I. What is Asset Management? (Why have an Asset Management program?)

II. What have we done so far?

III. Where are we now?

IV. What’s next?

V. What is the role of the Commission?
Asset Management: an organized system for balancing Risk, Cost, and Levels of Service
Asset Management vocabulary

• **Asset**
  – Things that allow us to do our jobs
Asset Management vocabulary

- **Level of Service**
  - What we are trying to do
    - i.e., clean water, resources recovery
Asset Management vocabulary

- Risk
  - The likelihood of a failure multiplied by the effects of that failure
An Asset Management Program answers **Five Core Questions:**

1. What is the current state of my assets?
2. What is my required level of service (LOS)?
3. Which assets are critical to sustained performance?
4. What are my best O&M and CIP investment strategies?
5. What is my best long-term funding strategy?
Why do Asset Management?

We DO NOT Want to
1. Be **blindsided** by asset failures
2. **Mismanage** funds

We DO want to
1. Make **decisions transparently**
2. Ensure that our system is **intentional** and **governable**
   i.e, that it is under our **control**
Where are we now?

• Seventh year of developing an Asset Management program
• First stage was planning
• With the 9S AMP we are moving into implementation:
  1. MMSD LoS and KPIs (5CQ 2)
  2. Plant Asset Register (5CQs 1 and 3)
  3. Assessment of Plant Maintenance practices (Start of 5CQ 4)
### Development of MMSD LoS and KPIs

**KPI = Key Performance Indicator**
The metric that tells you how you are performing a LoS

<table>
<thead>
<tr>
<th>KPI Title</th>
<th>Target Value</th>
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<tbody>
<tr>
<td>Ratio of planned to unplanned maintenance</td>
<td>≥ 90%</td>
</tr>
<tr>
<td>Number of assets in intolerable risk zone as percentage of total assets</td>
<td>&lt; 5%</td>
</tr>
<tr>
<td>Ratio of preventative maintenance work order hours</td>
<td>65% - 85%</td>
</tr>
<tr>
<td>Cost of Reactive work as a percentage of total cost</td>
<td>≤ 20%</td>
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<tr>
<td>Average time to satisfy orders</td>
<td>“X” days (subject to change per approval authority)</td>
</tr>
<tr>
<td>Percentage of obsolete inventory as a percentage of total inventory</td>
<td>&lt; 2%</td>
</tr>
<tr>
<td>Number of incomplete work orders due to waiting on parts</td>
<td>≤ 15% or trending indicator</td>
</tr>
<tr>
<td>Percentage of work orders issued with priority greater than or equal to 7</td>
<td>&lt; 10%</td>
</tr>
<tr>
<td>Schedule compliance</td>
<td>≥ 70%</td>
</tr>
<tr>
<td>Estimated vs. Actual Time for Work Orders</td>
<td>Trending</td>
</tr>
<tr>
<td>Backlog hours by individual and/or crew for planned work orders</td>
<td>Trending / 2-4 weeks of backlog by individual</td>
</tr>
<tr>
<td>Work orders with applied QA/QC</td>
<td>~ 3 hours per week</td>
</tr>
<tr>
<td>Mean time between failures (MTBF)</td>
<td>Trending</td>
</tr>
<tr>
<td>Mean time to repair (MTTR)</td>
<td>Trending</td>
</tr>
</tbody>
</table>

- **Ratio of planned to unplanned maintenance**
- **Mean time between failures (MTBF)**
Establishment of a Plant Asset Register

- Allows us to see the state of MMSDs assets

Asset condition by asset count, % of assets

Asset condition – size of pie slice shows # of assets, label is for value of assets

![Pie chart 1](image1.png)

- 34%: 1
- 38%: 2
- 14%: 3
- 6%: 4
- 8%: 5

![Pie chart 2](image2.png)

- $75,600,000: 1
- $75,500,000: 2
- $6,300,000: 3
- $12,700,000: 4
- $32,900,000: 5
Establishment of a Plant Asset Register

Replace these . . .

. . . or these?

Scenario 1 - 50 Year Investment Profile

Scenario 2 - 50 Year Investment Profile
Assessment of Plant maintenance practices

- GHD focused on **Reliability Centered Maintenance**

\[ x = \text{FAILURE} \]

\[ t = \text{TIME} \]

Optimal time to service
9S AMP has helped us to . . .

Asset Management will be an iterative ongoing effort

Asset Mgmt Implementation

5CQ 4: O&M/CIP Investment Strategies

5CQ5: Long-term Funding Strategy

Strategic Asset Management Planning

Staff knowledge and Expertise

5CQ 1 - 3

9S AMP provides a foundation
What is the role of the Commission?

- Commission already has policies to enable Asset Management

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>O-1</td>
<td>Global Outcomes Policy</td>
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<tr>
<td>O-2C</td>
<td>Financial Sustainability</td>
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<tr>
<td>EL-2F</td>
<td>Asset Protection</td>
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<tr>
<td>EL-2G</td>
<td>Infrastructure</td>
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<tr>
<td>ATT-2</td>
<td>Capital Projects Budget</td>
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<tr>
<td>ATT-2</td>
<td>Strategic Financial Planning</td>
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</tbody>
</table>

- Annual (or as needed) on Asset Management activities, insights, and progress
- The Commission will need to formally accept the 9S AMP
Questions?
Thank you!