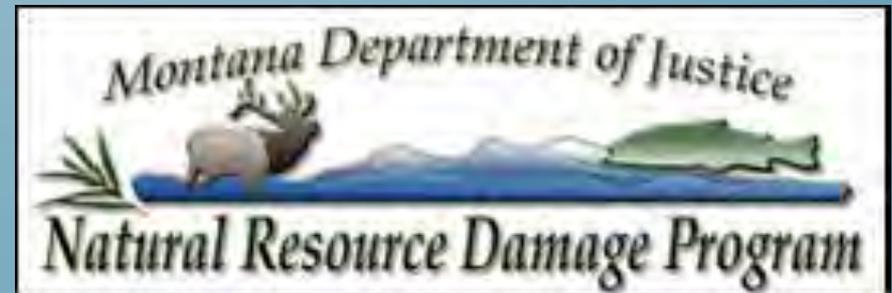


MONTANA NATURAL RESOURCE DAMAGE PROGRAM SUMMARY

*Prepared for
Butte-Silver Bow
Superfund Advisory and
Redevelopment Trust Authority
By Padraig Cunneen
August 11, 2015*



Superfund Law (CERCLA and CECRA)

Remediation

- Cleanup of hazardous substances to protective levels
 - Human Health
 - Environment
- Goal is not to restore environment, although it may be a by-product of remedy



Restoration

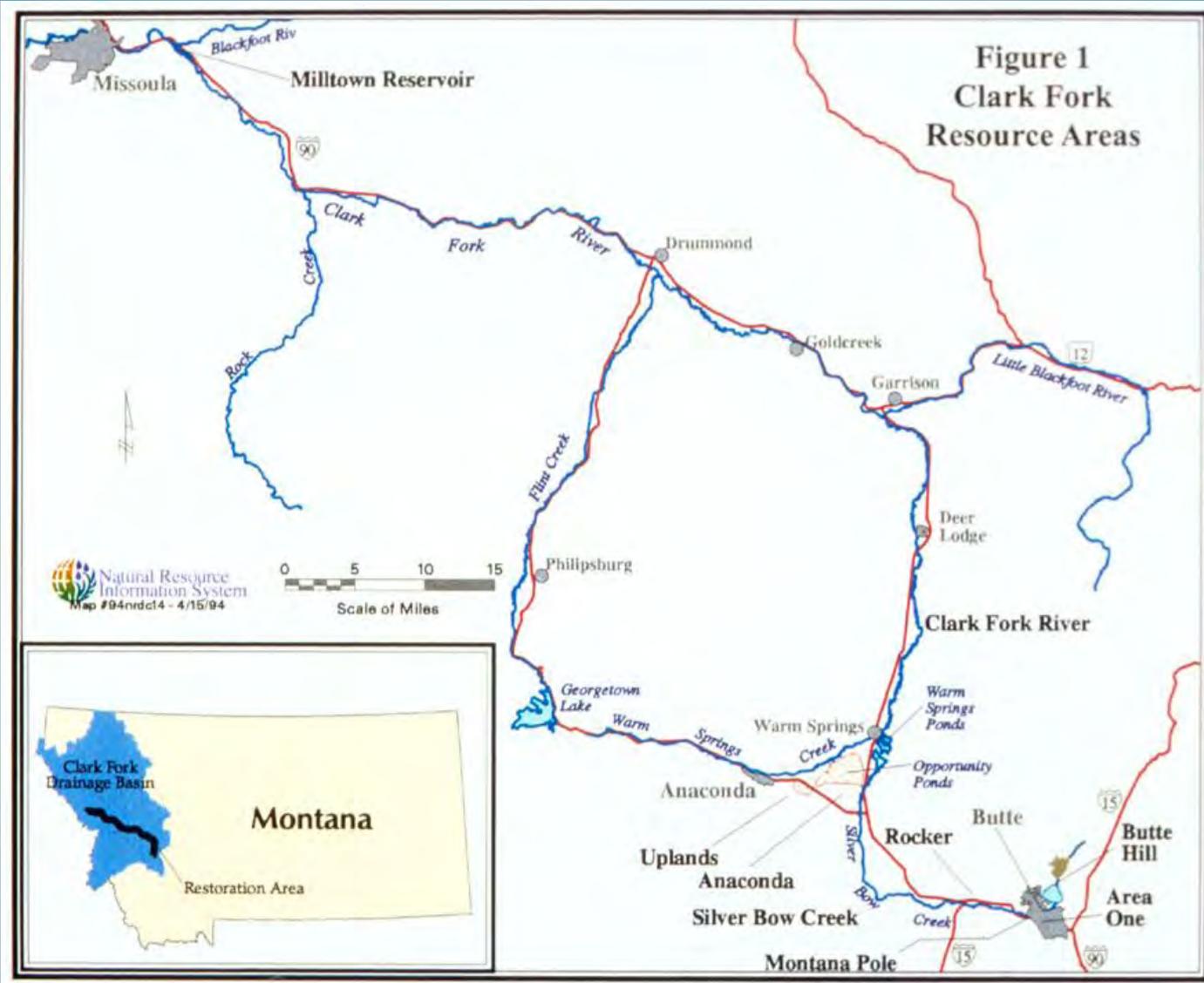
- Picks up where remediation leaves off
 - Injured natural resources
 - Return to baseline
 - Damages recovered must be used to restore or replace injured resources



