

Association of State and Territorial

ASTSWMO

Solid Waste Management Officials

CERCLA and Brownfields
Research Center

Site Evaluation Focus Group

**Superfund Site Assessment Program:
Benefits Beyond NPL Listing**

March 2011

444 North Capitol Street, NW
Suite 315
Washington, DC 20001
www.astswmo.org

Acknowledgements

This document was prepared by the ASTSWMO Site Evaluation Focus Group, with assistance from the U.S. Environmental Protection Agency (EPA) under Cooperative Agreement RT-83376901.

The following members participated in the development of this report:

Tom Crause, Illinois Environmental Protection Agency (Focus Group Chair)
James Bateson, North Carolina Department of Environment and Natural Resources
Stewart Black, California EPA Department of Toxic Substances
Melissa Cordell, Texas Commission on Environmental Quality
Cynthia Gianfrancesco, Rhode Island Department of Environmental Management
Gerald Grimes, Virginia Department of Environmental Quality
Jamie Foster, Alabama Department of Environmental Management
Rita Kamat, California EPA Department of Toxic Substances
Barbara Nabors, Colorado Department of Public Health and Environment (Vice Chair)
Frank Sorce, New Jersey Department of Environmental Protection
Molly Stark, New Hampshire Department of Environmental Services
Eric Traynor, Idaho Department of Environmental Quality
Julieann Warren, Missouri Department of Natural Resources
Samuel A Puffenbarger, ASTSWMO
Jennifer Wilbur, U.S. EPA/OSRTI liaison
Larry Zaragoza, U.S. EPA/OSRTI liaison

Purpose

The Association of State and Territorial Solid Waste Management Officials (ASTSWMO) Site Evaluation Focus Group (referenced hereafter as “the Focus Group”) developed this report to highlight the beneficial outcomes not traditionally captured, *e.g.*, State site cleanups that result from the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Site Assessment Program, commonly known as the Superfund Site Assessment (SA) Program. This report shows that funds spent on Superfund site assessments result in benefits that go beyond National Priorities List (NPL) listing and that the overall success of the Superfund program should not be measured solely by the number of NPL listings or cleanups.

Introduction

The Superfund Site Assessment (SA) Program is a partnership between the U.S. Environmental Protection Agency (EPA) and States. Since its inception in the early 1980s, the [Superfund SA Program](#) has been the foundation of the national Superfund Program, assessing more than 45,000 potentially contaminated sites.

The primary purpose of the Superfund SA Program is to evaluate sites for potential inclusion on the NPL. The site assessment process, conducted as a collaborative effort between EPA and States, determines the appropriate responses to releases of hazardous substances into the environment. During the site assessment process, EPA and States collect data to identify, evaluate, and rank hazardous waste sites based on [Hazard Ranking System \(HRS\)](#) criteria. Throughout the process, sites are screened out and removed from further review by the federal Superfund remedial program (leaving only a small minority of sites as candidates for inclusion on the [NPL](#)). As such, today’s SA Program functions as a gateway to a myriad of federal and State remediation programs. These programs include State and federal removal programs, State voluntary cleanup programs, State Superfund programs, and other State-specific cleanup programs (*e.g.*, State dry cleaner programs)

Many States partner with the EPA in the site assessment process. States enter into Superfund cooperative agreements that provide federal funding for states to conduct Superfund site assessments within their jurisdiction. For more than twenty years, states receiving this federal funding have trained professional staff, acquired the requisite equipment, and developed programs designed to investigate sites, allowing EPA to focus its resources on other aspects of the Superfund process.

Over time, it has become apparent that State involvement in the site assessment process results in many beneficial outcomes that go beyond evaluating sites for inclusion on the NPL. It has also become apparent that these benefits are not captured by the traditional reporting methods. To gain a better understanding of the non-NPL benefits of the Superfund SA Program, the ASTSWMO Focus Group developed this report. The report focuses on those sites that are referred to other State and federal programs, *i.e.*, the non-NPL sites initially screened out by the Superfund SA Program. The goal of this report is to summarize the results of the non-NPL site work for nine States. A second report is underway that will capture data from additional States.

The Focus Group reviewed, for the sample States, the total universe of sites¹ entered into the Comprehensive Environmental Response, Compensation, and Liability Information System ([CERCLIS](#)) from the inception of the Superfund Program and determined how many sites were addressed by State² and non-NPL federal³ cleanup programs. Nine States representing nine EPA Regions provided data in support of this study: Massachusetts, New Jersey, Delaware, Illinois, Oklahoma, Kansas, Montana, North Carolina, and Idaho. The Focus Group obtained data from both large and small States, including States with well-established cleanup programs and those with less well-established programs. The data is compiled and summarized in Table 1.

Additionally, the report includes eight case studies that illustrate how the Site Assessment Program has resulted in cleanup and reuse under State and non-NPL federal cleanup programs (Appendix B). Case study contributors are acknowledged in Appendix C.

The report will assist the States, territories, and EPA in evaluating the success and accomplishments of SA Program beyond the traditional metrics of NPL listings.

Research Objectives and Methods

The primary objective of this research project is to demonstrate the success of the SA Program by documenting the number of State and non-NPL federal cleanups/closures that have been initiated and/or completed as a result of Superfund site assessment activities.

This project was accomplished by reviewing data from nine States and compiling the total number of State and non-NPL federal cleanups and closures that occurred at sites that were initially investigated by the Superfund Site Assessment Program. In order to establish a representative sample, members of the Focus Group determined that the data set used in this evaluation should include information from at least one State within each of the ten [EPA Regions](#). The Focus Group also believed that information should be collected from States with established cleanup programs, as well as States with less established programs. The Focus Group was successful in obtaining the required data from both large and small States within all but one of the EPA Regions. These States were Delaware (DE, Region 3), Idaho (ID, Region 10), Illinois (IL, Region 5), Kansas (KS, Region 7), Massachusetts (MA, Region 1), Montana (MT, Region 8), New Jersey (NJ, Region 2), North Carolina (NC, Region 4) and Oklahoma (OK, Region 6). A list of State respondents is identified in Appendix A. States within Region 9 were unable to provide information for this study.

¹ In this report, the total universe of sites entered into CERCLIS includes all sites that have had some site assessment activity. This “universe” excludes removal action only sites.

