Utah Department of
Environmental
Quality
Utah's Environment 2014
Photo Courtesy Clint Losee

Message from the Director

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Photo Courtesy Edward Hickey

Last year, Governor Herbert launched his *SUCCESS Framework*, a set of management principles designed to improve quality and efficiency in government. We embraced these principles at DEQ, and over the past year we have implemented process improvements that have increased both our efficiency and our effectiveness.

At DEQ, we define success as providing the highest quality of service to protect Utah's air, land and water for the lowest cost. We strive to provide the residents of Utah, today and tomorrow, with a cleaner and healthier environment through sustainable regulations that support Utah's economy and its quality of life.

We've accomplished this through an organizational culture that is flexible and open to change. Budgets are increasingly tight, and environmental challenges are more technically complex and difficult to solve. Success demands transparency—providing the public with easy access to information in real time and providing opportunities for feedback and dialogue.

We see these challenges as opportunities for continuous improvement.

An example of our efforts to balance environmental protection with business development can be seen in our work in the Uinta Basin. The expansion of oil and gas production in the Basin offers economic opportunity for local communities, the state, the Ute Tribe, and the nation, but increased production also increases air emissions, spills, the potential for surface and ground water contamination, and impacts from drilling waste.

In keeping with our commitment to success, DEQ is constantly assessing the changing landscape of oil and gas production and identifying ways to

avoid, mitigate, or manage environmental impacts. Our divisions are working together to address a variety of environmental issues related to increased production and are looking for innovative ways to team efficiently to resolve any problems. For instance, the Division of Air Quality is leading research efforts into the science of wintertime ozone in the Basin, working with producers on implementing best management practices to reduce emissions, creating new streamlined permit and compliance paths, and developing rules that address emissions from older production sites. The Division of Solid and Hazardous Waste is working hand-in-hand with producers and waste managers to address the proper disposal of drilling waste, and the Division of Water Quality is making the Basin a priority watershed for water quality monitoring and evaluation.

DEQ is leading the way on the path to success on a wide range of environmental issues—sharing information within our agency and with other state agencies, working in collaboration with stakeholders, searching for more efficient ways to do our work, and increasing our transparency with the public.

I invite you to read our 2014 State of the Environment Report to learn more about the process efficiencies we've implemented, the programs we administer that protect the environment while supporting economic growth, and the environmental challenges we face—and overcome—on a daily basis.

It is an exciting time to be at the forefront of protecting Utah's air, water, and land, not only for ourselves, but for our kids and grandkids. Leaving a legacy of clean air, clean water, clean land, and economic prosperity for future generations is our true measure of success, and we believe that we are well on our way.

Amanda Smith
Executive Director

Utah continues to make significant progress towards understanding and addressing the causes of seasonal air pollution. Increased public awareness and legislative funding for research and education campaigns have provided important support for the Division of Air Quality (DAQ) in its ongoing efforts to reduce pollution, improve air quality, and protect public health.

Air Quality Information

Partnerships between DAQ, the news media, and television meteorologists helped publicize air quality conditions and action alerts to a broader audience during the 2014 winter inversion season. Downloads of DAQ's popular UtahAir App increased in 2014, topping 20,000 since it was introduced a little over a year ago.

Legislative Funding

Funding provided by the 2014 Utah Legislature helped DAQ make significant progress in its efforts to address air quality issues in the state. These appropriations provided the division with the following important resources:

- Research funding to improve scientific understanding of the complex conditions that lead to high pollution levels in some areas of the state.
- Four new full-time employees to increase DAQ's ability to process permits and conduct compliance inspections in the Uinta Basin. An emissions inventory and photochemical monitoring study for the Uinta Basin.
- An infrared camera to detect leaks at oil and gas operations and a portable monitoring trailer to supplement readings from stationary monitors.

- A wood-burning campaign to educate the public about the impacts of wood smoke.
- Funding to help convert homes that use wood as their sole source of heat.
- Funding for the Clean Air Retrofit, Replacement, and Off-road Technology (CARROT) program for grants and loans to individuals and small businesses to reduce emissions from small engine and heavy diesel equipment.

