

Anniston PCB Site Natural Resource Damage Assessment and Restoration: Draft Assessment Plan



**January 21, 2010
Draft Assessment Plan
Public Meeting**

Anniston PCB Site Natural Resource Trustees



Alabama Department of
Conservation and Natural Resources

Presentation Objectives

- Overview of the Natural Resource Damage Assessment and Restoration (NRDAR) process.**
- Update on the NRDAR activities at the Anniston PCB Site.**
- Overview of draft Anniston NRDAR Assessment Plan.**
- Review schedule.**
- Questions?**

What is Natural Resource Damage Assessment?



It is the **process** used by natural resource **trustees** to determine the nature and extent of injury to trust **natural resources** caused by an oil spill or release of a **hazardous substance**.

General Steps in the NRDAR Process



- Pre-assessment Screen
- Assessment Planning
- Injury Determination
- Injury Quantification
- Damage Calculation
- Restoration



What is Natural Resource Damage Assessment?



concepts:

... the process used by natural resource trustees to determine the **nature and extent of injury to a trust natural resource caused by a release of a hazardous substance for the purpose of restoring the natural resource or acquiring its equivalent.**

Anniston PCB Site EPA Superfund Operable Units

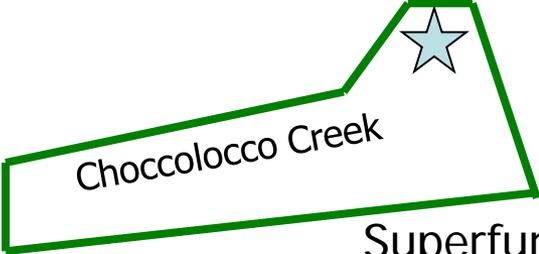
- Operable Unit 1 – Residential Areas**
- Operable Unit 2 – Non-Residential Areas**
 - from facility to HWY 78**
- Operable Unit 3 – Solutia Facility**
 - includes South and West End Landfills**
- Operable Unit 4 – Choccolocco Creek and associated floodplain**

Anniston PCB Site NRDAR Study Area

Neely
Henry
Lake

Anniston

Logan
Martin
Lake

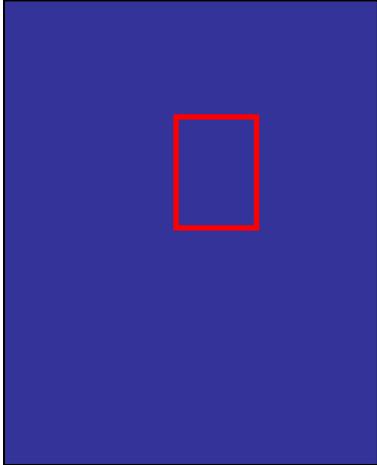


Superfund Site

Lay
Lake

Mitchell
Lake

Red Denotes Fish
Consumption Advisories



What is Natural Resource Damage Assessment?



concepts:

... the process used by natural resource trustees to determine the nature and extent of **injury to trust natural resources caused by release of a hazardous substance.**

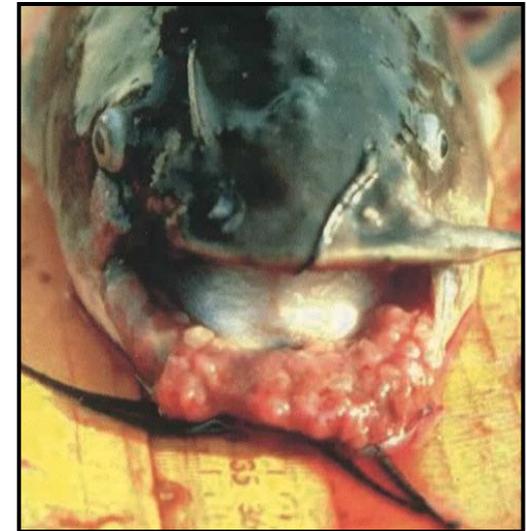
Injury

... any adverse change in the condition of a resource caused by exposure to contaminants, including response actions