² State cleanup programs include privately financed voluntary cleanup, state enforcement driven cleanup, state funded cleanup and cleanups funded through a specific industry program (*e.g.*, dry cleaners fund).

³ Federal cleanup programs include federal removals, RCRA deferrals, Superfund Alternative Approach and other federal enforcement.

In the initial stages of the study, the EPA's Office of Superfund Remediation and Technology Innovation (OSRTI) liaison to ASTSWMO provided the Focus Group with the total universe of sites that were to become the subject of this study. This universe included all active and archived⁴ sites within the CERCLIS database, but excluded final, proposed and delisted NPL sites. The study universe also excluded sites that were identified on CERCLIS as "removal only" sites. Removal only sites are defined as sites that were or are being addressed only by the [federal Superfund removal program](#) and not by the SA program. The study universe included sites that received an EPA removal prior to or after being evaluated by the SA Program. For the nine surveyed States, the study universe included 7,691 sites. Of these sites, 99 percent had a Preliminary Assessment performed. The list of sites used in this report was provided to each of the participating State representatives who were asked to compare this list with their State site inventory for accuracy. While there were a few discrepancies between the State and federal databases, the vast majority of the site data were in agreement.

Once the universe of sites was established, participating states were asked to answer three specific questions:

- 1) The states were requested **to provide information on the total number of State cleanups/closures completed at sites within the subject universe.** While States vary in the ways that they define and track progress, the results provided a reasonable indication of cleanup work that has been accomplished. This category often included privately financed voluntary cleanups, State enforcement-driven cleanups, State-funded cleanups, and cleanups funded through a specific industry program (*i.e.*, dry cleaner-funded). This category also included sites at which additional assessment was conducted and no remediation was required. If a site was divided into separate units and cleanup was completed at one unit, the site was also counted in the total number of cleanups.
- 2) Participating States were asked **to provide information on the total number of State cleanups/closures that were currently underway at sites within the subject universe.** This list also included sites from the same state cleanup programs that were identified above.
- 3) Finally, participating States were requested **to provide the Focus Group with the total number of federal non-NPL cleanups/closures that were completed or underway within the subject universe.** This category included federal removals, RCRA deferrals, Superfund Alternative Approach sites, or other federal enforcement sites that were prompted by a Superfund site assessment activity.

Please note that each site was only included in one category thus categories are mutually exclusive and there was no double counting.

⁴ A site that is archived (removed) from CERCLIS.

Research Results

Nine states supplied information for this report. The list of respondents can be found in Appendix A. The results are shown below in Table 1 and depicted graphically in Figures 1 and 2.

Table 1
ASTSWMO Site Evaluation Focus Group Non-NPL Benefits Survey
Results for Nine States

EPA Region	Region I	Region II	Region III	Region IV	Region V	Region VI	Region VII	Region VIII	Region X	Totals
State	MA	NJ	DE	NC	IL	OK	KS	MT	ID	
Total Sites on CERCLIS ⁵	874	1617	273	999	1674	905	757	270	322	7691
State Cleanups Underway	189	772	114	69	137	33	213	26	68	1621
State Cleanups Complete	519	342	4	363	159	3	141	50	21	1602
Federal Non NPL Cleanups Underway and Complete	20	79	10	70	85	62	125	17	10	478
Total Non-NPL Outcomes	728	1193	128	502	381	98	479	93	99	3701
Number of NPL Sites ⁶	36	142	20	35	51	14	17	16	12	343

⁵ “Total Sites on CERCLIS” excludes “removal only” sites.

⁶ “Number of NPL Sites” includes final, deleted and proposed sites.

Figure 1

Non-NPL Outcomes Resulting from the Site Assessment Program

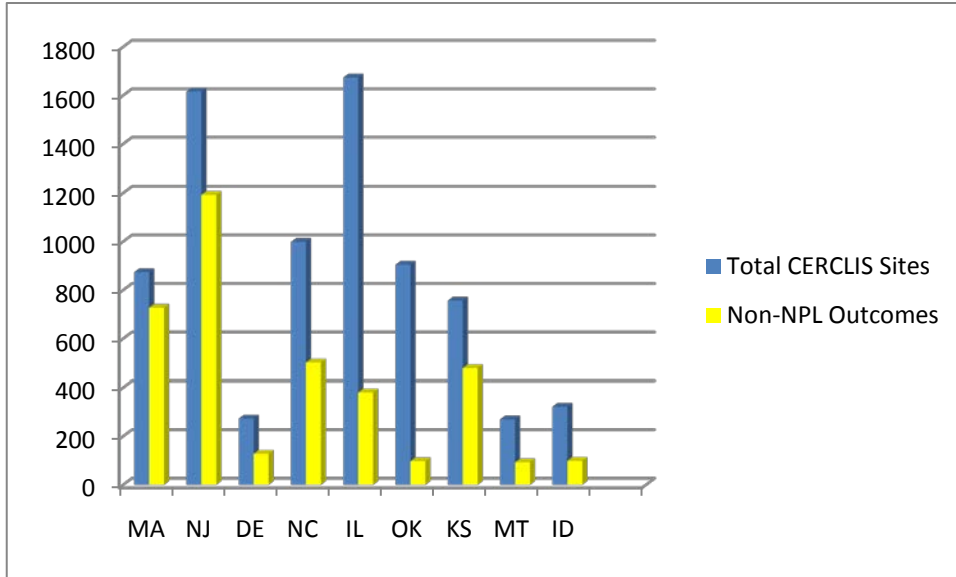
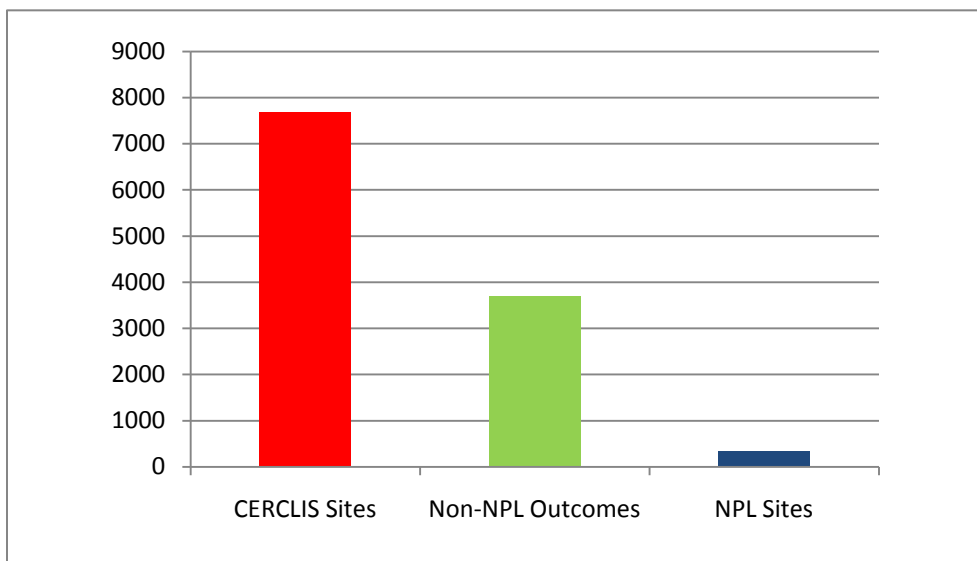


