



Prickly Pear Creek (PPC) Fact Sheet

February 2, 2012



Background

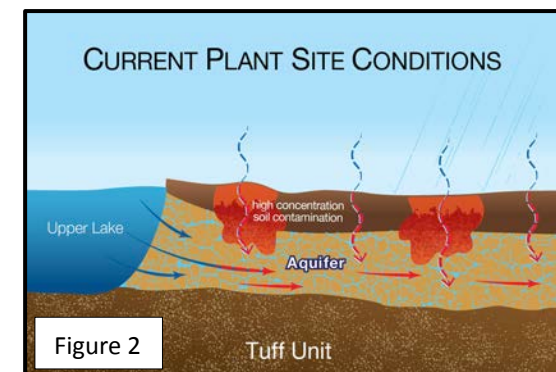
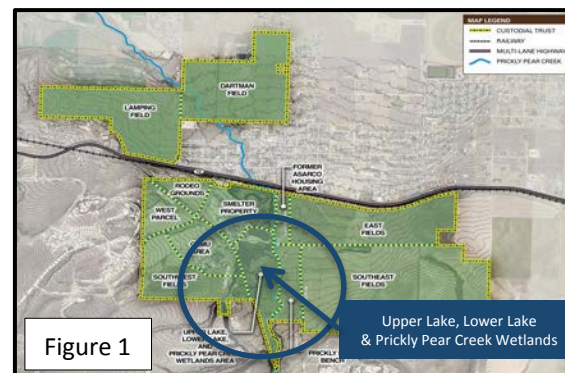
- **Upper Lake (UL):** impoundment constructed by Asarco to divert and store Prickly Pear Creek water needed for smelter operations
- **Lower Lake (LL):** manmade impoundment historically used to store highly contaminated process water from active smelter and point of discharge for smelter wastewater treatment plant per MDEQ-issued MPDES permit
- **Groundwater Contamination Mobility:**
 - Surface water from UL recharges groundwater which flows under/through smelter property, picking up contaminants and then flows north-northwest offsite to Lamping Field and toward Canyon Ferry Road
 - LL sediments are a significant source of groundwater contamination and are slated for removal

See Figures 1 and 2

Existing Water Control Structures

- **UL Diversion Structure:**
 - Unpermitted, concrete and wood structure built by Asarco to divert water from PPC into UL
 - Not maintained since the smelter closed in 2001 and severely damaged during June 2011 flood event
- **Smelter Dam:**
 - Damaged, unmaintained structure always kept partially (30%) open to allow fish passage on PPC per agreement with MT Fish Wildlife & Parks
 - Reconstructed after 1981 flood damage

See Figure 3



What is the Upper Lake (UL) Aquifer Test?

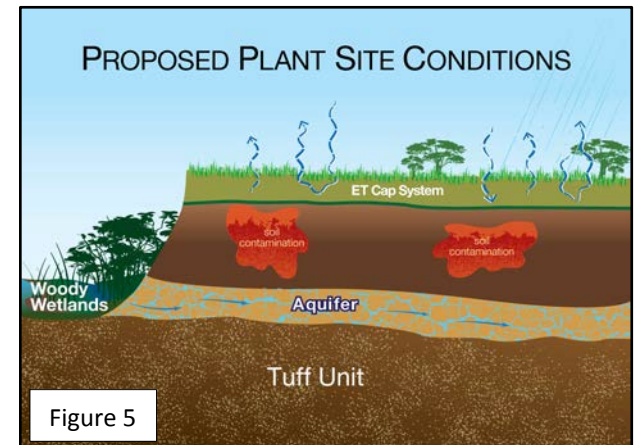
- **Purpose:** to measure reduction in flow of contaminated groundwater under smelter by lowering UL water levels in order to reduce groundwater recharge
- **Steps To Date:**
 - October 1, 2011: ramped up monitoring of groundwater, and surface water in UL, LL and PPC
 - November 1, 2011: closed UL Diversion Structure to stop water from PPC entering UL and began daily monitoring of water levels
 - December 21-22, 2011: opened west end flow gate on Smelter Dam an additional 20% to further lower UL water levels with daily monitoring of water levels and PPC turbidity (Note: Turbidity is widely considered a good measure of sediment load in water and water quality.)
 - December 27, 2011: Completed phased opening of west and east flow gates on Smelter Dam with continued daily monitoring of water levels and PPC turbidity
- **Results Since Start of UL Aquifer Test**
 - UL water levels dropped two feet
 - Groundwater levels were lowered an average of three feet under smelter
 - No observed change in turbidity/sediments in PPC water above or below Smelter Dam

Prickly Pear Creek (PPC) Studies:

