

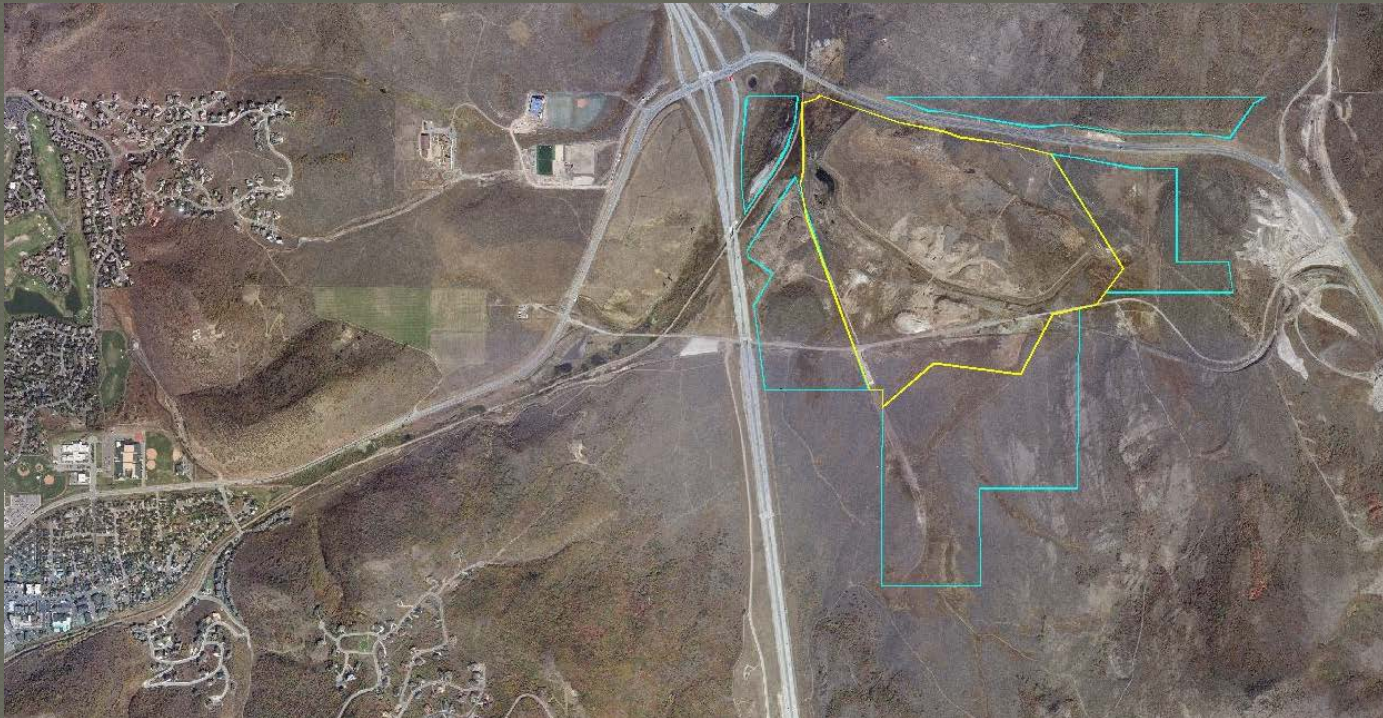
# Remediation and Restoration of the Richardson Flat Tailings Pond in Park City, Utah

A Cooperative and Successful Effort



# Richardson Flat

- Sits on about 570 acres 2 miles NE of Park City, Utah
- Study area is 260 acres
- Located adjacent to Silver Creek at the south end of a 6 mile long valley
- Currently on the Jordanelle-Rockport and Echo Reservoir flyway
- Important component of Silver Creek ecosystem



# Richardson Flat

- Tailings pond for over 60 years.
- Regulatory scrutiny started in about 1984.
- United Park started covering project in 1983
- Elevated levels of zinc and cadmium in surface water (2 ppm Zn)
- Sediments over 5000 ppm lead



# Silver Creek Watershed Stakeholder Process

- Started in 1999 to look holistically at Watershed
- Federal, State and local Agencies as well as landowners are stakeholders
- NRD focus early in process.