Figure 2

Breakdown of Sites Used in Study



Conclusions

For many years, the management and staff of State and federal SA Programs have recognized that there are benefits associated with Superfund site assessments that go beyond the program's primary function of investigating sites for potential placement on the National Priorities List (NPL). Therefore, the ASTSWMO Site Evaluation Focus Group began research to develop a better understanding of non-NPL cleanup outcomes prompted by the SA Program.

Nine states provided the Focus Group data regarding: 1) the total number of State cleanups or closures that have been completed at sites in the CERCLIS database; 2) the total number of State cleanups or closures that were underway at sites in the CERCLIS database; and 3) the total number of federal non-NPL cleanups that have been completed or are underway at sites in the CERCLIS database.

The results provided by each of the participating States were compiled and summarized in the preceding section of this report. Although there were significant differences in the total number of cleanups undertaken by the surveyed States, survey results suggest that the following conclusions can be drawn.

- In addition to the continued placement of sites on the NPL, all States that were contacted reported a significant amount of cleanup or closure actions have occurred or are currently ongoing at sites that were the subject of Superfund site assessment activities. State voluntary programs, State and federal removal programs, the Superfund Alternative Approach, and other State-and-industry-specific cleanup initiatives are those programs most commonly cited by the surveyed States. Of the total 7,691 sites on CERCLIS for the nine reporting States, States report that 3,701 (or approximately 48 percent) non-NPL cleanup/closure actions have been completed or are underway.
- All States that were contacted reported a significant number of State cleanups have been completed at sites that were previously investigated by the Superfund SA Program. The number of State cleanups completed ranged from a high of 519 in Massachusetts, to a low of three in Oklahoma. Of the total sites on CERCLIS for the nine reporting States, 1,602 cleanups or closures (21 percent) have been completed through a State program.
- All States that were contacted also reported a significant number of State cleanups and closures are currently underway at sites that were previously investigated by the Superfund SA Program. The number of State cleanups in progress ranged from a high of 772 in New Jersey, to a low of 26 in Montana. Of the total sites on CERCLIS for the nine reporting States, 1,621 cleanups/closures (21 percent) are currently being addressed through a State cleanup program.
- All States that were contacted reported a significant number of federal non-NPL cleanups that have either occurred or are underway at sites that were previously investigated by the Superfund SA Program. The total number of federal non-NPL cleanups that are either underway or complete range from a high of 125 in Kansas to a low of 10 in Delaware and Idaho. Of the total sites on CERCLIS for the nine reporting States, 478 cleanups (6 percent) have been completed through a federal non-NPL program.

- A significant number of CERCLIS sites were not the subject of an NPL cleanup or Non-NPL Outcome. The category “Total Sites on CERCLIS” minus the categories “Total Non-NPL Outcomes” and “Number of NPL Sites” equals 3,647 sites. These sites represent archived and active CERCLIS sites that: a) do not require cleanup; b) are still being assessed under the Site Assessment Program; or c) received EPA Removal Program cleanup prior to being evaluated by the Site Assessment Program, and then received no additional cleanup.

The results of this study demonstrate that, since its inception, the Superfund SA Program has directly or indirectly been responsible for creating a significant number of beneficial outcomes that reach far beyond its original purpose of cleaning up our nation’s most significant hazardous waste sites. Consequently, the overall success of the program cannot and should not be measured solely by the number of NPL listings or cleanups. Many States have no other mechanism to investigate potentially hazardous sites that have a recalcitrant responsible party or no viable responsible party. The information provided by the Superfund SA Program is used by States to collect enough information to require a responsible party to undertake response actions or to determine what other source of funding is appropriate to address the site.

It is hoped that this research will enhance understanding of the overall accomplishments and successes of the Superfund SA Program by documenting that the program produces a broad spectrum of beneficial non-NPL outcomes far beyond its primary purpose of evaluating sites for inclusion on the NPL. These successes include environmental cleanups conducted under the authority of various State voluntary and enforcement programs, State and federal removal programs, Superfund Alternative Approach, and other State-specific and industry-specific cleanup programs. Although these non-NPL outcomes have not been accounted for in the past, the numbers are significant and should be acknowledged. The eight case studies summarized in Appendix B illustrate how SA Program activity has resulted in cleanup and reuse under State and non-NPL federal cleanup programs.

Since it has been documented that the Superfund Site Assessment Program is a gateway to a myriad of state and federal cleanup programs, a reduction in funding of this program would in all likelihood have far-reaching effects and result in fewer NPL as well as non-NPL cleanups.

Continuing Research

The study demonstrates that there are benefits associated with the Superfund SA Program that reach far beyond the program’s primary function of investigating sites for potential placement on the NPL. In response to stakeholder interest in this report, the Focus Group is conducting a second effort to collect data from a greater number of States. The results of the second phase of surveying will be documented in a separate report.

