Design
  – Water Study Update
June, 2015

• Design completed, including cost estimates
  – Phase I: Storage Tank/Booster Station; Watermain Looping, Deskin Drive/Alpenhaus Extension

• Secure funding for Phase I
  – High Pressure Loop at Schuss Mtn
  – Water tank at CRWF w/booster
  – Deskin Drive/Alpenhaus Extension
Cost Estimates

• Phase I: Storage - $1.4M
  1) High-Pressure Schuss Mtn. Loop
     • Includes PRV & Booster PRVs $552,000
  2) CRWF Water Tank and Booster
     • 300,000 gallon Water Storage Tank/Booster Station $711,000
     • Alt. Bid 150,000 gal tank
  3) Deskin Drive Extension ($273,300) & Alpenhaus Extension ($108,000)
## Schedule

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<tr>
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<th>High-Pressure Schuss Mtn. Loop, Deskin/Alpenhaus Extension</th>
<th>Water Storage Tank &amp; Booster Station</th>
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<tr>
<td>Permitting</td>
<td>July – Aug</td>
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After July, 2016

- Continue using CRWF with slow controlled pumping
- Continue to monitor plume movement (will require future watermain extensions)
- Continue to monitor sentinel wells, one of two outcomes:
  
  **Sentinel wells detect TCE**
  - Use new HP Schuss loop to supply water from Mancelona wells
  - Abandon CRWF

  **Sentinel wells DO NOT detect TCE**
  - Approx. 2-3 years before CRWF could be impacted
  - Continue to monitor plume
  - Continue CRWF pumping