



WASTE MANAGEMENT
& RADIATION CONTROL

Haz-Rad Reporter

Message from Doug Hansen, Director



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“As I write this message, I can hardly believe it’s been a little over six months since I was appointed Director of the Division of Waste Management & Radiation Control. The time has passed so quickly, and I feel the need to express gratitude to the many program stakeholders and staff who have helped my transition into this new role. It has been an amazing experience to see the work that goes into safely managing the hazardous materials necessary for our technologically advanced society. As I look back over the last year, I’m reminded of the poetic words of Neil Peart, ‘no change is permanent, but change is.’ This year has certainly been a year of changes, as we have transitioned back to working in person and a greater sense of a return to normalcy, though uncertainty remains. I believe that we have a great opportunity to learn from our experiences of the pandemic to provide more efficient work and better access to the programs we administer. I’d like to highlight a few things that will continue post-pandemic.

First, during the pandemic, many meetings and interactions were held remotely out of necessity. As we transitioned to more in-office work, we continued to offer remote access to most meetings, whether it’s a working discussion, board meeting, public outreach, or formal hearing. While in person interactions are valuable, the ability to connect with individuals across the state, and even across the country opened new opportunities for interactions that will be vital as we move forward. We will continue to invest in infrastructure to provide a hybrid alternative for most meetings.

Second, prior to the pandemic, then Lieutenant Governor Cox began a remote work initiative to provide opportunities for State employment in rural Utah as well as to realize efficiencies that would naturally flow from reducing the State’s real estate footprint. The pandemic accelerated the rollout of that initiative and increased the pace of adaptation. We learned that much of the work of the Division can be effectively and efficiently completed as we’ve implemented technological solutions. Since his inauguration, Governor Cox has remained committed to the remote workplace initiative. As we returned to an in-person work environment, many of our staff have elected to maintain a full-time or part-time remote work schedule while still providing access to the public.

Third, we continue to work on developing our data management platform. This will be a multi-year project, but we have already made significant progress. We have a [new feature on our web page](#) that allows you to sign up to receive emails for programs or facilities of interest to you. Much of the ongoing work will be less visible to the public but will allow us to more efficiently track our processes for permitting and licensing as well as our compliance efforts.

Finally, I offer my thanks to our program stakeholders and industry partners for your continued efforts to accomplish the DEQ mission to safeguard and improve Utah’s air, land and water. The work we collectively accomplish makes a difference in the lives of Utahns. “



New Division Personnel



Gabrielle Marinick
Hazardous Waste



Erika Greenwell
Hazardous Waste



Stevie Norcross
Assistant Director



Klaudia Drazetic
Support Services

Division Retirements



Rick Page *Dec. 2021*
Hazardous Waste *36 years*

“Rick is retiring at the end of December 2021 after devoting 36 years to his second family at the Bureau of Solid and Hazardous Waste/Division of Solid and Hazardous Waste/Division of Waste Management and Radiation Control. He has been the Division’s incineration expert, performing oversight and data validation for incinerator testing at USPCI-Clive, Clean Harbors Aragonite, Tooele Army Depot North (TEADN) (Popping Furnace), TEAD South (Explosive Destruction Device), EnergySolutions (Vapor Thermal Desorption System), Stericycle (Medical Waste) and last but not least the five incinerators/furnaces at the Tooele Chemical Disposal Facility (TOCDF) where Utah safely destroyed over 43% of the nation’s Chemical Weapons. During his time with the Division Rick has performed regulatory oversight and observation at well over 40 Trial Burns/Performance tests ensuring Utahns have a safe place to live. Rick was also the lead compliance inspector for TEADN and Clean Harbors Aragonite. Rick is highly respected in the regulated community by being fair and a valuable technical resource.

Rick will be sorely missed by his Division family, and we hope his future retirement brings him much happiness and keeps him busy. It was an honor working with him.”

