

Investigating Tanks to Develop a Capital Improvement Plan

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Introduction

- Why this presentation?
- State of reservoirs today.
- Goals
 - Checklist of considerations
 - How to plan for a recoating project



How Have Things Changed?

- Safety Standards
- Seismic Standards
- Coatings – Lead, Cadmium, and Chromium
- Mixing
- Access





Develop Priorities

- Evaluate to Determine Deficiencies
- What must be addressed today?
- Develop a plan based upon
 - Deficiencies
 - Priorities
 - Opportunities
 - Budget

Capital Improvement Planning (CIP)

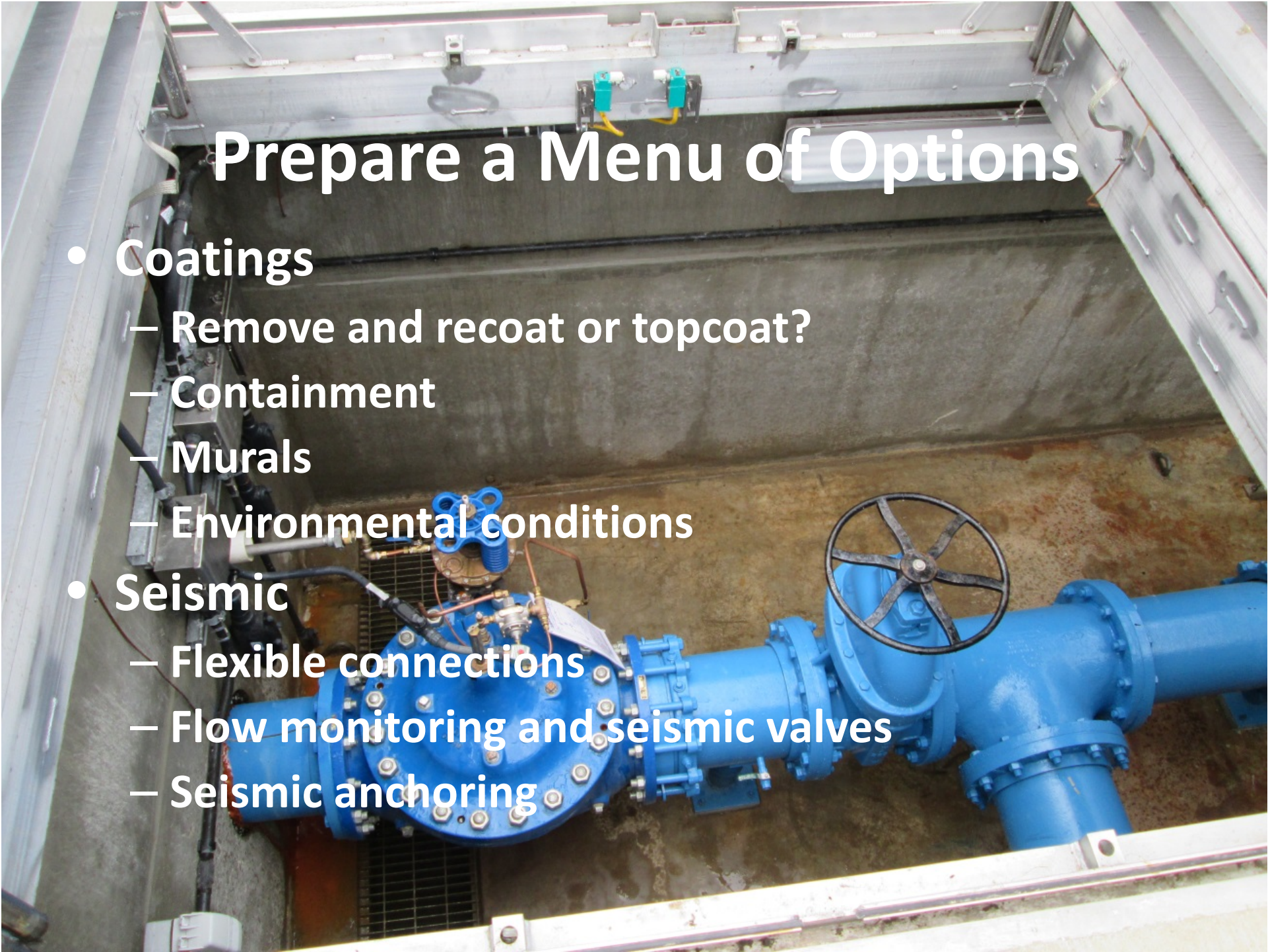
An aerial photograph of a large, flat green roof. The roof is divided into sections by dark lines, likely seams or drains. There are three square skylights or vents on the roof, each with a white cover. In the background, there are several houses with grey roofs and green lawns, surrounded by dense green trees. The sky is overcast.

