

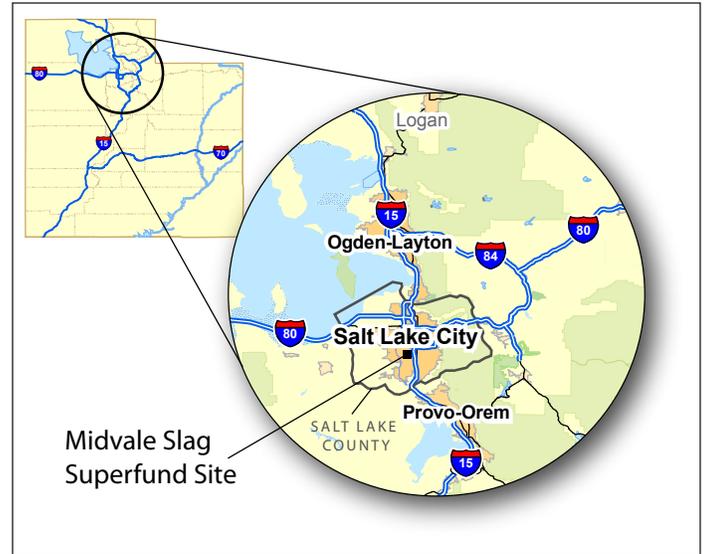
Introduction

By the late 1990s, Midvale City, Utah faced a significant challenge. The community, located 12 miles south of Salt Lake City, was literally running out of space. Rapid population growth and sustained economic expansion meant that almost all available land had been developed. The exception: the Midvale Slag Superfund site, which, together with the nearby Sharon Steel site, comprised more than 700 acres adjacent to the city's downtown.

The potential redevelopment of the 446-acre Midvale Slag site presented a vital opportunity for Midvale City, local citizens and Littleton, Inc., the site's owner. The site's upcoming cleanup also presented an important opportunity for the U.S. Environmental Protection Agency (EPA) and the Utah Department of Environmental Quality (UDEQ). The earlier cleanup of the Sharon Steel site had not taken redevelopment into account, limiting future use opportunities and straining relationships. All parties resolved that the Midvale Slag site would be approached differently.

Beginning in 1999, these parties worked together on a coordinated approach that linked cleanup and redevelopment, with a protective remedy and land revitalization as overarching goals. Midvale City became the first community in EPA Region 8 selected as an EPA Superfund redevelopment pilot project, which led to the groundbreaking publication of the *Bingham Junction Reuse Assessment and Master Plan* in 2000.

Today, Bingham Junction has become the thriving mixed-use development envisioned for the site by the community. The outcomes are striking: approximately 600 jobs, \$1.5 million in annual property tax revenues and a \$131 million increase in the value of the site property. Families have moved into new condominiums, with more than 2,500 residential units planned. Office buildings, a supermarket and other stores have been built, with up to two million square feet of commercial office and retail space ultimately anticipated. Sections of Bingham Junction's Riverwalk Park have opened, providing the community with enhanced access to the Jordan River. Finally, construction of a Utah Transit Authority light rail station has been completed.



Midvale City is located on the Wasatch Front, an urban chain of cities and towns that extends along the Wasatch mountains in north-central Utah. Approximately 80 percent of Utah's population lives in this region.

This case study explores the partnerships and tools that have led to the successful cleanup and reuse of the Midvale Slag Superfund site. In particular, the case study examines how EPA used site decision documents and a Ready for Reuse (RfR) Determination to support the site's reuse and how Midvale City and the site's owner worked in innovative ways to prepare the site for development. The case study also explores how key parties – EPA, UDEQ, Midvale City and the site's owner – worked together to develop an institutional control management system to ensure the long-term stewardship of the site's remedy.

In the following pages, the case study discusses the evolution of remediation and redevelopment efforts at the site between local planning efforts and coordination with EPA in the early 2000s and ongoing reuse activities. The case study provides detailed information and lessons learned for parties interested in Superfund site reuse and mixed-use land revitalization.



Residential and commercial development at Bingham Junction, 2011.

Site History, Contamination and Remediation

From 1871 to 1958, five smelters processed lead and copper ore at the Midvale Slag site, as well as at the adjacent Sharon Steel site. As this photograph from 1941 illustrates, the site was covered with blast furnaces, baghouses, smokestacks, storage areas, rail lines and other smelter facilities. The smelters processed ores from Bingham Canyon, Kennecott Copper and other mines in the region.

Site operations and waste materials resulted in the contamination of soil and ground water with heavy metals. Following initial environmental investigations, EPA listed the site on the National Priorities List (NPL), the Agency's list of top-priority Superfund sites, in February 1991. The site includes two operable units (OUs): the northern 266 acres of the site (OU1), which included a residential area, and the southern 180 acres of the site (OU2). Operable units represent discrete phases or areas of cleanup.

Following removal actions to remove chemicals and explosives from an abandoned laboratory on site, EPA selected a remedy for OU1 in the site's 1995 Record of Decision. Components of the remedy for OU1 include:

- Excavation of contaminated soils, backfilling with clean fill and revegetation of the residential area.
- Excavation of an area of contaminated soils and installation of a two-foot soil cover in the non-residential portion of OU1.
- The remedy was further modified by a 2006 Explanation of Significant Differences, which brought the site's riparian area, ground water monitoring and institutional controls in line with the Record of Decision for OU2, as described below.



Smelter facilities at the Midvale Slag site, 1941

EPA selected a remedy for OU2 in the site's 2002 Record of Decision, following extensive collaboration with stakeholders and coordination with the community to share site information and incorporate feedback into the Superfund process. Components of the remedy for OU2 include:

- Excavation and off-site disposal of a small quantity of highly contaminated smelter waste.
- Construction and maintenance of barriers over smelter waste and contaminated soils.
- Stabilization of the banks of the Jordan River.
- Ground water and surface water monitoring.
- Institutional controls limiting future excavations, requiring review of proposed changes in site land uses, restricting surface water management and irrigation practices, and requiring mitigation of organic vapors in future structures.

The selected remedy enabled the site to be reused for mixed land uses, which EPA had determined to be the site's reasonably anticipated future land use. OU1 cleanup activities began in 1996 and OU2 cleanup activities began in 2003, and the construction of the site's remedy was completed in 2007, with the exception of the riparian zone portion of the remedy. The construction of the site's riparian zone remedy began in October 2008 and was completed in 2011.