-Deborah Ng, Program Manager Haz. Waste & Used Oil



Jule Fausto *Jul. 2021*
LLRW *20 Years*

“Jule Fausto retired in July following 20 years of service to the Division of Radiation Control and the Division of Waste Management and Radiation Control. Jule developed the Generator Site Access Program that permitted and provided oversight on waste shipments destined for EnergySolutions. She was the only one ever, to fill that position and has been sorely missed. We hope she has been busy quilting since she left the Division.”

-Otis Willoughby, Program Manager LLRW



Rolf Johnsson *Dec. 2021*
Corrective Action *30 years*

“Rolf is retiring at the end of December 2021 after 30 years of service to the DEQ in the Division of Waste Management and Radiation Control. Rolf spent most of those 30 years working in the Hazardous Waste Facilities Section which later became the Corrective Actions Section. During that time, Rolf had a lead role or was a team member in performing Compliance Evaluation Inspections, managing permits, and overseeing corrective actions at several facilities such as Big West Oil Refinery, Dugway Proving Ground, Ninigret Development, Vertellus, and Western Zirconium. In addition to these facilities, Rolf has overseen corrective actions at several voluntary cleanup sites.

Of the listed facilities, two stand out as real success stories due to Rolf’s efforts. Big West Oil Refinery had closure and corrective action obligations that had been languishing and needed addressing. Rolf worked collaboratively with the facility to get a land treatment area under a site management plan and environmental covenant, as well as a Consent Order issued to provide the framework for performing the site wide corrective actions. The corrective action work has been making steady progress with some sites achieving no further action status and others in the risk assessment phase. Ninigret Development is also worth noting. This former Engelhard Catalyst Refinery comprising 400 acres was purchased by a developer that assumed the environmental cleanup responsibility. Over the course of a decade, Rolf and another staff member worked with the developer as the site was cleaned up in sections and then developed. The effort started on the western end of the site and moved east. Site management plans and environmental covenants were put in place along the way to address residual contamination and to facilitate the commercial development. The site is very close to being fully developed.

Rolf’s expertise will be missed by the Division. We wish him well in his retirement.”

-Brad Maulding Program Manager Corrective Action



Generator Improvement Rule

In 2017, Utah adopted the Hazardous Waste Generator Improvements Rule, which made several changes to the hazardous waste regulations. Our Hazardous Waste Generator Inspectors commonly visit facilities that are not in compliance with some of these new regulations. Here are some reminders about the Generator Improvements Rule!

Small Quantity Generator Re-Notification

Rule: **R315-262-18 of the Utah Administrative Code (UAC)**



Small Quantity Generators must re-notify with the DWMRC **every four years** starting September 1, 2021. SQGs can re-notify using EPA form 8700-12, available [here](#).

Quick Reference Guide for Contingency Plans

Rule: **R315-262-262 UAC**

Large quantity generators are required to have a quick reference guide. This guide must be submitted to local emergency responders. More information on the contents of the guide is available [here](#).

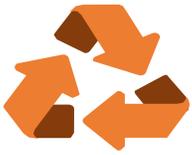


30-Day Storage Extension Requests - R315-262-16(d) and R315-262-17(b) UAC

In August 2021, the EPA provided a memorandum regarding the temporary backlog of containerized hazardous waste needing incineration across the country. The EPA acknowledged in early June 2021 that some commercial hazardous waste incinerators were no longer accepting containerized hazardous waste from generators due to backlog at their facilities. The EPA heard from over 20 states that they received requests from hazardous waste generators for extensions to the accumulation time limit, and some states were receiving requests for second extensions.



DWMRC has created a [30-day Storage Extension Request Guidance document](#) and a [RCRA Hazardous Waste Storage Extension Application](#) for hazardous waste generators in an attempt to help address the burden on generators that currently have nowhere to send their hazardous waste while still ensuring that all hazardous waste in storage is being managed in a manner that maintains the protection of human health and the environment.