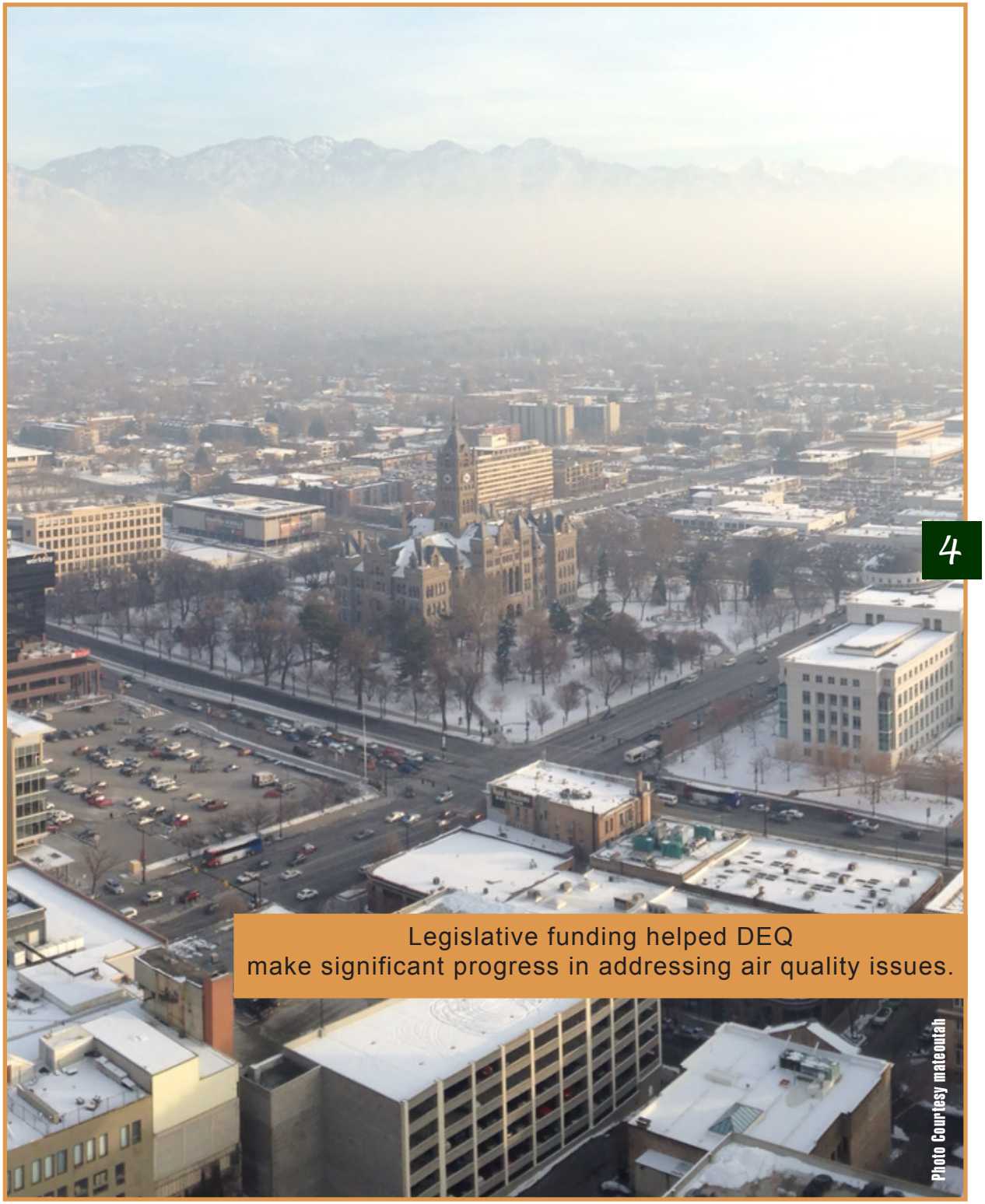
Tier 3

In 2014, EPA adopted a new standard for cleaner gasoline and vehicles known as Tier 3. DAQ and Governor Herbert support the prompt implementation of these Tier 3 fuel standards to improve air quality in the state. The seven counties currently in nonattainment for PM2.5 would benefit the most from Tier 3, but cleaner-burning cars and gasoline would benefit the entire state.