ASTSWMO
CERCLA and Brownfields Research Center
Site Evaluation Focus Group

Superfund Site Assessment Program: Benefits Beyond NPL Listing

State Respondents for Survey Results

Delaware (DE)

Kathy Stiller Banning
Krystal Stanley
Qazi Salahuddin

Idaho (ID)

Eric Traynor

Illinois (IL)

Tom Crause

Kansas (KS)

Randy Brown

Massachusetts (MA)

Andrew Loew
Jay Naparstek

Montana (MT)

Denise Martin
Jack Yates

New Jersey (NJ)

Frank Sorce

North Carolina (NC)

James Bateson

Oklahoma (OK)

Amy Brittain
Kelly Dixon

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Case Studies:

1. Conda/Woodall Mountain Mine, Caribou County, ID, EPA Enforcement Program
2. Jesse Mine and Mill, Summit County, CO, Voluntary Cleanup Program
3. Hoskins Manufacturing, Elkhart County, IN, State Superfund Cleanup Program
4. Nebraska Solvent, Grand Island, NE, Voluntary Cleanup Program
5. Peru Hill Mill, Luna County, NM, Voluntary Cleanup Program
6. Phipps Plating, Bexar County, TX, State Superfund Cleanup Program
7. St. Louis Smelting and Refining, Madison County, IL, EPA Removal Action
8. Ecusta Mill, Transylvania County, North Carolina, Superfund Alternative Approach Site

Conda/Woodall Mountain Mine ***Caribou County, Idaho***

Site Description:

The Conda/Woodall Mountain Mine is located approximately 8 miles northeast of Soda Springs, Idaho.



Mining activities began at the Conda/Woodall Mountain Mine (“Conda Mine” or “Site”) in 1906 with 23 association placer claims filed by the Southern California Orange Grove Fertilizer Company. Historic mining activities were conducted at the Site by Anaconda Copper Mining Company (approximately 1920 to 1959) and the J.R. Simplot Company (approximately 1960 to 1984). During the period from 1920 to 1959, the Conda town site, a mill, and an eight-mile rail line to Soda Springs were created. Underground mining ceased in 1956, but surface mining continued through 1984 on the patented lands.

The Conda Mine was the first mine in Idaho to operate under a federal mining lease. Mining activities disturbed a total of approximately 1445 acres of which approximately 580 acres have been reclaimed by Simplot. The mine site, which also contained a company-owned town site, is inactive except for the slurry pipeline pump house operations and some limited ongoing reclamation activities.

Historic mining activities at the Site have included the construction of waste rock and overburden piles comprised of middle waste shales high in naturally occurring concentrations of selenium and other trace metals. Some of the ore is seleniferous, containing selenium levels that are much higher than background levels.

Site Assessment:

Sampling results from the Soda Springs Phosphate Mining District Area-Wide Investigations performed since 1996 indicate elevated levels of selenium in waste rock soils, vegetation, surface water units and other various abiotic/biotic media. In the late 1990s, several horses and sheep pastured around mines were diagnosed with chronic selenosis. Domestic sheep deaths have been

documented in the area since 1985. Hunters from the area reported dead cattle and sheep near mines and were concerned about potential selenium exposure from the environment. Idaho Department of Environmental Quality (IDEQ) reported finding about 200 dead sheep around the Conda Mine in the spring of 2001. Attention was focused on Conda Mine as a result of a Site Discovery, Preliminary Assessment, and Site Inspection prioritization process that was completed in June 1993 at the Soda Springs phosphate⁷ mining district where the Conda Mine is located.

In anticipation of CERCLA activities, Simplot voluntarily worked with IDEQ and EPA to collect environmental data at the Site with a large scale sampling event occurring in 2003. Sample collections included sampling of the mine waste/overburden, soil, sediments, surface water, and vegetation. Simplot has also collected limited amounts of groundwater data.

IDEQ conducted the Area-Wide Human Health Risk Assessment (AWHHRA) and the Ecological Risk Assessment (AWERA) in 2002. These risk assessments evaluated population-level effects on regional wildlife and potential individual human health risks.

IDEQ utilized the AWHHRA and AWERA to develop an Area-wide Risk Management Plan (RMP) for the Southeast Idaho Phosphate Mining Resource Area in 2004.

In response to stakeholder interest, EPA conducted a Preliminary Assessment of the Site in August 2008. Listing was not necessary due to the progress being made through the voluntary process.

Non-NPL Outcome:

In January 2008, a Consent Order/Administrative Settlement Agreement and Order on Consent (CO/AOC) was entered into by IDEQ, the EPA, the Department of Interior, the Bureau of Land Management, and the J.R. Simplot Company regarding the performance of a Remedial Investigation/Feasibility Study (RI/FS) at the Site. The RI/FS was developed in March 2008 and finalized in September 2008.

IDEQ has been designated as the lead agency for the purpose of routine project management, oversight, and implementation and is the point of contact with Simplot. The EPA Enforcement Program will implement CERCLA at this Site and under the CO/AOC.

During the spring and summer of 2010, activities pertinent to the site included the development and approval of the Engineering Evaluation and Cost Analysis for the Overburden Disposal Area at Pedro Creek. In May and June of 2010, soils, surface water, and groundwater samples were collected and analyzed for inorganic parameters specified in the September 2008 Conda RI/FS Sampling and Analysis Plan.

⁷ CERCLIS ID # 1000192, Soda Springs Phosphate Site

The Community Involvement Plan (CIP) was developed and finalized in December 2010. The CIP outlines the history of community involvement with the Site, the current community concerns, and it highlights the planned community involvement activities and the subsequent community involvement action plan for the Site.

Jessie Mine and Mill ***Summit County, Colorado***

Site Description:

The Jessie Mine and Mill is located near the town of Breckenridge in Summit County, Colorado. The site covers approximately 200 acres along Gold Run Gulch, a small stream that flows approximately 1.5 miles to the Swan River, a tributary to the Blue River.

The site is at an elevation of 9,600 feet and consists of a collapsed mill structure, two waste rock piles totaling approximately 16,000 cubic yards, several collapsed adits, and a large open stope or glory hole. Land ownership in the area is mixed between the US Forest Service and private interests. At the time of the initial Site Inspection, much of the site was on private property owned by B&B Mines, Inc.



Site Assessment:

The Colorado Department of Public Health and Environment (CDPHE) conducted a site assessment in 2002, funded by its Preliminary Assessment/Site Inspection (PA/SI) Cooperative Agreement. At the time of the assessment, the site was the subject of a possible land transaction between B&B Mines, Inc. and the Summit County Open Space program. Under an agreement, Summit County (County) would purchase approximately 1,800 acres of patented mining claim property, including the Jessie Mine and Mill as a community asset for recreational use and natural preservation.