DWMRC Recycling Data Initiative



DWMRC is leading the way in a statewide recycling data initiative to address the [U.S. National Recycling Goal to increase the recycling rate to 50% by 2030](#).

This new initiative aims to collect and share data on the amount of solid waste generated, recycled, and composted annually in the state of Utah.



DWMRC will be the first to measure this data statewide and make it publicly available, which is a crucial step to understanding Utah’s recycling performance and identifying areas of improvement.



As part of this initiative, DWMRC will develop an interactive map to assist the public in locating recycling facilities and to share county and statewide recycling performance data.

This data will be collected from landfills, recycling facilities, composting facilities, combustion with energy recovery facilities, and other food management facilities such as anaerobic digestion facilities.

For more information about this initiative and how to participate see our announcement here: <https://deq.utah.gov/waste-management-and-radiation-control/recycling-data-collection-initiative>



What Is myRCRAid?

- ❖ myRCRAid is a component of RCRAInfo developed by the EPA.
- ❖ myRCRAid allows generators, transporters, treatment, storage, and disposal facilities, and other hazardous waste handlers to submit EPA form 8700-12 electronically.
- ❖ This is especially important for Small and Very Small Quantity Generators, as they are now required to re-notify with the DWMRC every 4 years prior to September 1st, 2021!

For an information sheet on myRCRAid, click [here](#).
To register for a myRCRAid account, click the icon to the right.



What To Do with Asphalt Waste?

Asphalt waste is highly recyclable!

Road projects, and other development and demolition projects throughout the state generate asphalt waste. Waste asphalt can be readily used as feedstock in the manufacture of new hot or cold mix asphalt. In addition, it may be used as an underlayment and subgrade material in road construction, as road shoulder construction material, and under parking lots. Asphalt is not considered inert though and may not be used generally as fill material.



Asphalt Dumping

Leachate from asphalt typically contains polycyclic aromatic hydrocarbons and some metal constituents which may be of concern for surface water and ground water. For this reason, if someone is unable to recycle asphalt, it must be disposed of in a landfill.

The Solid Waste Section has conducted two enforcement actions to ensure cleanup of asphalt used as fill material in the State this year!

Salt Lake Landfill - Leachate Collection System

During the life of a landfill, new challenges can arise that may require responsive remedies and changes to design. Recently, the Solid Waste Section has had the opportunity to collaborate with others to address a challenge that the Salt Lake Valley Waste Management Facility (Salt Lake Landfill) is currently facing.

Construction on the Salt Lake Landfill is an ongoing process, and the landfill will have an anticipated life of another 80 years. During this time, the elevation of the landfill will continue to rise an additional 100 feet as waste is disposed of there. The landfill is required to remove any leachate (liquids) which drains to a sump placed in the bottom of the landfill.

Leachate is currently pumped from the sump through vertical risers to the top of the landfill. As waste is disposed of in the landfill, the height increases, and sections are added to the vertical risers. Recently, one riser pipe sheared due to waste settlement within the landfill. Although this riser pipe was repaired, it is only a matter of time until risers become unusable to pump the leachate from the bottom of the landfill.

The Solid Waste Section is currently working with the Salt Lake Landfill, Kleinfelder, Inc., and Salt Lake City Engineering to redesign the leachate collection system to access the bottom sumps and pump leachate from the center of the landfill. The new design will access the sump from the side, rather than vertically, and will allow for leachate to be pumped to the perimeter of the landfill where it can be managed. This new design will be implemented during the next landfill expansion and will not impact landfill operators.



Salt Lake Valley – WM Facility Leachate Riser

Small Business Environmental Assistance Program

Hello. My name is Eleanor and I am the DEQ Small Business Environmental Assistance Program (SBEAP) Coordinator/Ombudsman.



The SBEAP Program is a free, confidential, and non-regulatory program that assists businesses through navigation of the permitting process. To contact me, please call 801-536-0091 or email: edivver@utah.gov or for National SBEAP help call 800-578-8898:

Here is an example of a question I received recently:

We currently have a plating plant in California. We will be purchasing a building in Utah and opening another plant. What will I need to do about permitting? Also, could you point me to a link where I can find the Utah State Regulated Hazardous Wastes (and their waste codes). I'm familiar with the federal regulated list but not the Utah state regulated list.?

