

Natural Resource Restoration at Silver Creek

Park City and Summit County, Utah

Concepts and Process

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Major Topics- Overview

(Photo: A. Bengtsen)

- * What is NRDAR?
- * How does NRDAR fit into the process at Silver Creek?
- * Restoration Planning
- * Current Activities
- * Next Steps



Restoration Program
Natural Resource Damage Assessment & Restoration Program

What is “NRDAR”?

(Photo: A. Bengtson)

- * **NRDAR = Natural Resource Damage Assessment and Restoration**
 - * Shorthand: “Restoration” (because that’s what it’s all about)
- * **Goals of Restoration:**
 - * Restore injured natural resources and the services they provide
 - * Make the public whole: compensatory rather than punitive

Restoration is part of the Cleanup Process



(Photo: C. Cline)

NRDAR is required and directed by statutes and regulations:

- * National Contingency Plan (NCP)**
- * Comprehensive Emergency Response Compensation & Liability Act (CERCLA, “Superfund”)**
- * Clean Water Act (CWA)**
- * Department of Interior Regulations (43CFR Part 11)**

How does NRDAR fit into the Cleanup at Richardson Flat?

(Photo: A. Bengtson)

- * **Remediation and Restoration are linked– formally**
 - * through voluntary compliance agreement– AOC
 - * *One of the first such agreements in the nation*
- * **Goal of Remediation is “Restoration Based”**
 - * Restoration Alternatives Analysis (RAA) to be delivered shortly after cleanup analysis (EE/CA)
 - * Desired outcome of cleanup is restored habitats in Silver Creek Floodplain in OU2-OU3 area
 - * Aquatic (in-stream), riparian, wetlands

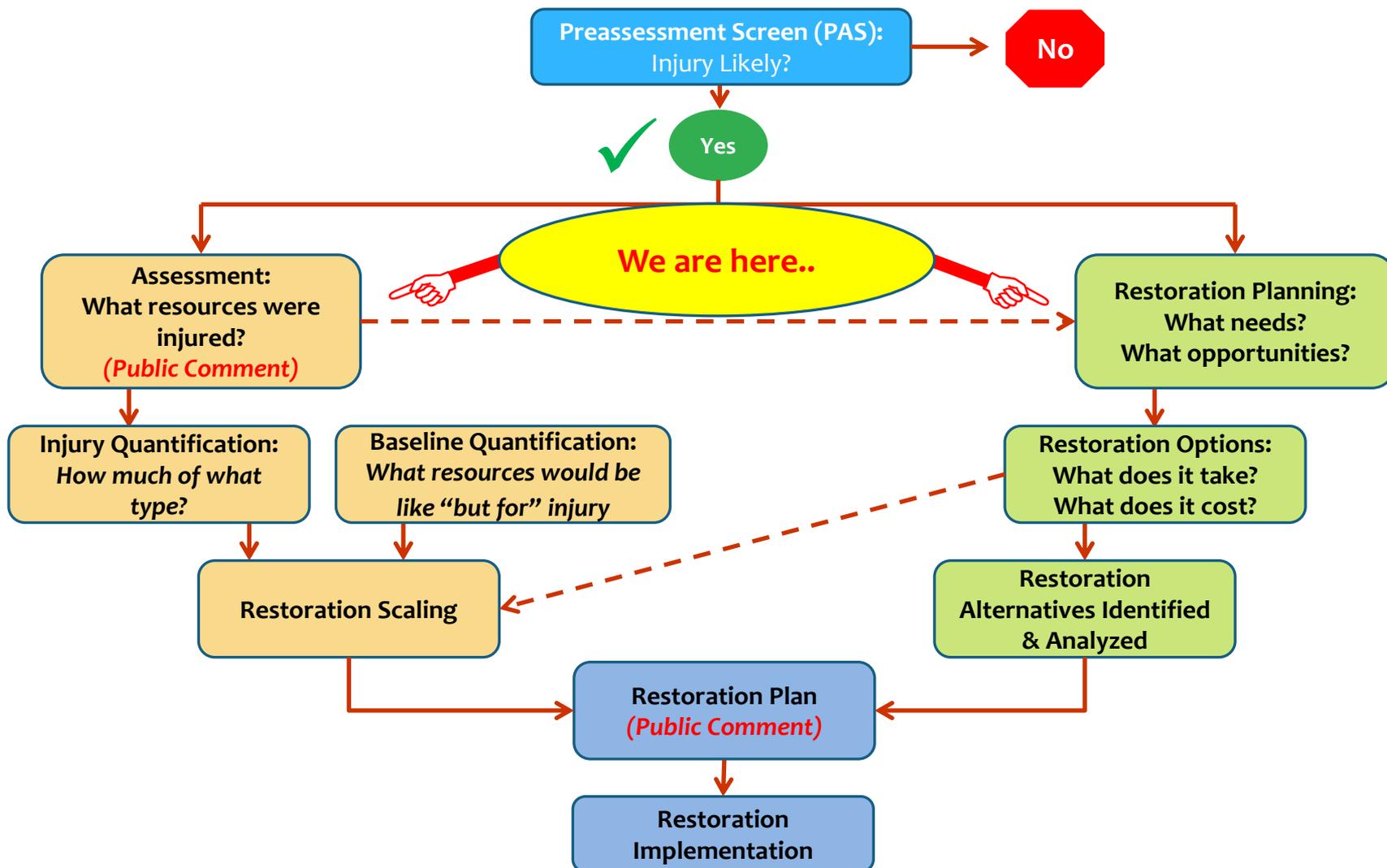
Coordinated EE/CA – NRDA Process:



<p>Sampling– to determine extent of contamination</p>	<p>Sampling– to determine type and level of injury</p>
<p>Engineering Evaluation & Cost Analysis (EE/CA)</p>	<p>Natural Resource Damage Assessment (NRDA)</p>
<p>- Risk evaluation</p>	<p>- Injury evaluation (what kind, how much)</p>
<p>- Cleanup alternatives</p>	<p>- Identify restoration goals (Restoration Planning)</p>
<p>- Recommended cleanup actions</p>	<p>- Scale restoration to level of injury</p>
<p>- Public Comment</p>	<p>- Public Comment (Restoration Plan)</p>
<p>Conduct Cleanup and Restoration</p>	

The NRDAR Process:

(Photo Credit: C. Cline)



What are “Natural Resources”?



(Photo: C. Cline)



(Photo: A. Bengtson)



(Photo: C. Cline)

- * **Natural Resources are:** “... land, fish, wildlife, biota, air, water, ground water, drinking water supplies, and other such resources belonging to, managed by, held in trust by, appertaining to, or otherwise controlled by the United States... [and] any State... government...” (43 CFR §11.14)
- * **Surface water** resources
- * **Ground water** resources
- * **Air** resources
- * **Geologic** resources (e.g.: soil, sediment)
- * **Biological** resources (“biota”: fish, wildlife, plants, other organisms making up habitats)

What is Natural Resource “Restoration”?



Cherokee County, KS (Photo Credit: J. Miesner)

- * **Natural Resource Restoration is defined as:** “actions undertaken to return an injured resource to its baseline condition [what it would be “but for” the hazardous substances], as measured in terms of the injured resource's physical, chemical, or biological properties or the services it previously provided...”
- * **In other words, making the public whole for ongoing losses and loss of past use (to 1980) of natural resources and the services they provide, to a level that would be expected if they had not been exposed to the hazardous substances**

Why Restore Natural Resources?



(Photo: C. Cline)

- * **Natural Resources provide SERVICES to the public and the environment. Some examples:**
 - * **Water:** provides drinking water, water and habitat for fish, birds and other wildlife
 - * **Floodplain soils:** hold water to provide dry-season base flow to streams, also absorb storm water runoff to ease flooding
 - * **Migratory birds:** ecological function as predators and prey, human uses such as duck-hunting, bird-watching
 - * **Fish:** ecological function as predators and prey, human uses such as angling

What does Restoration look like?