In 2008, EPA completed the second Five-Year Review for the site. The Five-Year Review concluded that the site remedy is expected to continue to be protective of human health and the environment.

Project History

1999 – 2000

Building Relationships, Establishing Trust

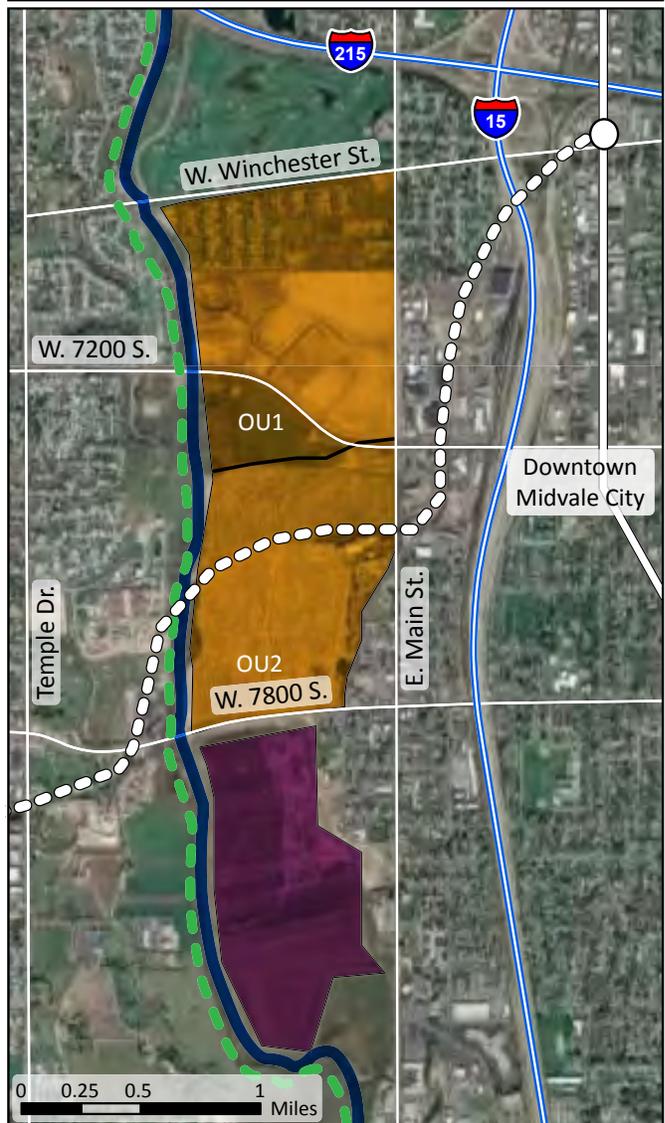
In the late 1990s, the outlook for productive partnerships and innovative solutions at the Midvale Slag site was not promising. “There was limited communication, poor relationships and a lot of staff turnover,” recalled EPA project manager Fran Costanzi. “People’s experiences from the Sharon Steel site were still fresh. The community felt that the regulatory agencies were not listening to them, and EPA and UDEQ were unsure how to incorporate the community’s priorities and redevelopment interests in the cleanup process.”

EPA Region 8, UDEQ, Midvale City and the site’s property owner began to change these dynamics in 1999. EPA decided that expanded community outreach and engagement would be an important part of the Agency’s approach to the site’s cleanup. EPA stepped back from the site’s proposed remedy, which would have restricted most types of land uses, to seek additional community input and gather additional site information. EPA had also taken an “enforcement first” approach at the site, seeking to identify the parties responsible for contamination to clean it up or pay for the cleanup. While EPA continued to emphasize the importance of enforcement activities, the Agency’s expanded approach opened the door for parties to discuss the site’s cleanup and potential redevelopment.

EPA’s updated approach was welcomed by Midvale City Mayor JoAnn Seghini. “It was an important exercise in patience and changing people’s perceptions in the early days,” she said. “The time had passed for roadblocks. We needed to work together. We were fortunate that a group of motivated, open-minded people were able to come together to work on this project over the course of several years.”

Education formed the cornerstone of the new working relationships. Midvale City invited EPA and UDEQ staff to its comprehensive planning process meetings, helping the agencies better understand the community’s priorities. EPA staff hosted education sessions to explain the Superfund process, including the site’s upcoming field investigations, to citizens, community organizations and elected officials. EPA also provided a Technical Assistance Grant (TAG) to a local organization, Citizens for a Safe Future for Midvale (CSFM), to provide the community with independent technical assistance regarding the site’s cleanup.

“We [EPA] emphasized that we didn’t have all of the answers, and that we weren’t sure how cleanup and redevelopment might be able mesh together,” said EPA’s Fran Costanzi. “We framed the process as an ongoing discussion built around sharing information and problem-solving to identify options



- Midvale Slag Superfund Site
- Sharon Steel Superfund Site
- Jordan River Parkway
- UTA Mid-Jordan Light Rail Line
- UTA North-South Light Rail Line
- Jordan River

and opportunities. We emphasized that it is EPA's mission to not only protect human health and the environment, but also to help communities restore contaminated lands to beneficial use."

EPA's award of a Superfund redevelopment pilot project to Midvale City in late 1999 formalized the Agency's commitment to evaluating future land use considerations as part of the site's cleanup. "The timing of the redevelopment pilot project worked really well," recalled Christine Richman, the city's then-Economic Development Director. "We were able to discuss potential future site uses in the context of the city's recent comprehensive planning effort and EPA's ongoing site investigations."

The project involved a detailed assessment of community priorities, local economic conditions and regional market trends, as well as an environmental review of the site's contamination and physical features. The project enabled Midvale City and the site's property owner to identify future land uses for the site that would address community priorities and fit appropriately with the site's remedy. The resulting Bingham Junction Master Plan, adopted by Midvale City Council in August 2000 (and later updated to reflect the site's final remedy), outlined opportunities for mixed residential, office, retail and recreational land uses.

By late 2000, the future looked promising, although many uncertainties remained. The project's key parties had been able to overcome past challenges and built a strong foundation for working together. Now, it was time to work on the decision documents and develop the tools needed to make the site's cleanup and redevelopment a reality.

Bingham Junction Master Plan, 2000



The southern portion of the Midvale Slag site prior to cleanup, 2005.

Community redevelopment goals: "the project should incorporate all of the elements of a functioning community ... allow for the the greatest economic diversity ... [and] set an example of living in cooperation with natural resources."