Answer: Do you currently have an EPA Identification number for Hazardous waste? You will need to obtain an EPA identification number for Hazardous Waste for your location in Utah. Since you are opening a plant in Utah and already have sites in California, you are probably aware of the notification process. In Utah, you will need to fill out the EPA 8700-12 form and submit it to our RCRA coordinator. I direct you to our website where the form is located with instructions if needed. [HAZ Waste Site](#) Also, Rules are located at Utah Administrative Rules R315 [RULES](#)

In addition, here are the Utah State Regulated Hazardous Wastes.

Utah has only two different Hazardous Waste Codes apart from the federal codes:

F999	Residues from demilitarization, treatment, and testing of nerve, military, and chemical agents CX, GA, GB, GD, H, HD, HL, HN-1, HN-2, HN-3, HT, L, T, and VX.
P999	Nerve, Military, and Chemical Agents (i.e., CX, GA, GB, GD, H, HD, HL, HN-1, HN-2, HN-3, HT, L, T, and VX.)

Reach out to your SBEAP coordinator today!





Pharmaceutical

Utah adopted the Utah Pharmaceutical Waste Rule with an effective date of September 14, 2020. The rule provides a tailored, sector-specific regulatory framework for managing hazardous waste pharmaceuticals at healthcare facilities (for both humans and animals) and reverse distributors (facilities that receive and accumulate prescription pharmaceuticals for the purpose of facilitating manufacturer credit).

An example list of waste codes for hazardous waste pharmaceuticals is located [here](#).

More detailed information on the rule can be found at EPA's [website](#)



Universal Waste

Accumulation Date

Regulation: **R315-273-15, R315-273-35 UAC**

Containers of universal waste must be labelled in a way that clearly demonstrates the length of time that the universal waste has been accumulated. More information on the contents of the guide are available [here](#).

Closed Containers

Regulation: **R315-273-13, R315-273-33 UAC**

Containers of universal waste must be closed when not in use. This includes containers of batteries and lamps, even when the batteries are sealed, or the lamps are unbroken. More information on the contents of the guide is available [here](#).

Dual Efforts on Nicotine Waste (E-Cigs / Vaping Devices):

The DWMRC has been working in coordination with the Utah Department of Health's Tobacco Prevention and Control Program (TPCP) to develop informational booklets on how to properly manage electronic cigarette (E-cigarette) waste for Utah schools and retailers.

This effort was initiated in response to recent rule changes. For schools, Utah Code 53G-8-203(3) requires Utah's local education authorities to "include policies or procedures for the confiscation or surrender of electronic cigarette products", which is anticipated to result in E-cigarette waste being collected at Utah schools. Our informational booklet for schools has already been distributed to high schools, middle school/junior high schools and K-12 schools throughout Utah.

For retailers, this outreach effort was initiated in response to the U.S. Food and Drug Administration (FDA) Deeming Rule that requires E-cigarette products that do not receive an FDA affirmative marketing order to be removed from retailer shelves and disposed of. Additionally, a recent Utah Administrative Rule change prohibits retailers from selling E-cigarettes with a nicotine concentration greater than 3% by weight. These regulations are anticipated to result in increased E-cigarette waste production by retailers. We are distributing this booklet to all Local Health Departments who have requested copies.

