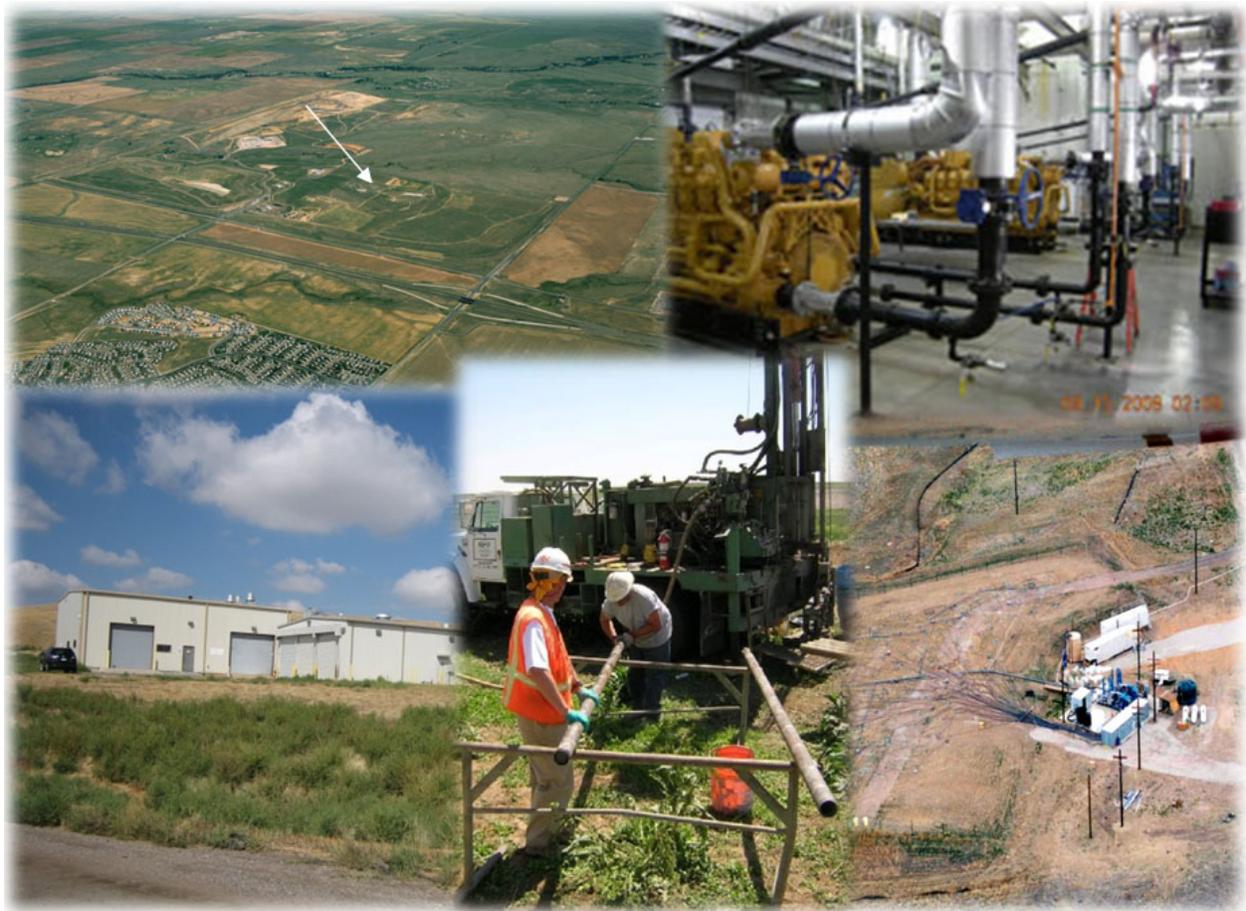


# **Community Involvement Plan Addendum Lowry Landfill Superfund Site Arapahoe County, Colorado**

September 2013



U.S. Environmental Protection Agency  
Region 8  
1595 Wynkoop Street  
Denver, CO 80202



*Portrait of the Lowry Landfill Superfund Site*

*Clockwise from top left: aerial view of the Lowry Landfill site (arrow), gas-to-energy plant, FTPA waste pit remediation activity, monitoring well installation activity at north end of property, water treatment plant.*

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*This Community Involvement Plan Addendum is prepared under §300.67(b); Superfund Community Relations Policy, 1983; Superfund Removal Procedures, Revision No. 2, (OSWER) (August 20, 1984)*

## Community/Information Background

This document updates the Community Relations Plan Addendum released in March 1999. Significant changes have occurred within the community surrounding the Lowry Landfill Superfund Site since then, as have conditions and recommended remedial actions for the site itself.

Growth around the site has increased rapidly. The population of Arapahoe County, in which the site resides, has more than doubled since 1984, from about 294,000 to nearly 595,000 in 2012.

Once relatively isolated, community development now extends approximately one-half mile south and one-mile west of the site. The Toll Gate Creek Development, the Murphy Creek Golf Course and subdivision, and Copper Leaf residential areas are adjacent to the site. A regional municipal solid waste landfill sits to the north and east, and the Arapahoe County Fairgrounds, the Plains Conversation Center, and the former Lowry Bombing and Gunnery Range are within the immediate vicinity.

Arapahoe County spans 850 square miles and is one of fastest growing regions in the Denver area. Roughly 75 percent of the county is rural but the western area of the County consists of urban communities. Industrial growth includes the Martin Marietta plant, the Denver Technological Center, Centennial Airport and Greenwood Plaza. The eastern portion of the county remains largely urban despite increases in farming and ranching activity. Other nearby towns include Agate, Strasburg, Bennett, Byers and Limon.

In the past, citizens of Deer Trail expressed concern with land management and contamination issues. Those issues were addressed by EPA with public meetings and outreach efforts, including the release of fact sheets, press releases, information sheets and updates to the EPA Region 8 Lowry Landfill website. The area directly east of the site is mostly rural and dedicated to farming (wheat, barley and hay) and livestock (hog, cattle, sheep). Population remains relatively sparse but is growing.

This document updates:

- Community/information background
- Site background
- Remediation activities
- Community involvement chronology since 2000
- Community interviews
- Community Involvement activities, techniques and timing
- Locations for Lowry Landfill information repositories
- Other information sources
- Contacts and interested parties
- List of acronyms



*Lowry Landfill Superfund Site location (outlined)*

## Site Background

Owned by the City and County of Denver and operated by Waste Management, Inc., the Lowry Landfill Superfund Site was declared a Superfund site and listed on the U.S. Environmental Protection Agency's National Priorities List (NPL) in 1984. The approximately 507-acre Lowry Landfill Superfund Site is located northeast of the intersection of Quincy Avenue and Gun Club Road in unincorporated Arapahoe County, 15 miles southeast of the City and County of Denver, and two miles east of Aurora, Colorado. The Denver and Arapahoe Disposal Site (DADS), an operating municipal solid waste landfill northeast of the intersection of Gun Club Road and East Hampden Avenue, forms the northern boundary of the site.