DAQ models show that the implementation of Tier 3 standards offers the best strategy for reducing pollution levels along the Wasatch Front. The Tier 3 rule requires small refiners to meet the lower sulfur standard in fuel by 2020, but the Governor, DEQ, and business leaders are working with Utah's small refineries to get Tier 3 fuel into Utah as soon as possible and asking car dealers to start bringing Tier 3 vehicles into the state.

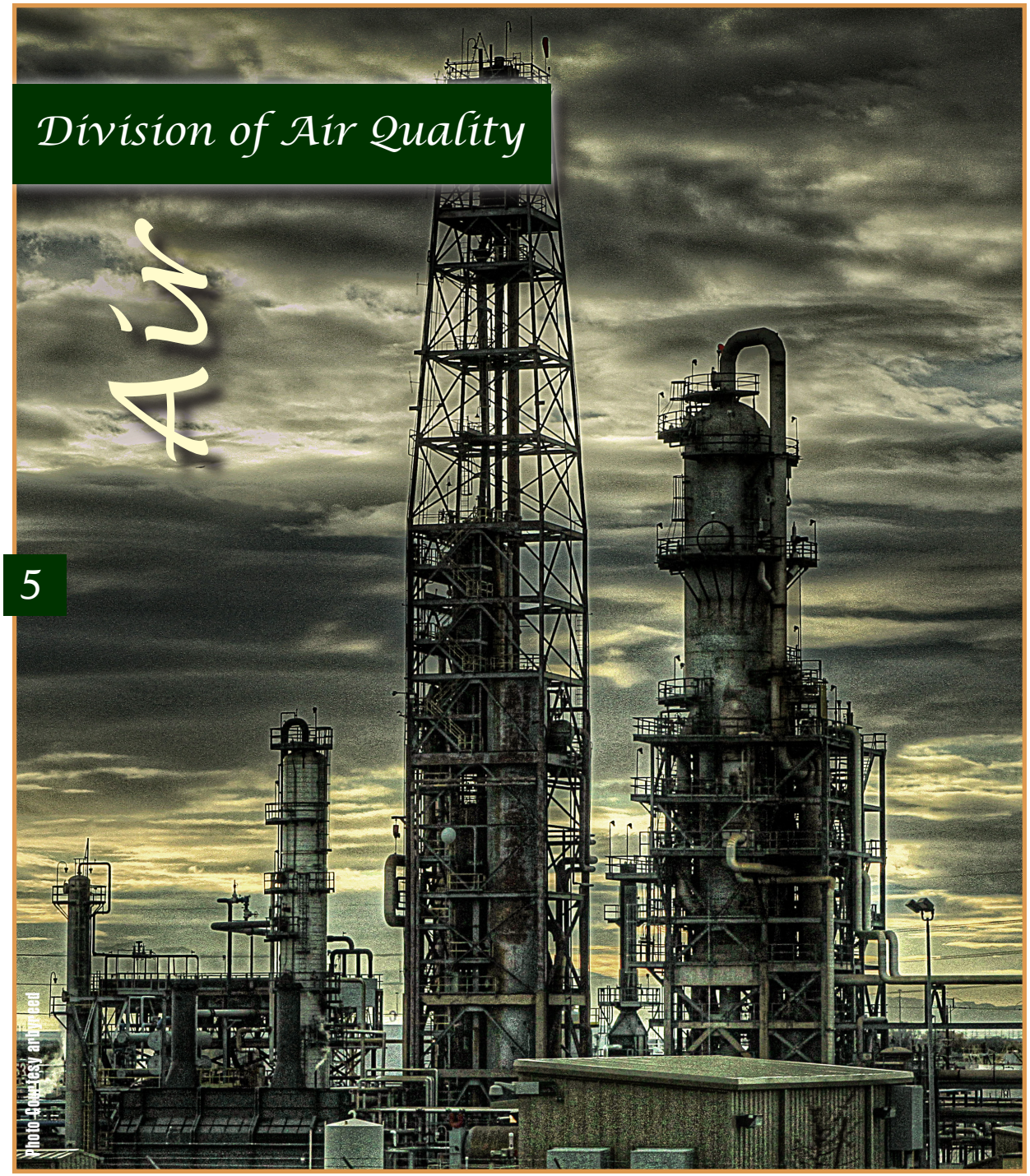
2014 PM2.5 State Implementation Plan (SIP)