Summit County notified CDPHE of their concerns regarding the mill site and the potential for CERCLA liability with their purchase of the 1800 acres of B&B Mines property. CDPHE designed and conducted a SI with the intent not only of evaluating the site's potential for NPL nomination, but also with the goal of obtaining information necessary to determine cleanup alternatives and costs. Additional data collected beyond the usual scope of an SI included acid base accounting, buffering capacity, bulk density, and compaction tests for the waste rock materials.

Analytical results from surface water samples collected from Gold Run Gulch showed an increase in dissolved metal concentrations downstream of the site, including a significant increase in dissolved cadmium, iron, manganese, and zinc. Environmental receptors for the surface water pathway include a trout fishery and riparian wetlands along Gold Run Gulch, and the Swan, and the Blue Rivers.

Non-NPL Outcome:

The results of the SI indicated the site was potentially eligible for inclusion on the NPL.

Once assurances were received that the County was committed to purchasing the 1,800 acres from B&B Mines, CDPHE utilized the SI data to evaluate cleanup alternatives and costs through a Targeted Brownfield Assessment (TBA) - Engineering Evaluation/Cost Analysis (EE/CA). The potential for NPL nomination was a strong incentive for B&B Mines to negotiate with the Town and County while the EE/CA cost estimates allowed for negotiation of a fair price for the 1,800 acres that included the costs of site cleanup in the overall purchase price.

Once they acquired the property, the County submitted a Voluntary Cleanup Program application to CDPHE that relied on the alternatives outlined in the TBA-EE/CA. The County and B&B Mines finalized the property transfer in September 2005. Cleanup was completed in 2007. The property surrounding the Jesse Mine and Mill is now used for public open space, pursuant to an environmental covenant with the CDPHE.

Hoskins Manufacturing ***Elkhart County, Indiana***

Site Description:

The Hoskins Manufacturing site is an abandoned wire processing facility in New Paris, Elkhart County, Indiana. The Hoskins facility lies in a rural setting with a mixture of agricultural industrial and residential use. The groundwater pathway has been significantly affected by past activities that took place at this facility. Surface water contamination and vapor intrusion issues were also present to a lesser extent. Wastes generated by the facility included perchloroethylene, used in degreasing, and waste pickle liquor. The facility once operated a waste injection well to dispose of the pickle liquor. The site was abandoned in 1998 and is currently for sale.



From 1994 to 1996 Hoskins Manufacturing Company submitted on-site groundwater reports to the Drinking Water Section of the Indiana Department of Environmental Management (IDEM). These reports noted elevated levels of tetrachloroethylene (PCE) were present in on-site drinking water wells. Since the facility closed in 1996, no other reports have been submitted to the agency. There were several private residential groundwater wells located immediately down gradient from the facility that were potentially impacted.

Site Assessment:

IDEM's initial evaluation of the site in 1999 revealed that the site was fenced and inactive. All residents surrounding the facility utilized private wells for drinking water. Groundwater samples were obtained from ten downgradient residential wells. Sample results confirmed that the water in some of these residential wells had elevated levels of tetrachloroethene (PCE). Elevated levels of PCE were also discovered in the water of a small private fishing/swimming pond located across the street from the site.



Non-NPL Outcome:

Despite the elevated levels of PCE in the residential wells, the site did not score high enough to be addressed by Superfund because there were not enough groundwater receptors. The surface water pathway did not score high enough due to a low bioaccumulation factor. The site was ultimately referred to IDEM's State Clean Up program. Through negotiations between the Potentially Responsible Parties (PRPs) and IDEM, the PRPs supplied carbon filtration systems to some affected residents. The PRPs also purchased six of the residents' properties and demolished the homes due to the presence of PCE vapor intrusion. Numerous barrels of hazardous waste within the plant building were also removed by the PRPs. Although this site was not found to be National Priorities List caliber, activities conducted by IDEM and the PRPs ultimately helped secure wastes at the site and protect the health of affected neighbors.



Nebraska Solvent

Grand Island, Nebraska

Site Description:

The former Nebraska Solvent Company, located in Grand Island, Nebraska, operated as a solvent distribution center from 1973 until 1988 on property leased from the Union Pacific Railroad (UPRR). The site is situated near residential, commercial, and industrial properties. The following solvents were reportedly sold from the site: toluene, xylene, isopropyl alcohol, methanol, tetrachloroethene (PCE), trichloroethylene (TCE), 1,1,1-trichloroethane, methylene chloride, acetone, and methyl ethyl ketone. In addition, two underground storage tanks (USTs) stored diesel fuel and gasoline. In the late 1980s soil sampling for volatile organic compounds (VOCs) indicated a potential release from onsite storage containers.

Surficial soils consist of fine to coarse grained, sandy or silty loams underlain by 30 to 430 feet of Quaternary age unconsolidated clay, silt, sand, and gravel. Groundwater is seven to nine feet below ground surface and flows towards the south-southeast. Within a four-mile radius, there are 13 public water supply wells and 293 private wells. Most wells are used only for irrigating lawns and are downgradient of the site.

Site Assessment:

In 2005, a combined PA/SI was conducted by the State to determine if there had been a release of hazardous material into soil or groundwater, define and delineate the source area, and evaluate exposure pathways and targets. Samples were collected and analyzed from on-site direct push soil and groundwater, offsite groundwater from temporary wells, and private wells.



Photoionization detector (PID) readings detected volatile organic compounds (VOCs) and aromatic constituents in eight on-site soil samples taken to a depth of eight feet below ground surface, most at concentrations below health benchmarks. The source of soil contamination was determined to be located near the solvent dispensing area, and it was estimated that there was at least 3,800 yd³ of contaminated soil. Ten contaminants were detected greater than their Maximum Contaminant Level (MCL) in 18 direct push groundwater samples: benzene (280 ug/L maximum concentration), TCE (6 ug/L), cis-1,2-Dichloroethene (470 ug/L), trans-1,2-Dichloroethene (230 ug/L), ethylbenzene (13,000 ug/L), tetrachloroethene (140 ug/L), toluene (130,000 ug/L), vinyl chloride (3.8 ug/L), o-xylene (17,000 ug/L), and mp-xylene (47,000 ug/L).

A well survey was conducted near the facility, and 82 wells were sampled. Twenty-six had reportable levels of VOCs. PCE was detected greater than the Maximum Contaminant Limit in eight of the private wells (7 to 15 ug/L) and cis-1,2-DCE was detected in one private well (94 ug/L).