From the mid-1960s until 1980, the City and County of Denver operated a "co-disposal" landfill at this location. Both industrial waste (solid and liquid) and municipal solid waste were accepted for disposal. The liquids were placed into 78 unlined trenches over approximately 200 acres, and solids such as soil, old tires and household refuse were added to the trenches to absorb the liquids. Waste disposed at the site included, but was not limited to, industrial degreasers, paint, pesticides, hospital and veterinary waste, metal-plating waste, petroleum products, sewage sludge, tires and household waste.

EPA estimates that approximately 138 million gallons of industrial wastes were disposed at the site. Nearly all of the wastes were disposed in the southern half of the site, within the 200-acre main landfill. A smaller volume of waste was placed north of the main landfill in ponds and waste pits. Some liquids were sprayed directly onto the soil in large "leachate spraying" areas located in the northern part of the site. From 1980 to 1990, an additional 80 to 100 feet of municipal solid waste was placed over the southern half of the site atop the co-disposal waste pits.

During the 1970s and 1980s, approximately 12 million tires were disposed at the site. The tires were laid on top of other waste placed in three separate pits, each approximately 20-30 feet deep. From 1989 through 1992, the City and County of Denver and its contractors removed, shredded and consolidated the tires and placed the tire shreds in a monofill (an area where only tires may be disposed), on the east side of the site for potential future reuse as fuel. The area and three waste pits that lay under the tires became known as the South, Middle and North Former Tire Waste Pits or simply the Former Tire Pile Area (FTPA). The Middle FTPA waste pit was excavated and the waste was treated on the site. The South and North waste were remediated using a product extraction approach. Remedial Action is complete for all three FTPA waste pits.

The waste disposed at the landfill contaminated soils and eventually contaminated shallow groundwater at the site. Additionally, gases from the buried wastes contaminated the air spaces in subsurface soil. In 1988, EPA divided the site into six operable units (OUs), aka study areas. The OUs were grouped according to the contaminated media they address. OUs 1 and 6 address shallow ground water, subsurface liquids, and deep ground water; OUs 2 and 3 address landfill solids and landfill gas; and OUs 4 and 5 address soils, surface water, and sediments.

In accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA), EPA provided the potentially responsible parties (PRPs) with the opportunity to perform the OU Remedial Investigation/Feasibility Studies (RI/FSs) at the Lowry

site. Under the terms of negotiated Administrative Orders on Consent (Consent Orders), the PRPs (also referred to as work settling defendants (WSDs)) performed OU-specific RI/FSs.

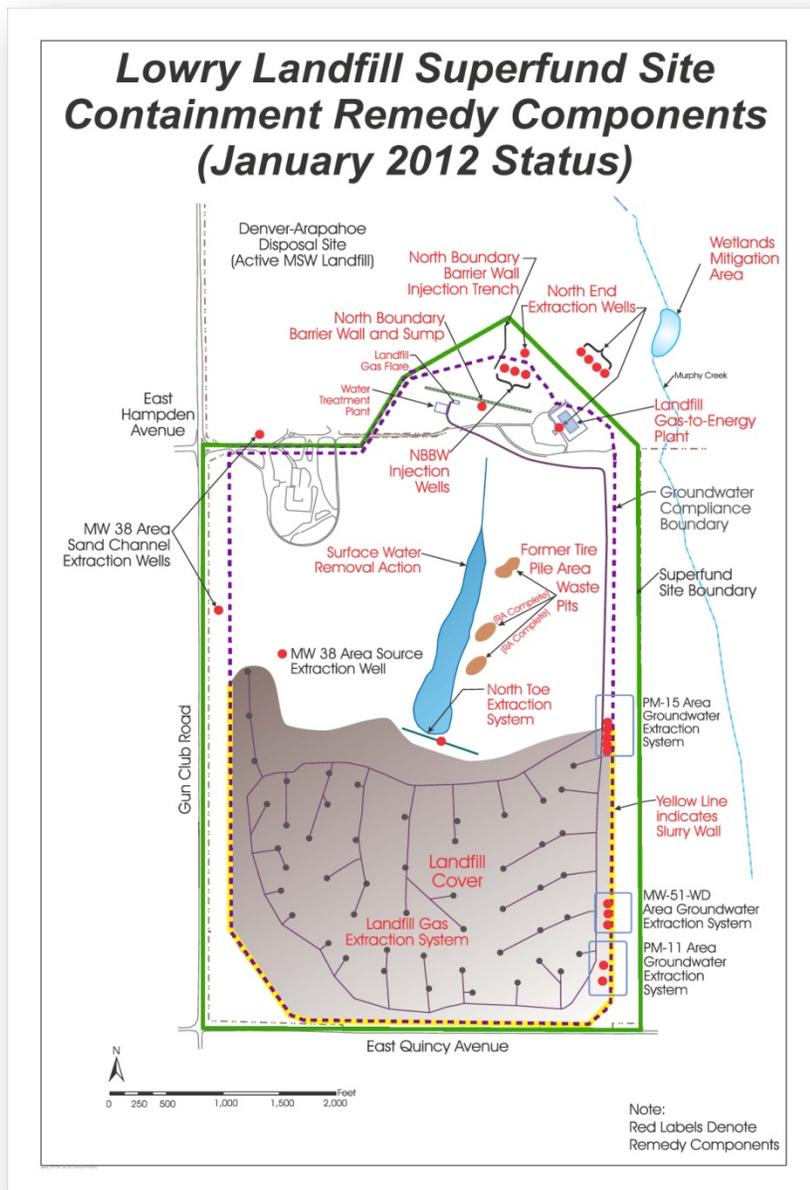
## Groundwater Containment Remedy

Following investigations of contamination at the site, EPA selected a comprehensive plan for Lowry Landfill in 1994. The plan included the implementation of a site-wide remedy consisting of containment, collection, treatment and monitoring. The remedy entails preventing the movement of contamination off the site, preventing uncontaminated groundwater from coming onto the site, and preventing human exposure to landfill gas, waste-pit liquids, and unsafe levels of contamination in soil, surface water, and groundwater.