Both booklets and useful information on how to manage e-cigarette waste are available at ecigwaste.utah.gov



Utah Amends Universal Waste Rule for Aerosol Cans

On December 9, 2019, EPA published a final Rule in the Federal Register (84 FR 67202) that added hazardous waste aerosol cans to the universal waste program under the Federal Resource Conservation and Recovery Act (RCRA) regulations. Utah is one of several states where aerosol cans were already included as universal waste. To keep Utah rules equivalent to the federal regulations, on September 9, 2021, the Waste Management and Radiation Control Board approved amendments to the Utah Rules. The amendments include:

- Amending the definition of “aerosol can” so that it is consistent with the DOT definition.
- Aerosol cans that show evidence of leakage must be packaged in a separate closed container or overpacked with absorbents or be immediately punctured and drained.
- Empty, punctured aerosol cans are required to be recycled.
- Separation of specific types of intact aerosol cans whose contents may pose an incompatibility risk is no longer required.
- Generators that puncture aerosol cans are required to maintain a copy of the puncturing device manufacturers instructions on site and ensure employees are trained on the use of the device. Puncturing of cans must be done in a manner designed to prevent fires and the release of the aerosol can contents to the environment. Equipment must be located on a solid, flat surface in a well-ventilated area. There must be a written spill cleanup procedure and a spill cleanup kit.
- Pesticides in aerosol cans can be managed as universal waste aerosol cans instead of universal waste pesticides.
- Aerosol cans that meet the standard for empty containers are exempt from being managed as universal waste.
- Some re-numbering of R315-273 was required so that the numbering corresponded to the numbering in the federal regulations.



The amendments made changes to R315-260, 261, 264, 265, 268, 270, and 273 UAC.

The Waste Management and Radiation Control Board will vote on December 9, 2021, on final adoption of the amendments. The proposed effective date for the final amendments is December 13, 2021.



Low-Level Radioactive Waste and Energy Solutions

The Low-Level Radioactive Waste (LLRW) Program-Section, part of the DWMRC, regulates the operations and disposal of low-level radioactive waste in the State of Utah produced because of licensed activities.



Entrance to Rail Rollover Dump Facility

Radioactive wastes are wastes from radioactive materials that are no longer of any use, such as radioactively contaminated equipment, waste from nuclear power plant, nuclear medicines used in diagnose and treatment of disease and industrial uses. These wastes are subject to regulatory control by the Federal government or State. Regulating the waste from nuclear power plants, medical, and industrial uses is an environmental, technical, and political challenge. At this time the EnergySolutions' low-level radioactive waste disposal site at Clive, which is located 80 miles west of Salt Lake City, is the only licensed disposal facility for low-level radioactive waste in Utah.

Radioactivity cannot be seen, smelled, tasted, heard or felt – its presence, character and level can only be determined by means other than the human senses.

The LLRW Program manages low-level radioactive waste at the Clive site is under several different State and Federal statutes. The Division of Waste Management and Radiation Control has issued two radioactive material licenses, a hazardous waste permit, and a groundwater discharge permit to EnergySolutions and the Clive site. The site is authorized by the State of Utah to receive Class A low-level, 11e.(2) byproduct, and mixed hazardous wastes. Along with technical requirements required by the State for siting a disposal facility, the State has imposed requirements for engineered barriers requiring both natural and engineered materials, defined waste acceptance criteria, waste/material transportation regulations; hazardous waste treatment and disposal requirements; air, ground, and water monitoring; implementation of best available technology; and health physics- just to name a few. These requirements are partly in response to public concerns about low-level radioactive waste disposal posing a risk to public health and safety and the environment.

EnergySolutions' Clive site is located, constructed, and operated to isolate radioactive waste for hundreds and potentially 10's of thousands of years. To ensure the maximum degree of oversight, and to confirm compliance with applicable license and permit conditions, the LLRW Section performs approximately 24 process specific inspection modules annually (some of which are also done quarterly), 23 engineering inspection, and 15 groundwater inspections as required by State requirements and the U.S. Nuclear Regulatory Commission, weekly general facility inspections, and daily incoming shipments inspections. Each inspection is completed by staff from their respective groups: Engineering, Groundwater, Transportation, and Health Physics.