The PA/SI concluded that Nebraska Solvents contributed to on- and off-site groundwater contamination. There is minimal to no threat to human health or the environment through the air or

surface water pathways. Operations have ceased and storage tanks have been removed. The PA/SI also concluded that further delineation with removal and/or remediation is required for contaminated soils and groundwater.

Non-NPL Outcome:

As a result of the PA/SI findings, UPRR proposed to enroll the site in the Nebraska Voluntary Cleanup Program (VCP) in 2005, and their VCP application and Memorandum of Agreement were accepted by Nebraska in 2007. UPRR continued the initial investigation and obtained additional on-site bulk soil, soil gas, and groundwater samples, confirming and further defining soil, soil gas, and groundwater impacts. In addition, UPRR tracked the off-site dissolved contaminants in groundwater to 3.25 miles east-northeast of the site, and determined in April 2008 that approximately 60 private wells used for drinking water were impacted primarily by PCE. UPRR provided alternate water supplies to impacted homeowners.

In 2010 UPRR submitted a Remedial Action Plan (RAP) to Nebraska, the RAP that summarized historical investigations and proposed a number of remedial actions. Nebraska held a formal public hearing for the RAP in February 2011 and approved the RAP in March 2011. UPRR anticipates most remedial actions will be completed by the end of 2012. These include replacing and properly disposing of on-site soil, in-situ treatment of on-site and near-site groundwater, installation of a water line to provide City of Grand Island municipal water to homes in the impacted area two miles east of the site, completion of a study to determine if natural attenuation in the on-site and off-site areas will achieve remedial goals within a reasonable time frame, and institutional controls to protect remedies and limit exposure until such time as the remedial goals for soil and groundwater are achieved.

Remedial goals for groundwater at the site are primarily based on drinking water standards, updated with risk-based levels as needed. Soil remedial goals are based on Nebraska's VCP groundwater protection standards. Although there is a significant potential for vapor migration in the on-site and near-site areas, the risk will be mitigated by soil removal and groundwater treatment.

Peru Hill Mill
Luna County, New Mexico

Site Background:

The Peru Hill Mill site occupies 1,320 acres approximately four miles northwest of Deming on State Road 394 in Luna County, New Mexico. It was the site of a mill that primarily processed zinc sulfide ore between 1928 and 1967 and intermittently between 1979 and 1985.

The site included two impoundments: the 104-acre (4,530,240 ft²) Peru Hill tailings impoundment used for zinc and lead processing and the BOA tailings impoundment, a 20 feet by 30 feet tailing impoundment used for a barite processing. Re-distributed tailings from the impoundment formed dunes that blanketed an area of approximately 161 acres (7,000,000 ft²) around the impoundment before the cleanup. The total area of the tailings impoundment and re-distributed tailings was approximately 265 acres. The mill facility also included a series of six hopper bins that held approximately 9,929 cubic feet of unprocessed ore and several abandoned buildings including a crusher house, packaging warehouse, main office, scale house, and mill facility.

Site Assessment:

Site assessment performed under Superfund included: a preliminary assessment (NMEID, 1990), a screening site inspection (NMED, 1992), a removal assessment (Ecology and Environment, Inc. [E&E], 1998) and an integrated assessment (NMED 2001).

The potential threat posed by windblown tailings from the impoundments encroaching upon nearby residential areas and the potential for releases to ground water, the primary source of drinking water, were evaluated. Elevated levels of arsenic, barium, cadmium, cobalt, copper, iron, lead, manganese, silver, and zinc were documented in the tailings and in redistributed tailings beyond the mill property. Aldrin, aroclor 1260, endrin aldehyde, 2,4-dimethylphenol, and 4-methylphenol were detected near on-site transformers and drums. Asbestos-containing material in piping was also confirmed. Contaminants of concern identified in ground water (arsenic, chromium, lead, manganese, molybdenum, nickel, and zinc) were below health-based standards by 1999. Air sampling indicated the presence of lead below the health-based standards. These studies showed that concentrations of arsenic, lead, and zinc in off-site residential areas were generally below health-based screening levels, and there was no impact to water supply wells.



Non-NPL Outcome:

In 2002, the site was entered in New Mexico's Voluntary Remediation Program (VRP), a Brownfields type of program in that it encourages redevelopment of underutilized, contaminated sites that are not being cleaned up under existing regulatory/enforcement programs. Under the VRP, the previous Superfund studies were used to plan additional Phase II site assessments and develop a remediation plan. Approximately 178,000 cubic yards of tailings were removed and placed in a newly constructed tailings impoundment. The final impoundment is approximately 50 acres in size and is covered with a cap that includes 2 feet of soil and ½ foot thickness of gravel. The capped area has been seeded and

supports a reasonable stand of native grasses. Ground water was re-sampled and showed no impact. Work left to be finished includes removal and clean up around some of the remaining buildings; completion of the last portion of the impoundment cap, which was left open pending final removal tasks; fencing of the impoundment; and other similar tasks.

After completion of the Superfund work, most of the final assessment and remediation work at the site has been funded via State-level EPA Brownfields grants and significant appropriations from the State legislature. The benefit to the community has been a reduction in the blowing sand from the tailing piles associated with this site and removal of a significant eyesore. In addition the City of Deming has expressed interest in developing the property for industrial use due to its location along Interstate 10 and proximity to major east-west railroad lines.



Phipps Plating ***Bexar County, Texas***

Site Description:

The Phipps Plating Company site (Phipps) is located at 305 East Grayson Street, on the northeast corner of the East Grayson and Avenue “A” intersection in San Antonio, Bexar County, Texas. Phipps performed electroplating operations on both industrial and decorative pieces. Phipps Plating started operating the electroplating metal parts and fixtures facility in 1948. Plating operations continued until



1993, when the facility was abandoned. Texas Bumper, Inc. also conducted operations on the site at varying times from about 1983 to 1991. Texas Bumper, Inc. manufactured and repaired new and used automobile and truck bumpers. The site is bounded to the east by an elevated section of U.S. Highway 281 that has commuter parking below, to the south and west by the former Pearl Brewery property, and to the north by two restaurants.