The containment remedy involved construction of a number of engineered components including installation of underground barrier walls (slurry walls) and groundwater collection systems on the site;

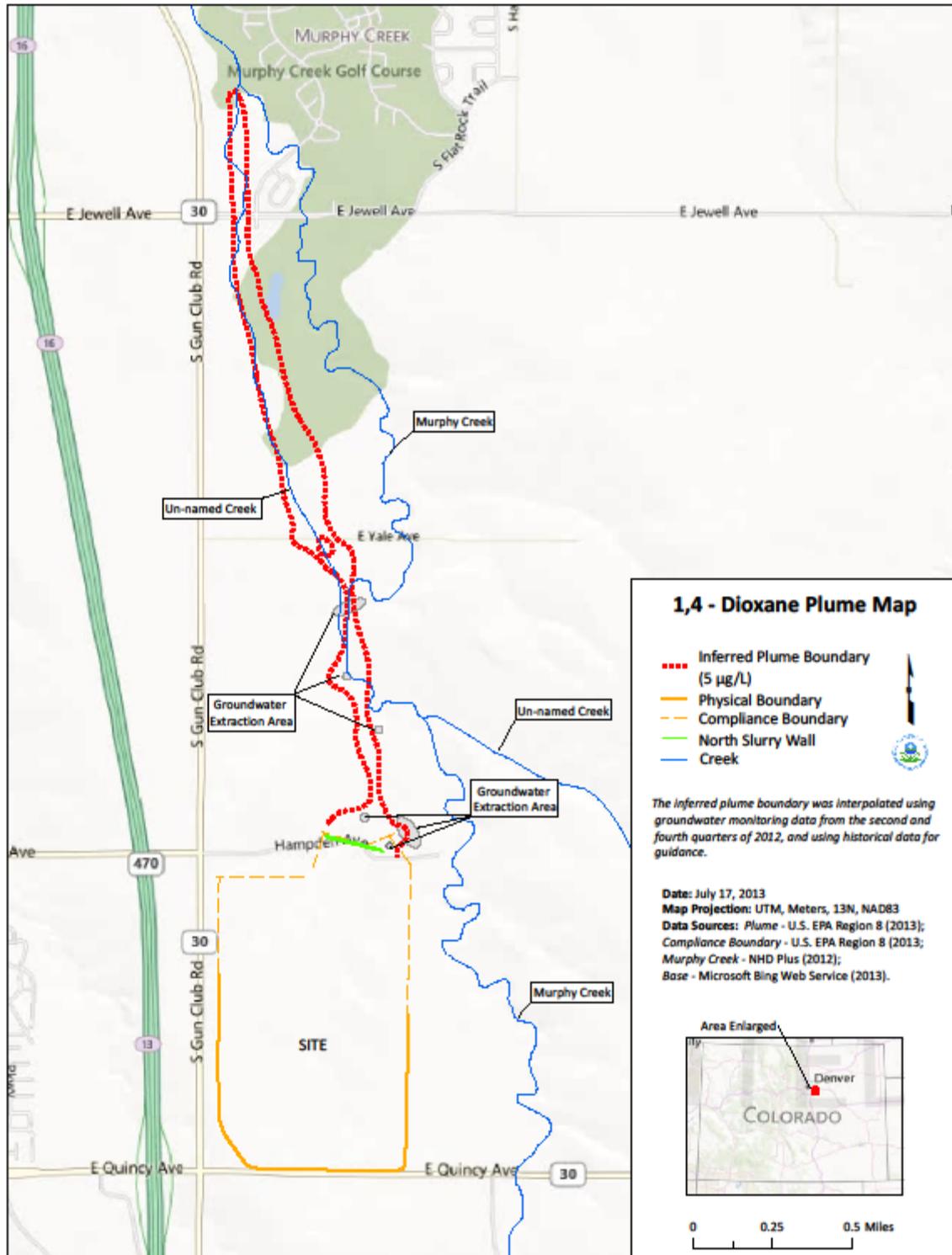
construction of a new water treatment plant to treat the highly contaminated groundwater; remediation of three FTPA waste pits containing non-aqueous phase liquids; and collecting and using landfill gas as part of a gas-to-energy system. In its 1994 Record of Decision (ROD), EPA established point of compliance boundaries for the landfill gas remedy and the groundwater remedy within the site boundaries (see adjacent diagram).

The groundwater containment remedy is protective of human health because humans are not exposed to unacceptable groundwater contaminant concentrations at or in the vicinity of the site.



*Components of the Site Containment Remedy, January 2012*

The selected site-wide remedy also requires the implementation of on-site and off-site Institutional Controls (ICs). ICs are non-engineered instruments, such as administrative and legal controls, that help minimize the potential for human exposure to contamination and/or protect the integrity of the remedy, including environmental covenants, and deed and land-use restrictions.



1,4 Dioxane Plume Map

## Shallow 1,4-dioxane Groundwater Plume North of the North Barrier Wall

Monitoring performed between 2003 and 2006 detected the organic chemical 1,4-dioxane and nitrates in shallow monitoring wells due north of the north boundary barrier wall. 1,4-dioxane was detected in groundwater as far as 2.4 miles north of the barrier wall (see adjacent map).

Investigations indicate that the 1,4-dioxane in the shallow groundwater outside the site's north boundary could be the result of historical releases that occurred before 1,4-dioxane was a known or detected contaminant of concern, and prior to operating improvements made to the groundwater collection system in 2003.

As a result of this discovery, EPA required the WSDs implement a response action to capture and remove the 1,4-dioxane from groundwater north of the site boundary. In time, these efforts are expected to reduce concentrations to regulatory levels. A comprehensive groundwater monitoring system is constructed at the site which is being used to measure the effectiveness of the 1,4-dioxane response action as well as the overall effectiveness of the containment remedy.

### Ongoing Activities and Completed Remedial Actions

All remediation components are currently in place and operating to achieve the remedial action objectives described in the 1994 ROD and subsequent decision documents. The table below summarizes the remedy and status of each component.

