

City of Meridian Reclaimed Water Program Update

2010 Idaho Water Reuse Conference

Clint Dolsby
Jeff Hansen
Carl Hipwell

Assistant City Engineer
HDR Engineering, Inc
Pharmer Engineering

Presentation Outline

- Why Reclaimed Water in Meridian?
- Vision for the Reclaimed Water Program
- Pilot Project
- Development of a Master Plan
- Citywide Permit
- Booster Station and Reservoir Project

Why Reuse?

Why Reuse? Surface Water Quality Regulations

- **Existing Boise River TMDL:**
 - Sediment
 - Bacteria
 - Temperature
- **Proposed Phosphorus Load Allocations**
 - LBR Contributes 8% of SR-HC Load
 - 80% Reduction in 1 Permit Cycle
 - 98% Reduction in 3 Permit Cycles

Source: Lower Boise River, Total Maximum Daily Load, Total Phosphorus, LBWC Draft, March 2007

Why Reuse? NPDES Flow Limits

- **EPA NPDES Permits:**
 - Meridian Plant is Flow Restricted under NPDES
 - EPA Continues to Delay Renewal of NPDES Permits
 - Operating Under 1999 Flow Limits (7 MGD)
 - Applied in 2004
 - No Action by EPA
- **Plant Capacity:**
 - IDEQ-Approved Re-rating at 10.2 MGD

Why Reuse? Domestic Well Impacts

- **Meridian Potable Water Consumption**
 - Winter Average = 148 million gallons/month
 - Summer Average = 318 million gallons/month
- **Summer Irrigation Activity Increases Demand by 170 million gallons/month**
 - Potential Conservation of 1.2 billion gallons per year through reuse in Old Town



Vision for Sustainability

"Our Wastewater Treatment Plant, by the year 2030, will be self-sustaining – utilizing closed-looped systems to recycle and/or reuse 80% of the waste stream via water reclamation, cogeneration, and nutrient recycling strategies."

- **Strategies Include:**
 - Nutrient recovery
 - Composting
 - Energy efficiency
 - Renewable energy
 - Reclaimed water use
 - Economic Development Advantage





Testing the Water

First Class A Reclaimed Water Permit Issued To A City At Heroes Park - 2008

- Overcame Challenges:
 - Educated and Built Support with Elected Officials
 - Educated & Built Support with Parks Staff
- Obtained a Project Site Permit First
- Overcame Technical Obstacles:
 - Effluent Quality
 - Nitrogen Content
 - Soil Loadings
 - Disinfection
 - Overspray (Park Amenities)
 - Seepage Tests
 - Production Demand & Redundancy
- Supplied in Summer of 2009



Lessons Learned/Engineering Challenges

- (Nutrient rich water) + (Shallow open pond) = Undesirable Impacts to Aesthetics and Aquatic Life
 - Moved to a Pressurized System
- Point of compliance drives monitoring equipment needs



Develop Partnerships and Leverage Resources

Testing the Water

- Build Community Support With Tangibles
 - Community Park Improvements

Park Features:

- Reclaimed Water Interpretive Plaza and Fountain
- Reuse Sourced Restrooms
- Heroes Plaza Educational Planters
- Interpretive Pathways with Drought Tolerant Vegetation and Landscapes
- Water-wise Demonstration Site

The Reclaimed Water Master Plan

Reclaimed Water Master Planning: Developing the Framework for Program Development

Activities Currently Underway

Market Analysis

- Use sites
- Customer needs

Infrastructure

- Distribution network
- Storage

Implementation Strategy

- Funding and financing strategies
- Organizational and administrative arrangements

Potential Use Sites

- Focus on Nearby Irrigation Opportunities
 - Golf Courses
 - Parks & Open Spaces
 - Ten Mile Interchange Area
- Accommodate Growing Areas
 - New Subdivisions - DAs
 - Retrofit Existing Areas
 - Older Subdivisions

Potential Reclaimed Water Demands

- Phased approach to program development
- Current use < 0.5 mgd
- Projected irrigation use in NW Meridian > 13 mgd

Infrastructure Needs

Pumping:

- Under construction 1,600 gpm
- Future (2040) need 9,000 gpm

Piping:

- Existing/under construction 27,000 LF
- Potential future (2040) 52,000 LF

Storage:

- Under construction 1.0 MG
- Future (2040) need 4.0 MG

Implementation Considerations

Financial Program

- Establish reclaimed water rates
- Impacts upon water and sewer rates and assessment fees



Organization / Management of Program

- New utility or contained within existing?
- Operations and maintenance responsibilities?