Injuries to Natural Resources in Upper Clark Fork River Basin

- Groundwater Injury - Butte and Anaconda Area and Milltown (Near Missoula)
- Aquatic Injury – Silver Bow Creek and Clark Fork River
 - injury to water quality, fish, insects, and stream sediments
- Terrestrial Injury – Uplands, Silver Bow Creek, Clark Fork River, Opportunity Ponds
 - injury to soils, vegetation, and wildlife

UPPER CLARK FORK RIVER BASIN



MONTANA V. ARCO CONSENT DECREE 1999

Montana Received \$230 Million

- *\$15 M for Assessment and Litigation costs*
- *\$127 M for damages*
- *\$2 M in real property along Silver Bow Creek*
- *Plus \$86 M for Silver Bow Creek Remedy*
 - *Total: \$230 Million*
- *Settled 6 of 9 natural resource claims*
- *Settled all compensable claims*
- *Did not settle restoration claims for 3 sites*

LEGAL THRESHOLD

- *Restore or*
- *Replace or*
- *Acquire the Equivalent of:*
 - *Injured Natural Resources*
 - *Lost Services*

10 GRANT CYCLES

2000 - 2010

- 73 Large Grants approved for \$120 Million
 - *Anaconda-Deer Lodge = 17 for \$23.7 M*
 - *Butte-Silver Bow = 23 for \$66.3 M*
 - *Granite = 9 for \$1.2 M*
 - *Missoula = 10 for \$7.5 M*
 - *Powell = 14 for \$20.8 M*

GRANT PROJECTS IN SILVER BOW COUNTY

- 2001–10: Butte Water Lines = \$17.4 M
- 2001–10: Silver Bow Creek Greenway = \$23.6 M
- 2002–05: German Gulch Watershed = \$926 K
- 2003: Basin Creek Dam = \$503 K
- 2003–05: Duhaime Acquisition = \$1.67 M
- 2004: High Service Tank = \$1.19 M
- 2004–05: Big Butte Acquisition = \$688 K
- 2007–10: Big Hole Transmission Line = \$8.72 M
- 2007: Thompson Park = \$988 K
- 2008: Big Hole Dam = \$3.71 M
- 2008–10: Children's Fishing Pond = \$1.23 M
- 2010: Big Hole Pump Station = \$3.50 M

2012 UCFRB RESTORATION PLAN

- *Groundwater = \$40 M*
 - *Anaconda-Deer Lodge = \$10 M*
 - *Butte-Silver Bow = \$30 M*
- *Aquatics = \$40 M*
 - *Flow = \$20 M*
 - *Tributary Restoration = \$20 M*
 - *Blacktail Creek = \$957 K*
 - *Browns Gulch = \$773 K*
 - *German Gulch = \$429 K*
 - *Silver Bow Creek = \$250 K*
- *Terrestrial = \$18 M*
- *Recreation = \$6.5 M*

BUTTE

GROUNDWATER RESTORATION PLANS

- 2012 Master Plan for \$6 M:
 - Complete Big Hole Transmission Line
- 2013 Master Plan for \$24.1 M:
 - Basin Creek Water Treatment Plant = \$20 M
 - Telemetry and Controls = \$467 K
 - CO₂ Feed at Big Hole WTP = \$182 K
 - VFD and Soft Starts at Big Hole WTP = \$275 K
 - Basin Creek-Colorado Hill Pump Station = \$1.59 M
 - Water Meters = \$1.59 M
 - 6 Other Components if funds available = \$8.3 M

MONTANA V. ARCO 2008 CONSENT DECREE

Montana Received \$72.5 Million in Oct. 2008

- \$4.5 M for Assessment and Litigation costs
- \$68.0 M for Natural Resource Damages
 - \$26.7 M for Clark Fork River
 - 13.3 M for Smelter Hill Uplands
 - \$28.0 M for Butte Area One
- Plus \$96.5 M for Clark Fork River Remedy
- Total: \$169 Million

