
COOPERATION IN THE NATURAL RESOURCE DAMAGES PROCESS: INITIATION, ASSESSMENT AND RESTORATION

A Research Compendium

Developed by the ASTSWMO Natural Resource Damages Focus Group

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Introduction

The idea for this document arose in response to the current emphasis on Cooperative Assessments in the Natural Resource Damages (NRD) and regulated communities. Today, the less litigious approaches of global and restoration-based settlements result in a limited role for dollar-based damages. Trustees across the country are emphasizing cooperation-based approaches with Responsible Parties (RP). Guidance being developed by the National Oceanic and Atmospheric Administration (NOAA) will describe a Cooperative Assessment from case initiation through finality and completion of restoration projects.

However, every NRD case is unique, and each offers its own opportunities for capturing the benefits of cooperation at any or all points in the NRD process. Given its success, there is a need to draw attention to, and highlight trustee cooperation. This cooperation occurs on many levels and in many significant ways at various points in the NRD process, and not just with the regulated community. Examples abound where cooperation began prior to any assessment work being started. The same holds true for cooperation after a settlement has been reached. This document is designed to capture these and other aspects of cooperation with real-life examples, each allowing States to maximize use of scarce resources and achieve the largest restoration return possible.

Although the primary audience is States, it is hoped the information contained in this document may be useful to other members of the NRD community in understanding the structure and challenges faced by the States in assessment and restoration. States very often have the largest stake in an NRD case, yet the least financial support to lend to the process. Although current initiatives may emphasize cooperation among trustees and the regulated community from the initiation of a case through to its restoration, there are various other opportunities depending on a given State's circumstances.

This document is organized by the different opportunities available for cooperation, cooperation with the regulated community being only one of many. Others include opportunities for cooperation within a State or between different State agencies, and opportunities with other State, federal, and tribal trustees. Case studies, in addition to describing each case in detail, offer lessons learned and specific contacts for more information. The appendices contain Natural Resource Damages Focus Group contact information (Appendix A), sample MOUs (Appendix B), and information on a Massachusetts initiative (Appendix C).

The Natural Resource Damages Focus Group, one of seven research-oriented programmatic focus groups under the auspices of the Association of State and Territorial Solid Waste Management Officials' (ASTSWMO) CERCLA Research Center, researched and drafted this document. ASTSWMO is a national, non-partisan and non-profit organization composed of State and Territorial¹ hazardous and solid waste and remediation program managers and their staffs. The Association's mission is to enhance and promote effective State waste management and remediation programs and affect national waste management and remediation policies.

By design, membership to the Focus Group is representative of the regional construction of the U.S. Environmental Protection Agency, with one member representing the States in each region. Each member is responsible for communication and coordination with the other regional States and incorporating the knowledge, experiences, and concerns of those States into the research

¹From here forward, the term "State" references both States and Territories.

conducted by the Focus Group. All members of the Focus Group are practitioners of NRD. Current members also have experience in environmental science, planning, management, biology, geology, engineering, and economics. Past members have also brought legal expertise to the Focus Group. The Focus Group is also aided in its research efforts by a liaison from EPA's Office of Superfund Remediation and Technology Innovation (formerly the Office of Emergency and Remedial Response), which also funds the Focus Group's research work. Current Focus Group membership and contact information is given in Appendix A.

On an annual basis, the Focus Group develops work plans on current NRD issues, consistent with ASTSWMO's mission and strategic plan, for cooperative agreement funding from EPA. Currently, the Focus Group is concentrating its efforts on work to further incorporate the restoration of natural resources into the remediation process, including through the use of cooperative assessments. Research in this and other areas has been presented via national training and information exchange workshops and symposia, and a series of compendia, including work on groundwater assessment and restoration. These and other documents are developed as resources for the NRD community and, specifically, for use by the States in creating and/or developing their NRD programs. They are available on the ASTSWMO website at <http://www.astswmo.org/Publications/Revbkshlf.htm#CERCLA>.

Beyond intrastate coordination efforts for its research projects, the Focus Group also solicits external input from an array of groups, where appropriate. This includes continuously developing relationships with the federal government and trustees, the regulated community and industry groups, and other non-governmental organizations.

This document is intended only to offer practical suggestions and succinct examples for use by State natural resource trustees in their damage assessment and restoration work. It is not a comprehensive document, nor is it intended to be. The case study examples are brief and focused on describing the merits of each case as they relate to the issue of cooperation. This document does not establish any official opinions, positions, preferences or recommendations by ASTSWMO or by any individual ASTSWMO member or their respective State or region.

Interagency & Intrastate Opportunities

This section deals with current and past internal cooperation by States. Each State handles its NRD program and responsibilities somewhat differently. Two discussions are presented focusing on the issues of scarce resources and trusteeship. Summaries of selected States, as written by State NRD staff, conclude this section.

Scarce Resources: Sharing Staff and Funds

State-specific NRD staffing levels, although generally low, presently range from no full-time staff to a staff of ten. The environmental resources at risk vary significantly from State to State, adding a need for persons with expertise in certain areas, such as groundwater, wetlands, rivers, etc. The number and types of sites also differ among States. Furthermore, some States may have only one trustee agency, but that agency may benefit from the expertise of others. It may be possible to develop or expand on the relationships among State agencies in order to accomplish the objectives in a given NRD case. For example, a State environmental agency may not have the laboratory facilities or contracting expertise to conduct chemical analysis, but such expertise may exist in the State's health agency. Interagency Memoranda of Agreement (MOA) can provide for additional staffing and expertise on either a general (as needed) or case-specific basis.

Another opportunity is to look to institutions of higher educational. There may be opportunities to exchange a wealth of knowledge and support in a faculty member or a research institute. For example, New York State agencies also include the State University of New York (SUNY) system. This governmental structure allows agencies such as the Department of Environmental Conservation (as trustee) to contract with one of the SUNY schools (as a sister agency) using a Memorandum of Understanding (MOU), thereby significantly streamlining the contract process. The Memoranda may be used to transfer funds in exchange for a commitment of staff time. Internships and summer or temporary employment, funded by the trustee agency and managed by a university, is another avenue for alleviating staffing shortages.

Trusteeship

Trustees are federal, State, or tribal officials with the authority to assess and bring lawsuits for natural resource damages on behalf of the United States, the State, or tribe. The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, a.k.a. Superfund) authorizes federal, State, and tribal trustees to pursue natural resource damages claims. The President, State governors, and tribal leaders designate officials to act as natural resource trustees.² These officials often delegate their authority to members of their staff. Trustees usually work for agencies that manage public land, fish and wildlife, or water resources. The President has specifically identified the Secretaries of the Interior, Commerce, Agriculture, Energy, and Defense as the primary trustees for various natural resources under the trusteeship of the United States.³ The Governors of each State may designate portions of the trusteeship to various agencies.⁴ But every State is different as to the structure of their trusteeship.

² see CERCLA § 107(f)(2); 42 U.S.C. § 9607(f)(2).

³ see Executive Order 12580; 40 CFR 300.600.

⁴ This document does not address the issue of special trusteeship delegations below those at the State agency level, such as when a municipality or other levels of local government either

Trustee responsibilities may be held by a single agency or split among several. Compare New York, which has one trustee agency, to Texas, where three State agencies have trusteeship. With shared trusteeship, some States may need to formalize the necessary interagency relationships. An NRD case may easily involve many types of natural resources, which are managed by or under the trusteeship of different agencies. If done correctly, having a cooperative working group with representatives from each agency involved can be productive in addressing the different concerns of each trustee agency. For more information concerning trustees by State, see the February 1997 ASTSWMO-sponsored survey focusing on State NRD programs, available at <http://www.astswmo.org/Publications/pdf/nrd.pdf>.

State-Specific Summaries

California

The State of California has several agencies designated as potential trustees, depending upon the type and location of injured resources. These agencies include the Department of Fish and Game, the State Lands Commission, the Department of Parks and Recreation, and the State Water Quality Control Board. In practice, the Department of Fish and Game, through the Office of Spill Prevention and Response (OSPR), has taken the lead in most Natural Resource Damages Assessment (NRDA) cases. Natural resource damages are pursued under the State's version of the Oil Pollution Act (OPA), the *Lempert-Keene-Seastrand Oil Spill Prevention and Response Act*, various Fish and Game codes (e.g., 2014 and 12016), other State laws, and OPA 90 and CERCLA.

OSPR has several dedicated staff, including toxicologists and economists, focused on NRDA. On most large cases, OSPR works closely and cooperatively with other State, federal, and tribal trustees to develop a unified and cost-effective approach to resolution of the case. It is standard practice among natural resource trustees in California to support and promote cooperation with Responsible Parties (RP) whenever possible during the NRDA. This typically means that Trustee and RP experts (e.g., biologists, toxicologists, economists) work together throughout the assessment. The cooperative NRDA process generally allows for efficient, equitable, and scientifically-sound resolution to pollution events that impact natural resources. Information regarding OSPR's NRDA program can be viewed at <http://www.dfg.ca.gov/ospr/organizational/scientific/nrda/NRDA.htm>.

Illinois

The Illinois Environmental Protection Agency and Illinois Department of Natural Resources are the designated natural resource trustees for the State of Illinois. The two trustees have entered into a Memorandum of Agreement which outlines their cooperative process for identifying, investigating, evaluating and resolving claims for injuries to natural resource. The two trustees have focused on both singular release events and sites with significant historic contamination. Cooperation between the two trustees often involves a process of applying limited resources in the most efficient manner to address the largest number of appropriate sites. Both trustees have retained external NRDA-consulting expertise to assist their respective programs. In addition to claim identification, investigation and resolution, the trustees have also implemented a process to coordinate natural resource restoration and replacement planning and decision-making. The natural resource restoration and replacement process attempts to increase flexibility for the trustees and the responsible parties relative to the mechanisms through which natural resource injury claims are resolved and to provide increased opportunities for the public to participate in

request or have been given trusteeship.

the planning process. The NRDA efforts in Illinois continue to develop and evolve with both trustees committed to increasing the opportunities to address injuries to natural resources.

Indiana

The Governor of Indiana designated the Assistant Commissioner for the Indiana Department of Environmental Management (IDEM) Office of Environmental Response, and Deputy Director for the Indiana Department of Natural Resources (IDNR) Bureau of Water and Resource Regulation as co-trustees for natural resources under CERCLA in 1987. These two positions were confirmed as co-trustees under OPA in 1993. Personnel and departmental reorganizations led to designation of IDEM and IDNR chiefs of staff as trustees in 1997 (IDEM) and 2000 (IDNR). In recent years, the co-trusteeship has remained with individuals appointed by the Governor and both are still associated with IDEM and IDNR. Currently, the co-trustees are a Section Chief in the IDEM Office of Legal Counsel and the IDNR Deputy Director. The co-trustees exercise their duties as appointees of the Governor.

Indiana co-trustees entered into an Memorandum of Understanding (see Appendix B, MOU #4) with the U.S. Fish and Wildlife Service (acting as the designated official for the Department of the Interior), under which all natural resource damage claims (under CERCLA, OPA and/or the Clean Water Act) with overlapping trusteeship for resources would be pursued as joint actions. Under this arrangement, over 30 cases associated with National Priority List, CERCLA removal or OPA sites have been settled. Many of the earlier settlements were in association with U.S. Environmental Protection Agency Remedial Design / Remedial Action (RD/RA) Consent Decrees, but several Superfund, oil spill and Clean Water Act settlements have occurred between the trustees and the RP.

IDEM currently has 2 staff assigned to the NRD program as a group within the Federal Programs Section (Superfund, Defense Environment Restoration and Natural Resource Damages Groups) in the Office of Land Quality. Some support is provided by Science Services Section staff (chemistry, geology, engineering). Coordination with cleanup programs occurs primarily when NRD program staff or agency legal staff push the issue, or when the Potentially Responsible Parties (PRP) or RPs desire a global settlement.

IDNR had only one semi-dedicated staff member in the past, but in recent years have assigned staff on a case-by-case basis. The IDNR is currently trying to expand staff support for its NRD Program. The U.S. Fish and Wildlife Service Indiana Field Office assigns anywhere from 2 to 4 staff to NRD activities.

The IDNR and IDEM's respective offices of enforcement have signed a separate agreement to work on spill and fish kill cases in the State. Unless spills are of sufficient size to achieve political notice, State spill, water or animal kill laws are utilized to settle most of these cases. Penalties and damages for the value of the wildlife killed are deposited into IDEM special funds or IDNR agency fund accounts. Occasionally, a supplemental environmental project or RP-sponsored activity is incorporated into the settlement. These cases do not require trustee approval. Restoration plans are not required or prepared and the damages are spent at the discretion of the Director of IDNR, or with joint approval of the IDEM Commissioner, Auditor of the State and the Governor. Rarely do these funds support restoration of the injured natural resources.

It is anticipated that the Indiana NRD programs will shift their primary focus to restoration activities rather than assessments and/or settlements (excluding animal kill cases) in the future.

Massachusetts

In order to develop a Statewide, comprehensive NRD program, the Commonwealth recognized that one necessary first step was the formalization of an on-going cooperative effort between the State's NRD and remedial programs. To this end, in 2002 the Massachusetts Executive Office of Environmental Affairs (EOEA), as trustee for the Commonwealth, joined with the Department of Environmental Protection (DEP), as remedial agency, in issuing a Request for Responses (RFR) to procure the services of a qualified firm having the multi-disciplinary expertise to provide programmatic and technical support to EOEA in developing and implementing an NRD Program. Services delivered under the contract resulting from this RFR would be provided to and on behalf of the NRD Program at EOEA; however, the contract will be funded and administered by the DEP. The underlying cooperation between the State trustee agency and the remedial agency, as demonstrated by the RFR process, is an essential component to the successful implementation of an NRD Program. The RFR appears in Appendix C.

The Massachusetts NRD Program will only be strengthened via cooperation and integration with the remedial program. In addition, the development of the expanded State NRD program capability has the potential to provide considerable support to DEP's authority and program goals.

