

# FLOATING RESERVOIR COVERS GOOD DESIGN PRACTICES

April 30, 2008  
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**MWH**

***BUILDING A BETTER WORLD***

# FLEXIBLE- MEMBRANE FLOATING COVERS

## WHY INSTALL FLOATING COVERS?

- Regulatory requirements
- Prevent contamination of water
- Reduce chlorine demand
- Increase security
- Low capital costs



# FLEXIBLE – MEMBRANE MATERIALS

## CHOICES INCLUDE:

### Hypalon –

- 35-yr installed experience
- Standard 30-year material warranty
- Proven repair procedures
- Heat and solvent weld
- Specific gravity of 1.45

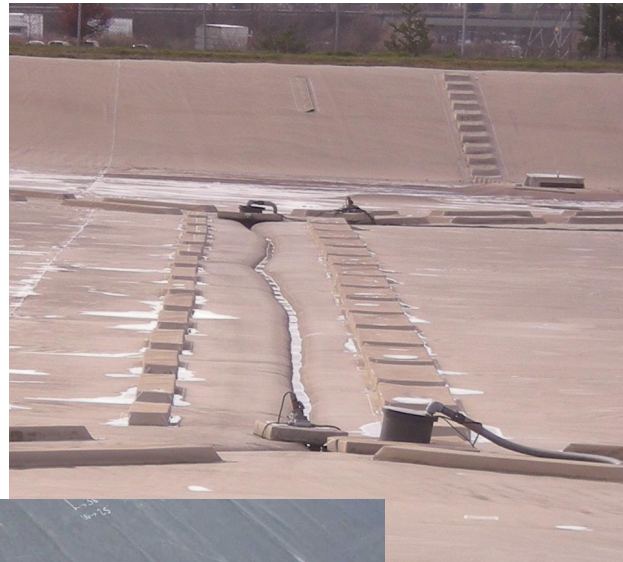
### Polypropylene –

- Lower material cost
- Higher tear strength
- Long term reparability (not fully proven)
- Specific gravity of 0.92