Interceptor ditch

After construction (Photos K. Gee)



Interceptor ditch terminal pond, early spring

What is the Goal of Restoration at Silver Creek?



(Photo: A. Bengtson)

- * **The preliminary goal at Silver Creek is a restored stream and floodplain that provides:**
 - * Healthy aquatic, riparian and floodplain wetland habitats that support ecological and human uses of the natural resources within them
 - * Water that meets appropriate water quality standards
 - * An open space resource consistent with plans and zoning being developed by local governments
- * **Final restoration goals yet to be developed**
 - * Will be detailed in the Restoration Plan (public comment document)

Who are the Natural Resource “Trustees”?

(Photo: C. Cline)

- * Trustees are Agencies tasked to manage natural resources in trust for the public
 - * “Federal natural resources management agency designated in the NCP and any State agency designated by the Governor of each State...” (43CFR §11.14)
- * **At Silver Creek:**
 - * State of Utah
 - * **Utah Department of Environmental Quality** (Water, soil, groundwater)
 - * **Utah Department of Natural Resources** (Fish, wildlife, game-birds and their habitats)
 - * U.S. Department of Interior
 - * **U.S. Fish & Wildlife Service** (Migratory birds and their habitats)
 - * **Bureau of Land Management** (Land in the Silver Maple Claims area)



Restoration Planning- What and Where to Restore



(Photo Credit: A. Bengtson)

- * **“In-kind”**: Restoration linked to resources that have been injured
 - * E.g., species, habitats, uses
- * **Hierarchy of preferred restoration starts locally**
 - * “In-place”: e.g., same watershed
- * **“In-kind, in-place”**
 - * is feasible at Silver Creek if remediation & restoration become linked
- * **“In perpetuity”**
 - * Preferred where possible because of time and effort associated with remediation and NRDAR
 - * Restoration needs to be durable and “worth the effort”– public benefit balanced with extent and significance of injuries

Restoration Planning- Stewardship and Partnerships



(Photo Credit: C. Cline)

- * **Restored areas are relatively small, often located in developed areas**
 - * the reality is that they need stewardship to thrive
- * **Trustees represent and work for the public, but they are not land stewards**
- * **Local partners:**
 - * More familiar with resources in area → *experience with management issues*
 - * Closer proximity → *more able to respond to issues at site*
 - * May have similar projects nearby → *efficiencies of scale*

Role of Stakeholders

(Photo: C. Cline)

- * **Help in Identifying:**

- * **Local values**
- * **Constraints**– other priorities, other plans
- * **Potential partners** with missions that are consistent with restoration needs and goals (e.g., conservation organizations, land trusts)
- * **Potential projects** that may already be “on the books”– public acceptance, priorities, zoning, permits, maybe even partial funding

- * **Public Comment at key steps of the process:**

- * **Assessment Plans**
- * **Restoration Plans**

- * ***Stakeholder involvement can result in less funding spent on planning, more spent on “on the ground” restoration***

Current NRDAR Activities



(Photo: A. Bengtsen)

- * **Assessing natural resource injuries**
 - * Developing assessment plans
 - * in cooperation with United Park City Mines Company (OU2, OU3) and Park City Municipal Corporation (OU4)
 - * Coordinated with field work required for cleanup investigation

- * **Restoration Planning**
 - * Stakeholder coordination
 - * Development of Restoration Goals
 - * Identification of potential projects

Next Steps:

(Photo: C. Cline)

- * **2015-2016:**
 - * Conduct assessments (injury and baseline)
 - * Stakeholder input, Restoration Planning
- * **2016-2020:**
 - * Quantify injury, scale restoration
 - * Identify restoration alternatives
 - * Cleanup alternatives analysis (EE/CA)
 - * Restoration Alternatives Analysis (RAA)
 - * Public Comment
 - * Cleanup Decision- EPA Action Memo
 - * Cleanup/Restoration Starts

Want more Information?

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(Photo: A. Bengtsen)