BUTTE AREA ONE

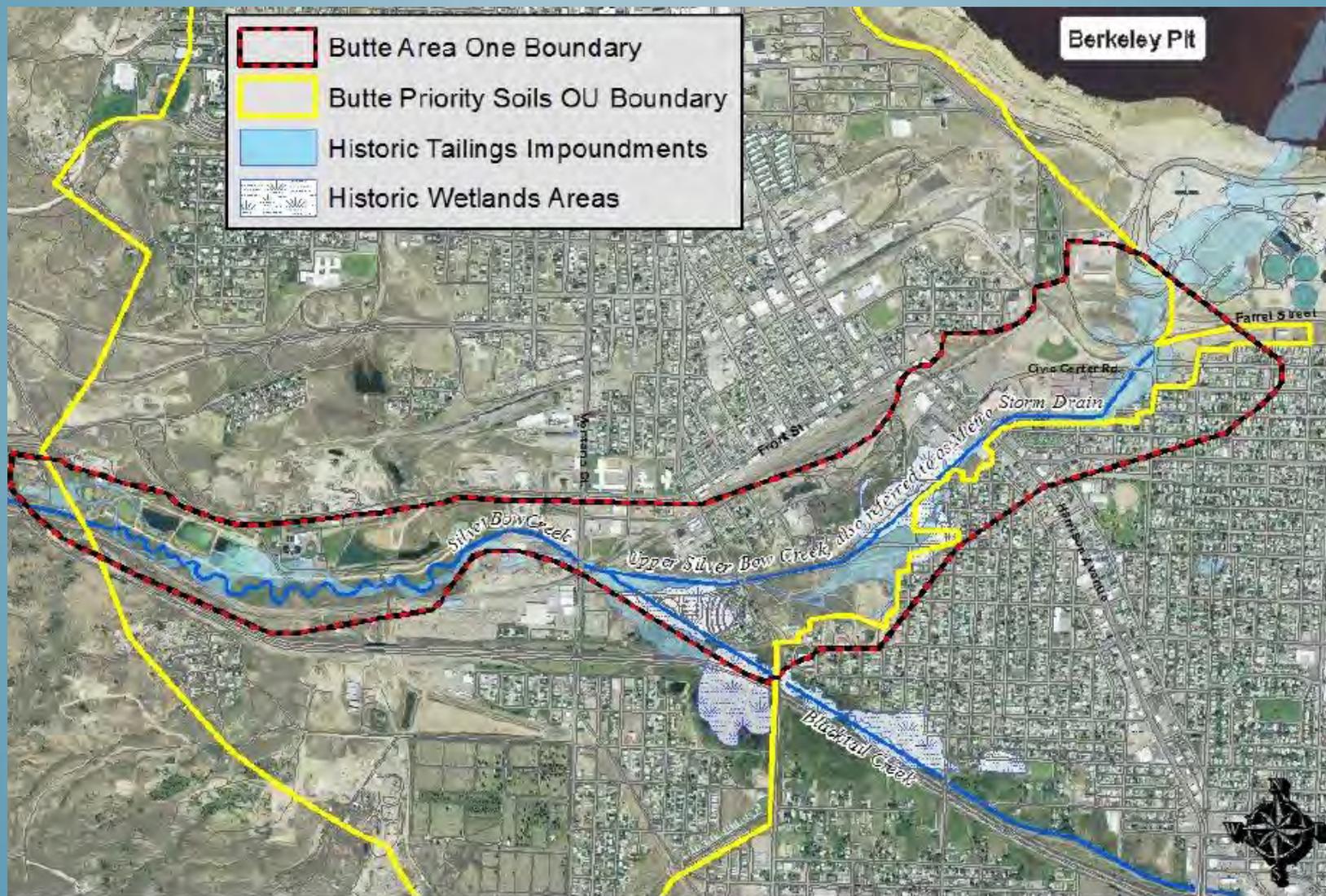