Typical Thickness – 45 mil

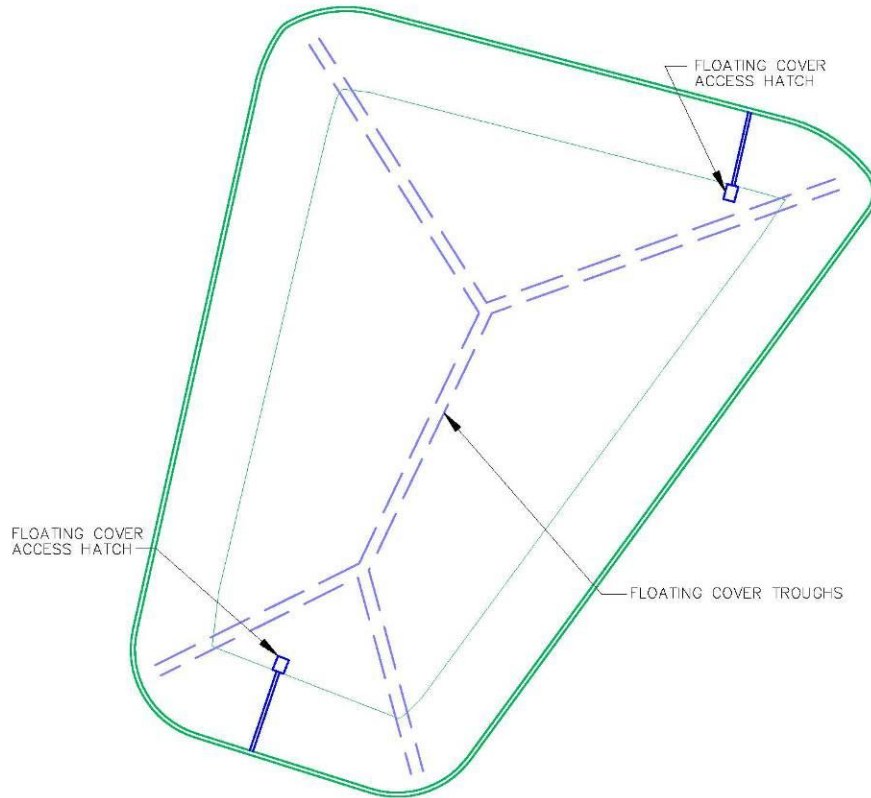
# FLOATING COVER DESIGN SYSTEM



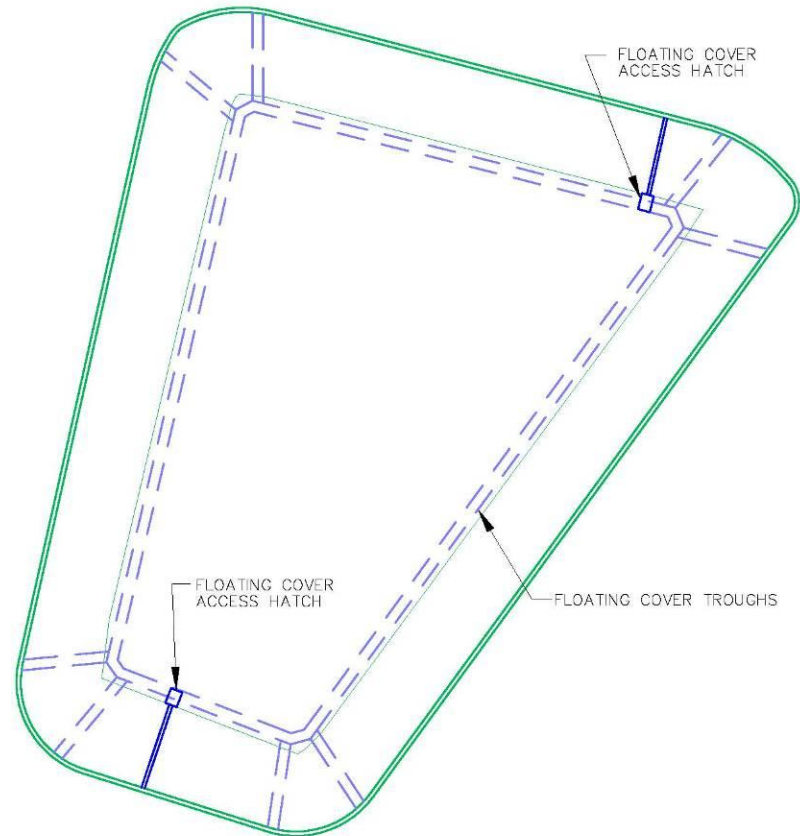
**Weight-Tensioned**

**Mechanical-Tensioned**

# WEIGHT TENSIONED COVER LAYOUT



**“Double-Wye” Trough**



**Perimeter Trough**

# PERIMETER ANCHOR SYSTEM



**Earth Anchor**



**Batten Bar Anchor**

# RESERVOIR APPURTENANCES

## COVER FLOATS



**Trough Floats**



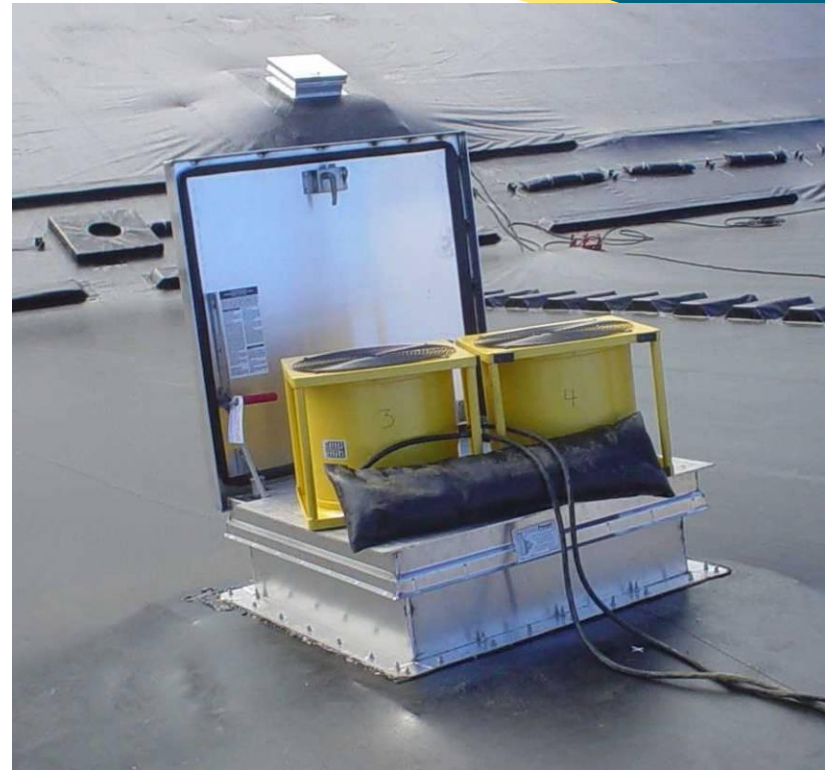
**Walkway to Hatch/Sump Pump**

# RESERVOIR APPURTENANCES

## HATCHES



**Access Hatch**



**Inflation Hatch**

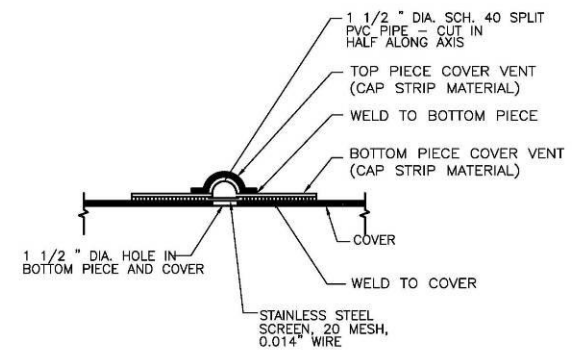
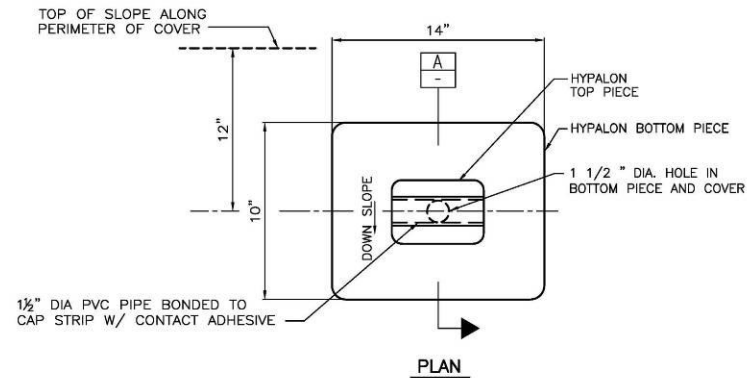