Remedy Component	Description	Status
Slurry Wall	An underground clay barrier wall that encloses the landfill on three sides to minimize clean groundwater flow onto the site and reduce contaminated groundwater flow off the site.	Ongoing
Landfill Cover	Minimizes amount of rainwater seep into the landfill, which could become contaminated upon contact with buried landfill wastes.	Completed
North Toe Extraction System (NTES)	A trench extracts contaminated groundwater from the landfill and reroutes it to an onsite water treatment plant (WTP) for treatment.	Ongoing
North Boundary Barrier Wall	A subsurface clay barrier and groundwater interceptor trench located at the intersection of the unnamed creek alluvial channel and the northern site boundary that provides a barrier to groundwater flow. Migrating contaminated groundwater is collected and rerouted to the onsite WTP for treatment.	Ongoing
Water Treatment Plant	Contaminated water collected from the site is treated at the WTP to an acceptable level for discharge into a sanitary sewer line.	Ongoing

Remedy Component	Description	Status
Surface Water Removal Action	Contaminated groundwater is kept separate from clean surface water within the unnamed creek streambed by a channel of permeable material installed beneath the streambed and covered by a clay barrier. This provides a pathway for groundwater to flow to the north without contacting surface water. Clean surface water flows above the permeable channel without coming into contact with contaminated groundwater flowing underneath the clay barrier.	Completed
Landfill Gas Extraction	Landfill gases are extracted and used as fuel for internal combustion engines to generate electricity.	Ongoing
Former Tire Pile Area	Three waste pits containing non-aqueous phase liquids (NAPLs). The pits are separate from the large main landfill in the southern part of the site. The remedy requires extraction of NAPLs in and around the pits and disposal at an offsite EPA-approved disposal facility.	Completed
Long-Term Monitoring	Long-term monitoring programs for all media are in place to evaluate the effectiveness/overall protectiveness of the remedial actions.	Ongoing

Because wastes remain at the site, the EPA will continue to conduct mandatory five-year reviews to ensure all containment activities are working as designed. The five-year reviews will continue to contain community involvement components which include interviews with regulators, site operators and concerned citizens.

The EPA interviewed concerned citizens and local and state officials for five-year reviews conducted in 2002, 2007, and 2012. Public notices announcing the initiation and completion of five-year reviews, and establishing comment periods, were placed in local newspapers and publicized on EPA, Colorado Department of Public Health and Environment (CDPHE) and other websites. The EPA continues to provide Technical Assistance Grant (TAG) funding to the community group, Citizens for Lowry Landfill Environmental Action Now (CLLEAN). The funding allows CLLEAN to hire independent technical advisors for analysis and critique of site remedies and conditions as described by regulators and the WSDs.

In an effort to keep the public and stakeholders up to date on site-related issues, EPA periodically conducts technical meetings open to regulators, WSDs, independent technical advisors and the general public at its Region 8 Headquarters Conference Center at 1595 Wynkoop Street in Denver, and also by way of periodic fact sheets, newsletters, and general public announcements. The most recent technical meeting was held in May 2012.

## Remediation Related Highlights Update

**August 2009** – Construction Closeout of Landfill Gas-to-Energy Project completed.

**November 2011** – Response Action Work Plan (MW77-WD) completed. The overall objective of this activity is to bring well MW77-WD into compliance with performance standards. It includes installation of a groundwater extraction well to stop potential seepage of contaminated groundwater (primarily 1,1-DCE and 1,4-dioxane) from the sand channel toward MW77-WD.

**September 2012** – EPA completed the third five-year review of the Lowry Landfill site which determined that the remedy is operating as intended and remains protective of human health and the environment.

**November 2012** – EPA completed a follow-up inspection in response to findings from the five-year review which identified shallow animal borings and surface settling along the lower edges of the landfill cap. The inspection confirmed through field analysis that no release of landfill gas or exposure of any hazardous substances resulted from either condition. The WSDs were notified of the findings and agreed to make all necessary repairs.

**July 2013** – Response Action Work Plan (B-326 and B-313) completed. The overall objective of this activity is to reduce contaminant mass to bring wells B-326-UD and B-313 into compliance with groundwater performance standards by extracting contaminated groundwater from a recharge zone in hydraulic communication with wells B-326-UD and B-313.

**July 2013** – The WSDs completed the remediation of the North FTPA Waste Pit. Operations involved extraction and disposal of non-aqueous phase liquids located within and around the waste pit. This action completes the remediation of the final of three FTPA waste pits in accordance with the criteria established in the ROD and subsequent decision documents.

**August 2013** – EPA provided an update announcement to the public summarizing progress at Lowry Landfill. The announcement details site background, site-wide remedy, what to expect next, and provides a list of resources that can be accessed for more detailed site information.

**August 2013** – Construction activities are underway to make repairs to the landfill cap. This action is in response to the November 2012 five-year review follow-up inspection that identified shallow animal borings and surface settling at the landfill cap. Construction is anticipated to be completed during autumn 2013.

**September 2013** – EPA completed an addendum to update the Lowry Landfill site Community Involvement Plan (CIP). One of the main goals of the CIP is to ensure the public has access to accurate and timely information needed to understand the project as it moves forward.

Additional information regarding historic remediation and related activities at Lowry Landfill is available in the Community Involvement Plan, subsequent addendums and public announcements. Copies of these documents are available at Lowry Landfill site information repositories.

## Community Involvement Chronology Since 2000

**June 2001** – Radionuclides and the Lowry Landfill Superfund site fact sheet. The fact sheet described why EPA and CDPHE believe that manmade radionuclides were not a threat at Lowry, additional studies being undertaken, and what safeguards were in place.

**May 2005** – A notice of availability of the Proposed Plan for the North and South FTPA Waste Pits was published in the Denver Post and the Rocky Mountain News. A public comment period was held from May 26 – June 27, 2005. During the public comment period, EPA accepted written comments by mail and electronic mail. Also during the public comment period, EPA conducted public meetings on June 8, 2005 and June 14, 2005 to present the Proposed Plan to a broad community audience, and to provide an opportunity for interested community members to provide input.

**August 2005** – Notice of the proposed settlement between the United States and the WSDs regarding reimbursement of past response costs was published in the *Federal Register*. After a 30-day public comment period, federal district court entered the Consent Decree embodying the settlement.

**August 2005** – Lowry Landfill Superfund Site ROD Amendment for FTPA Waste Pits: EPA prepared a proposed plan, which described the proposed modifications to the remedy for the FTPA waste pits and requested public comment. EPA distributed the proposed plan by mail to 2,600 addressees in the surrounding community and made it available on the EPA Lowry Landfill Web page. In addition, EPA mailed a short fact sheet to an additional 3,500 addressees in the surrounding community. The fact sheet described the proposed modifications, and provided information on how to obtain a copy of the entire proposed plan.

**July 2006** – 1,4-Dioxane and the Lowry Landfill Superfund Site Fact Sheet. Sampling results indicated that 1,4-dioxane was present in monitoring wells and surface water north of the site at levels above then-current Colorado water quality standards. The fact sheet provided information about 1,4-dioxane issues at the Lowry Landfill.