The LLRW Section is fortunate to be staffed by well-trained, and highly qualified professionals, some of which have over 30 years in their respective disciplines. To ensure that all staff retain/sharpen their skill set, the LLRW Section is fortunate to be given the opportunity of regular radiation worker training courses by the Nuclear Regulatory Commission at no cost to the Division. These course topics range from Root Cause Analysis, Environmental Field Sampling, to Radiation Specific Statistical Methods and Approaches.



Steam Generator – sent to Clive for disposal in the Large Component Cell coming from the decommissioning of San Onofre Nuclear Generating Station.

Providing regulatory oversight at EnergySolutions has proven to be a dynamic and rewarding effort by the Division. LLRW's staff continue to ensure that the people of Utah's interests are protected at Clive, and that public and the environment's health and safety are safeguarded.

Top 10 Generator Inspection Issues:



Want to know what we're looking for? Click the graphic above for a link to our Inspection Checklists!

Contingency Plan

- 1) Contingency Plans integrated from other regulations are missing RCRA specific pieces
- 2) Arrangements have not been made and/or documented with local authorities or emergency services
- 3) Large Quantity Generators don't have a Quick Reference Guide
- 4) Employees were not thoroughly familiar with waste handling/emergency procedures

Labeling

- 5) Containers are not labelled with an indication of the hazard of the contents

Waste Determinations

- 6) All waste streams are not characterized to determine if the stream is hazardous
- 7) Incorrect or inaccurate waste characterizations

Universal Waste

- 8) Containers of Universal Waste are not labelled with "Universal Waste" and the type of waste
- 9) Containers of Universal Waste are not labelled with the date that Universal Waste was first accumulated
- 10) **ALL** containers of Universal Waste are not closed



Are You a Used Oil "Permit-By-Rule" Facility?

Division staff researched for potential Permit by Rule (PBR) facilities in the State of Utah. Resources like the North American Industry Classification System, the Utah Division of Corporations and Commercial Codes Business Search, various State agency websites, company websites, and google maps were used to gather relevant information for the project. Here are the 206 potential PBR facilities divided into five NAICS categories by code:



- Code 21, Mining, Quarrying, and Oil and Gas Extraction
 - Total potential facilities: 21
- Code 22, Utilities
 - Total potential facilities: 58
- Code 23, Construction
 - Total potential facilities: 114
- Code 485111, Mixed Mode Transit Systems
 - Total potential facilities: 5
- Code 541360, Geophysical Surveying and Mapping Services
 - Total potential facilities: 8

The Used Oil "Permit By Rule" regulations are located in the Utah Administrative Code [R315-15-13.4\(f\)](#). If you are a Permit By Rule applicant, you must request and receive approval from the Director prior to operations.

Hazardous Waste TSDF Updates

Despite the pandemic, the various Hazardous Waste Treatment, Storage, and Disposal Facilities regulated by DWMRC continue to expand and improve their operations. Here's a look at some of the projects that have taken place in 2021.

Clean Harbors Aragonite

2021 has been a busy year for the incineration system at Clean Harbors Aragonite. In April, Aragonite finished construction on the shredding system and began using it to feed waste into the incinerator. The shred tower can process about one pallet per minute and has drastically increased the facility's throughput. In October, Aragonite received final approval to accept and manage wastes that carry a DOT Hazard Code of 1.3G. The final approval also involved the addition of three ATF compliant magazines in case the 1.3G explosive materials need to be stored onsite.

Lastly, Aragonite has begun construction on a number of new storage and receiving buildings. Aragonite anticipates the increased capacity for both throughput and storage will help relieve some of the pressure on hazardous waste incineration facilities nationwide.



Finished Shred Tower at Aragonite



Early stages of construction on additional storage buildings



Balcan Raptor for processing shatter-shield bulbs

Clean Harbors Clive

The Clean Harbors Clive Storage and Transfer Facility increased its container storage capacity and added a lamp recycling system. This system crushes fluorescent lamps and separates the components for recycling or disposal.

The facility can recycle all types of fluorescent bulbs and tubes, including extra-long and shatter shield. When operating at full capacity the system can process 1,800 pounds per hour.