Customer Development

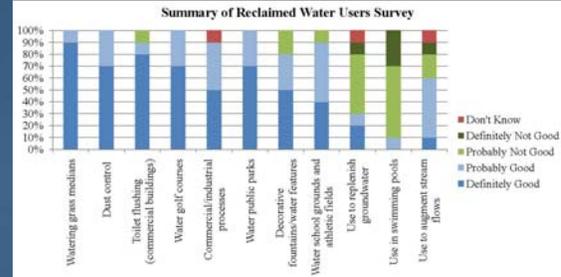
- User agreements
- Cost-sharing arrangement for customer-side improvements

Public Outreach

- Demonstration projects
- Focus group meetings

Ratings of Potential Reclaimed Water Uses

Focus Group Meeting



- 10 survey respondents
- Cross-section of potential customers
- Good understanding of reclaimed water benefits
- Supportive of City's program



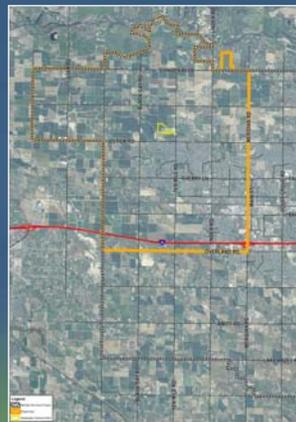
Meridian's Citywide Wastewater Reuse Permit



- First Citywide permit issued in Idaho
- December 2009 – Draft issued
- January 2010 – Comment period
- April 19, 2010 – Final issued

Citywide Permit

- 5-year Permit Cycle
- Allowable Uses
 - Irrigation
 - Dust Suppression
 - Toilet Flushing
 - Sewer Flushing
 - Fire Suppression
- Growing Season
 - March 15 to October 31
- Compliance Activities
 - Plans of Operation
 - Runoff Management

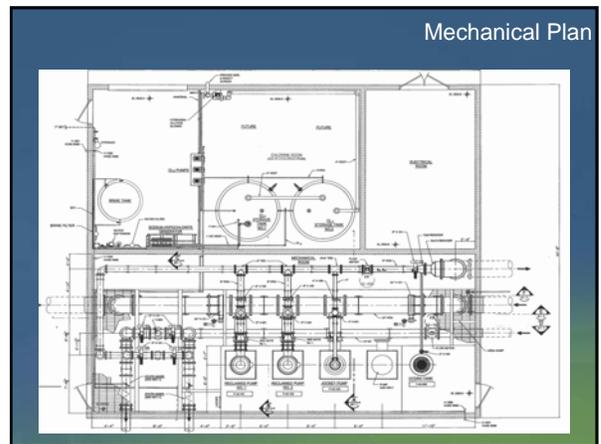
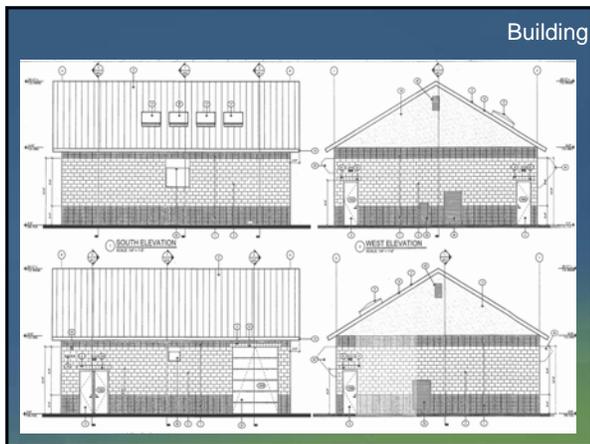
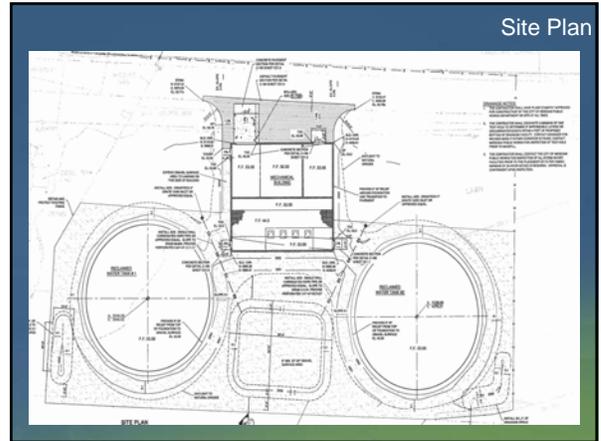
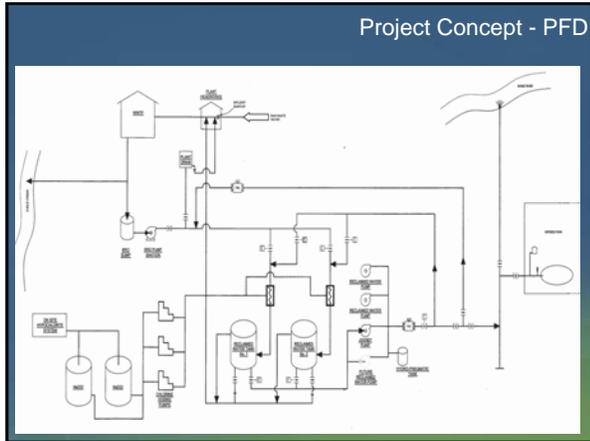


Summary of Permit Limits and Conditions

- Coagulation waiver
- Monitoring
 - Continuously: turbidity, chlorine residual, effluent volume
 - Daily: pH, total coliform
 - Weekly: TN
 - Monthly: TP



- Selection
- Design – Build Process
 - 1st in Meridian Public Works Process
 - Selection criteria:
 - Firms qualifications and experience with similar projects
 - Price
 - Schedule
 - Familiarity with City of Meridian
 - Project substantiation/approach
 - Deductive alternatives
 - JCC/PE selected to perform implementation of Class A Water Reclamation System



Construction Progress
Photos