A D.C. Circuit Court of Appeals ruling against the Environmental Protection Agency (EPA) interpretation of the Clean Air Act (CAA) required EPA to publish a new schedule for PM2.5 SIP submissions. As a result, EPA required DAQ to submit its PM2.5 SIP for the Salt Lake, Provo, and Logan nonattainment areas by December 31, 2014 and either demonstrate attainment of the standard by December 31, 2015 or demonstrate that it is impracticable for the state to do so after applying all reasonable control measures.



Legislative funding helped DEQ
make significant progress in addressing air quality issues.

Photo Courtesy mateoutah



DAQ replaced the portion of the 2013 SIP that required revision under the Court decision and quantitatively demonstrated that it was impracticable for the area to attain the 24-hour PM2.5 standard by the December 2015 deadline.

Ozone Standard Change

In December, the EPA proposed a new 8-hour ozone standard that would lower the ozone limit from 75 parts per billion (ppb) to between 65 and 70 ppb. Background ozone levels across Utah often fall within this proposed range, making state compliance extremely difficult. Depending on where the new ozone standard is set under the National Ambient Air Quality Standards (NAAQS), much of the state could be classified as nonattainment, requiring the preparation of ozone SIPS.

Uinta Basin

Weather favorable to ozone formation during the 2014 winter ozone season helped researchers conduct further evaluations on the sources of the precursor gases that form ozone.

Measurements in 2014 showed that formaldehyde and other aldehydes are the dominant sources of radicals (reactive chemicals) that drive ozone formation during these winter episodes. Computer model simulations of ozone formation confirmed earlier analyses that indicated that ozone formation is sensitive to reductions in volatile organic compounds (VOCs)—that is, VOC reductions would result in ozone reductions. While the analysis was limited to the gas production region of the Basin, it does offer support for ongoing VOC reduction strategies in the area.

Greenhouse Gas Reductions

Under the EPA's proposed Clean Power Plan rule to reduce carbon dioxide (CO2) emissions from electric-generating power plants, Utah would be required to

develop state-specific goals to lower carbon pollution by 2030. Goals would be met through standards of performance that apply the "best system of emission reductions (BSERs)."