Minnesota

In Minnesota, the Governor has designated the Commissioners of the Minnesota Pollution Control Agency (MPCA) and the Minnesota Department of Natural Resources (MDNR) as co-trustees for natural resources. Staffs from the two agencies try to maximize efficiency by using agency expertise appropriately and cooperatively. There is no MOU between the agencies. Each agency has one staff person working primarily on NRDA projects on a priority basis, with legal support and other staff support as needed. There is no formal NRDA program in Minnesota, but the informal process has worked effectively.

NRDA in the State varies from cases that are following formal Department of the Interior CERCLA regulations with many trustees to cases following OPA NOAA regulations using a cooperative approach. The State is also working on a large case where settlement negotiations are in process following a long-term semi-cooperative approach focused on valuing groundwater. The State is also attempting NRDA on smaller sites, such as petroleum spills causing minor (less than one acre) wetland impact.

Missouri

In 2001, the Missouri Department of Natural Resources (MDNR) and Missouri Department of Conservation (MDC) entered into an MOA intended to guide and provide a framework for cooperation and coordination between the agencies. MDNR is the designated State trustee, but the MDC is the State agency charged with the control, management, restoration, conservation and regulation of bird, fish, game, forestry and all other wildlife resources.

The general objectives of the MOA allows the MDC to assist in, but not be limited to, the identification of potential natural resource injuries, injury quantification, and potential data gaps; assessment planning; restoration planning; public participation; and development of settlement positions. In essence, the MDC serves as an expert for the MDNR while maintaining the confidentiality of the information shared between the agencies.

A contact person from the MDC has been designated to work on NRD issues, allowing for a consistent approach to various sites. The Departments, along with the federal trustee representatives, jointly attend technical meetings in an effort to integrate NRD concerns into the remedial process; take a collaborative approach to commenting on various documents; and

maintain open lines of communication on a day-to-day basis. The working relationship at the staff level continues to develop and prosper, with the biggest challenge being “past history.”

Montana

Montana’s NRD program was created in 1990 to prepare the State's lawsuit for injuries to natural resources in the Clark Fork River Basin. The lawsuit, brought under the federal Superfund law and its State law counterpart, seeks hundreds of millions of dollars in damages for environmental damage to resources in the basin and for the State's litigation costs. For more information see <http://www.doj.state.mt.us/departement/naturalresourcedamage.asp>.

New Jersey

In the State of New Jersey, the Commissioner of the Department of Environmental Protection is the Governor's designated trustee for natural resources. The Office of Natural Resource Restoration is tasked with administering New Jersey's NRD program. The Commissioner is also responsible for all hazardous discharge cleanups in the State. These cleanups are conducted by the Site Remediation and Hazardous Waste Program. New Jersey requires all responsible parties conducting remedial investigations of hazardous discharges to “[C]ollect and evaluate all data necessary to evaluate the actual and potential ecological impacts and to characterize all natural resource injuries, including the nature and extent of injury to soil, water, flora and fauna, caused by the contaminants of potential ecological concern at the site.” (N.J.A.C. 7:26E, Technical Requirements for Site Remediation).

The results of this evaluation are reviewed by Site Remediation technical staff. In turn, the Office of Natural Resource Restoration uses post-review results to settle damage claims. By combining the manpower and expertise of both programs, New Jersey has streamlined the natural resource injury settlement pathway, enabling New Jersey to take full advantage of its limited staff resources.

In Fall 2003, the New Jersey Department of Environmental Protection announced a large-scale initiative to recover compensation on behalf of the citizens of New Jersey for the lost use of natural resources caused by industrial pollution, and to address the more than 4,000 potential claims for natural resource damages statewide.

New Mexico

The New Mexico Office of Natural Resources Trustee (ONRT) implements the State’s NRD assessment and restoration program. The New Mexico Natural Resources Trustee is the recognized administrative head of the ONRT and is appointed by the Governor.

In New Mexico, State trust resources include land, fish, wildlife biota, air, water, ground water, and drinking water supplies. New Mexico has sites Statewide with potential natural resource injuries that warrant investigation. The sites are varied in size and include industrial facilities, mineral extraction sites and federal installations. The ONRT maintains a separate, interest bearing account for restoration and cost recovery funds. In the past it has been problematic to access restoration funds for project implementation, however, new statutory language is to be proposed to facilitate access.

The Office of the Attorney General provides legal counsel to ONRT. Other State agencies (i.e., Environment Department, Department of Game and Fish, and the Energy, Minerals and Natural Resources Department) provide information about resource condition, remedial investigation results and mining related activities. The ONRT has made an effort to inform State agencies about the damage assessment and restoration process. This year, NOAA presented a workshop on habitat equivalency analysis for the ONRT, to which several other State agencies and federal

participants were invited.

The ONRT works closely with federal trustees, especially the Department of the Interior (DOI) and the U.S. Department of Agriculture's (USDA) Forest Service. An MOA between ONRT, DOI, and US Forest Service has been developed and is pending signature by DOI. The agreement describes how the three trustee entities will work together on those sites with shared trust resource interests. The agreement outlines procedures for a cooperative working alliance for the determination of natural resource damages and subsequent restoration activities.

The ONRT has had a beneficial relationship with the U.S. Environmental Protection Agency (EPA). The EPA provides ONRT and federal co-trustees site data and encourages cooperation. There is an MOU to that effect between EPA, ONRT and federal co-trustees for one New Mexico site. For another site, EPA recently invited ONRT and DOI to coordinate settlement of natural resource damage claims along with EPA's consent decree.

New York

New York's Department of Environmental Conservation (DEC) and its Commissioner "act on behalf of the Governor" in his role as the trustee for natural resources. However, three other agencies have roles when NRDA's are conducted. The New York State (NYS) Department of Health reviews the fish contaminant data collected by the DEC for the issuance of the Fish Consumption Advisories (FCA). Fish sampling and contaminant analysis are undertaken, and the FCAs are issued annually. The NYS Department of Law is the State's attorney and receives, on referral from DES, any NRD case where litigation is contemplated. When a case is referred to (specifically) the Attorney General's Office, staff from both agencies work together to bring the case to completion. The NYS Department of State has a role in NRDA in its purview under the Coastal Waters Protection Act.

South Carolina

In South Carolina, the Governor has designated three natural resource trustees: Department of Health and Environmental Control (DHEC), Department of Natural Resources (DNR), and the Governor's Office. To date, the trustees have not formalized an MOU outlining the designated duties of each agency. However, a working arrangement has been developed over the past few years that will be formalized into an MOU.

The DNR acts as lead agency on oil spills, with the Governor's Office and DHEC acting in a support role. For Superfund sites, DHEC is the lead agency, with DNR and Governor's Office acting as support. For most Superfund sites, the Governor's office has very little involvement in the assessment and settlement of damage claims. The DHEC Superfund program is responsible for notifying, providing all documents to, and coordinating reviews and meetings with DNR on each site with impacted ecological resources. The State trustees coordinate with the appropriate federal trustees for each site. Finally, DHEC and DNR prioritize sites, along with the federal trustees, when proceeding with NRDA and claims.

Issues that have evolved during the NRDA process include the utilization of agency staff to perform assessment work, transfer of funds, identifying points of contacts, legal counsel, and responsibilities. For example, at one site, DHEC wanted to utilize DNR research staff to perform toxicity sampling and analysis. This simple task required the development of a mechanism to transfer monies from DHEC to DNR to cover the work. In addition, the DHEC Superfund program normally keeps very detailed billing documentation for all work completed on a site for cost recovery purposes. DNR staff did not routinely maintain detailed notes on all expenses. This issue took several months of negotiations from several layers of management to come to an understanding on the level of detail required for cost documentation purposes.

In general, the identification of points of contact and responsibilities was a challenge due to the size of both agencies and changes at the Governor's Office on a regular basis. Each agency had their standard practice on how sites and issues were handled and resolved, and which office would handle a site. However, to make the NRDA process more efficient, each agency had to identify one point of contact for Superfund sites, regardless of the site's location. The point of contact will then assign the most appropriate staff to work on the site. The point of contact at the Governor's office can change frequently due to staffing and leadership changes. However, both agencies are now notified as soon as possible of any changes.

For the most part, intrastate cooperation in South Carolina among the designated trustees has evolved into a well-organized team approach for NRDA. The DNR and DHEC staffs have developed good working relationships to address sites.

Texas

There are three State trustee programs in Texas, each with similar staffing:

Texas Commission on Environmental Quality: specific trust resources were not designated, agency jurisdiction includes: air, water (to include sediments, wetlands and uses of water, i.e. fishing, swimming), groundwater, soils.

Texas Parks and Wildlife Department: specific trust resources were not designated, agency jurisdiction includes: all biota and their habitat: i.e., fish, plants, birds, all forms of wildlife, recreational uses of biota, i.e., fishing hunting, state parks.

Texas General Land Office: specific trust resources were not designated, agency jurisdiction includes: some State lands, coastal submerged lands, some inland submerged lands.

Due to overlap of trustee responsibilities, all three State agencies are involved in almost all NRDA cases. To maximize the efficiencies of this group, the Lead Administrative Trustee (LAT) function is rotated equally. The decision of the LAT requires a consensus of all agencies and is generally based on current availability of staff resources and agency expertise.

To the extent possible, tasks and staff resources for a given case are divided among agencies, with the intent of maximizing efficiency and individual expertise. Each agency provides in-kind services, such as field equipment, boats, laboratory capabilities and staff experts for any given NRDA case. All three State agencies have field offices which work closely with NRD programs and routinely provide local expertise and equipment for NRD activities.

To maximize scarce resources to the greatest extent possible, data gathering for NRDA is performed concurrently, and often solely within the framework of the remedial investigation for a given site. Coordination between both State oil spill and hazardous materials response programs and trustees has been well refined and are governed by MOUs discussed below.

Other non-trustee State agencies, such as the Texas Forest Service and the Health Department, as well as many local government entities, are well aware of the State's NRDA program and routinely provide valuable services when requested or when an activity is within the purview of their responsibilities. Texas has also used experts from State universities to perform investigations and field studies and perform lab chemistry in support of NRDA's. The State has even coordinated with the Texas Department of Criminal Justice to perform restoration on prison property.

During restoration planning and implementation, the Texas trustees rely heavily on other State entities. These agencies may also provide valuable in-kind services or add to the funding of a restoration project, and thus significantly add to the scale and services provided by the restoration. To ensure credible, long-term management of restoration projects and minimize (or eliminate) land acquisition costs, Texas frequently performs restoration projects on State parks, refuges and wildlife management areas. These State lands most often have a management plan that identifies restoration needs. The plans often provide a good source of potential restoration actions the trustees can consider, often corresponding well to the trustee's restoration requirements. Projects have included placement of valuable bottomlands hardwoods habitat into the Sheldon Reservoir State Park and construction of marshes in the Galveston Island State Park, San Jacinto Monument State Park and the Lower Neches River Wildlife Management Area. State agencies may also hold conservation easements on sensitive environments as a restoration option. Texas trustees must coordinate with the State's land agency any time restoration is performed in intertidal waters.

In 1988, the State agency responsible for the cleanup of hazardous materials (remedial agency) was designated as the sole trustee agency. Two years later, in 1990, Texas' Parks and Wildlife agency was designated as a co-trustee, with a provision in the designation that establishes the State remedial agency as lead trustee in the event of disagreement. In 1990, responsibility for the State's coastal oil spill program was shifted to the Texas General Land Office (GLO) and the GLO was subsequently designated by the Governor as another co-trustee for Texas natural resources of Texas. The GLO is headed by an elected official, whose responsibilities do not fall under the executive authority of the Office of the Governor. Although this sometimes presents challenges in the form of differing priorities and motivations among State trustees, it also serves to provide a valuable system of "checks and balances."

The only State rules in Texas dealing directly with NRDA, those for coastal oil spills, were developed through negotiated rule-making with the direct participation of all of the State trustees, federal trustees, representatives of the oil and gas and waterways transportation industries, as well as conservation groups. By statute, each trustee agency was required to adopt the rules as its own. The rules further required that an MOU be entered into by the agencies to establish a formal dispute resolution process, requiring mediation among State trustees to address potential disagreements in the application of the rules. To date, any disagreement among State trustees has been handled informally without having to resort to mediation under the formal terms of the MOU. State trustees are also bound by an MOU entered into by all the State and federal trustees in Texas. This MOU provides a general framework for trustee coordination and cooperation in the conduct of NRDA. Individual case-specific MOUs are routinely entered with responsible parties and provide for an additional level of coordination among State trustees.

The State of Texas has avoided problems related to management of settlement funds designated for restoration by establishing an account, which is jointly managed by all three State trustees. The account is interest bearing, is held by the State treasury outside of the general revenue funds, and is designed to be free from additional appropriation by the legislature. Each of the three agencies must provide separate authorization for deposits and withdrawals from the account. In addition, the trustees routinely enter case-specific settlement funds management agreements, which govern the joint expenditure of settlement funds and the implementation of restoration projects with these funds.

The State of Texas has developed a unique framework for ensuring early and consistent coordination between the State's remedial program and both State and federal trustees in the remedial process, and specifically ecological risk assessments. Texas has harmonized its remedial rules among all programs and every site now requires some level of ecological risk

assessment. An MOU was recently entered between Texas' remedial agency and State and federal trustees, which provides for notification to the trustees when ecological risk assessments progress to a certain level. It further provides a structured framework for trustee interaction in the review and development of the ecological risk assessments. The MOU was adopted as a rule by the State's primary response agency.

To improve coordination and interaction between trustees and response agencies, the State's Spill Contingency Plan includes a NRDA / trustee chapter that clearly outlines the roles and responsibilities of both State and federal natural resource trustees during spill response. Where possible, the State has included similar chapters in Area Contingency Plans developed under the National Contingency Plan.

The Trustees in Texas hold regularly scheduled biannual coordination meetings to discuss technical and legal issues related to NRDA and ways to improve coordination and procedures. The responsibility for hosting the meeting rotates among trustees.