Examples of Injuries to Fish and Wildlife



- Death
- Disease
- Cancer
- Genetic Mutations
- Physical Deformities
- Behavioral Abnormalities



What is Natural Resource Damage Assessment?



concepts:

... the process used by natural resource trustees to determine the nature and extent of injury to **trust natural resources caused by release of a hazardous substance.**

Anniston PCB Site Trust Resources

- surface water
- groundwater
- soils
- sediment
- benthos
- mollusks
- fish (and sportfishing)
- terrestrial invertebrates
- reptiles and amphibians
- birds
- mammals
- threatened/endangered species (12)



What is Natural Resource Damage Assessment?



concepts:

... the process used by natural resource trustees to determine the nature and extent of injury to trust resources caused by **releases of hazardous substances.**

Anniston PCB Site

Hazardous Substances (Chemicals of Concern)

- PCBs**
- lead, mercury and other metals**
- organophosphate pesticides**
- chlorophenols**
- solvents**
- others**

What is Natural Resource Damage Assessment?



bottom-line:

... NRDA is designed to compensate the environment and public for injuries to natural resources resulting from the release of hazardous substances

- compensation achieved through:**
 - restoration, rehabilitation, replacement of injured resources**

What Is Restoration?

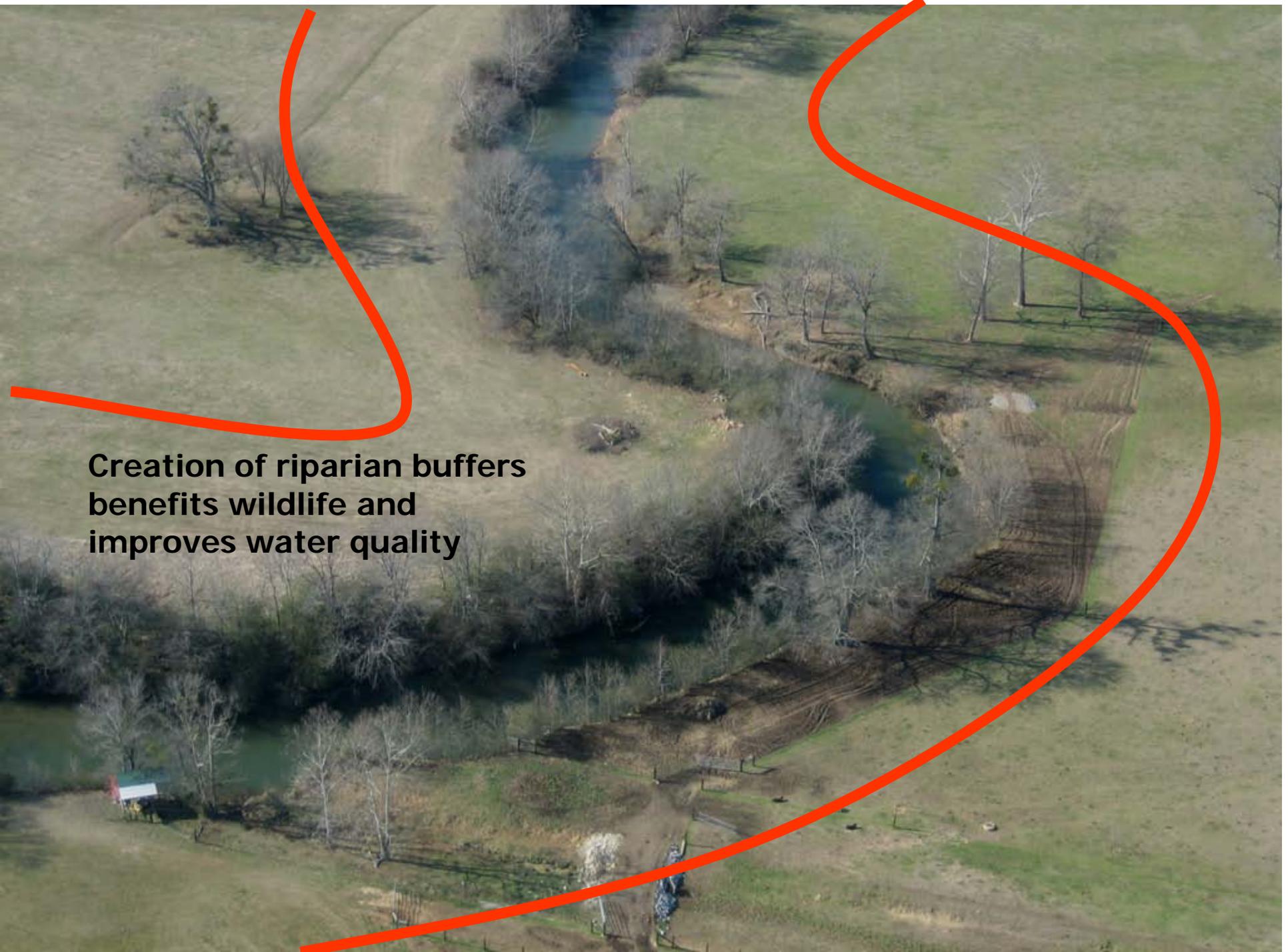


Returning resources to conditions that existed prior to the release of hazardous substances.

Examples of Restoration



- **Enhance or restore quality of existing habitat**
(examples - planting trees, restoring streams, etc.)
- **Increase populations through reintroduction or restocking** **(examples - stocking mussels or fish)**
- **Public access and education**
(examples - providing nature trails, fishing access, educational kiosks, etc.)

An aerial photograph showing a stream flowing through a rural landscape. The stream is bordered by a dense line of trees and shrubs, which is highlighted by a thick red outline. The surrounding area consists of green grassy fields and some bare trees, suggesting a late autumn or winter setting. In the lower-left corner, there is a small white structure with a green roof. The text "Creation of riparian buffers benefits wildlife and improves water quality" is overlaid on the left side of the image.