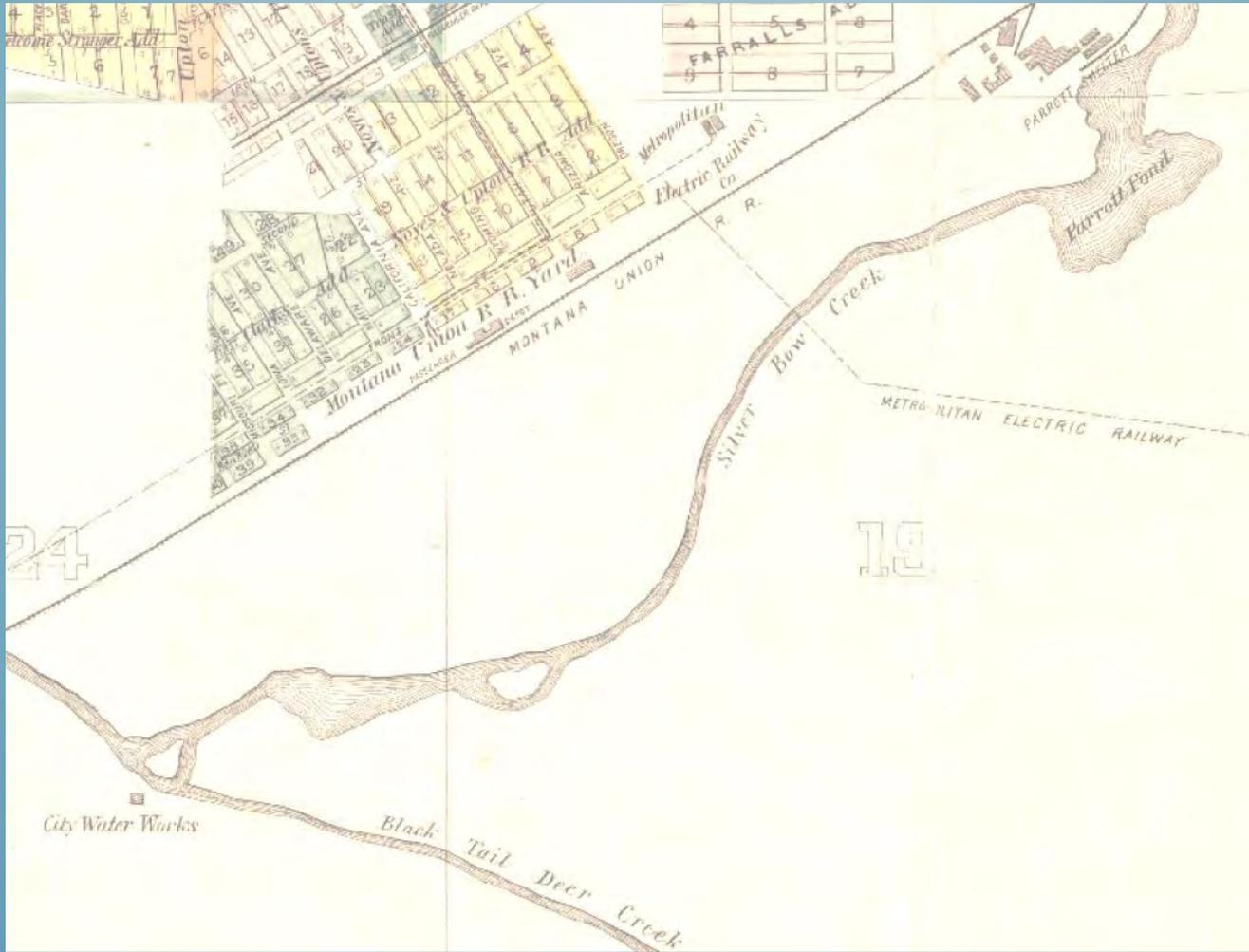