# RESERVOIR APPURTENANCES

## AIR VENTS



**Hatch Vent**

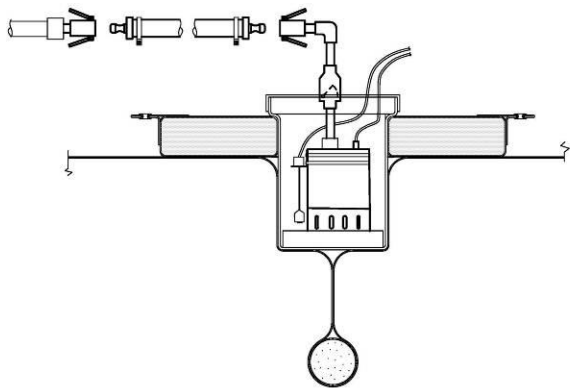


**Perimeter Vent**

# RESERVOIR APPURTENANCES

## DEWATERING SYSTEM

- Size pumps for storm event
- 1/3 to 1/2 HP range
- Provide counter weight
- Locate in collection trough



**Sump Pump Assembly**

# SAFETY MEASURES



**Cover Inflation**

- Locate inflation hatches at reservoir perimeter
- Avoid windy conditions
- Monitor inflation fans
- Minimize cover inflation height

# SAFETY MEASURES

## Safety Procedures

- Min. 2 persons on-site
- Provide wide walkway floats
- Avoid trough area

## Proper Equipment

- Position safety ropes at bollards
- Float ring w/ rope
- Floatation vest
- Footwear
- Knife?