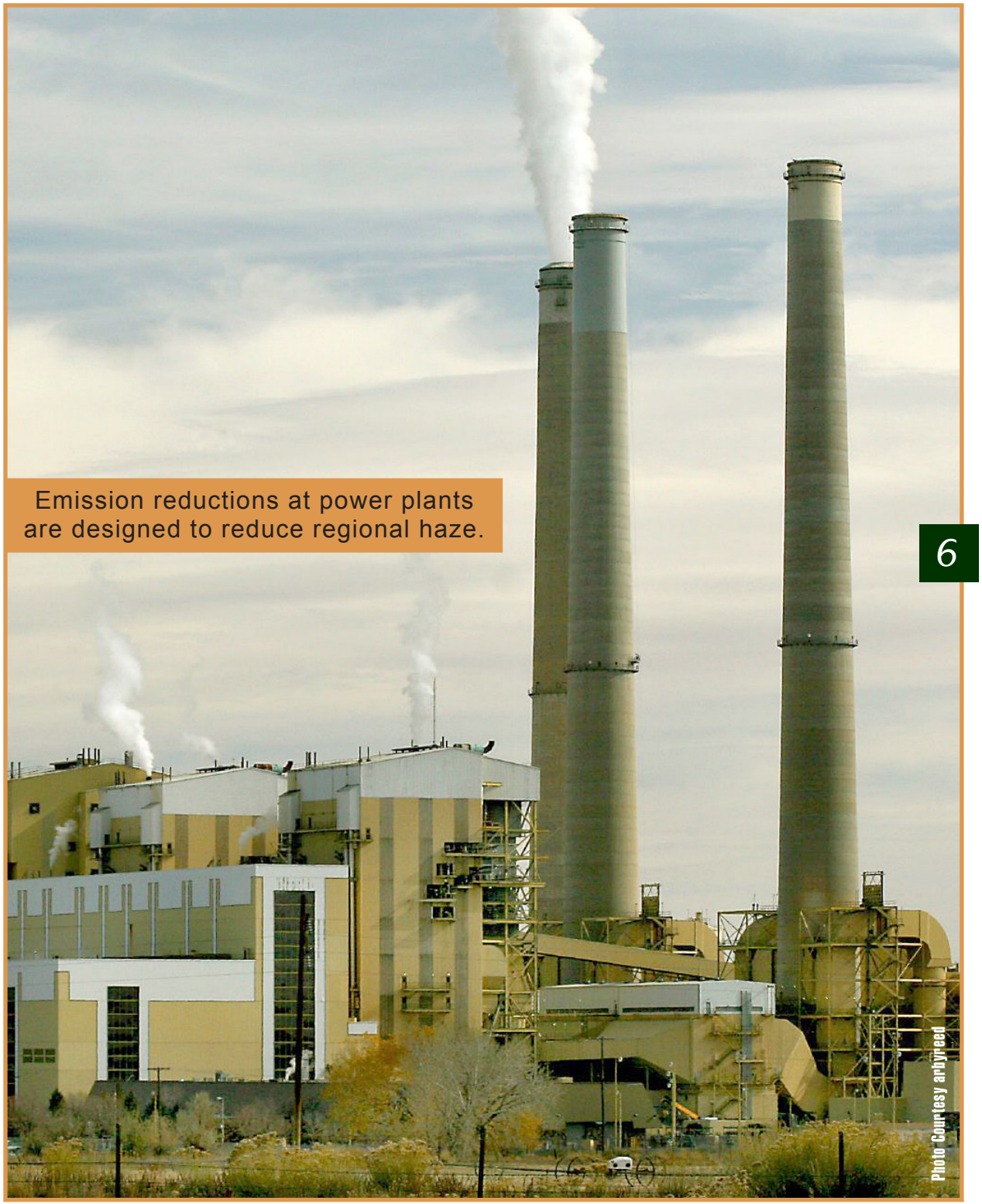
DAQ collaborated with the Office of Energy Development and utilities on comments submitted by the state to the EPA regarding this proposed rule.

Regional Haze

Utah's Regional Haze (RH) SIP was developed to protect the vistas of Class 1 areas—including Utah's five national parks—from regional haze. In 2013, the EPA approved the majority of the RH SIP dealing with emission reductions for sulfur dioxide (SO2), but disapproved the SIP's best available retrofit technology (BART) determinations for nitrogen oxides (NOx) and particulate matter (PM) for PacifiCorp's Hunter and Huntington Units 1 and 2.

Pollution control equipment installed by PacifiCorp on the four units subject to BART, combined with early emission reduction strategies in 2003, helped the state reach SO2 emission reduction milestones seven years ahead of a 2018 deadline. The proposed shutdown of the Carbon Power Plant in 2015 offers overall emission reductions of SO2 and NOx of 10,000 tons, equivalent to the most stringent NOx controls under BART that could be installed at the Hunter and Huntington units.

The EPA required DAQ to submit a revised SIP plan that addressed EPA's disapproval of the BART determination. After extensive review of the impacts from additional control measures under BART, DAQ decided to retain its 2008 BART determinations with the addition of an enforceable requirement to shut down Carbon Unit 1 and 2 by April 15, 2015. Due to the complexity of the modeling required to demonstrate that the closure of the Carbon plant combined with PacifiCorp's earlier installation of low-NOx burners will satisfy the emission reductions required for the RH SIP, DAQ has delayed its final recommendation on the SIP until early next year.