Site Assessment:

The San Antonio regional office of the Texas Natural Resource Conservation Commission (TNRCC), predecessor agency to the Texas Commission on Environmental Quality (TCEQ), inspected the abandoned site in May 1993. The TNRCC conducted an emergency removal of sludge and drummed waste and then secured access to the site by fencing the perimeter and securing all entrances to the building. In November 1994, the TNRCC conducted a PA inspection to assess the site for the U. S. Environmental Protection Agency (EPA). On May 2, 1995, a screening site inspection (SSI) was conducted by TNRCC and included the collection of samples from liquid wastes inside the building, and sediment, soil, and groundwater samples. A Hazard Ranking Package (HRS) was completed in June 1996 with the groundwater pathway as the pathway of concern and based on a population of 935,933 persons within four miles of the site. The site is underlain by the Edwards Aquifer, a major source of drinking water for south central Texas residents. The PA also observed that the site is located within a wellhead protection area and two additional wellhead protection areas are located within a four mile radius of the Phipps Plating company property. While inorganic analytes were detected in shallow ground water, none were detected in the deep, confined Edwards Aquifer.



Under a low likelihood of potential to release and potential target conditions, the EPA determined that the site failed to meet the minimum criteria required to be included on or proposed for the NPL at that time. In December 1995, the EPA designated the site as “No further remedial action planned” under Superfund and referred it to the TNRCC for further action.

Non-NPL Outcome:

Upon determination that the site did not qualify for the NPL, the site was proposed to the State Superfund registry. The State conducted a Remedial Investigation and removed soil contaminated with metals from the site. These actions resulted in the removal of all on-site buildings and structures including two plating rooms, two vats, a concrete sump, and warehouse space. On-site soils were restored to commercial/industrial use. Off-site soils with elevated lead at an adjacent vacant lot were restored to residential use. There was no inorganic contamination in groundwater.

On February 4, 2005, a memo was placed in the file noting that the site has been remediated and no further remedial action is required by State Superfund. On November 4, 2005, the Phipps Plating site was deleted from the State Superfund registry with cleanup complete. Due to the removal actions that have been performed, the site no longer presents an imminent and substantial endangerment to public health and safety or the environment and is currently in negotiations for redevelopment.

St. Louis Smelting and Refining ***Madison County, IL***

Site

The St. Louis Smelting and Refining Company operated a primary lead smelting facility from 1904 until November 1933. At peak production, the facility employed more than four hundred individuals. Although lead smelting activities ceased sometime around 1933, residential development on and around the former smelter occurred over many years. Residential development in the area directly north and south of Pine Lake began in the 1950s as evidenced by historical aerial photographs. Residential development to the east of Pine Lake in what is now called Collinwood Subdivision began in the mid-to-late 1970s. Residential development in the area has progressed in phases and building currently continues on the remaining empty lots.

Description:



Site Assessment:

The St. Louis Smelting and Refining Company was originally placed on CERCLIS in the early 1980s. The Illinois EPA performed the initial PA/SI in the mid 1980s before the site was archived by EPA Region 5 in December of 1989.

In November 2001, the Pine Lake Homeowners Association considered dredging Pine Lake, and in anticipation of the dredging, they collected and analyzed a number of sediment samples within the lake. Those analytical results documented the presence of a number of heavy metals that, if removed, would have to be regulated as hazardous waste. At the request of the homeowners association, the Illinois EPA conducted a follow-up investigation of sediments within the lake in March 2002. During this inspection the EPA collected a series of sediment samples within the lake at depths of 6, 12, 24, and 30 inches. This investigation documented that heavy metal concentrations throughout the lake ranged from 400 parts per million to 4988 parts per million.

In June 2002, at the request of the IL EPA, the St. Louis Smelting and Refining Company site became reactivated on CERCLIS. In August 2003, the IL EPA conducted a comprehensive CERCLA Expanded SI of the entire subdivision. During this investigation, soil at a number of residential properties was found to contain lead and other heavy metals at significantly elevated concentrations.

As a result of the CERCLA investigations, it was determined that impacted soil from historic lead smelting activities resulted in elevated concentration of various heavy metals in the soil for the residents living near the site. The health concerns at this site were related to the fact that residents live in and amongst the former lead slag piles, potentially exposing young children, pregnant women, and elderly individuals to contamination. The elevated levels of lead in nearby surface soil were at concentrations considered hazardous to human health. The highest concentration of lead within the residential area was documented to be in excess of 90,000 parts per million.

Non-NPL Outcome:

As a result of the CERCLA Expanded Site Investigations, the IL EPA processed information that indicated a potential significant threat existed within the residential subdivision. But through various public meetings it also knew that the local residents were not supportive of a remediation effort that may well result in protracted negotiations and years to complete.

After consultation with USEPA management and the local citizenry, it was decided that, rather than advancing the site to NPL, the IL EPA would refer the site to the federal Removal Program. This action was done with the hope that the CERCLA Removal Program could reach a swift and comprehensive settlement agreement with the responsible party. The IL EPA was prepared to recommend placing this site on the NPL if the Removal negotiations broke down.

In the summer of 2004, the responsible party executed the removal of lead impacts to residential properties at the site.

During the investigation of the St. Louis Smelting and Refining Company site, a total of 295 residential properties were sampled. Of the 295 properties that were sampled, 162 were found to contain metals in concentration that required removal actions. Of these, a total of 160 residential yards were excavated, backfilled with clean soil and restored and re-vegetated with sod. Two of the 162 homeowners elected to not perform removal of lead from their properties.