Figure 2. Butte Area One

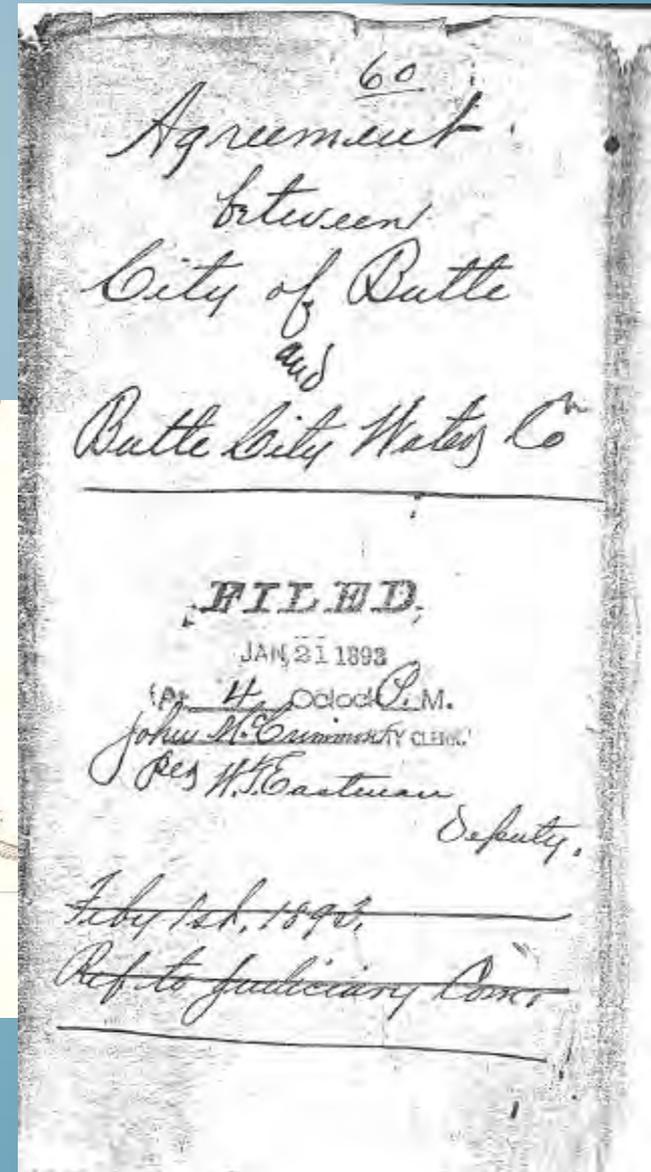
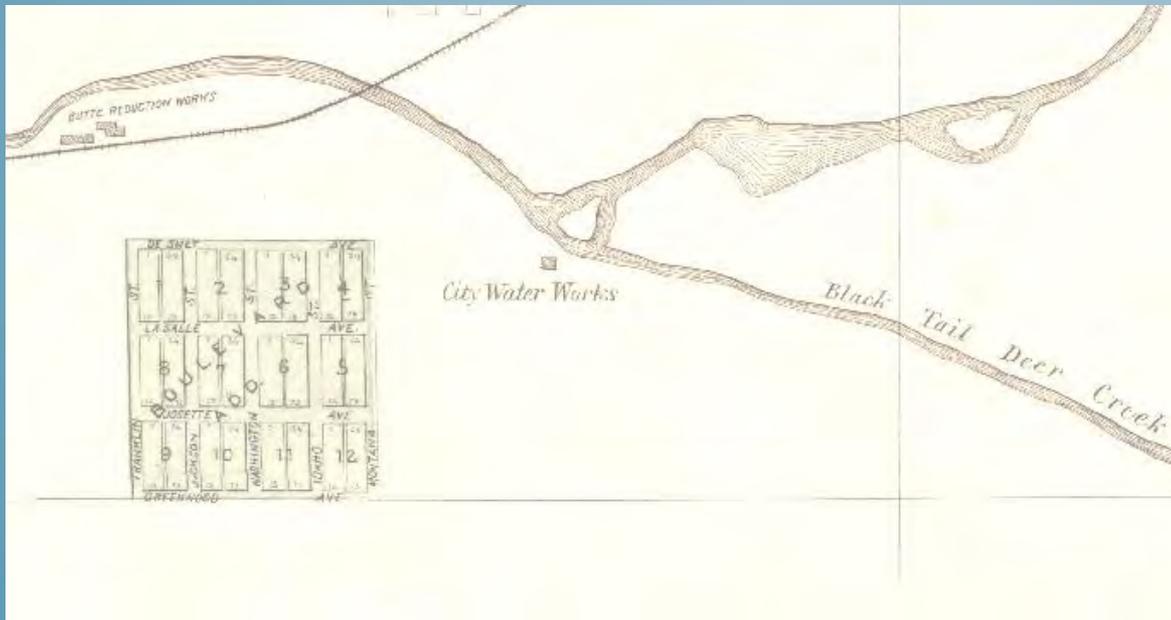
0 0.25 0.5 1 Miles

BNRC

1890 BUTTE MAP



Butte drank from its
aquifer until 1893...