# OPERATION & MAINTENANCE

## **Exterior Cleaning**

- Tree removal & trimming
- Daily visual inspection
- Routine cover inspection
- Surface cleaning
- Cleaning of water collection trough

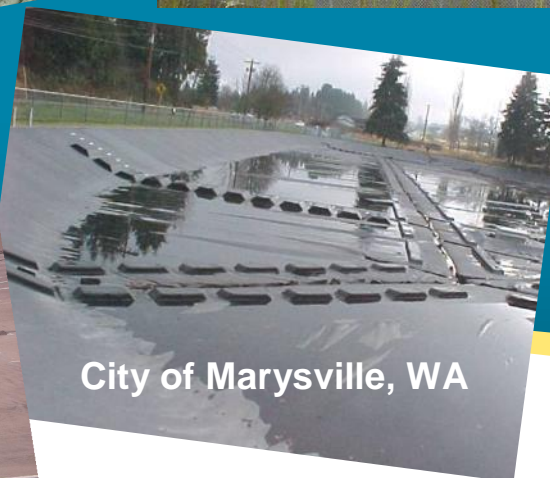
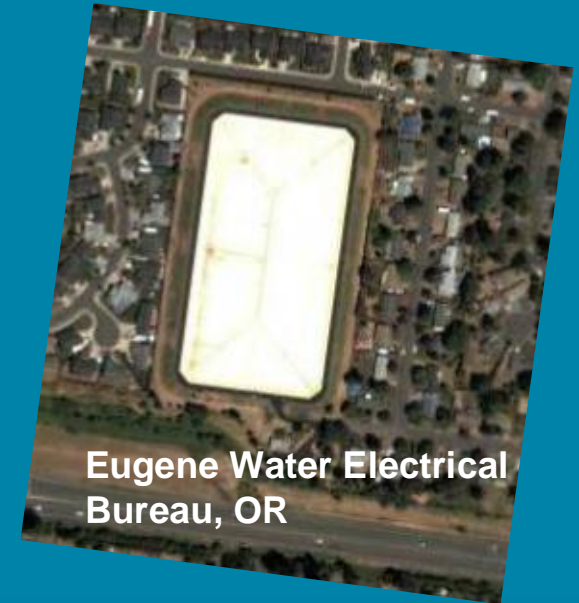
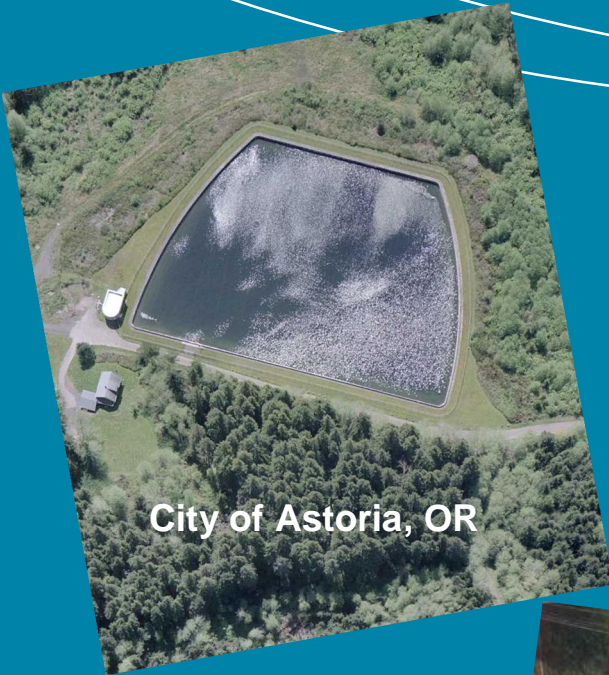
## **Interior Cleaning**

- Specialty underwater diving services
- Dewater reservoir and inflate cover

# DESIGN RESOURCES

- **AWWA Standard – D130**
- **AWWA Manual M25 Flexible-Membrane Covers and Lining for Potable-Water Reservoirs**
- **AWWA California-Nevada Section – Reservoir Floating Cover**

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