**Creation of riparian buffers
benefits wildlife and
improves water quality**

Anniston PCB Site NRDAR



- Where are we in the NRDAR Process?



Anniston PCB Site NRDAR - Status



- **Pre-assessment Screen:**
Final - February 2005
- **Assessment Planning:**
Draft Stage 1 Assessment Plan
November 2009
- **Injury Determination:**
Ongoing
- **Injury Quantification**
- **Damage Calculation**
- **Restoration**



Anniston PCB Site Assessment Plan (draft)



DRAFT
Anniston PCB Site
Stage I Assessment Plan

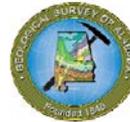


Prepared by The Anniston PCB Site Trustee Council

State of Alabama
Alabama Department of Conservation and Natural Resources
Geological Survey of Alabama

&
U.S. Department of the Interior
U.S. Fish and Wildlife Service

November 2009



Anniston PCB Site Assessment Plan (draft)



Chapter 1: Introduction

- overview of the NRDA Process
- summary of the Anniston PCB Site Pre-Assessment Screen
- description of the intent and organization of the Plan
- details on the Public Comment process

1. Introduction

The State of Alabama, acting through the Department of Conservation and Natural Resources (ADCNR) and the Geological Survey of Alabama (GSA), and the Secretary of the Interior, as represented by the Regional Director of the U.S. Fish and Wildlife Service (FWS; collectively referred to as the Natural Resource Trustees or Trustees), are in the process of assessing damages for injuries to natural resources from releases of hazardous substances from the Anniston PCB Site Assessment Area (Site). For the purposes of this plan, the Site is defined as the 11th Street Ditch, Snow Creek, Choccolocco Creek, Coosa River (including, but not limited to, Lay Lake and Lake Logan Martin), and associated floodplains. The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) [42 U.S.C. § 9601 et seq.] and the Clean Water Act (Federal Water Pollution Control Act, or CWA) [33 U.S.C. § 1251 et seq.] provide authority to the Trustees to seek such damages.