Interstate Opportunities

General Discussion

Circumstances may exist where NRD cases involve more than one State. As alluded to above, cooperation in such instances may be voluntary or mandatory via an MOU or MOA. Opportunities always exist for sharing the workload and formalizing relationships. However, this interstate cooperation is the least common due to the few NPL (or other) sites that, by definition, cross State boundaries.⁵ But even without sharing site work, opportunities still exist for States to share expertise and resources.

One proactive approach to the issue of interstate cooperation was taken by Illinois. In 1999, the Illinois Department of Natural Resources, Waste Management and Research Center, hosted the Natural Resource Trustee Regional Roundtable. The roundtable provided State and federal NRD practitioners an opportunity to discuss their respective NRD programs and other issues, such as the integration of natural resource damages into the remedial process; how to conduct successful NRD assessments; how to access the Oil Spill Liability Trust Fund for damage assessment and restoration funds; and federal and State trustee coordination issues. The use of the roundtable created a mechanism for building on past experiences to further NRD causes.

A good opportunity for initiating or building on existing cooperation between State NRD programs can be realized during pre-spill planning efforts. Large oil spill drills or other emergency response training efforts sponsored by private corporations or federal agencies are often specifically designed to involve multiple or adjoining States. Increasingly, these events include an NRDA component. These drills provide an opportunity for staff with NRD responsibilities to become familiar with their adjoining-State colleagues, identify areas of mutual concern and create a framework for the sharing of resources, expertise and responsibilities among State programs.

Trustees from West Coast States (California, Oregon, and Washington), along with their federal counterparts and several industry representatives, have established a Joint Assessment Team (JAT) to focus on cooperation in NRDA. The JAT was established to improve coordination in the NRDA process and enhance the effectiveness and efficiency of conducting natural resource damage assessments. Preliminary steps have been initiated to form a similar JAT for the Gulf Coast States.

Beyond cooperation surrounding a specific assessment or restoration project, certain State programs or staff may have particular experience or expertise, especially in the structure, design or implementation of their program(s), that other State NRD programs may find beneficial in addressing their own projects. States with fledgling NRDA programs often choose to borrow from the experience and expertise of more accomplished State programs by visiting these States for an extended period, meeting with experienced NRDA staffers, and learning from their successes (and failures). For such a purpose, ASTSWMO provides travel funding through its Peer Match Program for peer-to-peer training between State environmental and health personnel. The Peer Match Program allows for staff from one State to travel to, and learn directly from the

⁵ The Tri-State Mining District is comprised of three different Superfund sites and the boundaries of the sites do not cross State lines. The three sites have very similar issues because all are lead mining sites.

staff of another, generally over a period of one or two days. For more information regarding the Peer Match Program, please contact ASTSWMO's CERCLA Staff Associate at 202-624-5828.

On a more informal basis, the members of the Association's NRD Focus Group may also serve as a valuable resource to State programs across the country. Each of the Focus Group's ten members represents the States in one of the ten EPA regions. Through involvement in the Focus Group, members are often able to participate in discussions regarding NRD issues and program development within, and outside of the specific region they represent. This experience can be invaluable to other State programs tackling challenging or unforeseen circumstances with specific projects or sites. For Focus Group contact information please see Appendix A.

East Walker River Oil Spill (California)

submitted by Steve Hampton

Site Description

A tanker truck carrying 6,100 gallons of #6 fuel oil overturned on highway 182 north of Bridgeport, California, causing approximately 3,600 gallons of oil to spill into the East Walker River. The fuel visibly oiled approximately ten miles of stream habitat, seven of which were in California and three in Nevada. The clean-up was complicated by sub-zero temperatures, ice in the river, and sinking oil, and lasted throughout the winter months.

Background

The primary injuries were to aquatic biota (fish, macroinvertebrates, birds, and mammals) and human recreational use (fishing). Because the oil spill began in California and quickly flowed into Nevada, both States were involved in the NRDA. Additionally, the US Fish & Wildlife Service was involved. In the immediate aftermath of the spill, the RP and its insurer stated their intention to work cooperatively on the NRDA.

Details of Cooperation

Within days of the spill, NRDA representatives for California, Nevada, and the USFWS were discussing ways to cooperatively proceed with the NRDA. Other potential trustees were contacted (e.g., the US Forest Service, other State agencies, and two tribes), but, after evaluating the likely scope of the injury, elected not to participate in the NRDA. At the same time, the insurer elected to avoid using an attorney and instead contracted with a biological consulting company that would work directly with the trustees in assessing injuries and damages. The RP also fronted \$50,000 to the trustees to pay for assessment costs. Together, the trustees' scientific experts and the RP representative agreed on an approach to quantifying injuries and damages (Resource Equivalency Analysis for the stream habitat injury, and Benefits Transfer for the recreational fishing

losses), collected samples together, and had the samples analyzed at a mutually-agreed upon lab. Some of the sample collection was able to occur very quickly, as RP representatives met with the trustees on-site during the cleanup operations. All of this was done without an MOU and prior to the active involvement of attorneys. The existence of baseline data, including historical macroinvertebrate, fish, and angler surveys, aided the NRDA greatly. During this time, the trustees worked together and spoke in a unified voice, allowing the RP to work with a single entity. The case was eventually settled between the trustees and the insurer, with considerable input from the scientific staff on both sides, after several rounds of comments and analysis of the data.

Significant Benefits & Lessons Learned

At the beginning of an NRDA, many of the necessary tasks, such as the collection of samples, are obvious and apparent to all. In this case, that work proceeded quickly and cooperatively because the scientific experts representing the RP and the trustees were able to meet on-site and quickly agree upon a sampling approach for the short-term. This case also demonstrated that significant progress can be made in the early stages of an NRDA without an MOU or the presence of attorneys. Finally, this case illustrated close cooperation between two States and the federal government, which allowed for a global resolution of the case.

Contacts for Information

Steve Hampton, CA Department of Fish and Game, (916) 323-4724

Leo Drozdoff, NV Division of Environmental Protection

Damian Higgins, U.S. Fish and Wildlife Service (Reno)

**General Electric/Housatonic River Site
(Pittsfield, Massachusetts)**

Submitted by Dale Young

Background

The release of contaminants, primarily PCBs, from the GE Pittsfield site resulted in injury to natural resources associated with the Housatonic River in both Connecticut (CT) and Massachusetts (MA). In mid-1990, an intergovernmental work group was formed to negotiate a global settlement with GE for response actions and NRD (for detailed case discussion, see Chapter IV, Intergovernmental Opportunities). The four trustee agencies, DOI, NOAA, CT, and MA, engaged in a cooperative effort for the NRD assessment, which culminated in a settlement with GE in October 2000.

Details of Cooperation

Due to the involvement of trustees from two States with separate and distinct authorities and areas of injury, but recognizing the overlap in trusteeships for DOI, NOAA, CT, and MA, the trustees agreed that certain sums of the NRD recovery should be allocated to restoration projects for 1) the geographic area of CT, 2) the geographic area of MA, and 3) joint trustee use. Each State was to have lead responsibility for developing and implementing a Restoration Plan for its respective geographic area. The major terms of the trustee agreements are as follows:

- All expenditures, disbursements, or other dispositions of NRD monies shall be pursuant to the terms of a Memorandum of Agreement (MOA). The MOA provides a framework for intergovernmental coordination among the Trustees, and for implementation of their activities in furtherance of their natural resource trustee responsibilities with respect to the site and with respect to the assessment, development, implementation, and oversight of restoration activities.

- The primary use of NRD recovery shall be allocated to the geographic regions of CT and MA to implement projects identified in each State's restoration plan and for necessary restoration planning and oversight costs. The funding may also be utilized on joint projects having a beneficial impact in both States. The allocation of monies for each category of restoration is specified in a Letter of Understanding among Trustees and incorporated into the MOA as an attachment.

- A Housatonic River Natural Resource Trustee Council shall be established to authorize the expenditure of the Joint Allocation of NRD Recovery and to coordinate and authorize trustee activities and matters under the MOA.

- A MA Sub-Council and a CT Sub-Council may be established to develop and implement a Restoration Plan for the NRD recovery allocated to each geographic area.

- The MA trustee will have no decision-making role in the utilization of that portion of the NRD recovery allocated to the geographic area of CT. The CT trustee will have no decision-making role in the utilization of that portion of the NRD recovery in MA.

The MOA is designed to include enough flexibility in the restoration planning process such that each State may adopt independent procedures.

Oronogo/Duenweg Mining Belt (Jasper County Superfund Site)

Submitted by Frances Klahr

Site Description

The site is located within the Tri-State Mining District (Missouri, Kansas, and Oklahoma). The primary contaminants of concern (i.e., lead, zinc and cadmium) are consistent with waste produced through the mining, milling and smelter processes that took place starting in the mid-19th century. Copper, selenium and acid mine drainage are also found on-site. Sources of hazardous substances include subsurface sources associated with underground mine workings and surface sources associated with the placement and disposal of mine wastes including chat piles, tailings, development and waste rock, subsidence ponds and contaminated soils. Injured groundwater estimates range between 100,000 and 740,000 acre-feet. Injured natural resources include, but are not limited to, surface water (including sediments) and biological resources including aquatic and terrestrial plants and microorganisms; aquatic and aquatic dependent mammals; fish; and migratory birds including waterfowl, shorebirds, raptors and songbirds. The metal concentrations in and adjacent to mine wastes generally exceed national and State average soil concentrations and also exceed concentrations known to be toxic to individual plant species. Operable Unit #1 (OU#1) was established to address the ecological risks associated with mining, milling, and smelting wastes in the non-residential areas of the site.

Background

In 2000, the PRPs invited the trustees (i.e., Missouri Department of Natural Resources (MDNR) and Department of the Interior, U.S. Fish & Wildlife Service) to participate in the development of the Feasibility Study (FS) for OU#1. The Missouri Department of Conservation, through an interagency agreement with the MDNR, also participates in the process. The trustees agreed to comment on the FS and develop an MOU with the PRPs to address NRD issues. While the trustees participated in the current technology identification and screening work sessions, the FS does not reflect restoration as required under 43 CFR Part 11 and additional activities will be required in order to address residual injury and restore natural resources.

At the same time that the trustees were participating in the remedial process, a Notice of Intent and Pre-assessment Screen were completed for the site. These documents have been released

to the PRPs (drafts to participating PRPS only) along with a draft cooperative assessment agreement. The initial response to the cooperative assessment was positive, but since that time, the PRPs have chosen not to participate. The trustees will begin the assessment planning stage sometime in January 2004 without the PRPs.

Details of Cooperation

A Tri-State Mining Natural Resource Restoration Inter-Governmental Partnership was developed and comprised of Missouri, Kansas, and Oklahoma; three U.S. Fish & Wildlife Service regions; and eight Native American Tribes. The purpose of the partnership is to enhance communications, information sharing, coordination and cooperation among the partners and the individual State Trustee Councils. The partnership addresses the issues of injury determination and assessment; restoration planning; legal issues; economic valuation; and public affairs. The partnership has also conducted some screening-level studies that will be used in the injury determination phase. The partners have also signed, and abide by a confidentiality agreement.

Significant Benefits & Lessons Learned

The partnership presents a united front to the PRPs and allows for active communication on various issues. The partnership also serves as a sounding board for exchange of ideas and information applicable to each individual site. Because the partnership is comprised of numerous people with diverse opinions, attitudes and values, the discussions can be animated, which sometimes is a limiting factor in completing a task. This is one of the reasons that a Tri-State Trustee Council was not developed.

Contacts for Information

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Jim Dwyer, U.S. Fish & Wildlife Service (FWS) – Region 3, (573) 234-2132 ext. 108

Mary Lynn Taylor, DOI, Office of the Solicitor, (412) 937-4005

Leo Henning, Kansas Department of Health & Environment, (785) 296-1914

Glen W. Jones, Oklahoma Department of Environmental Quality, (405) 702-8155

<http://www.dnr.state.mo.us/alpd/hwp/homehwp.htm>

RTC 380 or Fisher's Island Spill

Submitted by Sharon Brooks

Site Description

On December 21, 1992, the barge RTC 380 ran aground at Black Ledge off Avery Point, Connecticut in Long Island Sound. Approximately 27,000 gallons of #2 fuel oil leaked from a ruptured tank in the barge, entering the waters and reaching the shorelines of Connecticut (CT) and New York (NY). The leak caused a 5-mile slick on the surface water and oiled approximately 500 meters of shoreline. The primary natural resource injuries were effects on area shellfish (mussels, scallops, hard clams and lobsters). Following the incident, the states of NY and CT extended existing administrative closures on 8,000 acres of shellfish beds for several months.

Background

The parties to the assessment were the States of CT and NY, NOAA and DOI. The "Type A" NRDAMCME model was used to develop the damages claim. On June 18, 1993, the trustees jointly made an NRD claim to the barge owner for all response costs and damages for injuries to natural resources pursuant to OPA 1990. In November 1994, an administrative settlement was reached and a Trustee Council was created via an MOU. The parties to the MOU were the four

trustees. The Council was directed to cooperate and to seek consensus on the expenditures of settlement funds towards the restoration of the injured natural resources.

Details of Cooperation

As this spill occurred in 1992, only two years after the passage of the Oil Pollution Act, it made sense for the trustees to pool their resources and skills. The trustees worked together developing the assessment by sharing data and expertise to produce the model results. The cooperation was formalized after the settlement had been agreed to. After formation of the Trustee Council, restoration plans were developed by the States of NY and CT and presented to the Trustee Council for consensus approval. The restoration alternatives put forth include: eelgrass transplanting, shellfish reseeding, non-point source pollution abatement on Fisher's Island, and a biological resources survey. For NY, projects completed were the Fishers Island Scallop Transplant Pilot Study and the non-point pollution abatement on Fisher's Island.