2000 – 2004

Gathering Information, Reaching Agreements

There were several major challenges facing the Midvale Slag site in 2000:

- How to clean up the site in a way that protected human health and allowed for redevelopment.
- How to pay for the site’s anticipated \$35 million cleanup.
- How to ensure that the site’s cleanup would remain protective over the long term.
- How to provide the infrastructure and resources needed to incentivize the site’s redevelopment.

Site Cleanup Planning

EPA undertook additional field investigations on the southern part of the site in 2001 and early 2002, which led to an important discovery. While much of the site was covered by smelter wastes, only a small portion of the wastes were highly contaminated. Wastes on much of the site could be covered or capped with soil and addressed on a parcel-by-parcel basis in the future, as warranted by development interest. EPA’s delineation of four categories of smelter wastes, ranging from those requiring

excavation and off-site disposal to those requiring management in coordination with future use planning, provided a way to integrate the site’s cleanup and redevelopment.

EPA coordinated closely with the key project parties and the community during the field investigations. “The additional site information helped us understand that it wouldn’t be feasible, physically or fiscally, to remove all of the contamination,” recalled Mayor JoAnn Seghini. “It established a realistic understanding of what could be possible from a redevelopment perspective.” The information enabled Midvale City to rezone the site in November 2001, establishing the mixed-use Bingham Junction Zone to guide the site’s eventual redevelopment.

EPA also took an innovative approach to the site’s October 2002 Record of Decision, which outlined the remedy for the southern portion of the site. EPA included the facilitation of the site’s redevelopment as an “additional” remedial action objective guiding the site’s cleanup. EPA also included a table outlining the types of covers needed for different land uses. Finally, the decision document emphasized the importance of institutional controls, stating that EPA and the community needed to work together to develop land use controls ensuring the protectiveness of the site’s remedy over the long term. “In the document, we tried to make it as clear as possible to the community that we had been listening, and to document that

Timeline of Events

<i>1871-1958:</i>	Five lead and copper smelters operate at the site	<i>Sept. 2004:</i>	Consent Decree for OU2 cleanup signed
<i>1982-1984:</i>	Initial environmental investigations	<i>2005:</i>	Bingham Junction Master Plan awarded the Envision Utah Governor's Quality Growth Award of Excellence
<i>1990-1992:</i>	Removal actions to remove chemicals and explosives from an abandoned laboratory	<i>Feb. 2006:</i>	EPA issues second Explanation of Significant Differences
<i>Feb. 1991:</i>	EPA lists the site on the NPL	<i>Aug. 2006:</i>	Redevelopment ribbon-cutting ceremony
<i>Apr. 1995:</i>	EPA issues OU1 Record of Decision	<i>Jun. 2007:</i>	Midvale City adopts ordinance implementing institutional controls
<i>1996:</i>	Removal actions to excavate contaminated soils from portions of the site	<i>Aug. 2007:</i>	Construction of OU2 remedy completed
<i>May 1998:</i>	EPA issues first Explanation of Significant Differences for the site’s remedy	<i>Spring 2008:</i>	EPA issues Ready for Reuse Determination
<i>Jul. 1999:</i>	EPA selects Midvale City as a Superfund redevelopment pilot project community	<i>Dec. 2008:</i>	Residents move into new condominiums
<i>Aug. 2000:</i>	<i>Bingham Junction Reuse Assessment and Master Plan</i> adopted by Midvale City Council	<i>Dec. 2008:</i>	EPA completes second Five-Year Review
<i>2001-2002:</i>	EPA conducts additional field investigations	<i>Oct. 2009:</i>	Supermarket opens at Bingham Junction
<i>Nov. 2001:</i>	Midvale City rezones the site, establishing mixed-use Bingham Junction Zone	<i>Sept. 2010:</i>	Denmark-based FLSmidth locates at Bingham Junction’s View 72 Corporate Center
<i>Oct. 2002:</i>	EPA issues OU2 Record of Decision	<i>2008-2011:</i>	Riparian zone remedy and ground water monitoring network installed and operational
<i>Oct. 2003:</i>	EPA completes first Five-Year Review	<i>Aug. 2011:</i>	Opening of Bingham Junction station on UTA Mid-Jordan light rail line

Midvale City: Putting the Redevelopment Pieces in Place

With the Bingham Junction Master Plan in hand and ongoing coordination with EPA, UDEQ and the site's owner as a cornerstone of its approach, Midvale City updated its zoning ordinance to reflect the Master Plan's mixed land uses. Midvale City's Redevelopment Agency also performed a "gap" analysis in 2002 to assess the site's likely redevelopment infrastructure needs and costs.

"We knew that the costs to install utilities, roads and other infrastructure would be significant. We also knew that land preparation costs could likely be higher at the site, given the need for developers to evaluate property conditions and manage waste materials. We looked for ways to help defray these additional costs for developers," said Christine Richman. "And for this project, we also knew we would have to layer over land use controls and developers would need to coordinate infrastructure installation with the site's cleanup."

Midvale City's analysis found that the site's likely additional infrastructure costs would be approximately

\$22 million. Midvale City officials networked with the state's legislature and state agencies to identify possible funding approaches to help mitigate these costs. In 2003, Midvale City pursued a change to Utah state law to allow the reinvestment of proceeds from a specialized tax increment financing district for site improvements.



The city then designated the site as a Redevelopment Project Area, enabling the use of tax increment reimbursements to help reimburse developers for the site's additional infrastructure costs. Midvale City also agreed to fund off-site infrastructure improvements – a new sewer lift station (\$600,000) and water transmission lines (\$468,000) – through public utilities funds to help reduce site development costs.

the site's cleanup would take redevelopment into account," said EPA project manager Fran Costanzi.

For the northern part of the site, EPA updated its 1996 Record of Decision to reflect future land use considerations. EPA's 2006 Explanation of Significant Differences outlined how parties could conduct additional investigations and further clean up portions of the site to allow for unrestricted residential land uses, without any need for institutional controls. Across the entire site, EPA was able to develop a cleanup approach that protected human health and the environment *and* incorporated consideration of the site's reasonably anticipated future land use.

Site Cleanup Funding and Enforcement

EPA's internal deliberations over how best to ensure the cleanup of the site's southern 180 acres was one of the most challenging issues the Agency faced. It took several years to resolve the issue before the site's remedy could move forward.