## Richardson Flat Focused RI/FS

- AOC for a PRP lead Focused RI/FS signed in September of 1999 by EPA and UPCM
- HHRA no issues for recreational use
- Ecological Risk Assessment - 500 ppm lead for upland and 310 ppm lead - wetland as PRG's
- 18" of cover if contamination levels over 500 ppm and 12" of gravel in diversion ditch as primary remedial objectives
- NRD issues discussed at Watershed meetings and in the field with FWS personnel



## Record of Decision and RD/RA Consent Decree

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- EPA publishes Proposed Plan in 2004
- Bevill Exempt RCRA waste as well as CERCLA waste starts coming to Richardson flat in 2004
- Record of Decision is issued in 2005
- RD/RA Consent Decree negotiation begins in 2006



## Restoration and Remediation

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- Decision to combine remediation and restoration construction activities
- Consent Decree negotiated throughout 2007 and lodged in court in October
- Remediation/Restoration begins in November of 2007 in lowest areas of the site that are outside of Diversion ditch



# Richardson Flat RD/RA Consent Decree 2008 construction

- 15 acre parking lot and 30 acres of recreation fields
- Work Plan with restoration language included language removing gravel cover in ditch
- One half of Diversion Ditch and all of the area south of County Roadway restored/remediated
- 120,000 yards of tailings removed along with 83,000 yards of clean fill placed
- 2500 linear feet of the South diversion Ditch are remediated and restored



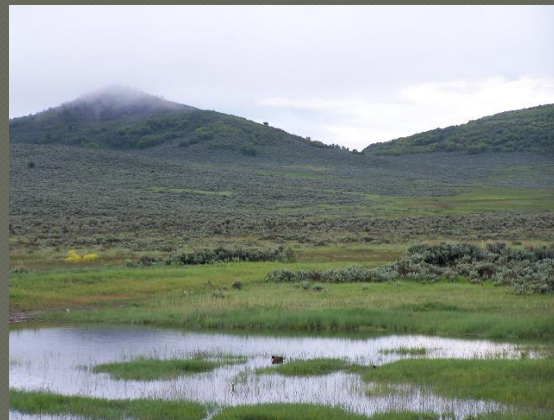


## 2008 Remediation and Restoration Construction



# Richardson Flat – 2008 Progress

2009 observations of 2008 construction activity



# Richardson Flat – 2008 Progress

2009 observations of 2008 construction activity



# Richardson Flat 2009 monitoring of 2008 remediation/restoration activities



## 2009 Remediation/Restoration Construction

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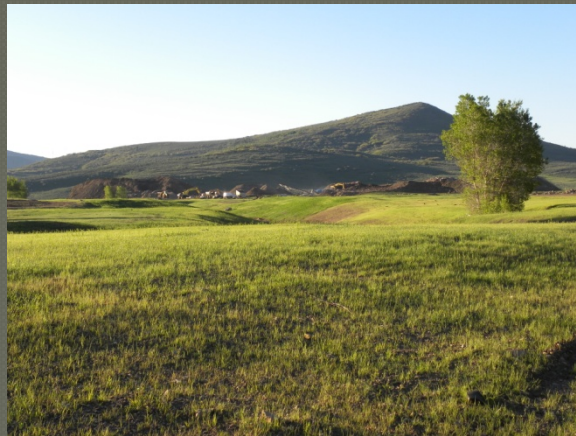
- Relocated and restored over 1800 feet of south diversion ditch adding 300 feet of ditch
- Removed over 70,000 cubic yards of contaminated material
- Added an additional 2 acres of seasonal and perennial wetlands



## 2009 Remediation/Restoration Construction



# 2010 Observations of 2009 Remediation and Restoration Activities



## 2010 Observations of 2009 Remediation and Restoration Activities

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# 2010 Monitoring of 2008 Remediation and Restoration Activities



## 2010 and 2011 Remediation and Restoration Construction

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## 2010 Construction and Restoration



## Richardson Flat Future Tasks

- Monitoring, Maintenance of an area with a wide variety of species
- Restoration Plan
- Consent Decree
- Link NRD issues with Silver Creek
- 45 Species of birds
- Minimum of 15 species of macroinvertebrates
- 3 different amphibians



# Future Work In Watershed

- RI/FS underway in Lower Silver Creek – Richardson Flat OU-2
- Discussions among EPA, United Park and Park City regarding AOC for an EE/CA in Middle Reach – Richardson Flat OU-3
- Current discussion indicate that AOC will include language that incorporates restoration work with remediation activities using the Richardson Flat case as a model.



# Recommendations

- Regulators:
  - Open lines of communication
  - Be tolerant
  - Be patient
  - Understand needs of owner
  - Understand what you want or need and express this to owner/prp
- Owners/PRP's
  - Open lines of communication
  - Be tolerant
  - Be patient
  - Understand needs of regulator
  - Understand what you want or need and express this to regulator
  - **KNOW YOUR SITE**