1903 USGS – “WEED” MAP



BUTTE AREA ONE IN 1955



MDT aerial photo

BNRC ACTIONS

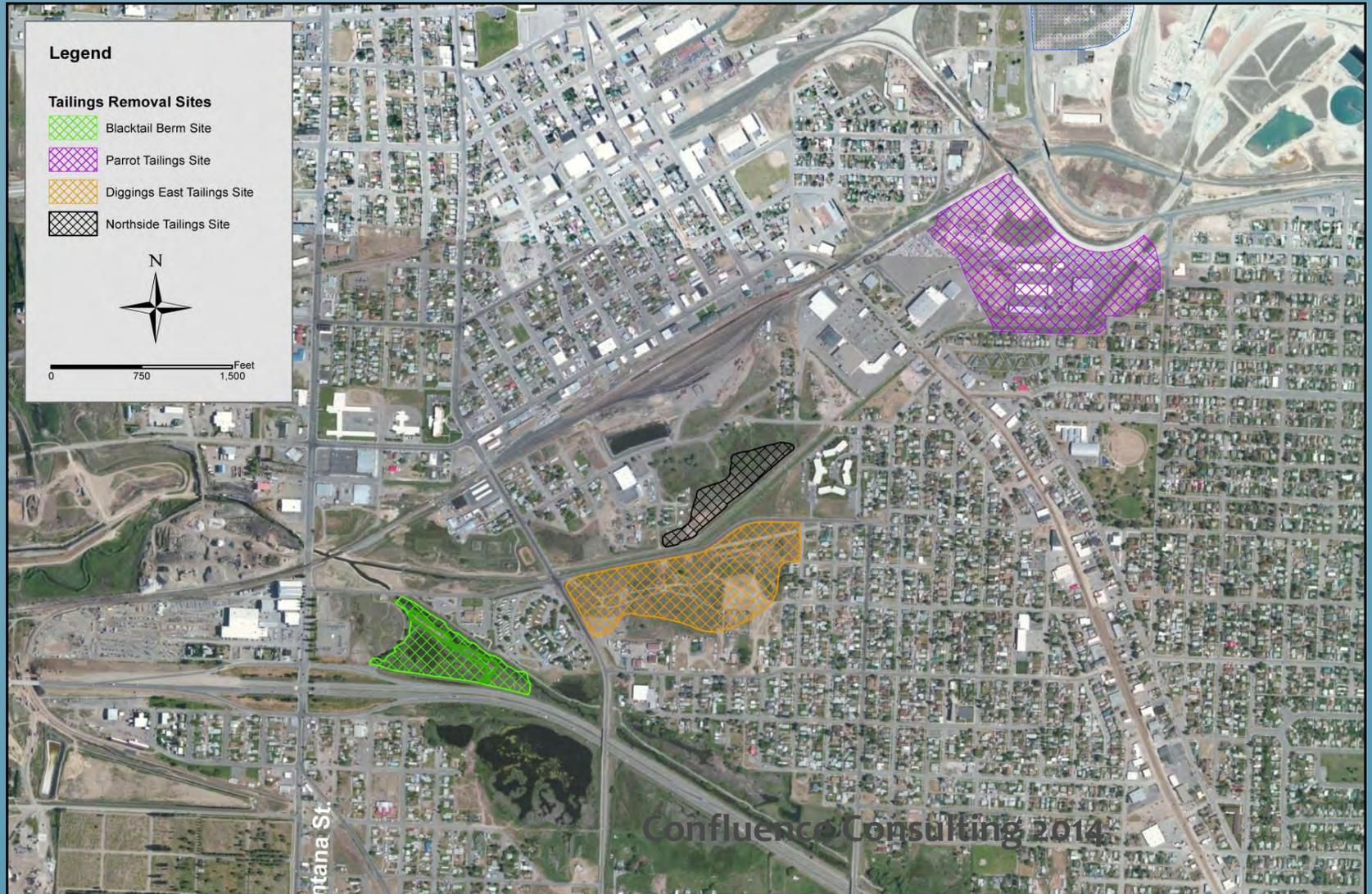
- *Butte Area One Injury Investigations*
- *Developed BAO Process Plan*
 - *9 Legal Criteria – Superfund Law*
 - *8 Policy Criteria – BNRC Derived*
- *Developed BAO Restoration Plan with Public Participation:*
 - *50+ BNRC Public Meetings*
 - *Public Workshops and Media Blitz for Idea Solicitation*
 - *Received 100 completed suggestion forms*
- *BAO Restoration Plan Approved by Governor 1-3-13*

BUTTE AREA ONE

BNRC RECOMMENDATION SUMMARY

Project Category	Category Allocation Total (\$)
Upper SBC Corridor Restoration	10,000,000
Mine Cap Improvements/Reveg	6,000,000
Stream Restoration	4,000,000
Water System Improvements	10,000,000
Storm Water	0
Recreation	1,000,000
Small/Miscellaneous Projects	1,000,000
Total	32,000,000