Clean Harbors Grassy Mountain

Clean Harbors moved its mercury consolidation process from its facility in Arizona to the Grassy Mountain Landfill facility. Grassy completed upgrades to their PCB warehouse to allow safe mercury storage and consolidation and have been approved to begin.

In February, EPA issued a Coordinated Approval for Grassy to dispose of TSCA waste in Cell 8 in addition to RCRA Hazardous Waste.



Cask used for storing elemental mercury Grassy Mountain

Utah Test and Training Range

The Utah Test and Training Range (UTTR) completed its biennial soils sampling event at the Thermal Treatment Unit (TTU) to support the human health and ecological risk assessments for the site. The 2021 sampling event included sampling at both operational areas, which has been done during prior events, and non-operational areas, which have not been previously sampled. UTTR also continued its cleanup efforts of Landfill 5, a hazardous waste landfill that was closed in 1988. Final cleanup soil sampling and contaminated soil disposal continued through 2021 and is slated to be completed this winter. Semiannual groundwater monitoring will continue to evaluate contaminant concentration trends over time.



UTTR Groundwater Sampling



Radiation Exposure Throughout Your Life

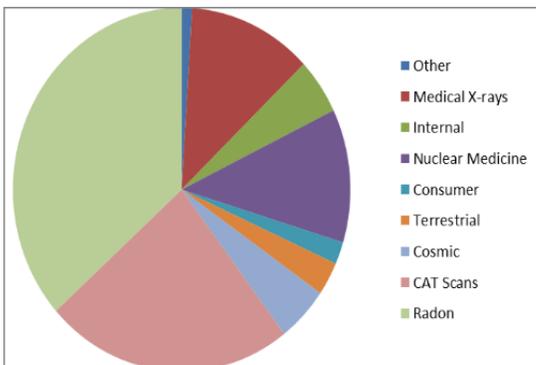


Medical X-rays cause the majority of the average person's exposure to man-made radiation. In 2006, Americans were exposed to more than seven times as much ionizing radiation from medical procedures as was the case in the early 1980's. The National Academies' National Research Council has reported that even low doses of ionizing radiation, such as X-rays, are likely to pose some risk of adverse health effects. State registration and inspection of X-ray equipment is necessary to minimize radiation exposure to the public. The goal and objective of the X-ray program is to ensure that users of X-ray equipment have an effective radiation safety program which reduces the likelihood that individuals receive unnecessary radiation exposure.

Effective controls involve the following:

- The X-ray unit performs as designed. This is needed to maintain high quality images and reduce the re-peat of X-ray procedures. The result is adequate diagnostic information for appropriate patient care, while minimizing radiation exposure to the patient.
- The training, education and licensing of X-ray equipment operators is evaluated.
- Surveys of radiation levels in and around the X-ray suite are performed to ensure that regulatory limits are not exceeded. Information is collected to evaluate the potential radiation dose to radiation workers (employees) and the public.
- Radiation dose to patients is evaluated so that medical practitioners can provide patients with information about the dose from an X-ray procedure. Comparing the information between facilities can help practitioners and patients evaluate the risk and benefits of an X-ray procedure.
- Radiation safety procedures, concerning a pregnant patient, a pregnant worker, shielding of the patient or staff, and holding or assisting patients, can be evaluated.
- Contracting with the U.S. Food and Drug Administration to evaluate how mammography facilities meet requirements of the federal Mammography Quality Standards Act helps to ensure high quality images are produced, the patient receives a low radiation dose, personnel making and interpreting images are qualified, and needed procedures exist to track patients when an abnormality is detected.
- On-site evaluations of X-ray equipment can help medical personnel determine if the cause of poor-quality images is due to the film development system or the performance of the X-ray equipment.