- **PPC Stream Assessment:** Completed in October 2011 by scientist who specializes in rivers, how they transport sediment, how they travel and migrate across land and how they change over time (“Fluvial Geomorphologist”)
- **Key Findings:**
 - PPC has significant excess sediment loads (from upstream of smelter)
 - June 2011 high flow/flooding event responsible for majority of current excess sediment load in PPC

Cleanup Activities and Interim Measures

- **Overarching Goals:**
 - Help cleanup groundwater by minimizing amount of groundwater in contact with contamination on smelter property (lower UL water levels)
 - Cleanup select areas on smelter by removing contaminated soils and sediments
 - Facilitate reuse and revitalization of former Asarco lands
- **Work Plans: (See Figures 3, 4 and 5)**
 - Construct temporary PPC by-pass channel east of UL and LL
 - Build third Corrective Action Management Unit (CAMU) to hold/store contaminated soils and sediments
 - Remove LL contaminated sediments and Tito Park, which separates LL and UL, contaminated soils and place in CAMU
 - Remove Smelter Dam, UL Diversion Structure and berm that separates UL and PPC
 - Restore UL and LL to natural, historic woody wetlands and reduce surface water recharging groundwater
 - Construct Evaporation/Transpiration (ET) cap system to prevent precipitation from infiltrating/mobilizing on-site contaminants into groundwater
 - Re-align and restore PPC to more stable, natural conditions
 - Monitor the effectiveness of these actions and design next steps to further cleanup the site
- **Schedule:**
 - Public Meeting to review work plans in April of 2012
 - Begin work in summer of 2012
 - One to three year time frame for work plans
 - Note: No work on PPC, UL or LL has begun



Current Concerns About Prickly Pear Creek (PPC):

- **Flooding:**
 - Recent FEMA maps show areas of East Helena along PPC in floodplain and at high risk of flooding (*See Figure 6*)
 - Smelter Dam and UL Diversion Structure are not capable of holding back high flows
 - UL not currently available for flood storage
- **Slag Pile Erosion:**
 - Stretch of PPC that hugs Slag Pile erodes slag into PPC
 - Slag erosion makes area of PPC unsafe for visitors and contributes excess sediment to PPC
- **Fish Passage:**
 - Smelter Dam and UL Diversion Structure impair fish passage on PPC
- **PPC Recreation:**
 - PPC is not currently accessible or safe for access by general public
 - UL is artificial remnant of former smelter operations
- **January 31/February 1 Sand/Sediments Observed in East Helena Stretch of PPC**
 - Likely resulted from sands/sediments deposited during June 2011 high flows/flood event
 - January 2012 significant precipitation followed by warmer weather led to higher flows that possibly transported sand/sediments

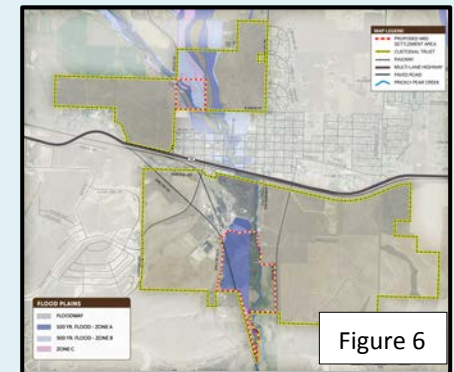


Figure 6

How Will Clean Up Plans Improve Prickly Pear Creek (PPC)?

- **Flooding:**
 - Realigning PPC will slow stream flow rate and UL will add critical flood storage capacity to system south of East Helena
- **Slag Pile Erosion:**
 - Moving PPC away from Slag Pile will eliminate slag erosion into PPC and make area safe for visitors and fisherman (*See Figure 4*)
- **Fish Passage:**
 - Removal of Smelter Dam and UL Diversion Structure will eliminate major barriers to fish passage between Lake Helena, the smelter and PPC to the south
- **Prickly Pear Creek Recreation:**
 - Restoration and realignment of PPC will create community asset and open area for use by general public
 - UL will be allowed to return to its original, natural woody wetland condition
- **Future Deposits of Sand/Sediments in East Helena Stretch of Prickly Pear Creek**
 - Like all rivers, PPC is part of a natural, dynamic system that has and will continue to change over time
 - Although transport of sands/sediments from areas south of the smelter are outside anyone's control, the cleanup plan will help reduce risk of future sediment transport from smelter area and improve quality, habitat, and viability of PPC for future generations



Interested in More Information?

- **Please Contact:**
 - Betsy Burns, US Environmental Protection Agency at 406-457-5013 or 406-459-8351
 - Joe Vranka, US Environmental Protection Agency at 406-457-5039 or 406-439-6142
 - Jim Ford, Montana Environmental Custodial Trust at 406-227-3734 or 406-439-2108
 - Cindy Brooks, Montana Environmental Custodial Trust at 617-448-9762 or 617-744-1652
- **Or Visit Us At:**
 - www.mtenvironmentaltrust.org