This document presents the Stage I Assessment Plan for the natural resource damage assessment (NRDA) being conducted by the Trustees. The Stage I Assessment Plan, which describes the approach and methods that the Trustees will use in conducting the Stage I assessment, is the second step in the NRDA process and follows the Site Preassessment Screen which was prepared by the Trustees for this Site in June 2005. The Stage I Assessment Plan was prepared in accordance with the U.S. Department of the Interior (DOI) NRDA regulations, as set forth at 43 CFR Part 11.¹ Use of these regulations in performing an assessment is not mandatory; however, they provide guidance and a useful context within which to evaluate the various aspects of the assessment.

1.1 The Natural Resource Damage Assessment Process

State and Federal agencies designated as Trustees are empowered to obtain compensation from potentially responsible parties (PRPs²) to restore natural resources injured, destroyed, or lost as a result of releases of hazardous substances. Trustees must use recovered funds to restore, replace, rehabilitate, or acquire the equivalent of the injured natural resources and are also entitled to recover the costs they incur in assessing the injuries and determining appropriate restoration. In lieu of receiving funds for damages to natural resources, the Trustees may allow the PRPs to directly implement restoration activities.

¹ 43 CFR Part 11 regulations were authored by the U.S. Department of the Interior (DOI), and are referred to as the DOI regulations in this document.

² The term PRP as used in this document refers to parties potentially liable for natural resource damages under CERCLA.

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Chapter 2: Background

- description of assessment area
- site history
- hazardous substance releases
- overview of Superfund activities

2. Background Information on the Assessment Area

2.1 Description of the Site Assessment Area

The Anniston Facility is located approximately one mile west of downtown Anniston, Calhoun County, Alabama. The Facility encompasses approximately 70 acres of land in the Snow Creek watershed. Drainage from the Facility travels through a small stream (11th Street Ditch) to Snow Creek. From this confluence, Snow Creek extends about five river miles to Choccolocco Creek. Choccolocco Creek extends 35.4 river miles from the confluence with Snow Creek to Lake Logan Martin on the Coosa River. Lake Logan Martin was formed in 1964 following the construction of Logan Martin Dam on the main stem of the Coosa River. Logan Martin Dam is about 17 miles downstream of the Coosa River-Choccolocco Creek confluence.

The 11th Street Ditch and Snow Creek largely flow through urban areas within Anniston. However, a riparian area has established itself along portions of the 11th Street Ditch following the removal of structures and construction of fences along much of the stream course. Similarly, a riparian corridor borders much of Snow Creek. The mean stream flow of Snow Creek at the confluence of Choccolocco Creek is 28 cfs (BBL 2000). The 10-year recurrence interval flood at this point is 4,030 cfs.

Choccolocco Creek downstream of Snow Creek is a broad, low-gradient stream. Mean monthly flows near the Snow Creek confluence range from 53 cfs in October to 764 cfs in March (Pearman et al. 2002). Downstream flows near the confluence with the Coosa River range from a monthly mean of 298 cfs in September to 1,605 cfs in March. Peak flows range up to 36,900 cfs. Flooding occurs, on average, three to four times per year (BBL 2000). The broad floodplain bordering much of lower Choccolocco Creek consists of bottomland hardwood forests, open water and emergent wetlands, and agricultural lands (crop and pasture).

Choccolocco Creek discharges to Lake Logan Martin. Lake Logan Martin was created by the completion of Logan Martin Dam on the Coosa River in 1964. The Alabama Power Company constructed and operates the dam. Lake Logan Martin is 48 miles long, has a surface area of 15,263 acres, and has 275 miles of shoreline. The current maximum depth of the lake is 69 feet. Lake Logan Martin provides a variety of fish and wildlife habitats, and supports extensive water-oriented recreational activities.

Lay Dam, constructed in 1914, may have served to trap PCB-contaminated sediments in the Coosa River. Lay Dam is located approximately 50 miles downstream of Logan Martin Dam.