POTENTIAL REMOVAL SITES



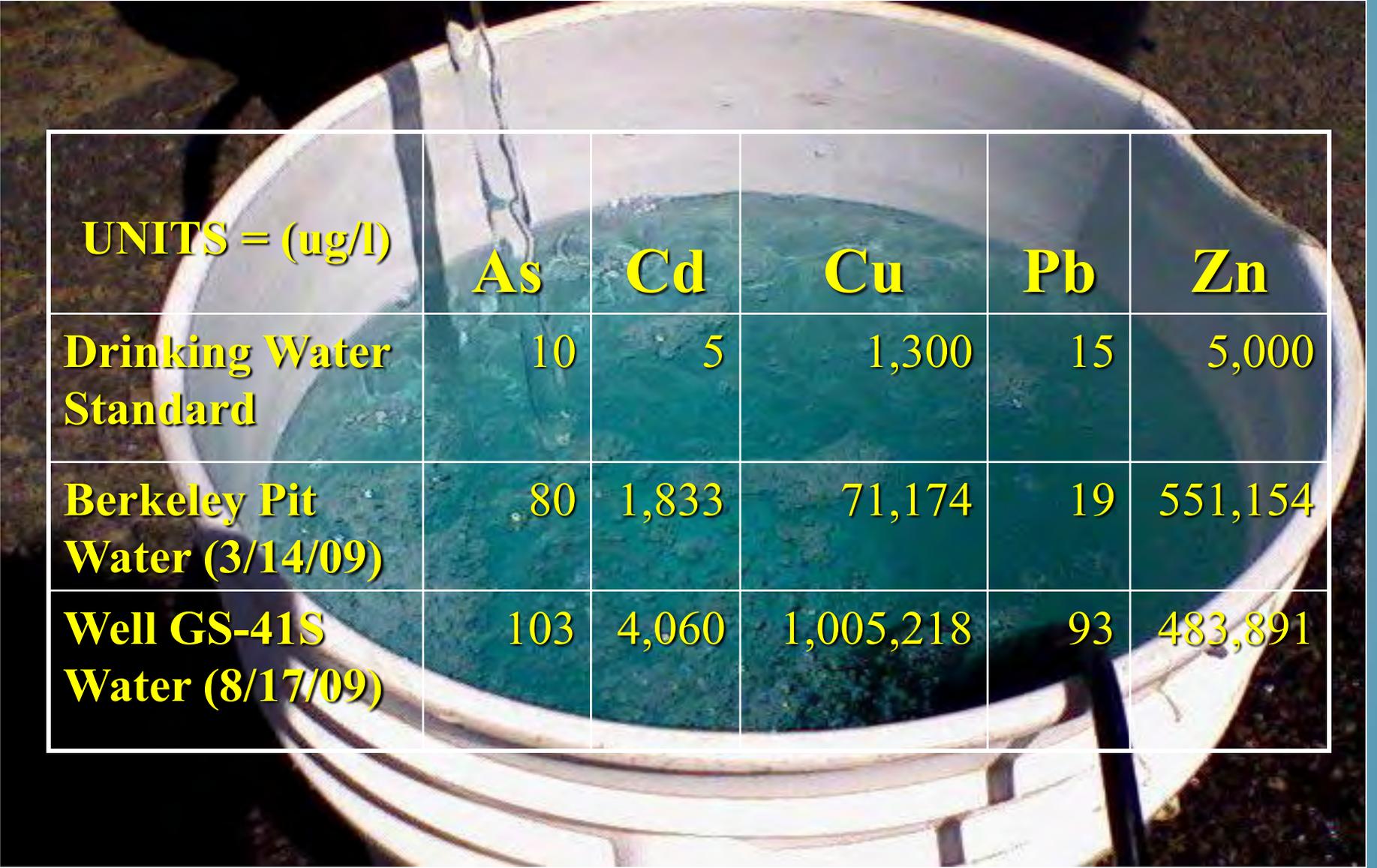
Parrot Smelter -- CIRCA 1906



From Magone v. Anaconda Copper Co.

WATER COMPARISON

DRINKING WATER---BERKELEY PIT---PARROT TAILINGS



UNITS = (ug/l)	As	Cd	Cu	Pb	Zn
Drinking Water Standard	10	5	1,300	15	5,000
Berkeley Pit Water (3/14/09)	80	1,833	71,174	19	551,154
Well GS-41S Water (8/17/09)	103	4,060	1,005,218	93	483,891