Superfund enforcement compels the parties responsible for contamination at a site to clean it up or pay for the cleanup. At the Midvale Slag and Sharon Steel sites, a series of settlements had relieved most responsible parties of their liability concerns at both sites, with monies set aside in special accounts for cleanup. Littleton, Inc., a small, family-owned company which purchased the site property after the smelter was demolished, was the primary responsible party remaining at the Midvale Slag site. Superfund's liability scheme provides for joint and several liability, which means a single responsible party could be held liable for the entire cost of cleaning up a site.

"With remaining cleanup activities estimated to cost \$35 million, most site settlement monies already spent on cleanup activities at both sites, and a small, single responsible party remaining, funding the site's remaining cleanup was a major challenge," recalled EPA site attorney Karen Kellen, who, along with fellow EPA attorney Joni Teter, worked on the site's enforcement issues through 2006. "EPA had to review all possible options."

One leading option was to place a windfall lien on the site property, which would have enabled EPA to recover cleanup costs from the increase in the property's fair market value following cleanup. EPA undertook an innovative economic analysis that assessed the site property's likely future value. The bottom line: while the property's value might increase following cleanup, any redevelopment would require millions of dollars in infrastructure investment.

Over time, another option began to emerge – a private party could likely clean up the southern part of the site at a substantially lower cost, which would also allow for the integration of redevelopment groundwork, like extending infrastructure corridors across the site, as part of the site's cleanup. EPA's negotiation team and Littleton, Inc. agreed that this option offered great promise while also facing many potential roadblocks. They both also agreed that the City of Midvale was a necessary party to any discussions, which began in 2003. The parties reached a significant legal agreement a year later, the site's September 2004 Consent Decree. For each of the parties, the agreement represented a leap of trust as well as an innovative approach.

The Broader Context: EPA and Reuse

Efforts to address future land use considerations at the Midvale Slag site fit well with emerging nationwide interest in the revitalization of contaminated areas, including Superfund sites. With the creation of EPA's Superfund Redevelopment Initiative in 1999 and its Land Revitalization Agenda in 2003, EPA's Office of Solid Waste and Emergency Response launched a new EPA focus on promoting land reuse and revitalization at contaminated sites. In 2001, Congress also passed the Brownfields Revitalization Act. Signed into law in 2002, the legislation was designed to make the acquisition and redevelopment of contaminated properties like Superfund sites easier by addressing the liability concerns associated with these sites.

Littleton, Inc. would design the remedy and clean up the site's smelter waste and be reimbursed with remaining settlement monies from EPA's special account for the cleanup of the site. The company committed to clean up the southern part of the site for \$16 million, significantly less than EPA's estimated cleanup cost, with an environmental insurance policy in place to cover any contingencies. The company also proceeded with the design of the site's remedy in good faith, prior to the signing of the Consent Decree, during 2004. "Resolving liability with EPA and designing a financially viable project was the prime objective for my client," said Kevin Murray, the company's attorney. "[Littleton, Inc.] was looking to do what was best for Midvale in the long term as well as addressing the company's situation."

In the agreement, EPA waived its property lien and provided a covenant not to sue to all signatories to the Consent Decree, as well as to future site owners. This covenant meant that parties would not be liable under Superfund for their activities at the site in the future, assuming that they exercised due care. Future site owners complying with the site's institutional control, access and operation and maintenance requirements qualified as bona fide prospective purchasers (BFPPs; see the Sources and Resources section for more information). Finally, the signatories agreed that EPA would receive a portion of any net profits from the site's increased property value following cleanup, capped at \$2.2 million.

For its part, Midvale City signed on as a voluntary party to the Consent Decree. "It was a big step, but we knew it was the right thing to do," said Mayor JoAnn Seghini. "We had good working relationships with everyone and we knew we needed to be at the table to provide input for the site's cleanup and to make sure that the site's redevelopment was taken into account." As part of the Consent Decree, Midvale City assumed responsibility for the implementation and enforcement of the site's institutional controls, helping to ensure the site's long-term stewardship.

Institutional Controls and Long-Term Stewardship

The key parties had worked on institutional control issues since before the site's 2002 Record of Decision. "To work best, institutional controls need to be part of a site's remedy," said EPA project manager Fran Costanzi. "In Midvale City, we were fortunate to have a very engaged locality as our partner."

EPA, UDEQ, Midvale City and Littleton, Inc. worked together to develop two Institutional Control Process Plans, one for each of the site's operable units. The Plans identified the mechanisms needed to ensure the proper management of the site's remedy, including zoning and subdivision regulations, building, road and excavation permits, and engineering design guidelines.

The objectives of the Plans were to establish:

- Controls on the handling and disposal of soils and wastes during and after the site's redevelopment.
- Controls on water management and ground water use.
- Requirements through which residential uses will be allowed.

Institutional Controls (ICs): A Brief Overview*

- ICs are legal and administrative tools used to maintain protection of human health and the environment at sites. They do not involve construction or physical changes to a site.
- ICs play an important role when a cleanup is conducted and when it is too difficult or too costly to remove all contamination from a site.
- ICs are designed to lower the potential for people and the environment to be exposed to contamination.
- There are four types of ICs: government controls (local laws or permits), proprietary controls (private property use restrictions), enforcement tools (consent decrees; unilateral orders), and informational devices (deed notices; public advisories).
- ICs are usually most effective when layered (i.e., multiple ICs of different types working together) to improve protectiveness.
- Seeking community input and involvement can maximize the effectiveness of ICs.
- Most cleanups will need to use a combination of engineered remedies and ICs. ICs provide an additional level of safety and help to make sure a site's remedy remains securely in place.

* Information adapted from EPA's *Citizen's Guide to Understanding Institutional Controls*

- Guidelines for the long-term operation and maintenance of development-oriented covers and barriers.
- Vapor mitigation controls for portions of the site.

The Plans also identified parties' roles and responsibilities.

- Midvale City: responsible for updating and managing local land use tools and ordinances to reflect the Plans' objectives, reviewing site plans, providing site development inspections, and verifying that private covenants and deed restrictions are in place for residential developments.
- EPA and UDEQ: responsible for ground water monitoring and oversight of some residential development at the site.
- Landowners: responsible for being in compliance with the Plans, disposing of site soils at appropriate off-site facilities as needed, and ensuring that any covenants and deed restrictions on their properties are conveyed and communicated during property transactions.

To implement and oversee the Plans, which served as the basis for the city's Institutional Controls Ordinance, Midvale City's Department of Community and Economic Development created a full-time position. The position has been partly funded by EPA through a cooperative agreement, using the site's special account. Today, Ray Limb is the city's Development Site Coordinator. He assists current and prospective property owners at the site, provides information materials, answers

questions and ensures that all development activities and proposals meet city ordinance requirements.