**May 2007** – Third Explanation of Significant Differences (ESD) at Lowry Landfill Superfund Site. EPA issued the ESD document to explain the significant differences between the remedy selected by the agency in the ROD for Lowry Landfill and the remedy as amended within the ESD. EPA modified the selected remedy for landfill gas at the site as a result of new information received following its issuance of the ROD.

**March 2008** – 1,4-Dioxane In Shallow Groundwater at the Lowry Landfill Superfund Site Fact Sheet. EPA, in conjunction with CDPHE and TCHD, produced a fact sheet that provided information about the plume of 1,4-dioxane found in the shallow groundwater north of the Lowry Landfill Superfund Site. The plume was under investigation because 1,4-dioxane has been classified as a probable human carcinogen.

**September 2008** – EPA produced a video entitled “A Superfund Success Story,” documenting the completion of the gas-to-energy project at Lowry Landfill. The plant uses four combustion engines to annually convert 630 million cubic feet of methane gas from the Lowry Landfill and

DADS sites into 3.2 megawatts of electrical power. The gas-to-energy plant reduces greenhouse gases and provides electricity for approximately 3,000 households. EPA evaluated the health risk associated with public exposure to 1,4-dioxane north of the site and found no significant health risk associated with surface water or groundwater.

**August 2011** – At a meeting of the Lowry Landfill Superfund Site Steering Committee, comprised of representatives of EPA, CDPHE, the Tri-County Health Department, the City of Aurora, Plains Conservation Center, Arapahoe County, the City and County of Denver, Waste Management, and land and business owners surrounding the site, EPA provided an update and additional information on the community interview process involved in the five-year review.

**December 2011** – EPA placed public notices in the *Denver Post* and *Aurora Sentinel* newspapers announcing the third Lowry Landfill Superfund Site five-year review and schedule for completion. The public notices included information about how to contact EPA with questions and/or more information about the five-year review. Immediately thereafter, EPA and CDPHE conducted interviews with a citizens group, local public officials, an officer of a homeowners association in the vicinity, nearby residents, and other interested parties regarding the remedy at Lowry Landfill.

**September 2012** – EPA completed the third five-year review of the Lowry Landfill Superfund Site and used a number of venues to notify the community that the document was available, including a public notice placed in the *Aurora Sentinel* and posting the FYR on the EPA Region 8 Lowry Landfill Web page. The assessment of the third five-year review is that remedies for all six operable units (OUs) are functioning as intended by the decision documents. Institutional Controls remain in place to restrict certain on-site and off-site well installations and land use.

**August 2013** – EPA completed an addendum to update the Lowry Landfill Site Community Involvement Plan (CIP) and a Lowry Landfill fact sheet. One of the main goals of the CIP is to ensure the public has access to accurate and timely information needed to understand the project as it moves forward.

Additional information regarding historic community involvement activities at Lowry Landfill is available in the Community Involvement Plan and subsequent addendums published by EPA. Copies of these documents are available at Lowry Landfill Site information repositories.

### **Information Update Chronology Since 2000**

**July 2000 – Information Update No. 15** included information regarding tire disposal, environmental aspects, hazardous waste sites, pollution, health aspects and water quality issues.

**March 2004 – Information Update No. 16: Lowry Site Remedy Progress Continues Fact Sheet.** EPA issued the fact sheet that described site progress, including groundwater extraction along the East/South/West groundwater barrier wall, the site-wide monitoring program, evaluation of the former tire pile area, the water treatment plan, the north boundary barrier wall and monitoring well MW-38WD.

**July 2006 – Information Update No. 17: Remedial Activities Continue.** EPA issued the report which, among other information, detailed its identification of Potentially Responsible Parties (PRPs) at the Lowry site.

Additional information regarding historic information updates related to the Lowry Landfill is available in Community Involvement Plan Addendums produced by EPA in 1989, 1995 and 1999. Copies of these documents are available at Lowry Landfill Site information repositories.

## **Community Interviews**

EPA interviewed representatives from the community and other stakeholder representatives during the third Lowry Landfill Superfund Site five-year review (FYR) process conducted in 2011/12. The interviews sought to determine the perceived status of the site and any concerns, problems and/or successes with phases of the ongoing remedy implemented to date. Because those interviews represent current site opinion and sentiment, they are presented here.

EPA notified the community that the FYR was being performed by several methods of communication, including public notices placed in local newspapers and notices placed on a number of websites.

EPA and CDPHE conducted interviews with a citizens group, local public officials, an officer of a homeowner's association in the vicinity, nearby residents, and other interested parties in the area regarding the remedy at Lowry Landfill.

### **Citizens Group**

The Citizens for Lowry Landfill Environmental Action Now (CLLEAN) is an incorporated nonprofit organization founded in 1985. It evolved from the citizen group Citizens Against Lowry Landfill (CALL) founded in 1980. CLLEAN has received Technical Assistance Grants (TAGs) from EPA and has hired technical advisors to help interpret site data and assist citizens with the decision-making process at Lowry. Board members of CLLEAN consist of residents living within a five-mile area of the site. The founder has been involved with Lowry Landfill since 1974.

During the interview, CLLEAN commented that it continues to be concerned that the cleanup at Lowry Landfill is inadequate and not protective of public health and the environment. Members believe that using potable water to dilute the contamination near compliance wells is not an adequate solution to the problem. Uncontained off-site contamination in groundwater to the north also indicates to CLLEAN that the remedy has not been adequate.

CLLEAN members also stated that during past meetings the WSDs appeared unconcerned with their input. One member stated that, in his opinion, cost is the only concern for the WSDs, and that EPA and others are just waiting for the problem to go away. One member stated he perceives the ROD as wrong – "you can't contain in a sieve." He believes contaminants are moving downward into the aquifers.

CLLEAN questions why the ROD is not being revised given off-site migration of 1,4-dioxane, and believes EPA is not enforcing the ROD decisions adequately. Members want to know what other contaminants are moving off-site given the fact that “1,4-dioxane is migrating north.”

All members voiced concern about what they see as EPA's lack of communication about site activities, and said it is a big factor in the community being unaware of the issues related to Lowry Landfill. CLLEAN doesn't believe the second FYR should have been approved, and said it “knows” contractor comments of concern were withheld by EPA. It believes the third FYR will be no different. CLLEAN believes EPA has already formulated the answer and is going through the motions to justify that answer, rather than fully considering any input it gets during the review.

### **Plains Conservation Center**

The Plains Conservation Center sits on 1,100 acres north and west of Lowry Landfill. A spokesperson for the center said in the interview, “I’m very comfortable with what’s going on out there. I think a lot of research and thought went in there and I think the process is quite remarkable.”

