



FACT SHEET

The Lowry Landfill & Water Quality

“EPA remains confident that the decision to send treated Lowry groundwater offsite to the [Publicly-Owned Treatment Works] adequately protects human health and the environment from unsafe levels of radionuclides.”

- From “Radionuclides and the Lowry Landfill Superfund Site,” Environmental Protection Agency and Colorado Department of Public Health & Environment Fact Sheet (June 2001)

OVERVIEW

In communities around the Denver metro area, questions are raised periodically regarding treated groundwater from the closed Lowry Landfill being used to irrigate local parks and golf courses, converted into fertilizer and recycled for other uses. This fact sheet provides basic information on how contaminated groundwater from underneath the Lowry site is contained, monitored and treated onsite to rigorous regulatory standards before it is discharged to local wastewater facilities for additional treatment and reuse.

Using recycled water is a common practice among municipalities throughout the Denver metro area and across the United States. Recycled water comes from a variety of sources, most of which involve commercial and residential uses. Prior to its use for irrigation, recycled water is extensively treated and tested to meet rigorous state and federal regulatory standards.

As the statement above from the U.S. Environmental Protection Agency (EPA) confirms, water discharged from Lowry Landfill to the sanitary sewer system contains safe levels of naturally-occurring and ubiquitous man-made radioactive materials. The discharge from Lowry is regulated under a discharge permit that requires monitoring of both influent and effluent to ensure specified material limits are met, including those for radionuclides (i.e., radioactive materials).

Once discharged, the Lowry Landfill’s effluent is combined at other wastewater treatment facilities with millions of gallons of predominately residential sewage; in total, the discharge from Lowry makes up less than 1% of the total water treated at these facilities. Concerns regarding hazardous levels of radioactivity in the water discharged from the Lowry Landfill site have been thoroughly investigated and proven to be false.

Following are answers to some common questions about water quality and the Lowry Landfill. Members of the public with additional questions, comments or concerns should not hesitate to reach out to any of the individuals on this website’s Contact List for assistance.

COMMON QUESTIONS REGARDING WATER QUALITY & THE LOWRY LANDFILL

Q: I've heard that plutonium was disposed of at the Lowry Landfill and is now in the water discharged from the site. Is this true?

A: EPA has extensively researched the allegations that plutonium from the Rocky Flats nuclear weapons facility was illegally disposed of at Lowry. The agency has concluded that these allegations are unfounded. Although Rocky Flats disposed of some wastes at Lowry – such as paint sludge, solvents and waste oil – official documentation reviewed by EPA (and numerous other outside parties) indicates that the facility's radioactive wastes, including the man-made metal plutonium, were sent to sites in Nevada and Idaho for storage or disposal. Studies do indicate that trace elements of plutonium from worldwide nuclear activity could be present at Lowry at levels that are consistent with man-made radiation fallout found throughout the western United States and that are not deemed by the EPA to be a threat to human health or the environment.

Q: Even without plutonium, doesn't wastewater discharged from the Lowry Landfill site contain dangerous levels of "radionuclides," or radioactive elements?

A: Studies have consistently shown that all radionuclides at Lowry are present at levels consistent with naturally-occurring and man-made radiation found throughout the western United States. The risks from exposure to naturally-occurring background radiation – such as cosmic rays from space and naturally-occurring radioactive materials in rocks and soil – and to background levels of man-made radionuclides are largely unavoidable. However, the EPA has confirmed that the currently measured levels of radiation at Lowry and in Lowry wastewater (whether caused by natural processes or potential disposal) are significantly lower than regulatory or action levels that cause human health concerns. Lowry Landfill continues to monitor radionuclides from its wastewater to confirm that levels remain below those standards.

When Lowry served as an industrial and municipal waste landfill from the mid-1960s until 1980, materials allowed for disposal included: metal-plating wastes; radioactive and non-radioactive medical wastes; radioactive household and industrial waste (e.g., alarm components, gas lantern mantles, smoke detectors, camera lenses and anti-static brushes); petroleum products; pesticides; industrial solvents; sewage sludge; paints; tires; animal carcasses; and household hazardous wastes. In addition to the remnants of these materials, radioactive materials found at Lowry include naturally-occurring elements such as uranium, thorium, tritium and potassium.

Q: I've heard that groundwater from the Lowry Landfill is only "partially" treated before being pumped offsite to municipal wastewater treatment facilities. How thorough, exactly, is the treatment process?

A: Groundwater from underneath the Lowry site is extracted and routed to a state-of-the-art onsite treatment plant with the capacity to treat 43,000 gallons per day. An "early warning" monitoring program samples water entering the plant to affirm that radionuclide activity levels do not exceed discharge limits. Since such "influent" sampling began in 2009, all activity levels have remained below those limits, in some cases by several orders of magnitude. (Although the new early warning program began in 2009, Lowry has been monitoring radionuclides for years with the same result: radionuclide levels *not* exceeding discharge limits.)

Within the plant, the treatment process involves chemical precipitation that may also remove some heavy metals and radionuclides if they are present. Sludge from the precipitation process is dried and routinely analyzed for hazardous and radioactive elements; it has always been shown to be non-hazardous and to exhibit radioactivity at or below background levels. The sludge is disposed in a sanitary landfill as a solid waste.