Emission reductions at power plants are designed to reduce regional haze.

Photo Courtesy arbyreed

Division of Solid and Hazardous Waste

Land

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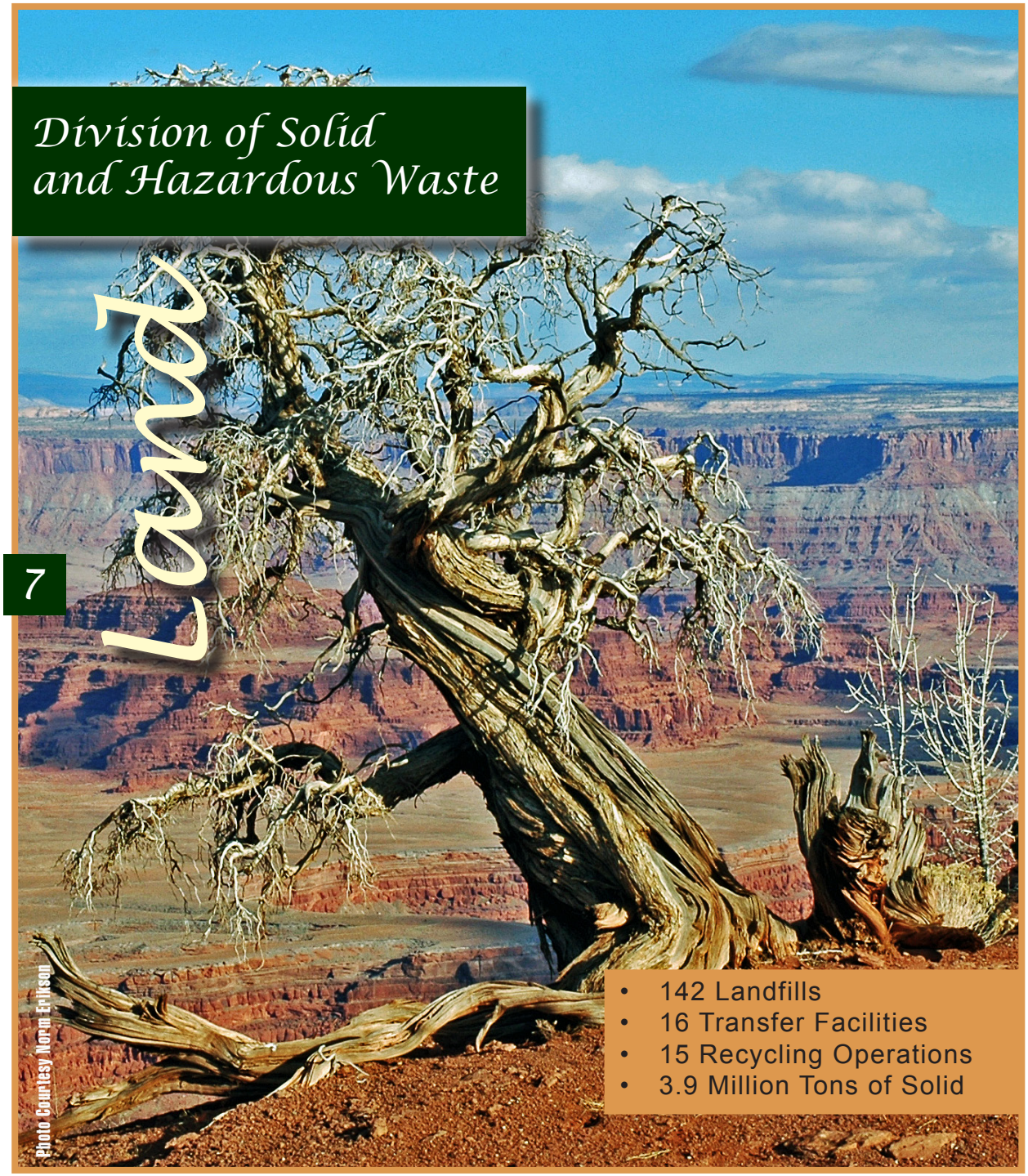