By the end of 2004, five years of planning and relationship-building had begun to pay off. The site's cleanup plan was designed and in place. An agreement for funding and implementing the site's cleanup had been signed. And key stakeholders had created a comprehensive institutional control plan for the site's long-term stewardship that has since become a national model.

One chapter was drawing to a close, and another was beginning.

2004 – 2008

Linking Cleanup and Redevelopment...

Throughout the design of the remedy for the southern portion of the site and the development of the site's Consent Decree, Midvale City worked closely with Littleton, Inc., EPA and UDEQ to integrate the groundwork for the site's redevelopment. "There were a lot of moving parts during this time," said Ray Limb. "The city was translating the Institutional Control Process Plans into the city's Institutional Controls Ordinance, finalizing off-site infrastructure plans, and integrating those plans with the timing of the site's cleanup."

Reviewing cleanup and redevelopment plans, the project's key parties were able to identify several coordination opportunities.

The Site's Riparian Zone Remedy

EPA worked with UDEQ, Midvale City, Salt Lake County, the United States Geological Survey, community members and others to improve nearly 7,000 feet of the Jordan River riparian corridor adjacent to the site.



Before: The sheet pile dam across the Jordan River was damaged and needed to be removed. The failure of the dam could have allowed river water to erode the riverbank, releasing capped site contaminants.



After: The replacement dam is a steel-reinforced boulder structure with low-flow channels that direct the water toward the center of the river to avoid riverbank erosion. The dam was also designed to allow for safe boat passage and portage for canoeists and kayakers.

Locating infrastructure. Littleton, Inc. installed utility corridors for water, sewer and electricity across the site in coordination with the activities of its remedial contractors. This coordination helped minimize disturbances to the site's soils and smelter wastes once the remedy was in place.

Enabling a remedy to support reuse. Littleton, Inc. needed to extend roads across the site to enhance access for additional development opportunities. Smelter wastes were graded and capped in place as roadbed material, providing a literal example of remedy and reuse in action.

Adaptive reuse of site materials. Large piles of uncontaminated slag were located across the southern part of the site. As part of the site's cleanup, these piles were spread over the site's surface, serving as cover fill for the site's remedy.

Enhancing conditions for redevelopment. Littleton, Inc. graded and compacted portions of the site targeted for commercial and residential development, so that developers would be able to build on top of these areas without requiring footers, reducing development costs. Because compaction was not required for the site's remedy, the property owner funded these enhancements.

"We have been able to attract and reassure developers and businesses that the site is safe and protective. EPA had clearly stated that the Agency was comfortable with the reuse of the site."

- JoAnn Seghini, Midvale City Mayor

Phasing redevelopment. Midvale City recognized the site's cleanup would take time. Similarly, so would development of the 18-acre Riverwalk Park along the banks of the Jordan River. The city stipulated that developers would need to develop the park as part of site improvements outlined in zoning requirements for Bingham Junction. They would also need to phase plans for the park to coincide with completion timeframes for the bank stabilization remedy for the river's riparian zone. The remedy, designed to minimize riverbank erosion and allow for safe boat passage, was completed in 2011, with assistance from the community's Jordan River Stakeholder Group, allowing the park's development to move forward.

Ensuring long-term cleanup. UDEQ was able to locate ground water monitoring wells across the site in a way that did not restrict redevelopment plans.

Construction of the site's remedy was completed at the site in August 2007. However, coordination between Midvale City, EPA and UDEQ continues to this day. "Ray [Limb] talks with

EPA and UDEQ regularly to make sure everyone is on the same page," said EPA site attorney Karen Kellen. "It took time at first for the reviews because they had never been done before. Now, they've been done repeatedly, and the process has become streamlined. Midvale City's institutional control system works smoothly and comprehensively."

As part of the city's Institutional Controls Ordinance, developers are required to maintain an approved Materials Management Plan and a Health and Safety Plan for each of their projects. Each developer must also employ a qualified Special Inspector who oversees development activities and provides the city and the developer with regular status updates. Midvale City Development Site Coordinator Ray Limb also conducts daily development inspections. When development activities do not follow ordinance requirements, the city has the authority to issue stop-work orders until outstanding issues are addressed.

...Raising the Profile of Bingham Junction

Midvale City also recognized the importance of communicating the approaching availability of the Midvale Slag site for redevelopment. In 2005, the Bingham Junction Master Plan was awarded the Envision Utah Governor's Quality Growth Award of Excellence, raising the project's profile. Midvale City also put together a package of incentives to attract developers and worked with the Utah Transit Authority (UTA) to finalize plans to locate a light rail station at the site. EPA signed a Prospective Purchaser Agreement with UTA to address the agency's liability concerns and help facilitate the project.

"Access, sustainable development and transit-oriented development were key goals of the Bingham Junction Master Plan," said Christine Richman. "The construction of UTA's Mid-Jordan line provided a remarkable opportunity to enhance public transit options in Midvale City and further link the community with Salt Lake City and the Salt Lake Valley." UTA's light rail station was completed in 2011.

"Midvale City's institutional control system works smoothly and comprehensively."

- Karen Kellen, EPA Site Attorney

By late 2005, the incentives and publicity efforts were already coming to fruition. Several developers approached Midvale City and Littleton, Inc. with proposals to develop the northern portion of the site with residences, commercial buildings, open space and wetland mitigation in accordance with the Bingham Junction Master Plan. The development proposals led to EPA's 2006 Explanation of Significant Differences for the site's OU1 remedy; developers could now undertake additional cleanup activities to enable residential

Liability and Superfund Site Reuse

In the past, Prospective Purchaser Agreements (PPAs) were regularly used by the federal government at Superfund sites to address the liability concerns of parties interested in reuse. In 2001, Congress passed the Brownfields Revitalization Act to make the acquisition and redevelopment of contaminated properties like Superfund sites easier. Under the Act, a prospective purchaser need no longer negotiate a PPA with EPA and the federal government. In lieu of a signed agreement, the purchaser could meet requirements to qualify as a bona fide prospective purchaser (BFPP).

Based on several steps, including documenting previous site owners, property uses and existing environmental conditions, the Brownfields Revitalization Act provides designated BFPPs with limited liability protections. The Act also exempts contiguous property owners from Superfund liability and clarifies appropriate inquiry for innocent landowners. Today, UTA would pursue BFPP status rather than a PPA in order to address its liability concerns at the Midvale Slag site.

land uses without any need for institutional controls. The northern portion of the site property was named “Riverwalk,” and is also referred to as Bingham Junction North.