Contacts for Information

Sharon Brooks, NY State Department of Environmental Conservation, (518) 402-8852

Intergovernmental Opportunities

Federal Involvement

Cooperation between States and the federal government is the most widespread and required in the DOI NRDA regulations. Additionally, large sites generally include injuries to the trust resources of the federal government and States. The federal trustees are the USDA, DOI, Department of Commerce, Department of Defense and Department of Energy.⁶ In addition to the guidance contained in the regulations, the federal trustees can offer a relatively significant contribution in staff time and resources to a case, and States often welcome their involvement. However, Federal trustees will most likely not participate in all NRDA cases a given State may be pursuing. Smaller cases and those with only State resources injured (e.g., groundwater) are assessed by State trustees alone.

Most States with active NRDA programs have developed good relationships with the federal trustees in their State. In some instances, many of the State and federal trustees have worked together for close to ten years. This longevity and continuity among NRDA practitioners builds familiarity and trust, and generally results in a high level of coordination. In some States, such as Texas and Louisiana, the State and federal trustees hold regularly scheduled biannual coordination meetings to discuss technical and legal issues related to NRDA, and ways to improve coordination and procedures.

In New York, Missouri, Texas, and perhaps other States, NRDA activities are governed by an MOU between State and federal trustees, provides a general framework for coordination and cooperation in the conduct of NRDA. Individual case-specific MOUs are also routinely entered into with responsible parties in most States and provide for an additional level of coordination among State and federal trustees. Often, a Trustee Council is developed for each site and the Lead Administrative Trustee is determined on a case-by-case basis through agreement among all trustees.

States with limited funding or resources often rely on the technical and contracting capabilities of NOAA or DOI. In many cases, State trustees have relied on the standing federal contracts with contractors and consultants to perform NRDA tasks. State trustees have also jointly contracted with one or more of the Bureaus of DOI (e.g., U.S. Geological Survey) for technical work. This has eliminated the time delays and contracting hurdles associated with State government contracting requirements and helped ease the burden of the joint trustees. However, the costs are generally quite high.

Challenges encountered between State and federal trustees may be greater than those experienced among State trustee agencies. Inconsistencies between different programs within the same federal trustee agency (e.g., the NOAA Damage Assessment Center and NOAA Coastal Resource Coordinator, different USFWS offices within a State, or different bureaus of DOI) sometimes result in coordination challenges with State trustees. Procedures required by federal trustees to be consistent with a nation-wide program may also be viewed by State trustees as inflexible or not directly applicable to a site.

⁶This document does not delve further into the specific issues and challenges inherent in cases involving Department of Defense and Department of Energy.

Involvement of federal trustee legal staff also can complicate interactions. For example, the Department of Justice may selectively coordinate only with federal trustees, relying on the State's Office of the Attorney General to interact with State trustees. In these situations, communication and joint decision-making may become more difficult and the coordination practiced throughout the assessment process by the joint State and federal Trustee Council can become difficult at settlement.

EPA

Continuity among staff often plays a large role in the level of coordination achieved between EPA Remedial Project Managers (RPMs) and State trustees. An established State trustee presence at EPA sites and a history of involvement and interaction between trustees and Superfund program staff will increase the likelihood that EPA will routinely notify State trustees of important activities within the Superfund process and coordinate review of documents that may impact the NRDA at a Superfund site.

State trustee participation in Biological Technical Assistance Groups (BTAG) is a good way to improve coordination with EPA. However, many States do not have the resources or time to dedicate to routinely attend BTAG meetings and review of all BTAG related documents. It may be more practical to initiate close coordination between trustees and EPA on a case-by-case basis, with emphasis placed on those sites the trustees have identified as having potential NRDA actions. At these sites, an informal technical team can be established to jointly provide review and comment on technical documents, with emphasis on the Remedial Investigation and Ecological Risk Assessment. In many States, EPA has been very receptive to this format for trustee involvement and has been open to discussion of NRDA issues, especially when the RP is in support of this relationship and is working cooperatively with the trustees and EPA. For the Lavaca Bay Superfund site in Texas, EPA, the State and the federal trustees entered into a Cooperative Management Agreement designed to provide for effective coordination of all State and federal interests at the site; clarify relationships among parties; avoid duplication of efforts; and optimize State and federal resources. This Agreement specifically included an equal role for State and federal natural resource trustees.

Trustee programs in coastal States should make an effort to develop a strong and active relationship with the NOAA Coastal Resource Coordinator (CRC), which is housed in the local EPA regional office. An established rapport and well-defined coordination procedures with the CRC may also greatly enhance the State trustee program's level of coordination with EPA RPMs. Trustees may also need to coordinate with local governments during assessments given the potential for overlapping impacts to State and locally owned natural resources. As an example, when the San Jacinto River oil spills in Texas closed down a Harris County park, trustees worked with the RP and the county to ensure that appropriate compensation for NRD was implemented and litigation between the county and RP was avoided.

Tribal Involvement

Under both OPA and CERCLA, the trustees are defined as specifically designated federal and State natural resources management agencies, and "Indian tribes."⁷ Additionally, under CERCLA, the Secretary of the Interior may act as trustee on behalf of a tribe at the tribe's request.

⁷ See 43 CFR 11.14 and 15 CFR 990.11

Tribes often have multiple uses of resources, going beyond the recreational uses and habitat values that are typically the focus of federal and State trustee claims. These specifically tribal uses may include activities that have social, cultural, religious, medicinal, and/or subsistence value, in addition to recreational value. Examples include drinking water; food preparation; ritual bathing; subsistence consumption of fish, wildlife, and vegetation; gathering materials for making baskets or other items; cleaning religious implements; and camping during extended periods for traditional ceremonies or activities. As with recreational uses, all of these tribal activities have value and depend on the natural resources. Thus, they may be incorporated into a claim for lost resource services.

State and federal trustees have cooperated with tribes on many cases across the nation. States with experience in completing NRD cases with tribal trustees include California,⁸ Idaho, Maine, Montana, Minnesota, New York, Nevada, and Wisconsin. Brief information on other cases involving tribes is given immediately below. Additionally, please see Appendix B, which contains an MOA between Montana, the Confederated Salish and Kootenai Tribes, and DOI.

Tribal: Tar Creek

Natural resources trustees for three States, eight Indian tribes, and the federal government have formed a partnership to share resources and information about injuries to natural resources in the Tri-State Mining District. In Oklahoma, the natural resource trustees include the Secretary of Environment for the State of Oklahoma, the U.S. Fish and Wildlife Service and Bureau of Indian Affairs for the U.S. Department of the Interior, and eight separate tribes, including the Eastern Shawnee Tribe, the Miami Tribe, the Modoc Tribe, the Ottawa Tribe, the Peoria Tribe of Indians, the Quapaw Tribe, the Seneca-Cayuga Tribe, and the Wyandotte Tribe, all of Oklahoma.

Tribal: Fox River

The USFWS was joined by several other governments as co-trustees of natural resources -- the State of Michigan's Attorney General, NOAA (under the U.S. Department of Commerce), the Oneida Tribe of Indians of Wisconsin, the Menominee Tribe of Wisconsin, and the Little Traverse Bay Band of Odawa Indians (in Michigan).

Tribal: St. Louis River-Interlake/Duluth Tar Superfund Site

Trustees participating include the Minnesota Pollution Control Agency and Department of Natural Resources, the Fond du Lac Band of Lake Superior Chippewa, the 1854 Authority (representing the Bois Forte Band and Grand Portage Band of Lake Superior Chippewa), and the United States Departments of Interior (USFWS and BIA) and Commerce (NOAA). For information see <http://www.pca.state.mn.us/publications/reports/stlouisriver-interlake-plan.pdf>.

Additional information regarding NRD and tribes may be obtained from:

- National Congress of American Indians
- James M. Grijalva, Closing the Circle: Tribal Implementation of the Superfund Program in the Reservation Environment, 9 J. Nat. Res. & Envtl. L. 279 (1994) (co-author)
- James M. Grijalva, The Assertion of Natural Resource Damage Claims by Indian Tribal Trustees, 4 Envtl. Cl. J. 175 (1991/92) (co-author).
- Northern Plains Indian Law Center: www.law.und.nodak.edu/NPILC/home.html
- National Tribal Environmental Council: <http://www.ntec.org/superfund/sfworkgroup.html>

⁸ See the Leviathan Mine case study below as an example.

Leviathan Mine (California)

Submitted by Steve Hampton

Site Description

Leviathan Mine is a former sulfur and copper sulfate mine located east of Markleeville, California, near Monitor Pass and the Nevada State line. The mine was first worked in 1863 as a sub-surface mine. In 1951, the mine was purchased and converted into an open pit mine. By 1953, the flow of Leviathan Creek was blocked, forcing the creek to percolate through the overburden piles. In April 1954, the overburden dam burst during spring runoff, resulting in a sudden release of Acid Mine Drainage (AMD) down Leviathan Creek, into Bryant Creek, and into the East Fork Carson River, resulting in a fish kill extending into Nevada. These streams cross US Forest Service lands, as well as lands of the Washoe Tribe. Continued AMD releases and occasional acute fish kills into the East Fork Carson continued for the next several decades. In 1984, the Lahontan Regional Water Quality Control Board acquired the mine site and began remediation efforts. However, water quality did not improve such that the waters of Leviathan and Bryant Creeks could support aquatic life. In 1999, the US EPA added Leviathan Mine to the NPL. In the last few years, remediation actions taken by the RP and Water Board appear to have reduced AMD releases.

Background

In 1998, the Washoe Tribe, the Bureau of Indian Affairs, the US Fish and Wildlife Service, the US Forest Service, the US EPA, the California Department of Fish and Game, and the Nevada Division of Environmental Protection signed an MOA creating the Leviathan Mine Council. The goals of the Council are to coordinate NRDA activities and enable efficient coordination of NRDA data collection and US EPA data collection associated with the remedial investigation.

Details of Cooperation

In a pre-assessment screening determination in 1998, the Council determined that immediate data collection was necessary to gather ephemeral data that may be obscured by removal actions and to begin documenting any recovery that may be occurring as a result of response actions. The Council also cooperated with the RP, beginning in 1998, pursuant to a funding and participation agreement. Under this agreement, several studies of stream health and toxicity were carried out. However, the RP declined to continue the cooperation after the NPL listing in 1999. Cooperation with the Water Board has occurred, resulting in the sharing of stream monitoring data. In 2003, the LMC released a Final Assessment Plan detailing further assessment activities.

Significant Benefits & Lessons Learned

The Council provides an example of coordination and collaboration of NRDA activities among two States, four federal agencies, and a tribe. Despite their various interests, representatives from these agencies jointly review reports and work together to plan NRDA activities in a coordinated manner. This has led to improved coordination with the EPA, the Water Board, and with the RP. The result is significant cost-savings in data collection, as data collection efforts are coordinated and data is shared.

Contacts for Information

Steve Hampton, CA Department of Fish and Game, (916) 323-4724

Melanie Markin
US Fish and Wildlife Service (Sacramento)

American Chemical Services (Griffith, Indiana)
Submitted by James R. Smith

Site Description:

The 36-acre site was formerly a chemical manufacturing site involved in solvent recovery. On-site disposal areas contained over 400 drums of unknown sludges and semi-solids, lagoons containing still bottoms and filled with over 32,000 drums, and an offsite area contained between 20,000 and 30,000 drums reportedly punctured prior to disposal. Contaminants affecting soils, debris, wetlands and ground water included VOCs, including benzene, TCE, toluene, and xylenes; other organics, including PCBs, PAHs and phenols; and metals, including arsenic, chromium, and lead. Resources impacted by contaminants released from this site included the upper ground water aquifer, adjacent emergent and shrub/shrub wetlands, and a small creek draining the emergent wetland and on-site ditches. All wildlife utilizing the habitats provided by wetlands and stream had been injured or were at risk of being injured.

US EPA issued a Record of Decision (ROD) for this National Priorities List site in 1992. This ROD called for excavation and incineration of intact drums; decontaminating and disposal of debris; treating contaminated soil with in-situ vapor extraction; treatment of buried waste or PCB-contaminated soil with low temperature thermal desorption; pump and treatment of onsite ground water; determination of onsite soil, water treatment, wetland mitigation/remediation during remedial design phase; and deed and access restrictions. A ROD Amendment in 1999 required construction of a subsurface barrier wall, capping of the site, withdrawing groundwater inside the barrier wall, soil vapor extraction of contaminated soil, excavation and on- or off-site disposal of PCB-laden sediments from wetlands excavated to a 1 ppm cleanup level and restoration of the wetlands. Monitored natural attenuation of offsite ground water was to be evaluated.

Details of Cooperation

There was no cooperative assessment associated with this site. Trustees (primarily US Fish and Wildlife Service and Indiana Department of Environmental Management) reviewed the Remedial Investigation / Feasibility Study, completed on-site investigations of impacted habitat, worked with the BTAG, and EPA and State

RPMs to integrate onsite habitat remediation / restoration where feasible. After the initial Record of Decision (ROD) was reached, trustees participated with settlement negotiations for implementation of the ROD. Lake County Parks staff suggested acquisition of wetlands and natural areas adjacent to local park; land owned by one of the PRPs. This initial proposal fell through. As site remediation continued and the ROD was changed several times over the years, the Trustees reassessed injury based on remediation at site and additional information. Ground water was added as an injury. PRPs, through discussions with Lake County Parks, suggested partnering with Lake County Parks, North American Joint Venture, Indiana Heritage Trust and the Trustees to settle NRD claims at the site.

Significant Benefits & Lessons Learned

Local partners can be beneficial, but they should work with the trustees and not act as independent agents. Last minute changes and inclusions in Consent Decrees and MOUs should be avoided unless their future impacts are fully understood (in this case, IDNR insertion as co-owner of acquired property made various sections of Consent Decree and MOU impossible to implement). Be sure assessment costs are not capped and subject to the future approval of PRPs, but are established and documented approved prior to completion of Consent Decree.