X-Ray Procedure	BERT (days)*	Effective Dose Equivalent (mrem)
Dental	2	1 to 2
Chest	6	1 to 5
Skull	20	10 to 20
Pelvis	65	70 to 140
L-spine	130	130 to 270
Head CT	300	200 to 400
Barium enema	390	510 to 880



For more information on our X-ray Program or questions involving registering of x-ray equipment, inspections, radiation protection and safety, please call our X-ray Program at (801) 536-0200.

*Background Equivalent Radiation Time (BERT)

Landfill 5 at Utah Test and Training Range

The Utah Test and Training Range (UTTR) is a remote military reservation operated by Hill Air Force Base as a practice bombing and gunnery range for military aircraft, propagation testing, rocket motor test firing, missile storage, and small arms and machine-gun firing ranges.

Landfill 5 at the UTTR is a hazardous waste landfill that operated from 1976 to 1983 and received 12,800 tons of waste from Hill Air Force Base. It is located on the eastern portion of the UTTR along the west-side of the Box Elder County Road and was constructed in fine-grained lacustrine sediments on top of an alluvial fan of the Lakeside Mountains. Material placed in the landfill was sludge from Hill Air Force Base's industrial waste treatment plant operations, wastes from remanufacturing of aircraft brakes, sand blast media, JP-4 impregnated reticulated foam, and containerized waste that included organic solvents, paints, paint thinners, oils, and cyanide. Material was segregated by type and placed into one of six unlined cells of the landfill.



LF 5 – filling cell with Clean Fill

The onset of the RCRA program in 1983 caused the Air Force to stop sending waste to the landfill and required them to develop a closure/post-closure plan. This plan was completed in 1988. To minimize contaminant movement from the landfill to the groundwater, a low-permeability cap with a geosynthetic liner was installed over the landfill in 1990.

Various investigations completed after 2000 showed contamination in the soil and groundwater at approximately 400 feet below ground. These contaminants included: metals, VOCs, SVOCs, PAHs, gasoline and petroleum-range hydrocarbons, pesticides, herbicides, PCBs, and cyanide. Due to the confirmed impacts to the soil, vadose zone and the groundwater, the Air Force was compelled to remove the landfill waste and to clean up the remaining contamination. Three contamination areas have been identified: the actual landfill, the soil from the bottom of the landfill to the groundwater table, and then groundwater.



Tilling Haz. Waste to treat contaminants prior to transport.

The landfill and surrounding material were excavated, treated, as necessary, and then disposed of at either the Clean Harbors' hazardous waste landfill or incinerator. The depth of excavation depended on the cell and ranged from 20 to 30 feet. These activities were completed in January 2020.

The volatile contamination in the soil below the landfill is being removed by a system of passive soil venting wells that were started in January 2020. Using changes in barometric pressure, the contaminants travel through the soil to the venting well and then to the well outlet for release to the atmosphere. This effluent is monitored and complies with the Utah Division of Air Quality's rules. The groundwater contamination plume is being monitored and evaluated.

Currently, the Air Force is sampling surficial soil to confirm removal of contaminants to risk-based standards. In the near future, the surface of the landfill will be graded to match the surrounding area with positive drainage to move water away from the site and a native grass mix will be used to seed the landfill.



WMRC Mailing List



Stay informed on the latest Solid Waste, Hazardous Waste, or Used Oil activities by signing up for our email list!

After selecting your area of interest, you will receive notices on topics such as permit actions, closure and clean-up decisions site management plans, rule changes, Waste Management and Radiation Control Board agendas, and public comment periods/public hearings.

On this site you may also sign up for email notices regarding Air Quality, Water Quality, or other public participation activities.

To sign up, click on the icon to the left.



Newsletter Contributors

Tom Ball, WMRC
Carlee Christoffersen, WMRC
Eleanor Divver, OPPA
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Editor: Erika Greenwell, WMRC



**WASTE MANAGEMENT
& RADIATION CONTROL**

P.O. Box 144880
Salt Lake City, UT, 84114-4880
801. 536. 0200

<https://deq.utah.gov/division-waste-management-radiation-control>