- One reservoir or more?
- Evaluating the assets
- Prepare a menu of options and rank them
- Develop a schedule for projects

Evaluating the assets



- **Site visit**
- **Coating tests**
 - **Metals testing**
 - **Adhesion testing**
- **Floating tanks**
- **Divers**
- **SCADA Data**



Prepare a Menu of Options

- Coatings
 - Remove and recoat or topcoat?
 - Containment
 - Murals
 - Environmental conditions
- Seismic
 - Flexible connections
 - Flow monitoring and seismic valves
 - Seismic anchoring



Prepare a Menu of Options

- **Safety**
 - **Ladders (Exterior and Interior)**
 - Fall restraint
 - Cages and landings
 - **Rooftops**
 - Railings and catwalks
 - Anchors

Prepare a Menu of Options

- **Access**
 - Ladders
 - Stairways
 - Hatches and manways
 - Platforms
- **Security**
 - Security vents
 - Access points
 - Surveillance and monitoring



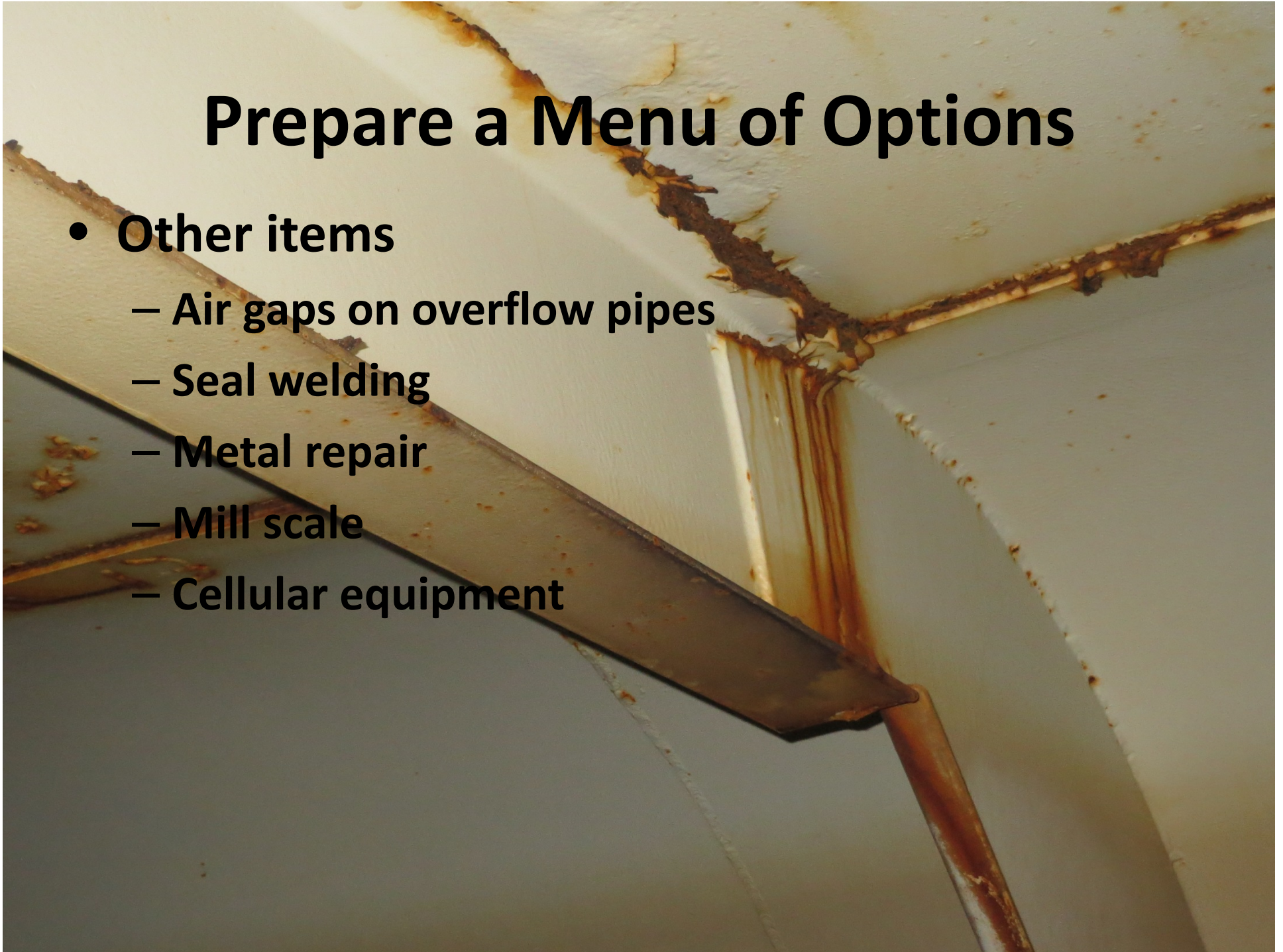
Prepare a Menu of Options

- **Mixing**
 - Passive mixing
 - Active mixing
- **Accessories**
 - Lighting
 - Electrical chases
 - Extra conduit runs
 - Gutters & downspouts
 - Sampling taps/ports
 - Hoists



