Quick Review of WD & WGF Hatcheries
Ten Sleep Hatchery
2008
BKT & SPK Infected with M. c. Spores

NWFCC 12/07/11
Puzzling Situation

- Spring sources are contained with minimal exposure to surface water
- No turbidity or any direct indication of surface contamination
- Spring temperatures constant, do not vary a degree
- Infections (confirmed spores) occurred in late November, December.
Time to Take Action

- Requested and Received $4,517,000 from 2009 General Session of 60th Legislature

- Construction Started in July 2010, Completed in September 2011

- Focus of Renovation
  - Fully Contain & Treat Water Supplies
  - Renovate Hatchery Building Rearing Units
  - Develop & Enclose Outside Production
Domestic Spring
Cold Spring
Warm Spring
Spring Development

- Identified, Contained Each Source
- Combined Cold Springs
- Set Parameter French Drains to Remove Surface Contamination
- Construct Total Enclosures
Warm Spring Water Treatment

Pre-Treatment

- Total Gas = 112%
- Nitrogen = 129%
- Oxygen = 49%

After Degassing

- Total Gas = 92%
- Nitrogen = 101%
- Oxygen = 53%
RFUV Duplex Disinfection

• One weir for RF & UV
• 50% flow through spilt to each unit
• Normal operation – Extended Exposure
• If RF or UV fails on one unit – Automatically transfers to other unit
• If both fail – Supply automatically bypasses small fish production.

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RFUV Duplex Disinfection

Cold Spring Supply

Warm Spring Supply
Water Treatment/Mixing Vault

Cold Spring LHO

Warm Spring LHO

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After Degassing
• Total Gas = 92%
• Nitrogen = 101%
• Oxygen = 53%

After LHO
• Total Gas = 97%
• Nitrogen = 96%
• Oxygen = 100%
Cold Spring to Hatchery

Before LHO
- Total Gas = 99%
- Nitrogen = 100%
- Oxygen = 95%

After LHO
- Total Gas = 100%
- Nitrogen = 99%
- Oxygen = 102%
Cold Spring Supply

Warm Spring Supply
Upper Production Building Supply

Mixed Spring Supply
RFUV Treatment of Reuse/Bypass
20' Circular Level Control

Brood RFUV & LHO Vault
So, What Did We Accomplish?

- Enclosed & Protected Spring Supplies
- Remove Saturated Nitrogen Gas Issue
- Improved Oxygen for All Rearing Units
- Disinfected Spring Supplies and Each Production Reuse
- Improved Water Quality to Brood Stock
- Ten Sleep will be Stocking Fish in 2012 if Fish Health Samples Clear
Acknowledgements

Ten Sleep Hatchery Personnel

- Bart Burningham, Superintendent
- Brad Hughes, Assistant Superintendent
- Ben Milner, Fish Culturist
Time for Questions??