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Chapter 3: Authorities

- review of legal authorities
- identification of natural resources considered in the NRDA

3. Authority of Trustees and Decision to Proceed with a Type B Assessment

3.1 Authority

Under Section 107 (f) of CERCLA, the Trustees, individually and together, are authorized to recover damages for injury to, destruction of, and loss of natural resources resulting from a release of hazardous substances from a facility. The Trustees will coordinate and cooperate in carrying out their trustee responsibilities as suggested under the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). More specifically, the NCP states that *"where there are multiple trustees, because of coexisting or contiguous natural resources or concurrent jurisdictions, they should coordinate and cooperate in carrying out their trustee responsibilities"* [40 CFR § 300.615].

Under the DOI NRDA regulations, assessment plans must include a statement of the authority for asserting trusteeship or co-trusteeship for those natural resources addressed in the Assessment Plan [43 CFR § 11.31(a)(2)]. A general description of the authorities relied on by each Trustee in asserting trusteeship over natural resource(s) is given below. These descriptions are not meant to be an exhaustive and all-inclusive listing of each Trustee's authority(ies). Importantly, each Trustee may have co-trustee authority over natural resources listed within the trusteeship of another Trustee.

3.1.1 Alabama Department of Conservation and Natural Resources and the Geological Survey of Alabama Natural Resource Trusteeship Authority

The Commissioner of ADCNR and the State Geologist of GSA have been designated by the Governor of Alabama as lead State Trustee and Co-Trustee, respectively, for State natural resources pursuant to Section 107(f)(2)(B) of CERCLA [42 U.S.C. §§ 9601 et seq.] and Section 311 of the Federal Water Pollution Control Act of 1972, as amended (Clean Water Act) [33 U.S.C. §§ 1251 et seq.].

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Chapter 4: Coordination and Previous Actions of Trustees

- Anniston PCB Site Trustee Team

4. Coordination and Previous Actions of Trustees

On February 12, 2005, the DOI finalized a preassessment screen and determination for the site. On June 16, 2005, in accordance with 43 C.F.R. § 11.32(a)(2)(iii)(A), the DOI wrote a letter transmitting a notice of intent to perform an assessment to the PRPs and inviting their participation in the development and performance of the assessment. The PRPs responded on July 25, 2005, expressing their commitment to continued cooperation with the Trustees and all other stakeholders in the assessment process.

5. Confirmation of Exposure to Natural Resources and Preliminary Determination of Recovery Period

The DOI NRDA regulations state that an assessment plan should confirm that at least one of the natural resources identified as potentially injured in the preassessment screen has in fact been exposed to the . . . hazardous substance." 43 C.F.R. § 11.37(a). A natural resource has been exposed to a hazardous substance if "all or part of [it] is, or has been, in physical contact with . . . a hazardous substance, or with media containing the . . . hazardous substance." 43 C.F.R. § 11.14(q). The DOI regulations also state that "whenever possible, exposure shall be confirmed using existing data" from previous studies of the assessment area. 43 C.F.R. § 11.37(b). The following sections provide confirmation, based on a review of available preliminary existing data, that a number of potentially injured resources within the Site have been exposed to hazardous substances, including, but not limited to, PCBs. These resources include:

- Surface water resources, including surface water and sediments;
- Groundwater resources;
- Geologic resources; and,
- Biological resources.

The following discussion is not a complete review of existing information regarding Site resource exposure to hazardous substances, but is sufficient to confirm exposure of various resources to PCBs in compliance with the DOI regulations. A preliminary determination of the recovery period for the Site's natural resources is also presented in this chapter.

5.1 Surface Water Resources

Anniston PCB Site Assessment Plan (draft)



Chapter 5: Confirmation of Exposure

- overview of available information demonstrating a NRDAR is warranted
- evaluates available data for:
 - surface water resources
 - groundwater resources
 - geological resources
 - biological resources

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5.1 Surface Water Resources

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Chapter 6: Stage 1 Injury Assessment

- describes proposed injury assessment approach
- identifies data sources
- evaluates exposure pathways
- defines injury criteria

these processes typically are slow relative to the mass of PCBs in the sediment because of the very low vapor pressure and hydrophobicity of PCB molecules (Erickson 1997).