Also during the interview, the spokesperson stated that the center receives site information through the Lowry Landfill Steering Committee meetings. In the past, concerns regarding groundwater contamination were voiced, but now the spokesperson believes they have been addressed. The center uses groundwater for animal care and chores, including watering vegetable and native gardens. It has “no problems at all” with the remedy at Lowry Landfill.

### **Elected Official**

An Arapahoe County Commissioner first elected in 1995 will serve his current term through 2013. He is responsible for county liaison with Lowry Landfill. The commissioner is concerned with “the 1,4-dioxane coming off the property,” and that “it seems to continually progress and then it takes more steps to kind of counter it. I’m not sure things are being contained the way they are supposed to be contained.”

Arapahoe County depends on the Tri-County Health Department for information about the site.

The commissioner says he has heard personal complaints that regulators “are not being straightforward with people.” He also said, “I would like to see the state and the county and EPA come together and have some concurrence. It is disconcerting when the state doesn’t necessarily see it the same way.” The commissioner said he knows there are issues between particular groups and CDPHE and EPA, and “so it gets rather confusing.”

### **Homeowners Association**

Tollgate Crossing is a residential community directly south of Lowry Landfill. A board member of the homeowners association said he hadn’t heard any complaints from residents concerning the Superfund site. Their only concern, he said, would be “more for all the trucks going in and out of the [DADS] landfill. The area is real busy with big trucks.”

As a board member, he feels well informed about the site's activities and progress over the last five years. Right now, he said, the community is more concerned with power companies putting up electric towers in the area. "What I know is that [the Lowry Landfill Site] is a secured area," he said, "and I would assume that whatever is going on over there doesn't expand beyond the fenced boundary." As a homeowner bordering the landfill, the board member would like the WSDs to "communicate updates or any plans that are going on, maybe on a yearly basis."

## **City of Aurora**

The City of Aurora's Senior Environmental Specialist has been on the job 13 years and during the interview stated he is "intimately" acquainted with the site. The remedy at Lowry Landfill, he says, "...is on-track and being effective." In the past, the city heard concerns from residents in the vicinity of the site, "especially after the 1,4 dioxane report came out. We got calls from everybody in the city."

His office has conducted tours of the site for citizens, and does, "Whatever we need to do." Of greater importance than Lowry, he says, is the current emphasis on the potential for development of natural gas using hydraulic fracturing technology in the area. He is not aware of any community concerns regarding the site. "I haven't had any complaints about Lowry in 3-4 years," he says. "It's been very quiet."

The City of Aurora is "overly informed" about the site. "I go to all the meetings – if anything comes up we know about it. I know that there are some places in the city where there are secrets but this isn't one of them." In fact, he says, "I'm more concerned about the (adjacent) Lowry Bombing Range than the landfill."

## **Tri-County Health Department**

Three representatives of the Tri-County Health Department (TCHD) who have a long period of involvement at the site were interviewed. TCHD's involvement with Lowry Landfill dates back to before the site was listed on the NPL in 1984.

Currently, TCHD has several roles at the site. TCHD facilitates the Lowry Landfill Steering Committee and reviews all technical reports and data. TCHD uses a multi-disciplinary team to review site reports, and provides comments to EPA if they identify concerns or questions. TCHD also keeps the county commissioners informed of site progress and activities.

TCHD visits the site to perform inspections of various projects. Access to the site for this purpose is not a problem. TCHD performs an oversight role for DADS on behalf of Arapahoe County. This role is in conjunction with CDPHE's oversight role. Recycling and compositing operations are approved by both the state and Arapahoe County. TCHD also performs sampling of the two off-site wells that are currently used as a drinking water source. It handles communications with the residents using the well water.

The overall impression of the TCHD representatives is that the site is "well managed, protective, and a good example of public/private partnership" in solving environmental problems. TCHD is "very happy with the management and response from the WSDs". Tri-County also commented

that it is very comfortable with “Settlement Agreement triggers” that provide assurances that work will be performed.

During the interview, TCHD representatives noted that in the past, the site was “very contentious” but that now, in contrast, the data are showing that “it’s working.”

TCHD also noted some areas where improvements could be made in communications to the local public regarding site activities. Although TCHD no longer hears any concerns or complaints about the site from local residents, TCHD notices some citizens are finding it difficult to distinguish from among Lowry Landfill, the Lowry Bombing Range and Lowry Air Force Base projects.

Since there are important distinctions, TCHD suggested that the Steering Committee continue to work on informing the public of the differences. TCHD also suggested that EPA and CDPHE seriously consider “embracing the opportunity provided by the website (lowrylandfillinfo.com)” to better inform the public about site activities. Overall, TCHD feels well informed about site activities and progress. Regarding land use surrounding the site, the Murphy Creek development north of DADS has not proceeded as quickly as originally planned, although road improvements have been undertaken by the City of Aurora. Overall, TCHD representatives believe the site is an example of “effective public/private partnership.”

## **Local Residents**

The owners of a groundwater well described as being the closest to the Lowry Landfill northern boundary (approximately 1.5 miles away) have used well water for the past 12 years and have experienced no problems. During the interview, the owner and resident stated, “Testing has been done over the past six years – once a year in March or April – and it’s always been non-detect for us. We use the water for everything – shower, drinking and irrigation.

Being on a well, just in general, you’re a little bit nervous, but I believe they are being truthful with us.” The testing, she says, is performed by the operators of the landfill and observed by personnel from the Tri-County Health Dept. The well is 640 feet deep. “I’m aware of the 1,4-dioxane site there but it hasn’t been an issue,” she says. The owners rely on Tri-County for most of their information about the site and talk with personnel there “at least once a year. They do a good job of keeping us in the loop and letting us know what the well drilling shows. I’m happy that they are testing our water.”

## **Community Involvement Activities, Techniques and Timing**

Public information and involvement opportunities are important components of EPA’s community relations program. EPA strives to improve the community’s understanding of the Lowry Landfill, including recognition of site hazards, data and the Superfund process.

Community relations activities that have taken place at the Lowry Landfill Superfund Site are detailed in the Community Involvement Chronology section of this and previously published Community Involvement Plans. Lowry Landfill Information Updates chronicles site-related information as far back as 1988.

EPA will continue to assess public information and involvement needs for the Lowry site. Additional activities may include:

- Public briefings, meetings and/or workshops;
- Lowry Landfill Superfund Site tours;
- Fact sheets, information updates and other documents;
- Web page updates;
- Public comment periods.