- 142 Landfills
- 16 Transfer Facilities
- 15 Recycling Operations
- 3.9 Million Tons of Solid

Photo Courtesy Norm Erikson

The Division of Solid and Hazardous Waste (DSHW) helps businesses and residents handle and manage waste properly. DSHW accomplishes this objective through:

- Permitting and Compliance
- Corrective Actions
- Education and Outreach

DSHW works closely with facilities to clean up waste-contaminated areas and establishes permit conditions to ensure that waste treatment, storage and disposal practices protect human health and the environment. Education and outreach on proper waste disposal and recycling are critical components of DSHW programs, particularly as electronic waste streams and the number of small waste generators increase.

Permitting and Compliance

DSHW issues permits to solid and hazardous waste facilities to treat, store, and dispose waste in a manner that protects the land and groundwater from contamination. Permitted solid waste facilities include municipal, commercial, and industrial landfills. The division issues permits to a number of large commercial and government hazardous waste facilities and ensures compliance with regulatory requirements and all permit conditions through regular inspections. Failure to comply with permit conditions results in a range of enforcement actions.

Corrective Actions

The division works with companies through its Corrective Action Program to remediate environmental contamination from the improper storage, treatment, or disposal of solid or hazardous waste. Corrective Actions (CA) ensure that facilities deal with these releases properly to minimize harm to the public and the environment. DSHW's collaborative efforts with

businesses and developers on these cleanups lead to timely resolution of environmental issues and a faster return of contaminated lands to beneficial reuse. DSHW also prepares Site Management Plans that allow facilities to continue operations while still protecting workers and environmental receptors from residual contamination on these sites.

Geneva Steel

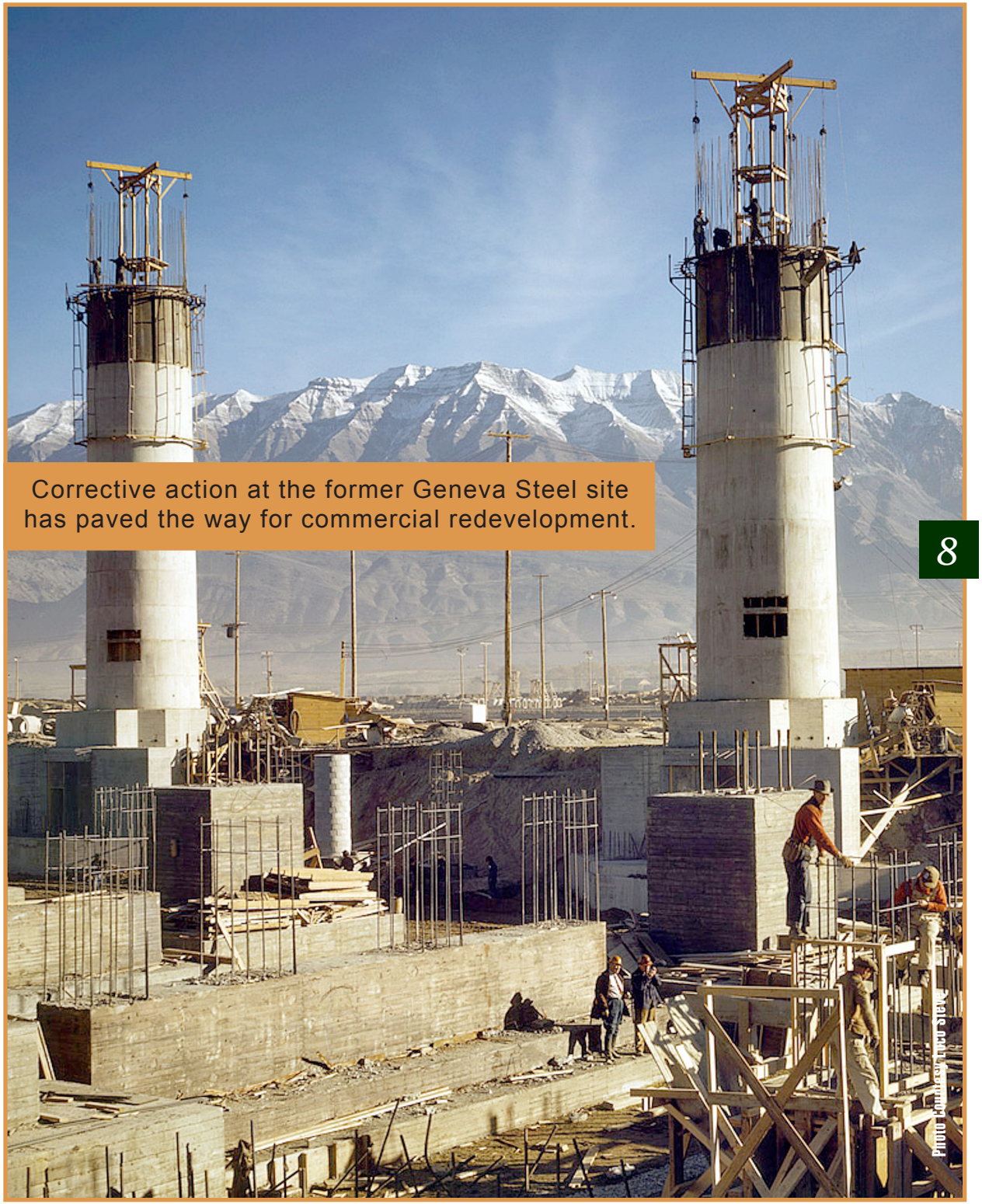
Corrective action permits for the cleanup of three hazardous waste surface impoundments and facility-wide Corrective Action at the Anderson Geneva Development in Vineyard, Utah, has made it possible for developers to construct a mixed-use development on the former steel mill site. Cleanup activities included remediation of groundwater contamination and multiple solid waste management units (SWMUs) scattered across the site.