Because of the persistence of PCBs in the environment, natural recovery of PCB contamination will proceed very slowly in the Site. Sediment burial and downstream particulate transport are typically the primary loss mechanism for PCBs in riverine systems (e.g., Velleux and Endicott 1994). However, PCBs buried in deeper sediment can be re-exposed through anthropogenic activities (e.g., dredging, boating) or through high-flow events. Although the Trustees are unable to quantify an expected natural recovery period for the Site at this time, the chemical nature of PCBs and what is known regarding loss of PCBs from environmental systems demonstrate that the natural recovery period is expected to be very long, at least on the order of many decades.

6. Stage I Injury Assessment

Chapter 4 provided information confirming that natural resources at the Site, including surface water, sediments, soils, and biological resources, have been exposed to PCBs. To evaluate the nature, extent, and degree of injury to exposed natural resources, the Trustees will conduct a Stage I injury assessment. The purpose of the injury assessment is to determine whether natural resources have been injured (43 C.F.R. § 11.61), to identify the environmental pathways through which injured resources have been exposed to hazardous substances (43 C.F.R. § 11.63), and to quantify the degree and extent (spatial and temporal) of injury (43 C.F.R. § 11.71).

As discussed in Chapter 1, the Trustees will conduct the Site NRDA in stages. The Stage I Assessment will be conducted primarily with existing information and with information from the RI/FS activities, potentially supplemented with a limited amount of additional data collected to ensure the best use of RI/FS data for injury assessment purposes. The Stage II Assessment, if necessary, will encompass new investigations where required. The Trustees will prepare, and make public, specific sampling and analysis plans, either as appendices or supplements to the final Stage II Assessment Plan.

6.1 Injury Assessment Approach

Injury is defined in the DOI regulations as a "... measurable adverse change, either long- or short-term, in the chemical or physical quality or the viability of a natural resource resulting either directly or indirectly from exposure to a ... release of a hazardous substance, or exposure to a product of reactions resulting from the ... release of a hazardous substance." The definition of "injury" encompasses the concepts of "injury," "destruction," and "loss." 43 C.F.R. § 11.14(v). The injury assessment will involve two basic steps, injury determination and injury quantification, as indicated below:

1. **Injury determination.** The Trustees will determine whether an injury to one or more natural resources has occurred as a result of releases of hazardous substances [43 C.F.R. § 11.62]; and,

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Chapter 7: Damage Determination

- describes proposed approach to calculate costs of restoration or other compensation
- describes restoration planning objectives and processes
- describes coordination with the Superfund action

6.5 Procedures for Sharing Data

The DOI NRDA regulations state that an assessment plan includes:

- Procedures and schedules for sharing data, split samples, and results of analyses, when requested, with any identified potentially responsible parties and other natural resource Trustees [43 C.F.R. § 11.31(a)(4)].

To facilitate the data-sharing process, PRPs and other state or federal agencies will be provided with an opportunity, as deemed appropriate, to obtain a copy of the database(s) used in the Stage I Assessment. If PRPs or state or federal agencies wish to receive such data, a written request identifying the data desired should be submitted to:

U.S. Fish and Wildlife Service
Attn: Karen Marlowe
1208 Main Street
Daphne, AL 36526

The Trustees will provide the data to the PRPs and any other interested parties once the data have been validated and deemed suitable for distribution. In addition, the Trustees will explore opportunities to split samples with the PRPs in order to assure data quality and/or enhance data usability.

7. Stage I Damage Determination

This chapter describes the Trustees' approach for conducting the Stage I damage determination. Section 7.1 provides an overview of the approach to be used by the Trustees in the Stage I Assessment. Section 7.2 describes the approach for the Stage I restoration planning and costing, and Section 7.3 describes the approach for the Stage I determination of compensable values. Section 7.4 describes the relationship between the NRDA damage determination and the response actions being conducted as part of the ongoing RI/FS.