Contacts for Information

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**General Electric/Housatonic River Site,
(Pittsfield, Massachusetts)**

Submitted by Dale Young

Site Description:

The site is located in western Massachusetts and includes a 254-acre GE plant in Pittsfield, Housatonic River sediments and floodplain soils and associated surface water and wetlands. GE has been a major handler of PCBs in western Massachusetts (MA), and the site is the only known source of PCBs found in Housatonic River sediments and floodplain soils in MA. Activities included construction and repair of electrical transformers using dielectric fluids, some of which contained PCBs (primarily Aroclors 1254 and 1260). According to GE reports, from 1932 - 1977 releases of PCBs reached facility waste and storm water systems and were conveyed to the Housatonic River and Silver Lake. Primary resources at risk include Housatonic River sediments and floodplain soils, residential soils, groundwater, and various biological resources (e.g. benthic invertebrates, birds, mammals, amphibians, and fish). Consumption advisories for fish, frogs, turtles, and waterfowl have been issued for the Housatonic River due to PCB contamination. Possible human health effects resulting from exposure to PCB contamination are under investigation.

Regulatory investigations have been on-going since 1980s. In 2000, a Consent Decree was entered for cleanup and large-scale brownfields redevelopment of the GE facility; cleanup and restoration of former oxbows; cleanup and restoration of Silver Lake; cleanup of Allendale School; cleanup and restoration of the Housatonic River and floodplains; compensation for natural resource damages; and recovery of response costs. In 2002, excavation of river sediments and bank soils in the first half mile of the Housatonic River in Pittsfield were completed, and plans are underway to address PCB contamination in downstream portions of the River.

Background

In mid-1990, an intergovernmental work group composed of remedial and trustee agencies was formed to negotiate a global settlement with GE for remediation and NRD. The work group recognized the mutual benefits to GE and the government in resolving global issues via a single multi-agency

forum. For NRD, the four trustee agencies (USFWS, NOAA, CT, and MA) engaged in a cooperative effort to fund an assessment involving a preliminary estimate of damages. The trustees relied on site data generated during EPA's ecological risk assessment and site investigation. Primary restoration, involving excavation of contaminated sediments and soils, is an integral part of the remedy. In addition, the CD requires GE to implement certain natural resource restoration / enhancement activities in association with the removal actions to enhance aquatic and riparian habitat.

Details of Cooperation

The pursuit of a global settlement with GE prompted the trustees to work cooperatively in conducting an assessment in close association with the remedial programs. Following settlement, the trustees finalized an MOA to establish a Trustee Council and Sub-Councils to oversee the restoration of injured resources in CT and MA as funded by the \$19 million settlement. The trustees will involve the public during the restoration planning and implementation process.

Significant Benefits & Lessons Learned

Detailed coordination among Trustees and remedial agencies was integral to reaching a global settlement on this case

Contacts for Information

Dale Young, MA State Trustee Representative
(617) 626-1134

EPA GE/Housatonic River Site website:
<http://www.epa.gov/region01/ge/index.html>

Documents:

- Final MOA, executed January 30, 2002
<http://www.epa.gov/region01/ge/restoration/29677.pdf>
- Press Release: Procedural Agreement Clears the Way for State and Federal Partnership in Restoration of Housatonic River in CT and MA. April 2, 2002
<http://www.epa.gov/region01/ge/restoration/29678.pdf>

Massachusetts Military Reservation (Cape Cod, Massachusetts)

Submitted by Dale Young

Site Description

The Massachusetts Military Reservation (MMR) site is located on Upper Cape Cod in Barnstable County, Massachusetts. The site covers 34 square miles and includes parts of the towns of Bourne, Mashpee, Sandwich, and Falmouth. The facility was founded in 1935 as a National Guard training camp and federalized in 1940 to prepare for World War II. The site has been used by a number of military organizations, including the Army, Air Force, National Guard, and Coast Guard, for training, maneuvers, military aircraft operations, maintenance, and support. Operations have involved the use of petroleum products, hazardous materials such as jet fuels, motor oils, cleaning solvents, and military explosives. Hazardous wastes were generated and disposed of via landfills, storm drains, dumping, burial, and burning in fire training areas. The site sits atop the recharge area for the sole source groundwater aquifer for Upper Cape Cod. Site activities have resulted in serious impacts to the groundwater, and municipal and private water supplies have been closed due to contamination. Additional resources at risk include recreational ponds and coastal bays, biological resources such as 28 State listed threatened and endangered species of plants, birds, insects, reptiles and fish, and State Wildlife Management Areas. The site was placed on the NPL by EPA in 1989. A Federal Facility Agreement was signed in 1991 to provide a framework for EPA oversight of the MMR Installation Restoration Program (IRP) investigation and cleanup. MMR has approximately 78 pollution sources and 15 groundwater plumes under various stages of investigation and clean-up.

Background

In 1999, an MOA was executed between State and federal trustees and remedial agencies to provide a framework for trustee coordination. The MOA established a Trustee Council to characterize injuries, assess damages, restore resources, and coordinate NRD activities with the IRP remedial program. The Air Force signed as Trustee and “executing agency” for the Department of Defense for CERCLA response actions, with the Army as back-up. The Air Force has agreed to fund NRDA and restoration activities unless so denied subject to the Anti-Deficiency Act. In 2000, the Trustee Council initiated a Preassessment Screen (PAS); however, the document has not been finalized due to technical and legal issues of disagreement within the Trustee Council

Details of Cooperation

The MOA provides that, subject to “Anti-Deficiency”, the Air Force shall provide the requested funding or services for NRDAR unless the Air Force, through the Director of Environmental Restoration at the Air Force Center for Environmental Excellence (which manages the IRP cleanup) determines in writing within 30 days of receiving the request for assistance why the Council’s request will be denied. Prior to the issuance of any such denial, the Air Force shall provide a written invitation to the Council to meet and discuss the Council’s request. Parties to this MOA agree to negotiate the questions of their liability, if any, and share of liability, if any, for damages for injury to, destruction of, or loss of natural resources under CERCLA and/or State law, and for reasonable costs of assessing such injury, destruction, or loss.

Significant Benefits & Lessons Learned

The MOA process is ongoing; however, the Trustee Council has reached an impasse on finalizing the draft PAS due to internal disagreements. The trustees have been working with a facilitator to find a means of moving forward with completion of the PAS.

Contacts for Information

Dale Young, MA State Trustee Representative,
(617) 626-1134

MMR NRTC web site:

<http://www.mmrnrtc.org/about.htm>

Documents:

- Community Involvement Plan, August 2001
- Summary of Natural Resource Issues Pertaining to Remedy Selection for the FS-28 & FS-29 Plumes, May 2000, prepared for the MMR Natural Resource Trustee Council by Earth Tech, Inc.
- Natural Resource Trustee Activities at the Massachusetts Military Reservation Fact Sheet, December 1999
- Summary of Natural Resource Issues Pertaining to the Southwest Operable Unit (CS-4, CS-20, CS-21, and FS-13 plumes only), August 1999, prepared for the MMR Natural Resource Trustee Council by Earth Tech, Inc.
- Summary of Natural Resource Issues Pertaining to Remedy Selection for the FS-1 Plume, July 1999, prepared for the MMR Natural Resource Trustee Council by Earth Tech, Inc.

Chrysler Dump Site (Fenton, Missouri)

Submitted by Frances Klahr

Site Description:

The site is located in Fenton, Missouri on the southern edge of metropolitan St. Louis and includes about 10 acres. It is located adjacent to an intermittent unnamed tributary to Fenton Creek, approximately 0.25 miles upstream of the Meramec River. The George C. Winter Park is located east of the unnamed tributary and site; a wetland area is 0.25 miles downgradient along Fenton Creek; and Possum Woods State Forest and Powder Valley Natural History Area are located within 3 miles of the site. Paint sludge was transported from the Chrysler Motors assembly plant in Fenton and disposed of in the dry, shallow streambed between 1962-1965. The paint sludge contained high levels of lead, chromium, cadmium, arsenic and barium as well as remnants of rag materials and fiber drums saturated with solvents. Forested riparian habitat was destroyed as a result of the removal action and migratory birds were adversely affected by cadmium, chromium, lead and zinc.

Background

The Environmental Protection Agency (EPA) conducted a time-critical removal action with 15,575 tons of paint waste and 7,876 tons of lead contaminated soil excavated. A portion of the former creek channel was reclaimed during excavation and grass seed was planted as a temporary cover crop with straw placed on top. Habitat on-site, comprised of large hardwood trees, tree saplings and thick ground vegetation, was destroyed during the removal action because of the heavy equipment needed on-site. Approximately 2.5 acres of forested riparian habitat was lost. The U.S. Fish & Wildlife Service (USFWS) conducted a Habitat Equivalency Analysis (HEA) to estimate the economic loss associated with the reduction in services provided by the injured habitat. The source of contamination was removed, but the removal action did not address the adverse effects on migratory bird habitat on-site and did not undo past injuries to migratory birds.

Details of Cooperation

The issue of NRD came up during settlement negotiations for cleanup among the EPA, Department of Justice (DOJ) and the potentially responsible parties (PRPs). The PRPs requested a covenant not to sue, which encompassed NRD. The DOJ notified the USFWS and the Missouri Department of Natural Resources (MDNR), who began discussions regarding a potential claim. It was decided that USFWS would be the lead

administrative trustee because: (1) USFWS was familiar with the injuries at the site and had available staff to conduct the assessment; (2) the draft preliminary assessment adequately addressed the site-related concerns of the MDNR technical staff; and (3) MDNR lacked the resources to conduct an assessment. A draft Natural Resource Restoration Plan and Environmental Assessment has been prepared jointly by the USFWS and MDNR. The preferred alternative outlined in the plan is restoration or rehabilitation on or near site. In addition to the restoration, the agreement provided for 5.7 acres to be transferred to the St. Louis Park System upon completion of the removal action. The original order provided that the transferred acres would be designated in a separate instrument (i.e., the property document). The property instrument was never effected, and as a result, final approval of the restoration plan is pending.

Significant Benefits & Lessons Learned

All aspects of a negotiated settlement should be contained in a single document. The delay in preparing the property instrument has created unnecessary difficulties in finalizing and implementing the restoration at this site.

Contacts for Information:

Colette Charbonneau, USFWS, (920) 465-7407

James Dwyer, USFWS, (573) 234-2132 ext. 108

Documents:

- Administrative Order on Consent for Removal Response Activities
- Consent Decree in the Matter of United States of America vs. Chrysler Corporation, Laidlaw Waste Systems, Inc. and Evelyn K. and Clarence J. Chott

Times Beach (Missouri)

Submitted by Frances Klahr

Site Description

Times Beach is a one-square mile site located 20 miles southwest of St. Louis. The site is a formerly incorporated city whose road system was sprayed with waste oil for dust control in the early 1970's. It was later discovered that the oil contained 2,3,7,8 tetrachlorodibenzo-p-dioxin (dioxin). During the same time period, the nearby Meramec River flooded the city, forcing citizens to evacuate. Subsequently, the Centers for Disease Control recommended that all residents be permanently relocated. The dioxin sites, remediated to 1 ppb, were not considered protective of migratory birds because dioxin accumulates in the body fat of birds, and at the time of egg formation, dioxin is transferred along with fat to the yolks.

Background

Remedial activities selected by the Environmental Protection Agency (EPA) included the construction of spur levees in three-phases to control water velocity during flooding and limit erosion of contaminated soils. Additionally, the contaminated soil was excavated and thermally treated. A total of more than 265,000 tons of dioxin-contaminated materials from 27 eastern Missouri dioxin sites were transported to the Times Beach incinerator for treatment. All structures and debris, contaminated and uncontaminated, were demolished and disposed of appropriately. Remedial actions were completed in 1997 and the site has been restored as Route 66 State Park. The site was de-listed from the National Priorities List in 2001. The U.S. Fish & Wildlife Service (USFWS) completed a "Screening-Level Ecological Risk Assessment for Insectivorous Migratory Birds Exposed to 1 PPB 2,3,7,8 Tetrachlorodibenzo-P-Dioxin." The screening-level assessment, protective criteria in other States and protective concentrations in the literature indicated that potential risk remained for migratory birds at dioxin sites remediated to 1 ppb based on the hazard quotient to adult robins to eggs. The USFWS intended to use this information to develop a restoration plan involving alternatives to restore, rehabilitate, replace or acquire the equivalent habitat to undo the injury to migratory birds resulting from the dioxin release. The USFWS received a \$270,000 settlement. The Missouri Department of Natural Resources (MDNR) did not have the resources or expertise necessary to develop a damage claim.

The cooperation occurring at this site is the result of the working relationship between the MDNR and USFWS field staff. A workgroup comprised of representatives from the MDNR, EPA, USFWS and St. Louis County Park System has been formed to address restoration planning.

Primary restoration is not an option at this site, therefore, "acquiring the equivalent of" the injured resources is being considered. The Meramec Greenway is an association involving State and local governments whose goal is to restore the scenic riverway, increase environmental educational opportunities, and improve the water quality of the Meramec River. The association has identified approximately 800 acres in the area for conservation purposes, which is also viewed as prime development land. The workgroup is investigating acquiring property in the area to preserve in perpetuity.

Significant Benefits & Lessons Learned

Restoration of natural resources can be a lengthy process. It is important not to become discouraged, but to continue communicating and coordinating with interested parties.

Contacts for Information:

Colette Charbonneau, USFWS, (920) 866-1726

James Dwyer, USFWS, (573) 234-2132 ext. 108

Documents:

- Consent Decree and Final Order Between United States of America, State of Missouri; Syntex Corporation; Syntex (U.S.A) Inc.; Syntex Laboratories, Inc.; and Syntex Agribusiness, Inc.