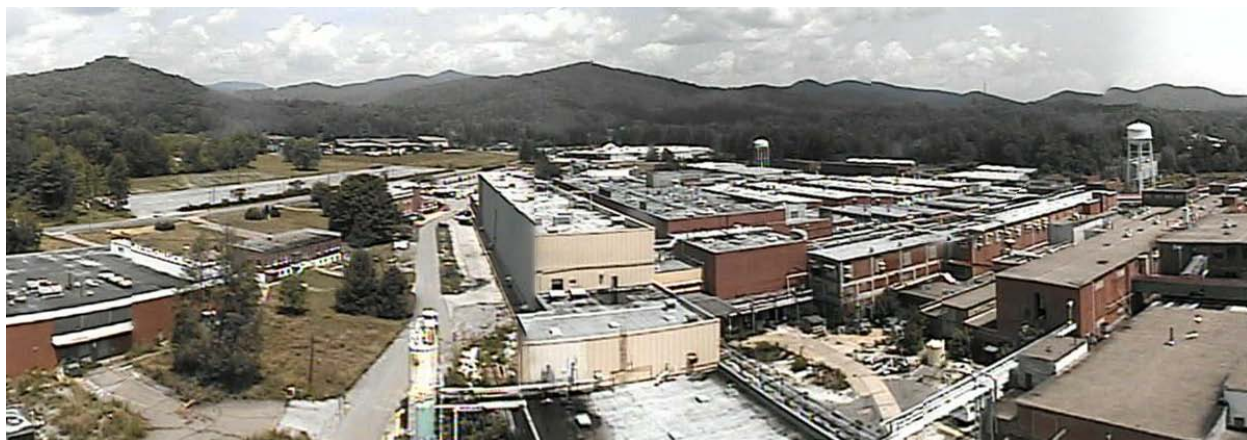
An Administrative Order on Consent (AOC) was signed with the responsible party in May 2006, and the lake was drained and dewatered. As a result of the comprehensive investigation of the surface water sediments that occurred in July 2006, approximately 7,000 tons of lead contaminated sediments were removed from the lake. The banks of Pine Lake were stabilized, and all remediation activities were completed by September 22, 2006.

After a relatively short negotiations period (typically less time than it would have taken to have the site proposed to the NPL), remediation began at the subdivision. Within a two-year period, 160 residential properties and the subdivision lake were remediated by the responsible party.

Ecusta Mill
Transylvania County, North Carolina

Site Description:

The Ecusta mill was built in 1938 and was operated as a flax-pulping and fine paper making operation until closure in 2002. The facility manufactured bleach for paper and cellophane wrappers. The 527 acre facility is located at the confluence of the Davidson and French Broad Rivers near Brevard, North Carolina. The Site consists of the former manufacturing facility, as well as industrial solid waste landfills and an Aerated Stabilization Basin (ASB). In addition to the pulping and paper-making operations, activities included chlorine production operations using Sorenson mercury cells, caustic storage, water and wastewater treatment, and printing. Mercury contamination associated with the chlorine production operations was documented in soils and groundwater near the electrochemical cell building and in sediment in the Davidson River.



Site Assessment:

North Carolina Division of Waste Management (NC DWM) and EPA Region 4 Superfund first responded when the facility declared bankruptcy in 2002, together conducting an Emergency Removal Evaluation, an Expanded Site Inspection, and preparation of a Hazard Ranking System Documentation Package. Site cleanup plans originally included proposing the facility to the National Priorities List. Both agencies were approached by a company that specializes in Brownfields property redevelopment and remediation, with a plan to demolish the nearly two million square feet of buildings and redevelop the over 500 acres into a mixed-use residential and retail development.

A four-party Memorandum of Understanding (MOU) along with a number of underlying agreements were negotiated between EPA, the state of North Carolina, the redeveloper, and one past owner-operator, P.H. Glatfelter Company, for needed environmental investigations and cleanup activities. A combination of Superfund Removal and Superfund Alternative Approach investigation and cleanup strategies, compliance with state Voluntary cleanup program statutes, and reliance on preexisting state permit requirements, are being used to accomplish needed risk

reduction and redevelopment. After signature, the properties were purchased by the Site redeveloper, Davidson River Village (DRV), in January 2008.

The Superfund Alternative Approach Sites agreement between EPA and Glatfelter applies only to the River Areas investigation (Operable Unit (OU)-2) conducted in parts of the Davidson and French Broad Rivers. The Record of Decision (ROD) for OU-2 was finalized as a “No Action” ROD in September 2009.

Non-NPL Outcome:

Superfund Site Assessment at the Ecusta Paper Mill led to a Superfund Alternative Approach to address mercury pollution in the Davidson and French Broad Rivers. Site Assessment staff from both EPA Region 4 and the State’s CERCLA Site Assessment Program played central roles in fostering a multi-agency, multi-party response process and have remained as project managers through initial assessment, negotiations, and in continuing oversight of remedial investigations and implementation.

The Redevelopment Areas (OU-1) are being demolished, investigated, and cleaned up by DRV under a Brownfields Prospective Purchaser Agreement (BFPP) between EPA and DRV, which addresses the Redevelopment Areas by way of three Removal Actions. On-site building demolition activities commenced in July 2008 and are essentially complete as of December 2010, with the exception of the electrochemical cell building which will be the last demolished. An Action Memorandum issue by EPA adopted North Carolina soil cleanup standards for the removal actions. An Administrative Agreement between DRV and NC DWM governs any long-term cleanup of groundwater needed after completion of the Removal Actions. The North Carolina Brownfields Program is working with DRV under a State Brownfield Agreement, to manage some risks at the site, including soils impacted by past coal handling at the facility and some site soils with naturally elevated concentrations of arsenic.



Closure of a process waste landfill and a coal ash landfill has been completed by Glatfelter under NC DWM Solid Waste Section authority. Glatfelter is in the process of dewatering and closing the Sludge Landfill under authority of NC Division of Water Quality (DWQ). Closure agreements require Glatfelter to conduct groundwater monitoring, operation, and maintenance

over a 30-year post-closure care period for all three landfills. DRV currently holds the NPDES operating permit, issued by NC DWQ, for the ASB.

ASTSWMO
CERCLA and Brownfields Research Center
Site Evaluation Focus Group

Superfund Site Assessment Program: Benefits Beyond NPL Listing

State and EPA Contributors of Case Studies:

1. Conda/Woodall Mountain Mine, Caribou County, ID
Eric Traynor, Idaho Department of Environmental Quality
2. Jesse Mine and Mill, Summit County, CO
Kevin Mackey, Colorado Department of Public Health and Environment
Martin O'Grady, Colorado Department of Public Health and Environment
3. Hoskins Manufacturing, Elkhart County, IN
Tim Johnson, Indiana Department of Environmental Management
4. Nebraska Solvent, Grand Island, NE
5. Peru Hill Mill, Luna County, NM
Dana Bahar, Texas Commission on Environmental Quality
6. Phipps Plating, Bexar County, TX
Jeff Patterson, Texas Commission on Environmental Quality
7. St. Louis Smelting and Refining, Madison County, IL
Kevin Turner, EPA
Gerald Willman, Illinois Environmental Protection Agency
8. Ecusta Mill, Transylvania County, NC
James Bateson, North Carolina Department of Environment and Natural Resources