7.1 Overview of Approach to Damage Determination

The purpose of a damage determination is to "establish the amount of money to be sought in compensation for injuries to natural resources resulting from a . . . release of a hazardous substance" [43 C.F.R. § 11.80(b)]. The DOI regulations define the measure of damages as *restoration costs* plus, at the discretion of the Trustees, *compensable values for interim losses* [43 C.F.R. § 11.80(b)]. Restoration costs are the costs of restoration actions that restore the injured resources and services to baseline, which is the condition that would have existed had the hazardous substance release(s) not occurred [43 C.F.R. § 11.14(e)].

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Chapter 8: References

8. References

- Abramowicz, D.A., M.J. Brennan, H.M.V. Dorf, and E.L. Gallagher. 1993. Factors influencing the rate of polychlorinated biphenyl dechlorination in Hudson River sediments. *Environmental Science and Technology* 27:1125-1131.
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- Blasland, Bouck & Lee. 2000. Off-site RCRA Facility Investigation (RFI) Report. Solutia, Inc., Anniston Facility. Report submitted to Solutia, Inc., Anniston, Alabama. 10 numbered sections.
- Blasland, Bouck & Lee. 2003. Phase I - Conceptual site model report for the Anniston PCB Site. Report submitted to Solutia, Inc., Anniston, Alabama.
- Blasland, Bouck & Lee. 2004. Remedial investigation/feasibility study work plan. December.
- Blasland, Bouck & Lee. 2005. Data summary report for Operable Unit 4. March.
- Boschung H.T. and R.L. Mayden. 2004. *The fishes of Alabama*. Smithsonian Books, Washington, D.C. 736 pp.
- Brown, J.P. and R.E. Wagner. 1990. PCB movement, dechlorination, and detoxication in the Acushnet estuary. *Environmental Toxicology and Chemistry* 9:1215-1233.
- Brown, J.P., R.E. Wagner, H. Feng, D.L. Bedard, M.J. Brennan, J.E. Carnahan, and R.J. May. 1987. Environmental dechlorination of PCBs. *Environmental Toxicology and Chemistry* 6:579-593.

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Appendices

A: Threatened and Endangered Species

B: List of Chemicals of Potential Concern

Appendix A

Threatened and Endangered Species from the Anniston PCB Site

Anniston PCB Site Draft NRDAR Assessment Plan

- A copy may be downloaded at <http://www.fws.gov/daphne>

or

- Request a copy from:

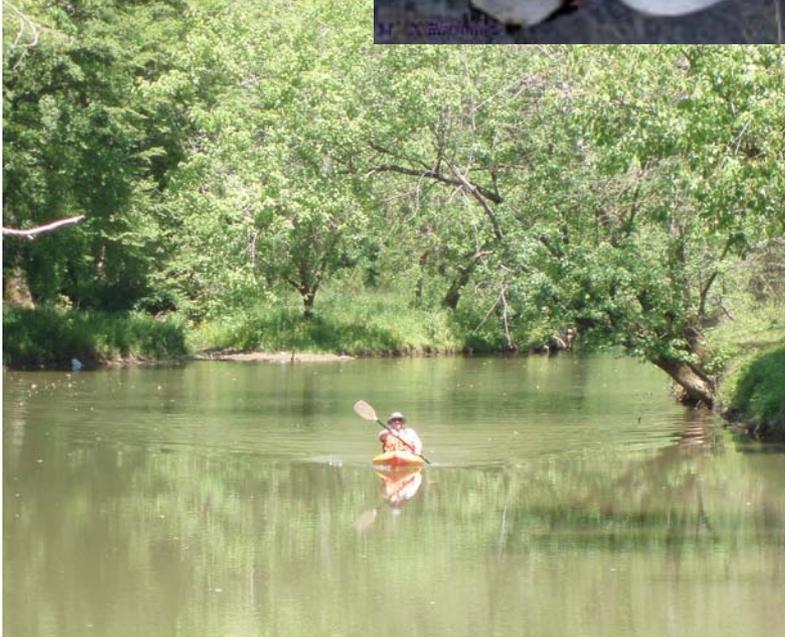
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Anniston PCB Site Draft NRDAR Assessment Plan

- Comment period is open until January 31, 2010.
- Send comments to:

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Questions?



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