Hudson River (New York)

Submitted by Sharon Brooks

Site Description

The Hudson River PCB Superfund site includes approximately 200 miles of the Hudson River between Hudson Falls and the Battery in New York City. The EPA is performing a study of the site to reassess their 1984 decision to not remediate contaminated sediments at the site. This *reassessment* will determine how and to what extent PCB-contaminated sediments in the Upper Hudson River will be remediated. The New York State Department of Environmental Conservation (NYSDEC) is also supervising remedial investigations and activities at two General Electric plants located at Hudson Falls and Fort Edward. Resources at risk include the sediments and surface water of the river, groundwater below the plant sites, aquatic insects, fish, mammals like mink and otter, and birds. The entire ecosystem depends on the river.

Background

This case is ongoing. There is a high level of communication and information sharing between the trustees and EPA. A Joint Confidentiality Agreement is in place for all government parties. Additionally, a number of MOUs are in place to share resources and responsibilities.

Details of Cooperation

The Hudson River Trustees are the NYSDEC, NOAA, and DOI. In September 1997, a Trustee Council was formed to develop and coordinate State and federal damage assessment activities and to plan for the restoration of the River's resources. The cooperative agreement is a product of the magnitude of the case and the far-reaching effects

of the PCB contamination on the trust resources of each agency. Each trustee contributes financially what it can to the case and these funds are allocated to specific efforts by the Case Management Team. The Team is comprised of three to four individuals from each agency, representing both managerial and legal expertise. A number of MOUs are in place to enable funds to be "shared" and contract work to be carried out. The NYSDEC entered into an MOU with NOAA in 1999 and is in the process of doing the same with USFWS. This latter agreement will be in place by the end of 2003. In addition to the Team, a number of Technical Working Groups (TWGs) were formed to carry out the decisions of the Team. Each TWG has a representative from each Trustee agency and an attorney chairs the TWG. The TWGs are generally organized by resource or injury category, such as Surface Water / Groundwater TWG or Lost Use TWG. TWGs generate reports on activities and funding status on either monthly or quarterly basis. These reports are given to the Team.

Significant Benefits & Lessons Learned

The Hudson River NRDA is a very large and complex case being done in anticipation of litigation. Challenges presented because of this include: achieving cost-efficiencies, handling contingencies or complications; maintaining positive and professional interpersonal relationships ; and staying organized with the overwhelmingly large volume of communiques, documents, and work assignments.

Contacts for Information

www.dec.state.ny.us

www.epa.gov/r02earth/superfund/hudson.htm

Fields Brook (Ashtabula, Ohio)

Submitted by Sig Williams

Site Description

The site consists of a small stream, about 3.5 miles long, and its associated floodplain / wetland, running through a large industrial complex, a residential area, and finally into the Ashtabula River in the City of Ashtabula, Ohio. An industrial complex operated at the site from the 1940s to the present and included organic and inorganic chemical manufacturing, metals processing, paint pigments, metal scrap operation. Discharges to the Brook resulted in contamination of sediment and floodplain soils with PCBs, VOCs SVOCs, PAHs and metals, including radionuclides. The Site was listed on the NPL in 1983. Remediation is nearly complete and the site will enter into operation and maintenance in summer of 2003. Remediation included sediment dredging, excavation of floodplain soil and disposal in an on-Site landfill. Six source areas were also remediated to prevent recontamination of the Brook. DNAPL soils were thermally treated on-Site.

Background

Trustees used the remedial investigation and ecological risk assessment from the NPL site to help establish injury and damage claim, and used a habitat equivalency assessment model based on acreage of the Brook and floodplain assuming

100% loss of services. Financial settlement (\$860,000) was negotiated between the trustees and the responsible parties without conducting a formal assessment. Trustees assisted EPA in developing primary restoration, as well as stream and wetland mitigation elements of the CERCLA remedy. The Trustees are now developing the Restoration Plan for Fields Brook.

Details of Cooperation

Ohio EPA, USFWS and NOAA cooperated as Trustees under an MOA. The US Department of Justice prompted the trustees, through US EPA, to settle the NRD case prior to completion of the Consent Decree for the CERCLA remedy.

Significant Benefits & Lessons Learned

The same MOA is being used on the much larger Ashtabula River NRDA case. Some of the same people continue to work together on the Ashtabula River case. The trustees initiated action late in the CERCLA process, and possibly could have obtained a larger settlement if they had started earlier. This resulted in a much earlier start on the Ashtabula Case.

Contacts for Information

Sig Williams, OH EPA, (330) 963-1210

Ashtabula River and Harbor (Ashtabula, Ohio)
Submitted by Sig Williams

Site Description

The site consists of the lower 2 miles of Ashtabula River and Harbor in the city of Ashtabula, Ohio. The Lower River and Harbor are still used for commercial shipping; the upper reaches of the area of concern are used for recreational boating and fishing. The Harbor has commercial operations for shipping and railroad transport of coal, ores and gravel. Several marinas occupy most of the remainder of the area of concern. Historical ship salvaging, metal plating and leather tanning operations no longer exist. The River is the receiving body for contaminated water and sediments from Fields Brook, an NPL (and NRD) site. Major contaminants are PCBs, HCB, HCBd, in addition to a broad range of VOCs, SVOCs, PAHs and metals, including low level radionuclides. Injuries include, exceedances of water quality standards for PCB and HCB, and a fish consumption advisory by the Ohio Health Department is in effect. Trustees are conducting a Type B Assessment at the present time.

Background

Trustees attempted to achieve a negotiated settlement with the responsible parties but negotiations stalled. A preassessment screen has been completed and field studies in support of the Type B Assessment are being conducted now. The Ashtabula River Investigation report (ARI, 1990) was done by a group of the Fields Brook responsible parties as part of the Fields Brook Superfund project. The ARI was used to support the Trustees' claim and as a basis for some of the assessment activities. The River is not currently an NPL site and no formal risk assessment has been done. The remediation is being undertaken by the voluntary public private Ashtabula River

Partnership. The Partnership includes the PRP group, USACE, US EPA, Ohio EPA, USFWS and others. A Comprehensive Management Plan and Environmental Impact Statement has been produced by the Partnership and along with the ARI report has been useful in preparing the PAS and initial estimates of injuries and damages.

Details of Cooperation

An Existing MOA among the Trustees from the Fields Brook case formed the basis for the Ashtabula River NRDA. All parties agreed that we should initiate discussions and negotiations with proposals. All of these were presented to the RP during more than a year of negotiations. The RP rejected the claims and made a settlement offer far below the low end of our range. Negotiations came to an end and the trustees decided to initiate a Type B Assessment. The RP was invited to participate in the Assessment but declined to do so. Assessment field activities were initiated in 2001 will continue through the 2004 season.

Significant Benefits & Lessons Learned

The early start enabled the Trustees to smoothly make the transition from the negotiation process to the Type B Assessment. We will be able to complete our assessment before the Ashtabula River dredging is completed. We will be able to reserve all of our NRD rights in the Consent Decree for the remediation and also protect against the statute of limitations.

Contacts for Information

Sig Williams, OH EPA, (330) 963-1210

Sheila Abraham, OH EPA

Dave Devault, USFWS

David Goeks, NOAA

Bailey Waste Disposal Superfund Site (Texas)
Submitted by Richard Seiler

Site Description

The Bailey Site is an inactive waste disposal facility situated within a tidal marsh along the Neches River, approximately three miles southwest of Bridge City in Orange County, Texas. The Site encompasses a total of approximately 280 acres, including two rectangular ponds that were originally constructed in the early 1950's for recreational fishing as part of the Bailey Fish Camp. The site is surrounded by salt marsh wetlands that are part of the productive Sabine Lake / Neches River estuarine ecosystem. Industrial and municipal wastes were disposed at the Site beginning in the 1950's, lasting through the 1960's. Wastes were deposited in a series of pits that were excavated along the levees of one of the ponds. These included a wide variety of CERCLA-designated hazardous substances such as volatile organic compounds, polycyclic aromatic hydrocarbons, and heavy metals. In 1986, EPA added the site to the NPL. The Remedial Investigation / Feasibility Study (RI/FS) was completed in 1988. Implementation of the remedy began in 1993. The final remedy included waste consolidation; grading and capping within the Site's waste areas; installation of controls to manage and treat storm water run-off; and adjustments to dike elevations and slopes. All on-site remedial construction activities were completed by August 1997.

Background

The assessment focused on natural resource injuries or service losses of an ecological nature. The trustees identified seven types of habitats across the site with reduced or diminished ecological service flows due to the hazardous substances released at the site. These habitats included subtidal unvegetated benthic habitats, estuarine and freshwater marsh habitats, and terrestrial habitats. The trustees also identified areas of these habitats that were adversely affected, temporarily or permanently, by response actions undertaken at the site. The trustees were actively involved in the review and development of remedial documents. Data used in the assessment was gathered during the RI. EPA was very receptive to trustee input on technical issues.

Details of Cooperation

The State and federal trustees formed an informal Trustee Council and initiated the Cooperative Assessment process very early in the remedial

process. No formal agreement was entered between trustees and the Site Settlers Committee. The trustees used habitat mapping and Habitat Equivalency Analysis to determine the number of injured acres and the interim percent loss of services of each habitat type. The scope and magnitude of natural resource injury was developed concurrently with the identification and evaluation of potential restoration alternatives. The process resulted in an agreement in principal that 28 acres of intertidal marsh was required to offset injuries at the site. The RPs then decided to settle the case through a cash settlement. The parties agreed to resolve natural resources damages liability at the site for \$522,000 plus the Trustees' past costs. A judicial Consent Decree was entered between the Parties and the settlement monies were placed in a court registry account mutually held by the United States and the State of Texas. The trustees then entered into a partnership with the US Army Corps of Engineers (USACE)) under section 204 of the Water Resources Development Act to build wetlands in the Nelda Stark Wildlife Management Area owned by the State Parks agency. The local County Navigation District, which already has a contractual relationship with the USACE, agreed to act as the local sponsor for the project. The Trustees then entered an agreement with the Navigation District to provide the base funding for the project. Initial construction for the project began in July 2003.

Significant Benefits & Lessons Learned

Trustees and technical representatives of the RPs used information from the RI, mutually developed conservative assumptions and existing literature to determine and/or quantify injury rather than initiate additional sampling/studies. This process allowed the RPs to weigh the value of any information obtained through additional studies/sampling against the cost to obtain it.

Contacts for Information

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rseiler@tceq.state.tx.us

Documents:

- *United States v. Browning-Ferris Chemical Services, Inc. et al*, Civil No.1:00 CV - 386 (E.D. Tex. 2000)
- "Restoration Plan and Environmental Assessment for the Bailey Waste Disposal Site, Orange County, Texas"

Non-Governmental Opportunities

General Discussion

Under CERCLA and OPA, although the trustees are required to invite the participation of the responsible parties,⁹ the nature and extent of participation by responsible parties is determined by the trustees.¹⁰ Trustees are authorized to perform NRDA's independent of RP participation and to seek restoration and compensatory damages through CERCLA litigation. Adversarial approaches to NRDA's, however, have tended to slow the process, enhance uncertainties, and place scientific issues in the hands of lawyers and competing scientific experts. Cooperative assessments between responsible parties and trustees can be an efficient and effective approach to resolving liability for restoration at sites with releases of hazardous substances to the environment.

As discussed, cooperation early in the assessment process has received the most attention in the past and continues to be emphasized in the NRD community. In this section, attention is given to specific examples of what has been done to date and draws significantly from existing documents. For more general information, please see the document, *Perspectives on Achieving Cooperation in Assessing Injury and Planning the Restoration of Natural Resources (1999)* at <http://www.astswmo.org/Publications/ascii/Final%20NRD%20Perspectives%20Paper.txt>. The document discusses issues that may arise during any given case and is intended to help parties understand the perspectives of the other.

⁹43 CFR 11.329(a)(1); 15 CFR 990.14(c)(1)

¹⁰15 CFR 990.14(c)(5)

Upper Arkansas River Basin (Leadville, Colorado)

Submitted by Angus Campbell

Site Description

The Upper Arkansas River Basin is being directly impacted by historical mining activities of the Leadville mining district. The Leadville area is included in the California Gulch Superfund Site, listed on the NPL in 1983. The study area for the Arkansas River is from the confluence with California Gulch (near the town of Leadville) downstream to and including the Pueblo Reservoir, approximately 165 river miles. The immediate area of concern is known as the "11 Mile Reach" and is defined as the 500-year floodplain beginning at the confluence of the Arkansas River and California Gulch and extending downstream for approximately 11 miles. This 11 Mile Reach generally suffers from sediment and tailing deposits generated from historical mining activities and poor water quality generating from the Leadville district and from the downstream tailing deposits and consists of elevated metals primarily arsenic, cadmium, lead and zinc along with low pH.

Background

The State of Colorado filed a natural resource Damage Claim against several mining companies in 1983 for injuries to State trust natural resources for ongoing releases of hazardous substances from historic mining activities in the Leadville mining district. In 1994 a consent decree divided the NPL site into twelve operable units that are portioned into both enforcement and fund lead operable units. Having completed much of the work identified in the 1994 consent decree, the mining companies were interested in identifying and settling all liabilities under CERCLA (specifically NRD) and approached the State and federal Trustees indicating that they were interested in a cooperative approach to assessing injury to natural resources. In 1999, an MOU was entered into between the State and federal trustees, EPA and two mining companies (see Appendix B). This MOU process is designed to coordinate both restoration of natural resources and remedial activities for a portion of the California Gulch Site with a goal of providing a basis for a negotiated settlement of all CERCLA liabilities (including NRD) for the mining companies for the entire site. The evaluation is to be focused on existing data and any new data that is collected for the Superfund process. The selection of restoration projects is to be determined by the trustees through a negotiation process with the mining companies and EPA.

Details of Cooperation:

Work at the California Gulch Superfund Site has been ongoing for 20 years. This includes remedial

investigation, feasibility study and remedial action work on 12 operable units and other non-Superfund monitoring work conducted by the State Division of Wildlife (DOW) on aquatic life in the Arkansas River downstream of the site. During this time, significant data has been generated, the MOU parties agreed that the existing data would provide a significant basis to determine the injury to natural resource from the release of hazardous substances from the NPL site. It was also understood that there were a few known areas where there was not sufficient data and that, by coordinating data gathering efforts to answer both remedial and restoration questions, many efficiencies could be gained. Therefore the new data gathering activities were designed jointly between EPA and the other MOU parties. This process of coordinating data efforts was also utilized in the ongoing data gathering activities of the DOW and the mining companies. This resulted in data that were a bit wider in breadth and generated in a more compatible manner for data sharing.