Lowry Landfill will continue its remediation throughout its current Operation & Maintenance (O&M) status until deemed appropriate for removal from the Superfund roster. When that occurs, EPA will:

- Prepare a Public Notice of Intent to Delete from the National Priorities List (NPL);
  - When O&M is complete, a notice of intent to delete the site from the NPL will be published in the *Federal Register* and Denver area newspapers. Copies of information supporting the proposed deletion will be placed in the information repositories at EPA Region 8 headquarters in Denver and the Aurora Public Library.
- Hold a public comment period;
  - A comment period of at least 30 days will allow public input concerning the proposed deletion. EPA will respond to significant comments and any data submitted during the comment period and include those responses in the final deletion package.
- Make available the Final Deletion Package;
  - The final deletion package will be placed in the information repositories when notice has been published in the *Federal Register*.

### **Locations of Lowry Landfill Information Repositories**

Engineering designs, Records of Decision (RODs), Explanations of Significant Differences (ESDs), five-year reviews (FYRs) and other site-specific documents are available for review at the following locations:

EPA Superfund Records Center  
1595 Wynkoop Street  
Denver, CO 80202  
303-312-6312

Aurora Central Public Library  
14949 East Alameda Drive  
Aurora, CO 80002  
303-739-6600

## Other Information Sources

Colorado Department of Public Health and Environment  
Hazardous Materials and Waste Management Division  
Records Center, Bldg. B, Second Floor  
4300 Cherry Creek Drive South  
Denver, CO 80222  
303-692-3331

Tri-County Health Department  
6162 S. Willow Drive, Suite 100  
Greenwood Village, CO 80111  
Lynn Robbio Wagner, Field Supervisor  
303-220-9200

## Lowry Landfill Contacts and Interested Parties

### Federal Elected Officials

#### U.S. Senators

##### Senator Mark Udall

Washington, D.C. Office  
Hart Office Building Suite SH-730  
Washington, D.C. 20510  
Phone: 202-224-5941  
Fax: 202-224-6471  
Toll-free (in Colorado): 877-7-MUDALL (877-768-3255)

Denver Metro Area Region  
999 18th Street  
Suite 1525, North Tower  
Denver, CO 80202  
Phone: 303-650-7820

##### Senator Michael F. Bennet

Washington, D.C. Office  
458 Russell Senate Office Building  
Washington, DC 20510  
Phone: 202-224-5852

Denver Metro Office  
1127 Sherman St., Suite 150  
Denver, Colorado 80203

Phone: 303-455-7600  
Toll free: 866-455-9866

## **U.S. Representatives**

### **District 1: U.S. Representative Dianna DeGette**

Washington, D.C. Office  
2368 Rayburn House Office Building  
Washington, D.C. 20515-4329  
Phone: 202-225-4431  
Fax: 202-225-5657

Denver, Colorado Office  
600 Grant Street, Suite 202  
Denver, CO 80203-3525  
Phone: 303-844-4988  
Fax: 303-844-4996

### **District 2: U.S. Representative Jared Polis**

Washington, D.C. Office  
1433 Longworth House Office Building  
Washington, DC 20515  
Phone: 202-225-2161  
Fax: 202-226-7840

Boulder, Colorado Office  
4770 Baseline Rd, #220  
Boulder, CO 80303  
Phone: 303-484-9596  
Fax: 303-568-9007

### **District 3: U.S. Representative Scott Tipton**

Washington, D.C. Office  
218 Cannon House Office Building  
Washington, DC 20515  
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Fax: 202-226-9669

Alamosa, Colorado Office  
609 Main St., #105 Box 11  
Alamosa, CO 81101  
Phone: 719-587-5105  
Fax: 719-587-5137 Fax

**District 4: U.S. Representative Cory Gardner**

Washington, D.C. Office  
213 Cannon House Office Building  
Washington, DC 20515  
Phone: 202-225-4676  
Fax: 202-225-5870

Castle Rock, Colorado Office  
7505 Village Square Dr. Suite 207  
Castle Rock, CO 80108  
Phone: 720-508-3937  
Fax: 720-583-0873

**District 5: U.S. Representative Doug Lamborn**

Washington, D.C. Office  
2402 Rayburn House Office Building  
Washington, DC 20515  
Phone: 202-225-4422  
Fax: 202-226-2638

Colorado Springs, Colorado Office  
1271 Kelly Johnson Blvd. Suite 110  
Colorado Springs, CO 80920  
Phone: 719-520-0055  
Fax: 719-520-0840

**District 6: U.S. Representative Mike Coffman**

Washington, D.C. Office  
2443 Rayburn House Office Building  
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Phone: 202-225-7882  
Fax: 202-226-4623

Aurora, Colorado Office  
Cherry Creek Place IV; Suite 305  
3300 S. Parker Road  
Aurora, CO 80014  
Phone: 720-748-7514  
Fax: 720-748-7680

**District 7: U.S. Representative Ed Perlmutter**

Washington, D.C. Office  
1410 Longworth House Office Building  
Washington, DC 20515

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Fax: 202.225.5278

Lakewood, Colorado Office  
12600 West Colfax Avenue, Suite B-400  
Lakewood, CO 80215  
Phone: 303-274-7944  
Fax: 303-274-6455

## State Elected Officials

### Governor John W Hickenlooper

136 State Capitol  
Denver, CO 80203-1792  
Phone: 303-866-2471  
Fax: 303-866-2003

### Attorney General John W. Suthers

Office of the Attorney General  
Ralph L. Carr Colorado Judicial Center  
1300 Broadway, 10th Floor  
Denver, CO 80203  
Phone: 720-508-6000  
Fax : 720-508-6030

### Colorado Legislature

Colorado State Capitol  
200 East Colfax Avenue  
Denver, CO 80203

### State Senators

District	Senator	Residence	Contact Information
25	Mary Hodge	Aurora	Phone: 303-866-4855 Email: mary.hodge.senate@state.co.us
27	David Balmer	Centennial	Phone: 303-866-4883 Email: david.balmer.senate@state.co.us
28	Nancy Todd	Aurora	Phone: 303-866-3432 Email: nancy.todd.senate@state.co.us

District	Senator	Residence	Contact Information
29	Morgan Carroll	Aurora	Phone: 303-866-4879 Email: morgan.carroll.senate@state.co.us
31	Pat Steadman	Denver	Phone: 303-866-4861 Email: morgan.carroll.senate@state.co.us