DIGGINGS EAST / NORTHSIDE TAILINGS



April 13, 2014
Photo by Walter Hinick
The Montana Standard

DIGGINGS EAST / NORTHSIDE SAMPLE LOCATIONS

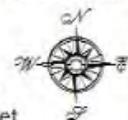


Figure 1. Diggings' East Tailings Delineation / Trenches and Test Pit Location

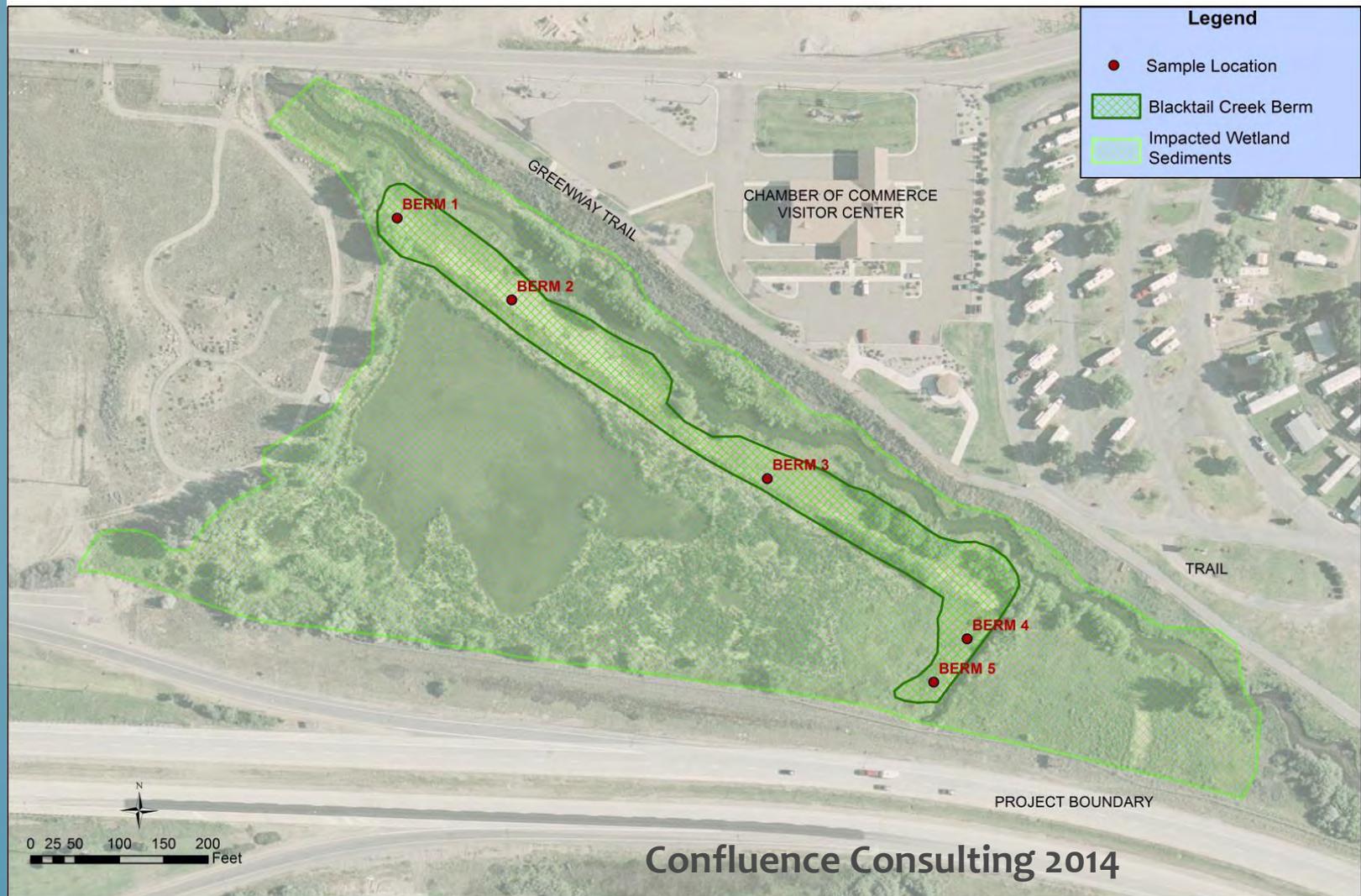
MBMG
Montana Bureau of Mineral and Geology

Project: Diggings East Test Pit Locations
Aerial Imagery: 2011 NAIP, Silver Bow County
Projection: NAD 83 Montana State Plane Feet

0 250 500 1,000 1,500 2,000
Feet



BLACKTAIL BERM SAMPLE LOCATIONS



POTENTIAL EXCAVATION AREAS

- *Parrot Tailings – 33 acres*
- *Northside Tailings – 5.5 acres*
- *Diggings East – 24 acres*
- *Blacktail Berm – 1.2 acres*

- *Total potential excavation area = 65 acres*

ESTIMATED REMOVAL QUANTITIES/COST

- Parrot Overburden = 675,000 cubic yards
- Parrot Tailings/Soil = 270,000 cubic yards
- Northside Tailings/Soil = 32,000 cubic yards
- Diggings East Landfill Material = 182,000 cubic yards
- Diggings East Tailings/Soil = 163,000 cubic yards
- Blacktail Berm = 35,000 cubic yards
- **Total off-site removals = 700,000 – 800,000 cy**
 - **Or 26 to 30 “Finlens”**
 - **Total Cost = \$30M to \$40M**

METALS LEFT-IN-PLACE

- Mass of Copper = 15.3 Million pounds
- Mass of Zinc = 24.5 Million pounds
- How long will it take to clean it up if left?
 - MSD sub-drain collects contaminated alluvial groundwater and BTL treats @ 20 pounds of Copper per day
 - So: $15,300,000 / 20 = 765,000$ days = ?
 - over **2,000 years = 40 generations**
 - or perhaps just **1 PERPETUITY!**

PER·PE·TU·I·TY

- *(noun) the state of continuing forever or for a very long time*
- *A **perpetuity** is an annuity that has no end, or a stream of cash payments that continues forever. There are few actual perpetuities in existence (the UK government has issued them in the past; these are known and still trade as consols).*

(from Merriam-Webster Online)

UPCOMING EVENTS

- *Rally for the Creek*
 - *Thursday August 13th @ 6:00 PM*

- *BNRC Meeting*
 - *Thursday August 20th @ 6:00 PM*

QUESTIONS