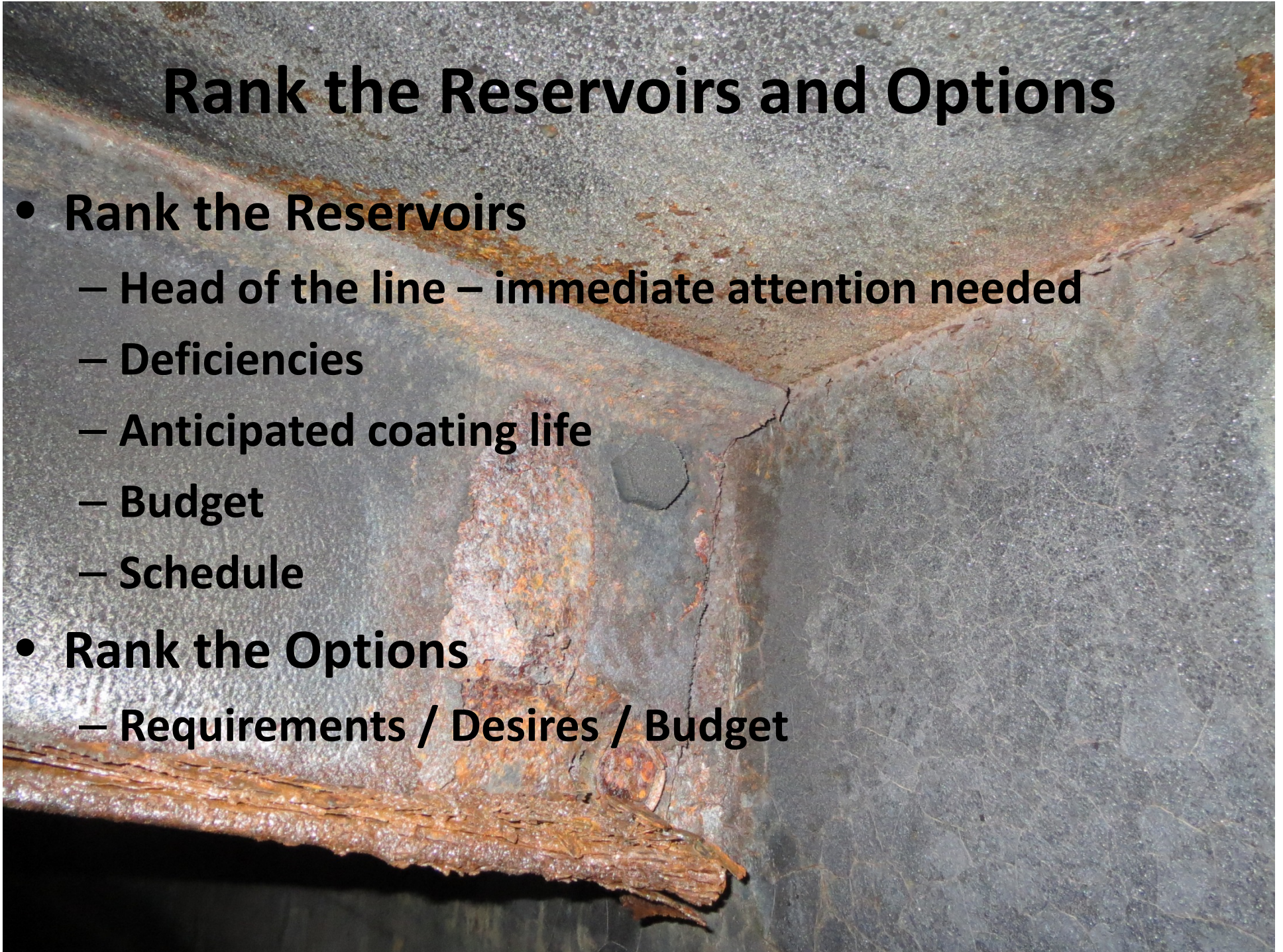
Prepare a Menu of Options

- **Other items**
 - Air gaps on overflow pipes
 - Seal welding
 - Metal repair
 - Mill scale
 - Cellular equipment



Rank the Reservoirs and Options

- **Rank the Reservoirs**
 - Head of the line – immediate attention needed
 - Deficiencies
 - Anticipated coating life
 - Budget
 - Schedule
- **Rank the Options**
 - Requirements / Desires / Budget



Create the Plan

- Develop costs for each reservoir
- Estimate a year for the project
- Look at projects in relation to each other
- Assume a 25 year lifespan for new coatings
- Plan for next recoat or topcoat





Now You Have It. What Do You Do With It?

- Incorporate the plan into budgeting.
- Reassess the coating conditions & assumptions
- Timing the project
 - When can your reservoir be offline?
 - Plan ahead for design time and WA DOH approval
- Design and construct the project
 - Choose coatings and options
 - Use NACE Certified Inspectors

Thank You for Attending!

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