Significant Benefits & Lessons Learned

The MOU process is still ongoing. Major lessons learned included the need to design data gathering efforts in a manner such that data formats can be easily shared, including that sampling station location-identifiers should each be unique and not duplicated over the site. The Site Characterization Report, which identified the nature and extent of injury was released in October 2002, and the Restoration Alternatives Analysis is expected late 2003. In order to add to the efficiency of editing and document preparation the Consulting Team, the process should have included a technical editor to assist in the injury assessment report.

Contacts for Information:

Laura Coppock, USFWS, (303) 275-2354

Angus Campbell, CDPHE, (303) 692-3385

Vicky Peters, CO AG, (303) 866-5068

Documents:

- Memorandum of Understanding - see Appendix B

Chalk Point Oil Spill (Aquasco, Maryland)

Submitted by Dale Young, based on text excerpted from the "Final Restoration Plan and Environmental Assessment for the April 7, 2000 Oil Spill at Chalk Point on the Patuxent River, Maryland" dated November 2002.

Site Description

On April 7, 2000, a leak was detected in a 12-inch underground pipeline that supplies oil to the Potomac Electric Power Company (Pepco) Chalk Point generating facility in Aquasco, Maryland. Approximately 140,000 gallons of fuel oil spilled from the ruptured pipeline into Swanson Creek, a tidal tributary of the Patuxent River approximately 23 miles from the mouth of the river at the Chesapeake Bay. The spilled oil was a mix of Number 6 fuel.

The waters of the Patuxent River and its tributaries serve as important spawning or nursery sites for many finfish and shellfish species such as spot, croaker, striped bass, menhaden, herring, and shad, as well as clams, oysters, and blue crabs. Freshwater spawning marine species, such as striped bass and American shad, and many marine spawners, including bluefish and menhaden, depend on wetlands for nursery, feeding, and cover areas. Species of Special Concern in the Patuxent River watershed ecosystem include the diamondback terrapin and bald eagle. Based on information and data collected immediately following the spill, the trustees initiated a damage assessment pursuant to Section 1006 of OPA to determine the nature and extent of injuries to natural resources and services. Pepco and ST Services were active and cooperative participants in these efforts.

Background

The trustees, in cooperation with the RPs, assessed the injuries resulting from this incident, evaluated a range of restoration alternatives based on criteria established under OPA, and proposed for public review and comment preferred restoration alternatives in a draft Restoration Plan/ EA (dated May 8, 2002). After consideration of comments received on the preferred alternatives, the trustees selected final restoration projects that will make the environment and public whole for natural resource injuries and losses of services resulting from the incident. Both the preferred and non-preferred alternatives are described in the Final Restoration Plan/ EA (dated November 2002).

Details of Cooperation

Throughout the damage assessment and restoration planning process, the four federal and State trustee agencies worked together to meet their respective natural resource trustee responsibilities under OPA and other applicable federal law and State statutory

and common law. A June 2000 MOA signed by all the trustees provided a framework for coordination by establishing a Trustee Council that has been responsible for all natural resource damage assessment activities, including restoration planning and implementation. While the trustees requested that NOAA assume the role of the Federal Lead Administrative Trustee and the overall natural resource damage assessment coordinator, all decisions were made by a consensus of Trustee Council representatives.

The RPs accepted the trustees' invitation to participate, and a trustee/RP MOA was signed in September 2000. The MOA provided the framework for a cooperative damage assessment (15 C.F.R. §990.44(d)) and the trustees and RPs formed a NRD Assessment Council that included the four Trustees and two RPs. Information collected by all parties was shared, as were the results of those analyses that were undertaken independently by the Trustees and Rps. Restoration alternatives selected for implementation included creation of tidal marshes, enhancement of shoreline beaches, acquisition and restoration of ruddy duck nesting habitat, oyster reef sanctuary creation, and improved recreational opportunities.

Significant Benefits & Lessons Learned

The coordination between the Trustees and RPs reduced duplication of studies, increased the cost-effectiveness of the assessment process, and increased sharing of information and expertise. The final authority to make determinations regarding injury and restoration remained solely with the Trustees

Contacts for Information

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www.darp.noaa.gov/neregion/chalkpt.htm

**Doe Run Herculaneum Smelter Site
(Herculaneum, Missouri)**

Submitted by Frances Klahr

Site Description

The Doe Run Herculaneum Smelter is an active lead smelter that has been operating for over 100 years. The smelter facility, consisting of two main areas – smelter plant and slag pile - is approximately 52 acres in size and is located in Herculaneum, Jefferson County, Missouri. The smelter facility is bordered on the East by the Mississippi River; on the West and North-Northwest by residential areas; and on the South-Southwest by the slag pile. The slag pile is located in the floodplain wetlands of the Joachim Creek and Mississippi River. The slag pile is approximately 40 to 50 feet high and covers 30 acres. The majority of the slag is fine material with the primary hazardous constituents being heavy metals – arsenic, cadmium, copper, lead (1.5% - 2.5%), nickel and zinc (12% - 14%). Wildlife tracks, such as deer and turkey, have been seen in the slag material. Preliminary information indicates potential lead poisoning of migratory birds. The full extent of injuries has not been determined, but a natural resource damage assessment plan is required in the Administrative Order on Consent (AOC). To date, the only remedial action has been residential yard removals.

Background

The Missouri Department of Natural Resources (MDNR) conducted a preliminary assessment in 1999, concluding that the site qualified for further action under CERCLA. An expanded site investigation was recommended. Pursuant to the AOC that was negotiated, the company is required, through out the response activities, to meet with the trustees to discuss project planning options, decisions and special concerns to incorporate, to the extent practical, restoration, replacement, rehabilitation or acquisition of the equivalent of the injured natural resources with response activities.

Details of Cooperation

Numerous factors prompted the MDNR and the Environmental Protection Agency (EPA) to negotiate an AOC with the RPTo expedite clean up of the site. The AOC also requires that sufficient data, samples and other information be collected, in conjunction with the MDNR and U.S. Fish & Wildlife Service in their capacity as Natural Resource Trustees, to enable the completion of an injury determination and other appropriate natural resource damage assessment (NRDA) activities in accordance with 43 C.F.R. Part 11. The NRDA is to be conducted cooperatively and consistent with CERCLA, the National Contingency Plan and NRDA regulations. The goal is to develop an environmental project or projects to address past, interim and future losses of natural resources.

Significant Benefits & Lessons Learned

The EPA did not want NRD language included in the AOC since it is not a Trustee. However, since the MDNR was a party to the agreement from a remedial perspective, and the director of MDNR is the designated trustee, persistence paid off because NRD language was included. Additionally, USFWS was recognized as a trustee even though it was not a signatory to the agreement. Not being a signatory to the AOC has made it difficult for USFWS to recoup assessment costs. All parties, whether remedial or trustee, should be a signatory to any agreements entered into.

Contacts for Information

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Documents:

- Administrative Order on Consent, Docket No. RCRA-7-2000-0018, CERCLA 7-2000-0029

St. Lawrence / Massena (Massena, NY)

Submitted by Sharon Brooks

Site Description:

This case involved three PRPs all located in the Massena, NY area, which is situated in the St. Lawrence River plain in extreme northern New York State. The study area includes the St. Lawrence River, Grasse River, Racquette River and the St. Regis River as well as the tribal lands of the Mohawk Nation at Akwasasne. Plant sites are located along the Grasse River which is a tributary to the St. Lawrence. and a plant site adjacent to the St. Lawrence River (including a large on-site landfill). Many contaminants have entered the environment via air and water disposal practices. Contaminants of concern include PCBs, PAHs, and flouride.

Background

Cooperation amongst the trustees and the PRPs began with the 1990 Funding Agreement which set up a fund containing \$600,000 for the trustees' use in developing an NRDA Plan in accordance with 43 CFR Part 11. In 1999, a second agreement was put into place to provide funding for a Cooperative Assessment. Work is ongoing in this effort with current effort focusing on recreation (non-tribal) fishing losses, sediment injury, and a cultural impacts assessment. On a separate track is the RI/FS process. One RP has completed some sediment removal in the St. Lawrence and is moving forward with the same for the mouth of the Racquette River. New York State Department of Environmental Conservation (NYSDEC) issued two RODs to another RP for remediation of its plant sites (1991 and 1992). This RP, NYSDEC and EPA are continuing negotiations for remediation of the Grasse River.

Details of Cooperation

The cooperative assessment process was initiated through an offer by the PRPs to fund development of a draft NRDA Plan. The trustees were given control of the project up to the point of having a draft in place. The PRPs had review rights at this point. The NRDA Plan was not finalized nor released to the public. Upon completion of this task the St. Lawrence Environment Trustee Council, which was formed through an MOU with the NYSDEC, USFWS, NOAA, and the Mohawk Nation at Akwasasne, and the RPs agreed to work together for the assessment phase (1999).

Significant Benefits & Lessons Learned

A peer reviewer was hired for the Recreational Fishing Assessment. The inclusion of an experienced and impartial economist is proving to be a good investment. The cooperative assessment funding is used for technical staff only. If issues arise work can be stopped and attorneys are consulted or issues are formally referred to counsel by the trustees and the RPs. Counsel for each party then confer with each other and a decision is communicated back to the technical staff. This arrangement has so far been efficient.

Contacts for Information

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Koppers Charleston Site (Charleston, South Carolina)

Submitted by Richard Haynes

Site Description

The Koppers Site is approximately 102 acres located on the Ashley River in Charleston. Koppers wood treating operations consisted primarily of treating raw lumber and utility poles with creosote (PAH). For a short period of time, pentachlorophenol (penta) and copper chromium arsenate (CCA) were also used as preservatives in the wood-treating process. The volume of wood treated at the site was approximately 200,000 cubic feet per month during the time period from 1940 to 1978. The site was placed on the NPL in December 1994. There are three areas of ecological concern: wetland tidal marsh, intertidal zone, and Ashley River tidal system. Sediment toxicity test with *Neanthes*, *Mysidopsis*, and *Ampelisca* indicated significant impacts. Trust resources at risk are the Red Drum, Clapper Rail, Marsh Wren, and Great Blue Heron.

Background

The South Carolina Department of Health and Environmental Control (DHEC) and EPA included the natural resource trustees during the development of the RI/FS Work Plan and implementation. The goal was to incorporate trustee input into the Ecological Risk Assessment for remediation and perform a cooperative assessment for NRDA at the same time. Trustees were: SC Department of Natural Resources, DHEC, US Fish and Wildlife, and NOAA. At time of the Proposed Plan / Record of Decision, the trustees began working on HEA to estimate losses using ROD-planned remedial action. The ROD required remediation for the North & South marsh by excavation of sediments indicating significant toxicity; capping of contaminated sediments in Ashley River and Barge Canal; bioremediation for Northwest marsh. Remedial actions will be completed by end of 2002. The next step will be for trustees and PRPs to finalize NRDA settlement negotiations.

Details of Cooperation

Since the Ecological Risk Assessment involved all trustees, EPA, DHEC and the PRP agreed to proceed in cooperative assessment for NRD claims at the same time, in hopes of reaching a global settlement at the RD/RA phase. The PRP funded the initial cooperative assessment and the development of a Habitat Equivalency Analysis (HEA) to estimate losses due to reduction of services by the injured habitat and determine the amount and types of compensation projects. Settlement of NRD claims was not completed at the ROD phase. Several of the trustees involved in the case did not feel that the ROD required enough remediation of injured trust resources. Therefore, it was decided to delay settlement of NRD until the remedial action is completed. Trustees will begin negotiations shortly to reach settlement. All the Trustees will sign an MOA as part of the negotiations phase.

Significant Benefits & Lessons Learned

Even though a global settlement for NRD claims was not reached at the time of the settlement for RD/RA on the remedial side, DHEC feels that incorporating the NRDA into the RI/FS was very beneficial. The benefits include an ecological risk assessment that was very detailed, which in turn better defined remedial options, and the impacts that different remedial options had on the HEA model were helpful in the selection of the final remedial action.

Contacts for Information

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Col-Tex Refinery (Colorado City, Texas)

Submitted by Richard Seiler

Site Description:

The former Col-Tex Refinery site is located immediately west of Colorado City, Mitchell County, Texas. The site is approximately 175 acres and includes the former refinery property, adjacent areas and portions of the Colorado River. The refinery was in operation from 1924 to 1969 with a peak refining capacity of 13,500 barrels of crude oil a day. Contaminants associated with the Col-Tex site included weathered petroleum products such as gasoline, diesel, kerosene, jet fuels, and asphalt. Lead and mercury have also been identified in the refinery area and the site's rail tank car loading area. Perched aquifers were contaminated by constituents from the old tanks and the lagoons located on a bluff overlooking the Colorado River, East and North of the Col-Tex site. These bluffs seeped contaminants that impacted the Colorado River. As a result of surface contamination, surface run-off and seeps from the tank farm and refinery area, fish, avian, mammal, aquatic and terrestrial vegetation, resources were impacted.

In 1992, an administrative order was issued requiring the PRPs to install and maintain netting to prevent migratory birds from landing in the contaminated lagoons and to prevent releases of hazardous substances from the site to the Colorado River. In April 1993, an administrative order calling for the PRPs to determine the nature and extent of the contamination was issued. At this time a subsurface barrier and a pump and treat system were installed to halt contaminated groundwater seeping into the Colorado River. On January 25, 1994, Col-Tex was listed as a Texas State Superfund Site. From 1994 to present, Phase I and II remedial investigations were performed. Groundwater investigation is still on-going to define the extent of contamination.