## State Representatives

District	Representative	Residence	Contact Information
36	Su Ryden	Aurora	Phone: 303-866-2942 Email: su.ryden.house@state.co.us
37	Spencer Swalm	Centennial	Phone: 303-866-5510 Email: spencer.swalm.house@state.co.us
41	Jovan Melton	Aurora	Phone: 303-866-2919 Email: jovan.melton.house@state.co.us
42	Rhonda Fields	Aurora	Phone: 303-866-3911 Email: rhonda.fields.house@state.co.us
56	Kevin Priola	Henderson	Phone: 303-866-2912 Email: kpriola@gmail.com

## Local Officials

### City of Denver

**Michael B. Hancock, Mayor**  
City and County Building  
1437 Bannock Street, Room 350  
Denver, CO 80202  
Phone: 720-865-9000

### City of Aurora

**Steve Hogan, Mayor**  
15151 East Alameda Parkway, Fifth Floor  
Aurora, CO 80012  
Phone: 303-739-7015

## **Arapahoe County Offices**

Arapahoe County Government  
Administration Building  
5334 S. Prince Street  
Littleton, CO 80120  
Phone: 303-795-4400

## **Arapahoe County Board of Commissioners**

### **District 1: Commissioner Nancy Doty**

Administration Building  
5334 S. Prince Street  
Littleton, CO 80120-1136  
Phone: 303-795-4630  
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### **District 2: Commissioner Nancy N. Sharpe**

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5334 S. Prince Street  
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### **District 3: Commissioner Rod Bockenfeld**

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5334 S. Prince Street  
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### **District 4: Commissioner Nancy Jackson**

Administration Building  
5334 S. Prince Street  
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**District 5: Commissioner Bill Holen**

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5334 S. Prince Street  
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Fax: 303-738-7894  
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**Adams County Offices**

Adams County Government Center  
4430 South Adams County Parkway  
Brighton, CO 80601  
Phone: 303-659-2120

**Adams County Commissioners**

**District 1: Commissioner Eva J. Henry**

Phone: 720-523-6100

**District 2: Charles Tedesco**

Phone: 720-523-6100

**District 3: Erik Hansen**

Phone: 720-523-6100

**Federal, State and Local Agencies**

**U.S. Environmental Protection Agency, Region 8**

1595 Wynkoop Street  
Denver, CO 80202  
Phone: 303-312-6633  
Toll-free (Region 8 only): 800-227-8917 ext. 312-6312

**Les Sims, Remedial Project Manager**

Phone: 303-312-6224  
Email: sims.leslie@epa.gov

**John Dalton, Community Involvement Coordinator**

Phone: 303-312-6633  
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## **Colorado Dept. of Public Health and Environment**

4300 Cherry Creek Drive South  
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Phone: 303- 692-2000  
Toll-free: 800-886-7689 (in-state)

### **Lee Pivonka, State Project Officer**

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### **Jeannine Natterman, Public Involvement Coordinator**

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## **City & County of Denver**

Dept. of Environmental Health  
200 West 14th Avenue, Dept. 310  
Denver, CO 80204  
Dave Wilmoth, Senior Environmental Public Health Program Administrator  
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Email: dave.wilmoth@denvergov.org

## **Tri-County Health Department**

6162 S. Willow Drive, Suite 100  
Greenwood Village, CO 80111  
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## **City of Aurora**

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## **Arapahoe County**

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Email: jiturreria@co.arapahoe.co.us

## **Lowry Landfill Site Owner**

City & County of Denver  
Dept. of Environmental Health  
Dave Wilmoth, Senior Environmental Public Health Program Administrator  
200 West 14th Avenue, Dept. 310  
Denver, CO 80204  
Phone: 720-865-5438  
Email: dave.wilmoth@denvergov.org

## **Lowry Landfill Site Operator**

Waste Management of Colorado  
Steve Richtel, Area Director  
Closed Sites Management Group  
2400 W. Union Avenue  
Englewood, CO 80110  
Phone: 303-914-1434  
Email: srichtel@wm.com

## **Technical Assistance Group**

CLLEAN (Citizens for Lowry Landfill Environmental Action Now)  
Bonnie Rader  
71 Algonquian Street  
Aurora, CO 80018  
Phone: 303-912-2905  
Email: berr@pcisys.net

## **Local Media**

### ***The Denver Post***

101 W. Colfax Avenue  
Denver, CO 80202-5177  
Toll-free: 800-336-7678

### ***The Aurora Sentinel***

14305 E. Alameda Avenue  
Aurora, CO 80012  
Phone: 303-750-7555

### **KWGN Channel 2**

100 E. Speer Boulevard  
Denver, Colorado 80203  
Phone: 303-595-3131

### **KCNC Channel 4**

1044 Lincoln Street

Denver, CO 80203  
Phone: 303-830-6464

**KRMA Channel 6 (Public Television)**

1089 Bannock Street  
Denver, CO 80204  
Phone: 303-892-6666

**KMGH Channel 7**

123 Speer Boulevard  
Denver, CO 80203-3417  
Phone: 303-832-7777

**KUSA Channel 9**

500 E. Speer Boulevard  
Denver, CO 80203-4187  
Phone: 303-871-1499

**Colorado Public Television Channel 12**

2900 Welton Street, 1st Floor  
Denver, CO 80205  
Phone: 303-296-1212  
Toll-free: 800-727-8812

**KDVR-TV Channel 31**

100 E. Speer Boulevard  
Denver, Colorado 80203  
Phone: 303-595-3131

## **List of Acronyms**

These acronyms are used in the September 2013 Lowry Landfill Superfund Site Community Involvement Plan Addendum.

CDPHE	Colorado Dept. of Public Health and Environment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CLLEAN	Citizens for Lowry Landfill Environmental Action Now
CWM	Chemical Waste Management
DADS	Denver-Arapahoe Disposal Site
(U.S.) EPA	United States Environmental Protection Agency
ESD	Explanation of Significant Differences

FTPA	Former Tire Pile Area
FYR	Five-Year Review
IC	Institutional Controls
Lowry Site	Lowry Landfill Superfund Site
Metro	Metro Wastewater Reclamation District
MW	Monitoring Well
NBBW	North Barrier Boundary Wall
NCP	National Contingency Plan
NPL	National Priorities List
NSPS	New Source Performance Standard
OU	Operable Unit
POTW	Publically Owned Treatment Works
PRP	Potentially Responsible Party
RD/RA	Remedial Design/Remedial Action
RI/FS	Remedial Investigations/Feasibility Studies
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act
TAG	Technical Assistance Grant
UD	Unweathered Dawson Aquifer
WD	Weathered Dawson Formation
WMC	Waste Management of Colorado
WSD	Work Settling Defendant
WTP	Water Treatment Plant