In August 2006, Midvale City hosted a ribbon cutting to celebrate the site’s availability for redevelopment. “You could not walk on this property a year ago because it was not safe,” JoAnn Seghini said at the ceremony. “And the difference today ... it’s remarkable.” Utah’s then-Governor Jon Huntsman, Jr. noted the broader importance of the project. “When you talk about a populated region like the Wasatch Front that is growing twice, three times the national average ... this kind of location becomes extremely important,” he said.

The development community was listening.

The Gardner Company and development partner Arbor Commercial approached Midvale City and Littleton, Inc. in 2007 with an offer to develop the remaining portion of the site, located between 7200 South and 7800 South Streets, in accordance with the Bingham Junction Master Plan. The View 72 Corporate Center office park would serve as the heart of the development, also referred to as Bingham Junction South.

The community also requested that EPA provide a clear statement that the site would be cleaned up and that the site’s remedy would support the land uses outlined in the Bingham Junction Master Plan. In 2008, EPA issued a Ready for Reuse (RfR) Determination for the site; the report stated that EPA had determined the Midvale Slag site was ready for commercial and residential reuse (see page 11 sidebar).

“The RfR Determination has been very helpful,” said Midvale Mayor JoAnn Seghini. “We have been able to attract and reassure developers and businesses that the site is safe and protective. EPA had clearly stated that the Agency was comfortable with the reuse of the site.”

By 2008, following EPA’s issuance of the RfR Determination, development activities were beginning across the site.

2008 – 2011+

Building to Success...

For Gardner Company CEO Christian Gardner, leading the development of most of Bingham Junction made sense for many reasons. “We specialize in the Intermountain West, we have built throughout the Salt Lake region, and this site was truly quite special,” he said. “We were looking to focus on sustainable developments in infill locations, so we saw it as an opportunity to partner with the Midvale community to help make Bingham Junction a reality.”

Prior to acquiring the site property, the company and partner Arbor Commercial worked with Littleton, Inc. to complete environmental due diligence activities and qualify as a bona fide prospective purchaser (BFPP). The companies also worked with a lender specializing in brownfields and other environmentally impaired properties. With financing and BFPP status in place, the companies were able to acquire 220 acres of developable land at the Midvale Slag site from Littleton, Inc.

The companies have focused on planning and developing the View 72 Corporate Center, the largest Class A office park in Utah. UTA’s light rail station is also part of the View 72 development. The companies have also sold site properties to other developers and companies. For example, the companies sold the southern portion of the site property – approximately 100 acres of land – to Wasatch Advantage Group, which is developing 1,800 residential units, including workforce and affordable housing.

Remarkably, Bingham Junction’s success has taken place despite the economic downturn that began in late 2007. In August 2009, for example, local and state officials welcomed FLSmidth, an international mineral and cement industry service provider, as the first tenant to the View 72 Corporate Center. The company occupied Gold and Silver LEED-certified buildings at the 90-acre business park in September 2010. “Midvale City has been a great partner in making this happen,” FLSmidth Vice-President Robert Coomes said at the groundbreaking ceremony. “Our employees will have the benefit of mass transit, easy access to the major freeways and open space. Newly built homes ... will be just across the street.”

As of 2011, redevelopment activities are well underway across the Midvale Slag site. Several residential developments have been completed. Office buildings and stores have been built. A 95,000-square-foot supermarket opened in October 2009. Sections of Bingham Junction's 18-acre Riverwalk Park have opened, providing the community with enhanced access to the Jordan River. Finally, construction of UTA's light rail station has been completed, with its grand opening taking place in August 2011.

Several years into the site's redevelopment, Gardner is both realistic and optimistic. "We have found that it takes a little longer to prepare and design the projects, given that we're building on a Superfund site," he said. "But we've also benefited greatly from working with a very supportive locality and development partners and the community in general."

Gardner credits the BFPP provisions in the site's Consent Decree, EPA's RfR Determination and Midvale City's development incentives and Institutional Controls Ordinance with helping to ensure the site's successful redevelopment. "Having this documentation available when we are speaking with prospective tenants or purchasers is invaluable," he said. "People and companies come to the site and when they see these documents, they see safety and certainty. They can move from their initial concerns to planning for the future."

...Adapting to Challenges

While the development of Bingham Junction is now a national success story, Midvale City Development Site Coordinator Ray Limb cautions that there have been plenty of learning experiences and development challenges along the way. "In the beginning, no one had done this before. It took time for

the developers to fully understand the site's institutional control system, and it took time for us [the city] to understand how best to apply our new ordinance and work with the developers."

Early challenges included frequent violations of the city's Institutional Controls Ordinance, resulting in work stoppages. Other issues simply required outreach and education. "Developers had not worked with slag before, for example, and were unnecessarily removing some of the waste material," Limb noted. "Most types of slag are extremely compactable and useful for development, as long as they're contained correctly."

Today, Limb works with both seasoned developers and new businesses to ensure that the site's institutional controls are being followed and that all materials are handled appropriately. "The community's vision of successful redevelopment, and its vision of a site where people and the environment are kept safe, is coming to pass," he said. "Bingham Junction has been a remarkable undertaking to be part of."

New relationships and trust-building. Innovative cleanup and redevelopment approaches. Coordination among local, state and federal partners. Local government and site owner leadership. Long-term planning and flexibility. An understanding of the challenges and needs of future development activities. The end result: the successful development of Bingham Junction at the Midvale Slag Superfund site.

Ready for Reuse (RfR) Determinations: An Overview

An RfR determination is an environmental status report that documents a technical determination by EPA, in consultation with states, tribes and local governments, that all or a portion of a site can support specified types of uses and remain protective of human health and the environment. An RfR Determination provides potential users of a site with clear information about the environmental status of a property and the actions needed to maintain the integrity of the remedy.

At the Midvale Slag site, the RfR Determination issued by EPA Region 8 in spring 2008 promoted the reuse of the site as an exemplary model of Smart Growth, citing Bingham Junction's emphasis on mixed land uses, public transit and affordable housing.

