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Developing and Piloting Maintenance Assurance Manuals for the Operation of Water Supply Systems within Newfoundland and Labrador

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Introduction

What is a Maintenance Assurance Program (M.A.P.)?

- Another step to assist in providing safe and reliable potable municipal water
- Improved maintenance and operation of existing water supply infrastructure
- Sustainability of water infrastructure
- Doing more with less
- Preventative maintenance on water infrastructure



Introduction

How is this done?

A municipality should:

- Identify existing water infrastructure
- Document maintenance and operation activities
- Record keeping with written procedures
- Program with procedures and set time frames
- Improved communication
- Regular checks (accountability)



Introduction

What are the benefits of a M.A.P.?

- Higher health and safety of water systems
- Lower operating costs
- Proactive operation instead of reactive
- Reduction in potential health risks
- Less water infrastructure failure
- Less costly infrastructure renewal projects
- Succession planning



M.A.M. History

- 2004 Kendall and Kirby commissioned to develop Maintenance Assurance Program
- 2006 Guideline M.A.M. document published
- 2009 Exploits Engineering Consultants Ltd engaged to oversee pilot study
- 2010 M.A.M. developed for each participating municipality using the guideline document
- 2011 Process monitored



M.A.M. History

- January, 2012 Feedback from municipalities and final summary report being prepared
- March, 2012 presentation of the provincial pilot study for the Maintenance Assurance Manual
- 2013 (Maybe?) the M.A.M. will be part of the capital funding program available to all municipalities in the province



Pilot Municipality Selection Criteria?

- Geographical location: entire province represented
- Population: small to medium
- Water supply: surface vs. ground
- Water treatment: none vs. complex
- Water disinfection: UV, liquid, gas
- Water storage: natural vs. tank



Town of Springdale

- Central District of province
- Population 2764
- Water source is surface; Sullivan's Pond and one well
- Water treatment: none (disinfection only)
- Disinfection with gas and liquid chlorine
- Water storage at pond only



Town of Pasadena

- Western District of province
- Population 3133
- Water source is surface; Blue Gulch Pond (dam)
- Water treatment: pre-filtered then filtered for fine particulate matter
- Disinfection with UV technology and chlorine gas
- Water storage in two tanks



Town of Happy Valley-Goose Bay

- Labrador District of province
- Population 7572
- Water source is ground; Spring Gulch and well field (5 wells)
- Water treatment: sand pressure filters, alum for iron and manganese removal before green sand filters with pressure sand filters.
- Disinfection UV technology, gas and liquid chlorine, fluoride added
- Water storage three concrete tanks



Town of Clarenville

- Eastern District of province
- Population 5186
- Water supply is surface; Shoal Harbour River
- Water treatment: turbidity removal (alum) with pH control (lime); Settling tanks and sand filter with pH adjusted using soda ash
- Disinfection with chlorine gas
- Water storage tank with standpipe



Guideline Document

- Document is called a “Guideline to Develop a Maintenance Assurance Manual (2006)”
- Generic document that can be used as a template to assist municipalities in developing their own unique manual
- Document contains forms that can be customized to suit each municipality’s needs and situation



Pilot Study

- Four municipalities selected for Pilot:
 - Springdale
 - Pasadena
 - Happy Valley-Goose Bay
 - Clarenville
- In summer of 2010 EECL developed M.A.M. for each town
- October, 2010 feedback from each town was requested



Pilot Study

- November, 2010 M.A.M. for each participating municipality was finalized
- January to December, 2011 Pilot Study period
- January, 2012 Summary and Feedback meeting with all participating municipalities
- March, 2012 presentation of the provincial pilot study



What did we learn?

- Each municipality must know what water infrastructure they have and where it is located
- Accurate mapping/as-built drawing are critical
- Some smaller municipalities may require technical support to develop their M.A.M. documents
- Additional time required to complete forms



What did we learn?

- Improved maintenance records demonstrate to council where O & M budget is spent
- Existing municipality forms were modified to capture additional data
- Forms in M.A.M. are practical and useable
- Opportunities for a regionalization approach to operations and maintenance activities
- Great for succession planning



What did we learn?

- The implementation of this program is manageable and well within the ability of any municipality to achieve
- This implementation of this program will be costly
- Where will this money come from??



Funding arrangements?

- It is hoped that the M.A.M. document will become an integral part of the Permit to Operate (PTO) issued by ENVC
- In 2012/13 it is proposed that the M.A.M. project will become part of the capital works program
- Once approved this program will be cost shared between the municipality and DMA through a suitable costing agreement



A sincere thank you to the participating towns:

- Mr. Pat King and Mr. Rick Ledrew, Town of Springdale
- Mr. Steward Foote and Mr. Brian Hudson, Town of Pasadena
- Mr. Wayne Wall, Mr. Keith Pye and Mr. Wyman Jacque, Town of Happy Valley-Goose Bay
- Mr. Ralph Smith, Town of Clarenville



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THANK YOU

QUESTIONS?