Following treatment at the Lowry onsite plant, water is piped to two publicly-owned wastewater treatment plants – the Metro Wastewater Reclamation District's Robert W. Hite Treatment Facility in northeast Denver and Aurora Water's Sand Creek Water Reuse Facility – for further treatment. Before discharge, the water is sampled repeatedly for radionuclides and other chemicals of concern in accordance with the wastewater discharge permit issued by the Metro Wastewater Reclamation District ("Metro") under the federal Clean Water Act. (Metro's permit also covers the water discharged to Aurora's facility.)

In addition to the influent and effluent sampling performed by the Lowry Landfill managers, Metro conducts its own effluent sampling for verification purposes. Such sampling is performed routinely without advance notice to the Lowry Landfill managers, and Metro's results have always verified those reported by the Lowry Landfill managers. Results from effluent sampling are also reported monthly to EPA, Colorado Department of Public Health and Environment (CDPHE), Tri-County Health Department, the cities of Denver and Aurora and concerned citizen groups.

Results from both Lowry Landfill and Metro continue to demonstrate that radionuclide levels are significantly at or below background levels.

Q: Is it safe for water from the Lowry site to be recycled for use in public parks and waterways?

A: Metro collects approximately 160 million gallons of wastewater per day. About 8 to 10 hours are needed to treat the wastewater before it is discharged into the South Platte River in compliance with state and federal regulations. More than 95 percent of

the pollutants are removed, making the treated water suitable for agriculture, fish and aquatic life, industrial use, water supply and recreation.

Denver Water accepts some of the discharged water from Metro and recycles it for a number of industrial and outdoor irrigation uses, including to water lawns in city parks, golf courses and schoolyards. Similarly, Aurora's Sand Creek facility recycles treated wastewater for approved use in irrigating parks, golf courses, landscaping at city buildings, medians and greenbelts.

Pre-treated groundwater from the Lowry site makes up just 0.027% of the total water treated at the Metro Wastewater facility – approximately 43,000 gallons out of the 160 million gallons treated per day. Evaluations by EPA and CDPHE have shown that the addition of this small volume from the Lowry site to the large sewage inflow has no measurable effect on the overall quality of the water discharged by Metro to the South Platte River or to Denver Water facilities. Similarly, the percentage of Lowry water within the five million gallons that are treated each day by Aurora's Sand Creek facility is small enough to have a negligible effect on overall water quality.

HELPFUL LINKS

Much more detailed information regarding the Lowry Landfill site and the treatment and reuse of wastewater treatment in the Denver metro area can be found by following these web links:

1. "Radionuclides and the Lowry Landfill Superfund Site," Environmental Protection Agency and Colorado Department of Public Health & Environment Fact Sheet (June 2001):
<http://www.epa.gov/region08/superfund/co/lowry/Lowry-Radionuclides.pdf>
2. "Lowry Landfill," Environmental Protection Agency website:
<http://www.epa.gov/region08/superfund/co/lowry/index.html>
3. "Lowry Landfill Site," Colorado Department of Public Health and Environment website:
<http://www.cdphe.state.co.us/hm/rplowry.htm>
4. "Facts About Lowry Landfill," Denver Water website:
<http://www.denverwater.org/WaterQuality/RecycledWater/RecycledWaterQualityStandards/LowryLandfillFacts/>
5. "The Industrial Pretreatment Program," Metro Wastewater Reclamation District website:
<http://www.metrowastewater.com/pretreatment.asp>
6. "Reclaimed Water," Aurora Water website:
<https://www.auroragov.org/AuroraGov/Departments/AuroraWater/WaterConservation/ReclaimedWater/index.htm>

7. “Lowry Landfill Superfund Site,” City & County of Denver website:
<http://www.denvergov.org/LowryLandfill/tabid/424796/Default.aspx>
8. “Improvements Underway for City Park Duck Lake,” City & County of Denver website:
<http://www.denvergov.org/ProgressReport/CityParkDuckLake/tabid/436929/Default.aspx>
9. “Avian Botulism,” Denver Department of Environmental Health website:
<http://www.denvergov.com/WaterQualityProgram/AvianBotullism/tabid/437574/Default.aspx>

CONTACTS



Waste Management

Steve Richtel
Area Director
Closed Sites Management
Group
Waste Management of
Colorado
2400 West Union Ave.
Englewood, CO 80110
(303) 914-1434
srichtel@wm.com



Environmental Protection Agency

John Dalton - 8-OC
Community Involvement Coordinator
U.S. EPA Region 8
1595 Wynkoop St.
Denver, CO 80202-1129
(303) 312-6633
dalton.john@epa.gov



City & County of Denver

Dave Wilmoth
Dept. of Environmental Health
City & County of Denver
200 W 14th Ave, Dept. 310
Denver, CO 80204
(720) 865-5438
dave.wilmoth@ci.denver.co.us



Colorado Department of Public Health and Environment

Marilyn Null
Community Involvement Specialist
CDPHE
4300 Cherry Creek Drive South
Denver, CO 80246
(303) 692-3304
marilyn.null@state.co.us



InterMountain Corporate Affairs

Drew Kramer
Director, Strategic
Communications
InterMountain Corporate Affairs
1410 Grant St, Suite 310
Denver, CO 80203
(720) 530-5899
dkramer@intermountainca.com



Tri-County Health Department

Lynn Robbio Wagner
Field Supervisor
Tri-County Health Department
4201 E. 72nd Ave, Suite D
Commerce City, CO 80022
(303) 288-6816
lwagner@tchd.org