Since 2003, six EPA Regional offices have issued a total of seventeen RfR Determinations for sites in their Regions, with as many as seven additional documents currently underway. Local officials, developers and EPA staff in Regional offices

say that RfR Determinations have played an important role in the reuse of sites and serve many beneficial purposes. Local officials and developers report that they have used RfR Determinations to improve local economic conditions by encouraging reuse. Other sites for which RfR Determinations have been written include:

- Arlington Blending and Packaging (Arlington, TN)
- Augustus Hook (Frankfort, IN)
- Conroe Creosoting Company (Conroe, TX)
- Eastern Michaud Flats (Pocatello, ID)
- H.O.D. Landfill (Antioch, IL)
- Ingram Richardson (Frankfort, IN)
- MGM Brakes (Cloverdale, CA)
- RSR Corporation (Dallas, TX)
- Sharon Steel (Midvale, UT)
- South Point Plant (South Point, OH)
- Southern Maryland Wood Treating (Hollywood, MD)
- Tex Tin (Texas City, TX)

Bingham Junction, Confirmed and Proposed Redevelopment Projects, 2011

Riverwalk (Bingham Junction North)			
	Development	Description	Status
Residential	Parkview at Riverwalk	148 condominiums and townhomes on 4 acres	Construction completed in 2010
	Riverwalk Apartments	256 apartments on 11 acres, affordable housing	Construction completed in 2010
	East Riverwalk	126 single-family homes	Construction underway in 2011
Commercial Office/Retail	Winco Foods grocery store	95,000-square-foot facility on 10 acres	Construction completed in October 2009
	Riverwalk Shopping Center	Commercial retail district on 12 acres	Five retail tenants in Phase 1
	Riverwalk Commercial Center	Commercial mixed-use development on 25 acres	Phase 2 development
Recreational/Ecological	Riverwalk Park	18-acre riverside park with local and regional trail links	Phased construction in coordination with development
	Open space	20-acre park, playground and wetland mitigation area	
View 72 (Bingham Junction South)			
	Development	Description	Status
Residential	Central 72	Townhome development	Construction underway in 2010
	Florentine Villas	214 apartments on 9 acres, affordable housing	Construction completed in 2010
	San Moritz Apartments	390 apartments on 15 acres	Construction completed in 2009
	San Tropez Apartments	Apartment development	Construction underway in 2010
	Talaveria and Tuscany Apartments	333 apartments on 15 acres	Construction underway in 2011
	Townhome development	124 townhomes on 8 acres	Construction underway in 2011
Commercial Office/Retail	View 72 Corporate Center	90-acre office park, up to two million square feet of Class A office and technology research and development space	Construction underway in 2009; company's regional headquarters occupied in September 2010, with third building proposed
	FL Smidth Regional Headquarters	Gold and Silver LEED-certified office space (175,000 square feet); first tenant in View 72 Corporate Center, 400+ employees	
	Intermountain Healthcare	Office and warehouse distribution facility	Proposed development
Recreational/Ecological	Riverwalk Park	18-acre riverside park with local and regional trail links	Phased construction in coordination with development
Infrastructure/Public Service	UTA Light Rail Station	Station located on UTA's Mid-Jordan line, which will serve the rapidly growing southwest region of the Salt Lake Valley	Construction completed, station opening in August 2011
	Bingham Junction Boulevard	Central north-south road providing access from Bingham Junction to area's road network	Construction completed in 2009



- 220 total acres
- 90 acres commercial
- 70 acres residential
- 1.16 million sq ft office space
- 100+ room hotel with conference space
- UTA light rail station
- Up to 1,853 residential units
- Approximately 5,000 residents



- 130 total acres
- 50 acres commercial retail
- Hundreds of thousands of square feet in retail
- Large open space with park and boardwalk
- Up to 706 residential units
- Approximately 1,900 residents



Conceptual illustrations of FLSmidth's regional headquarters at the View 72 Corporate Center.

Midvale Slag: The Story in Pictures

Pre-Cleanup



During Cleanup

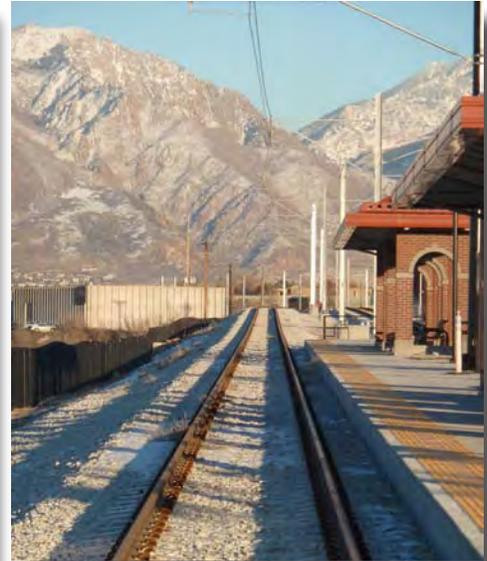


Redevelopment

Commercial Office



UTA Light Rail Station



Residential



Recreational



Commercial Retail



Lessons Learned

Participants involved at the Midvale Slag site agree that a combination of significant factors have contributed to its cleanup and successful redevelopment.

- The site's size, contiguous acreage and location in a major metropolitan area with limited land resources meant that the development of Bingham Junction was attractive to both large companies and small businesses.
- Midvale City energetically pursued the site's cleanup and redevelopment and put in place the requisite resources, partnerships and infrastructure. The city's Institutional Control Process Plans have guided the site's redevelopment and the city's process has become a national model for institutional control design and implementation.
- Site owner Littleton, Inc. was a consistent and engaged partner. The company's involvement led to innovative solutions that addressed site liability issues and integrated the site's cleanup with the infrastructure needed for redevelopment.
- EPA and UDEQ understood the community's redevelopment priorities in the context of the property's cleanup, enabling decision documents that reflected remedy and reuse considerations.
- Coordination of the site's cleanup and redevelopment plans meant that both could move forward as part of a linked, phased approach.
- All parties involved were patient, recognizing that cleanup and redevelopment were complex processes reliant on available resources, market conditions and other factors requiring shared understanding of short-term issues as well as long-term flexibility to address future development activities.

The Bigger Picture

While these conditions created an ideal climate for successful reuse, there are also broader lessons learned that can help guide similar projects at other contaminated lands.

EPA works with communities, site owners and other stakeholders to support reuse outcomes that are compatible with site cleanups.

The Agency places a high priority on supporting the return of contaminated sites to productive and beneficial uses. In Midvale City, the community was able to work with EPA and UDEQ to develop site reuse plans that reflected site conditions and cleanup plans. In turn, the community's reuse plans were able to inform EPA's selected remedy for the site.