Background

The NRDA at the site was initiated and performed solely by the State trustees. In 1998, an MOA was signed between the State of Texas Natural Resource Trustees and the PRPs to provide a framework for Trustee-PRP coordination and funding of the assessment and restoration planning. A Biological Inventory and Evaluation for the site was jointly developed and implemented by the trustees and consultants for the PRP. Information from the remedial investigation and draft ecological risk assessment was used to determine

NRD injury and scale the restoration. The trustees and PRPs agreed to use Habitat Equivalency Analysis (HEA) to determine compensation for resource injuries and scale restoration action. All input parameters to determine ecological services losses and scale restoration were cooperatively negotiated between the parties. The Damage Assessment and Restoration Plan has since been finalized. The Settlement Agreement and the conservation easements associated with the restoration property have been executed by all parties. Restoration construction should start in Fall 2003. To compensate for injuries or potential injuries to water quality and aquatic habitats, the settling parties will construct 1.5 acres of open-water pond habitat; install a rainwater catchment system to be used as a water source for mammals and birds; provide improvements to abate erosion on 2.4 acres along the Colorado River within and adjacent to the restoration property; construct and enhance 21 acres of riparian habitat; remove salt cedar trees and the plant native riparian vegetation along the Colorado River; construct 25 acres of native trees, grasses, and scrub shrub habitats; and preserve 35 acres of existing scrub-shrub habitat located adjacent to the site.

The proposed Settlement Agreement requires conservation easements to be granted to the Natural Areas Preservation Association to ensure that the ecological services of the property are preserved in perpetuity. Terms of the conservation easements are described in the Settlement Agreement. It should be noted that coordination between State agencies included the Texas Department of Criminal Justice (TDCJ). Much of the property along the Colorado River, which was identified as the most appropriate for restoration, was located on a TCDJ prison facility. The State trustees and RP worked closely with the TDCJ to gain their approval of the project and obtain a conservation easement on the TDCJ property.

Contacts for Information

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<http://www.tnrcc.state.tx.us/permitting/remed/site/nrt/index.html>

Documents:

- Habitat Enhancement and Restoration Plan, Compensatory Restoration, Col-Tex Site, Colorado City, Texas
- Col-Tex State Superfund Site Settlement Agreement

Cooperation Beginning with Restoration

General Discussion

In some cases, formal cooperation begins post-recovery or after the settlement has been reached and the trustees are in possession of the monetary damages. Trustee councils may be formed to provide explicit rights and rules for the expenditure of these funds. Expenditures may be governed by the federal NRDA rules (DOI or NOAA), State law, Memoranda of Agreement or Understanding, or the Consent Decree settling the case. This process is evident in many earlier NRDA cases. But there appears to be growing popularity for an alternative process where the responsible parties undertake restoration actions at their cost with trustee oversight.

Money held jointly by State and federal trustees is often kept in accounts within the Registry of Federal District Courts or in DOI's NRD Assessment and Restoration account. Many States, such as Texas and New York, have avoided problems with federal co-trustees related to management of settlement funds designated for restoration by entering case-specific Settlement Funds Management Agreements, which govern the joint expenditure of settlement funds and the implementation of restoration projects with these funds.

During restoration planning and implementation, some State trustees have coordinated with USFWS and the National Park Service (NPS) to perform restoration projects on federal refuges and wildlife management areas. This helps to ensure credible long-term management of restoration projects and minimize (or eliminate) land acquisition costs. These federal lands most often have a management plan that identifies restoration needs and provides a good source of potential restoration actions the trustees can consider. These often correspond well to the Trustee's restoration requirements. The USFWS and NPS may also provide valuable in-kind services or add to the funding of a restoration project, and thus significantly add to the scale and services provided by the restoration. In Texas, such projects include the construction of water control structures to protect wetlands from salt-water intrusion on the Anahuac Wildlife Refuge and the placement of valuable bottomland hardwoods habitat into the Big Thicket Preserve along the Neches River.

In Massachusetts, the State trustee has settled NRD claims at seven hazardous waste sites, with the major focus on federal Superfund sites. Jurisdictional authority for these cases often overlaps with the federal trustees, and settlements are routinely joint with recoveries held in DOI's NRDAR account, the U.S. District Court Registry Investment System Account, or the State NRD Trust account for site specific restoration. For most Massachusetts cases in the post-recovery phase of NRD, the trustees have established site-specific Trustee Councils, composed of federal and State trustee representatives, to oversee the Restoration Planning and Implementation activities. Accordingly, Trustee Councils retain all decision-making authority for NRD actions and are charged with approving expenditures of NRD recoveries for restoration activities. Such responsibilities of the Trustee Councils are further defined in site-specific MOAs, but generally adhere to a certain set of principles, which, e.g., define the 1) scope and authority; 2) objectives; 3) construct of the Council; 4) mechanism for decision-making (e.g., by consensus); 5) mechanism for dispute resolution; and 6) public participation. The Massachusetts trustee is currently participating on four Trustee Councils in the Restoration Planning phase for the New Bedford Harbor Superfund site, Charles George Superfund site, Nyanza Superfund site, and General Electric / Housatonic River site.

During restoration planning, many opportunities for cooperation with local and federal government entities may arise. This coordination may result in partnerships that provide matching funds or in-kind services and may significantly increase the scope of restoration

constructed by an RP and/or achieved by trustees using settlement funds. Several State and federal agencies, such as the U.S. Army Corps of Engineers (USACE), USFWS, State Coastal Zone Management Programs or National Estuary Programs may provide matching funds or grants to trustees for restoration efforts under CERCLA or OPA.

Restoration activities performed in Texas provide a good illustration of coordination with local governments during the restoration phase. For example, in Texas, the trustees have partnered with the USACE and local Navigation Districts to use maintenance-dredging material from local waterways to develop intertidal marsh under Section 204 of the Water Resources Development Act. Under this program, the trustees have obtained as much as a three-to-one funding match using NRDA settlement funds as the base funding. Texas trustees have also worked closely with multiple counties and city governments in the Alcoa Lavaca Bay case to develop restoration alternatives to enhance recreational fishing in vicinity of Lavaca Bay as compensation for NRD at the Alcoa NPL site. Projects planned for this case include the enhancement of three public boat ramps and construction of three public fishing piers.

At the Tex Tin NPL site in Texas City, Texas, the trustees entered into an agreement to fund Texas City to prepare the design and engineering considerations for a marsh restoration project within their city limits. Texas trustees also coordinated closely with the City of Baytown to build intertidal wetlands on the site of a subsided and condemned tract, which was formerly an upscale bayside neighborhood. The project has since become the cornerstone of a much larger community nature preserve.

Emerging trends bring a new perspective on cooperation during the restoration phase. Restoration projects may take on a variety of creative forms. For example, projects designed to restore bird species are best focused on the ecological bottlenecks of the population, which may be on the breeding grounds, at migration stopover points, or on the wintering grounds. In several cases involving migratory birds, this desire to achieve the most ecologically efficient restoration has led to out-of-State and even out-of-country projects. In the North Cape oil spill off Rhode Island, restoration for injured loons was targeted on protecting breeding areas in Maine. In the Chalk Point oil spill in Maryland, restoration for injured ruddy ducks was focused on breeding areas in the Great Plains. In California, where many of the coastal seabirds nest only on a few small islands around the Pacific, restoration actions at breeding colonies off Mexico and New Zealand are being contemplated. While far from home, these projects are intended to restore the population effect of the injury(s).

US Steel Gary Works (Gary, Indiana)

Submitted by James R. Smith

Site Description

United States Steel's Gary Works (US Steel) is an integrated steel mill that occupies approximately 7 square miles at the south end of Lake Michigan in Gary, Indiana. The Grand Calumet River originates at a discharge from the Grand Calumet Lagoons on US Steel's property; approximately four miles of the river runs through the southern portion of the steel mill. Ninety percent of the river's water ultimately comes from industrial and municipal discharges. The steel mill has been in continuous operation since 1906. During the nearly 100 years of operation, the majority of which occurred before the enactment of the Clean Water Act in 1970, contaminated materials have accumulated in river sediments, impacting aquatic and adjacent terrestrial habitats and biota that can exist in the system. Approximately 700,000 cubic yards of sediment in the first 5 miles of the river were contaminated with hazardous substances including, but not limited to PCBs (nearly 500ppm in places), PAHs (percent concentrations), metals and oil and grease. Invertebrate communities were nearly non-existent, fish community was restricted to tolerant species, a group five (do not eat) fish consumption advisory was in place. Nearly all natural resources associated with the river were injured.

Background

The US Fish and Wildlife Service and the State (primarily the Indiana Department of Environmental Management) had been collecting data for the initiation of a Natural Resource Damage Assessment since 1993. During settlement of Clean Water Act violations in the stream and RCRA Corrective Action for the facility, US Steel, in seeking a global settlement, agreed to address natural resource damages associated with the first five miles of the East branch Grand Calumet River. The trustees put together a claim for damages associated with the five miles of the river. Habitat equivalency analyses and lost uses of resources (primarily fishing, but also boating, birding, etc.) were the basis of a claim. A settlement was reached with US Steel for natural resource damages after considerable give and take negotiations. Three separate actions were incorporated to achieve primary restoration (cleanup) and compensatory restoration of the environment. Dredging of contaminated sediments was incorporated into a Clean Water Act Consent Decree, disposal site for both TSCA and non-TSCA contaminated sediments was in a Corrective Action Management Unit (CAMU) built under a RCRA Administrative Order on Consent, and natural resource restoration was associated with the NRD Consent Decree.

Details of Cooperation

During negotiations for settlement of natural resource damages, US Steel made the decision that they would implement restoration instead of paying damages to the Trustees, who would then have to implement restoration. Purchase and restoration of several properties and post-dredging restoration in the river was to be completed by US Steel. The trustees would have approval of lands to be purchased and work plans. The trustees and US Steel agreed that restoration on a 32-acre mitigation site and property purchased for fishing access could count toward required restoration goals. US Steel also purchased, and is in the process of restoring over 150 acres of globally rare dune and swale habitat that was incorporated into the Indiana Dunes National Lake Shore, owned and managed by the National Park Service. The agreement for cooperative restoration and the restoration plan was incorporated into the Consent Decree.

Significant Benefits & Lessons Learned

Incorporating primary components of the restoration plan as well as the settlement into the same consent decree allowed for public comment on both aspects of the NRDA at the same time. The public had the added advantage of understanding exactly what type and amount of restoration would result from the proposed settlement. US Steel identifies properties and obtained purchase options prior to final entry (approval) of the Consent Decree by the Court. This enabled very rapid implementation of restoration of natural resources, except for the in-stream restoration components of the settlement.

A major benefit of settling parties implementing restoration activities is tied to government agencies' money management requirements. While contracting for various components of restoration are a normal course of business for most large companies, State and federal government agencies seem to have to invent methods of doing much of the activities associated with restoration.

Contacts for Information

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Mobil Mining (Pasadena, Texas)

Submitted by Richard Seiler

Site Description

A phosphate mining and phosphate fertilizer operation was located along the Houston Ship Channel in Pasadena, Texas. On April 6, 1992, the southern retaining wall of the number three gypsum stack experienced structural failure and released 45 million gallons of gypsum and acidic process water. The material released was a mixture of a number of substances, but was primarily a gypsum slurry containing a 2.31 percent solution of phosphoric acid with a pH of less than 2 standard units. The material was classified as hazardous because of its corrosivity and constituted a hazardous substance under CERCLA, as amended, 42 U.S.C. 9601 et seq. The material flowed into flood control ditches, open fields, Cotton Patch Bayou, and eventually into the Houston Ship Channel through a barge basin. Large areas of terrestrial and aquatic habitat were injured by the acidic water, or physically covered by the material along the entire course of the release. The bulk of the material was released during the first day of the incident, however, the release continued for several days.

Background

As a result of the release, numerous natural resources were affected. Surface water quality within approximately seven miles of the Houston Ship Channel was adversely affected for at least one week. Injuries were sustained to freshwater, marine, and estuarine wildlife, fishes, invertebrates, plants and sediments. In addition, terrestrial wildlife, plants and soils were impacted by the release. The services provided by these resources, such as the food, shelter, and nursery values of the affected habitats were also impaired.

Details of Cooperative Assessment

The natural resource trustees and the responsible party developed a wetlands restoration project, creating 17 acres of intertidal estuarine marsh, 15 acres of freshwater wetlands, and enhanced upland habitat on property adjacent to the Houston Ship Channel at Mobil's Pasadena, Texas facility. The freshwater wetlands restoration project was designed to provide a polishing function to filter nutrients from the facility's wastewater stream, and also to provide valuable feeding and nursery habitat for aquatic organisms and terrestrial wildlife, as well as beneficial water quality influences on the adjacent aquatic system.

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Conclusions and Challenges for the Future

As of the completion of this document, several trends in the NRDA process are evident. There exists an overall higher level of cooperation and familiarity among all parties: trustees, industry, advocacy groups, and other stakeholders. Simultaneously, there exists an increasing awareness of the efficiencies that can be created by the integration of remedial investigations and NRDA. However, the need for, and desirability of increasing public awareness of NRDA in general, and on a case-specific basis, is well known. More emphasis has been placed on restoration-based methodologies, such as HEA, and more restoration-based settlements have followed. As knowledge grows, there is an increasing awareness of the possibility and desirability of seeking restoration projects based on injured species need, and not necessarily within a territorial boundary (e.g., out-of-state restoration project).

With these knowns come several challenges for the future, some of which have long been evident, and others that are more recent. Efforts to integrate NRDA into existing programs must continue and ways must be found to meet trustee responsibilities with limited resources. Raising public awareness and reaching out to a broader audience can be achieved through increased use of the computer-based media and partnering with other groups and agencies. The success rate of cooperative NRDA's can be improved with open and informed dialog. This also aids in creating or maintaining the incentives to bring cases to closure for all parties, not only the trustees and industry, but also contractors, consultants, residents, and advocacy groups. All this must be accomplished while maintaining or improving the focus that is at the heart of NRDA: restoration of our natural resources.