EPA and Reuse: Lessons Learned

Since the inception of the Superfund program, EPA has been building on its expertise in conducting site characterization and remediation to ensure that contamination is not a barrier to the reuse of property. Today, consideration of future use is an integral part of EPA's cleanup programs from initial site investigations and remedy selection through to the design, implementation, and operation and maintenance of a site's remedy.

"At older sites, EPA did not focus on taking reuse considerations into account early in the cleanup process," reflected EPA's Matthew Mankowski, a former project manager at Superfund sites. "Today, that has changed. Superfund cleanups can be very creative and flexible in allowing for future site uses, but that information needs to be plugged in early to be as effective as possible."

At the Midvale Slag site, future land use considerations were able to inform EPA Region 8's selection of the site's remedy, which enabled the site's reuse for mixed-use purposes. The integrated cleanup and redevelopment of the property meant that Midvale City and the site owner could coordinate infrastructure installation with the cleanup of the site.

Thanks to lessons learned at Superfund sites like the Midvale Slag site across the country, EPA has developed additional tools to ensure an integrated approach to the cleanup and redevelopment of contaminated lands. For example, EPA has developed a partial deletions guidance. Partial deletions allow EPA to remove the cleaned and uncontaminated portions of a Superfund site from the NPL, expediting the reuse of those properties.

EPA also works with site stakeholders to consider how future land use considerations can inform the implementation and long-term stewardship of site remedies *as well as* cleanup planning. At some sites, for example, reuse considerations can inform the location of ground water monitoring wells and other equipment that might inadvertently hinder redevelopment efforts.

At other sites, site reuse plans have provided additional benefits that save time and reduce redevelopment costs. For example, future utility corridors or building footers can be installed in coordination with site cleanup activities. At the Midvale Slag site, the site owner was able to undertake additional activities, like site grading and soil compaction, during cleanup that prepared the site for redevelopment. These activities, while not funded as part of the site's remedy, reduced the need for additional site preparation, facilitating redevelopment.

While EPA provides tools and resources to support Superfund reuse, communities and public and private sector organizations make it happen.

EPA's mission is to protect human health and the environment. EPA relies on engaged community stakeholders to bring their future land use goals and priorities to the table so that this information can be incorporated as part of the remedial process, linking cleanup and redevelopment. "In Midvale, there was such energy from the community, the site owner and the local government to make something happen at the site," said EPA project manager Fran Costanzi. "They set the tone, and their energy led to the planning and partnerships and resources that have made the site's reuse possible."

Effective reuse planning projects are inclusive, information-based and focused on targeted outcomes.

Community-based reuse planning processes can be most effective when they engage diverse stakeholders, including site owners and prospective purchasers, are based on detailed site and community information, and lead to implementable strategies and next steps.

Local governments can play a unique leadership role in reuse planning projects.

As the organizations responsible for their communities' general welfare, local governments are particularly well-positioned to host redevelopment projects, bring together diverse stakeholders, and use planning tools and incentives to foster positive site outcomes. Midvale City's reuse planning process for the site in 2000 laid the groundwork for the site's redevelopment, years before infrastructure was installed and developers broke ground at Bingham Junction.

Institutional controls should be addressed early, as part of the remedy for a site. Seeking community input and involvement can maximize their effectiveness.

The project's key parties worked together for several years, beginning prior to the selection of the site's remedy, to develop a system of institutional controls that effectively protects human health and guides development activities at this large, complex Superfund site. The system provides developers and other parties with detailed guidance, is flexible and responsive to different redevelopment activities, and is closely monitored and managed by the local government. The system has been an integral part of the site's successful redevelopment.

EPA decision documents can reflect and incorporate community plans for a site's reasonably anticipated future land uses.

Beginning with the Record of Decision for the Midvale Slag site, EPA Region 8 was able to incorporate the community's future land use plans in site decision documents. With the site's

Consent Decree, EPA's Prospective Purchaser Agreement with UTA and the Agency's RfR Determination for the site, EPA decision documents were also able to serve as helpful tools that directly addressed stakeholder concerns.

The Superfund remedial process can provide detailed site information to inform redevelopment planning activities.

Superfund sites are among the most comprehensively documented and evaluated areas of land in the United States. Midvale City and the site's developers market Bingham Junction's status as part of a Superfund site as an opportunity for developers and businesses looking for commercial and residential space in the Salt Lake region. At most sites, a completed remedial investigation/feasibility study, draft proposed plan, or RfR Determination will provide prospective purchasers with extensive site information.

Build on past experience.

Parties at the Midvale Slag site were charting new territory in addressing stigma and other site issues. Today, thanks to the bona fide prospective purchaser (BFPP) provisions of the 2001 Brownfields Revitalization Act, environmental insurance and EPA tools like RfR Determinations, established resources are available. Prospective purchasers can contact EPA site teams to learn more, or see the Resources section on page 18 for additional information.

Conclusion

The development of Bingham Junction at the Midvale Slag Superfund site illustrates how community leadership, collaborative partnerships, and effective long-term planning can result in two successful outcomes: the protection of human health and the environment and community revitalization. Today, Bingham Junction is in the process of being built out, serving a variety of businesses and providing housing and a range of services for community residents. The outcomes are striking: approximately 600 jobs, \$1.5 million in annual property tax revenues and a \$131 million increase in the value of the site property.

In Midvale City, Utah, the local government has coordinated a complex redevelopment project that has brought the community together with diverse organizations and partners. In turn, the project has led to new economic opportunities and community-wide benefits, providing one of the leading examples of mixed-use Superfund redevelopment in the nation.

Cleanup and Mixed-Use Revitalization on the Wasatch Front

THE MIDVALE SLAG SUPERFUND SITE AND MIDVALE CITY, UTAH

Sources and Resources

Sources

Images and maps for this case study were obtained from EPA Region 8, Midvale City, the Gardner Company and site visits in December 2009 and February 2011.

Resources

EPA Region 8 site progress profile, including site decision documents:

www.epa.gov/region8/superfund/ut/midvale

EPA Superfund Redevelopment Initiative:

www.epa.gov/superfund/programs/recycle

2001 Brownfields Revitalization Act and BFPP information:

www.epa.gov/brownfields/aai/aacercclafs.pdf

Environmental insurance information:

www.epa.gov/brownfields/insurance

EPA's *Citizen's Guide to Understanding Institutional Controls*:

www.epa.gov/superfund/policy/ic/guide/citguide.pdf

Midvale City:

www.midvalecity.org

Midvale City Institutional Controls Ordinance:

www.codepublishing.com/ut/Midvale/html/Midvale08/Midvale0810.html#8.10



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