Anderson-Geneva is redeveloping the property for single-family homes, high-density housing areas, and retail, office, and industrial space. Development plans include:

- Housing for 26,000 Residents
- Two Million Square Feet of Retail Space
- Three and Half Million Square Feet of Office Space
- Five Million Square Feet of Industrial Space
- An Intermodal Hub
- A Major Town Center

Ninigret Development

The Engelhard Corporation previously operated a petroleum-catalyst manufacturing and regeneration facility at the property. Under DSHW authority and oversight, the developer remediated 400 acres of property and sold parcels of the property to various businesses and real estate brokers. Approximately 75 percent of the property has been redeveloped. The developer continues to monitor groundwater at the site to ensure the remedial effort was successful.



Corrective action at the former Geneva Steel site has paved the way for commercial redevelopment.

Division of Solid and Hazardous Waste

Land

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Photo Courtesy arbyreed

Tooele Army Depot-South (TEAD-S)

DSHW has been working with the Army to remediate legacy waste remaining at TEAD-S from the demilitarization and testing of chemical agents, bombs, projectiles, and other munitions. The project to investigate and clean up these buried wastes began about three years ago, and the majority of the work will be completed in 2015. Work has included the surface removal of thousands of demilitarized munitions, drums, and other wastes from two solid waste management units that contain over 100 disposal pits and have widespread surface contamination.

Education and Outreach

DSHW educates businesses and residents on the proper disposal and recycling of solid and hazardous wastes to prevent soil and groundwater contamination. The used oil and waste tire programs, for example, have dramatically reduced the health hazards from these two waste streams and helped encourage proper disposal and recycling of these materials. DSHW provides comprehensive information on the management of household hazardous waste, recycling, pollution prevention, and best management practices for specific businesses. The used oil and small hazardous waste generator programs offer presentations and training to businesses and the public as part of their public outreach efforts. The Recycling and Community Outreach Program offers the public information on hazardous household waste collection dates, the location of used oil collection centers, and a county-by-county list of recycling centers and the wastes they accept.

DSHW is currently working to address two growing hazardous waste problems:

- Small quantity generators of hazardous waste.
- E-waste (electronic waste) disposal and recycling.

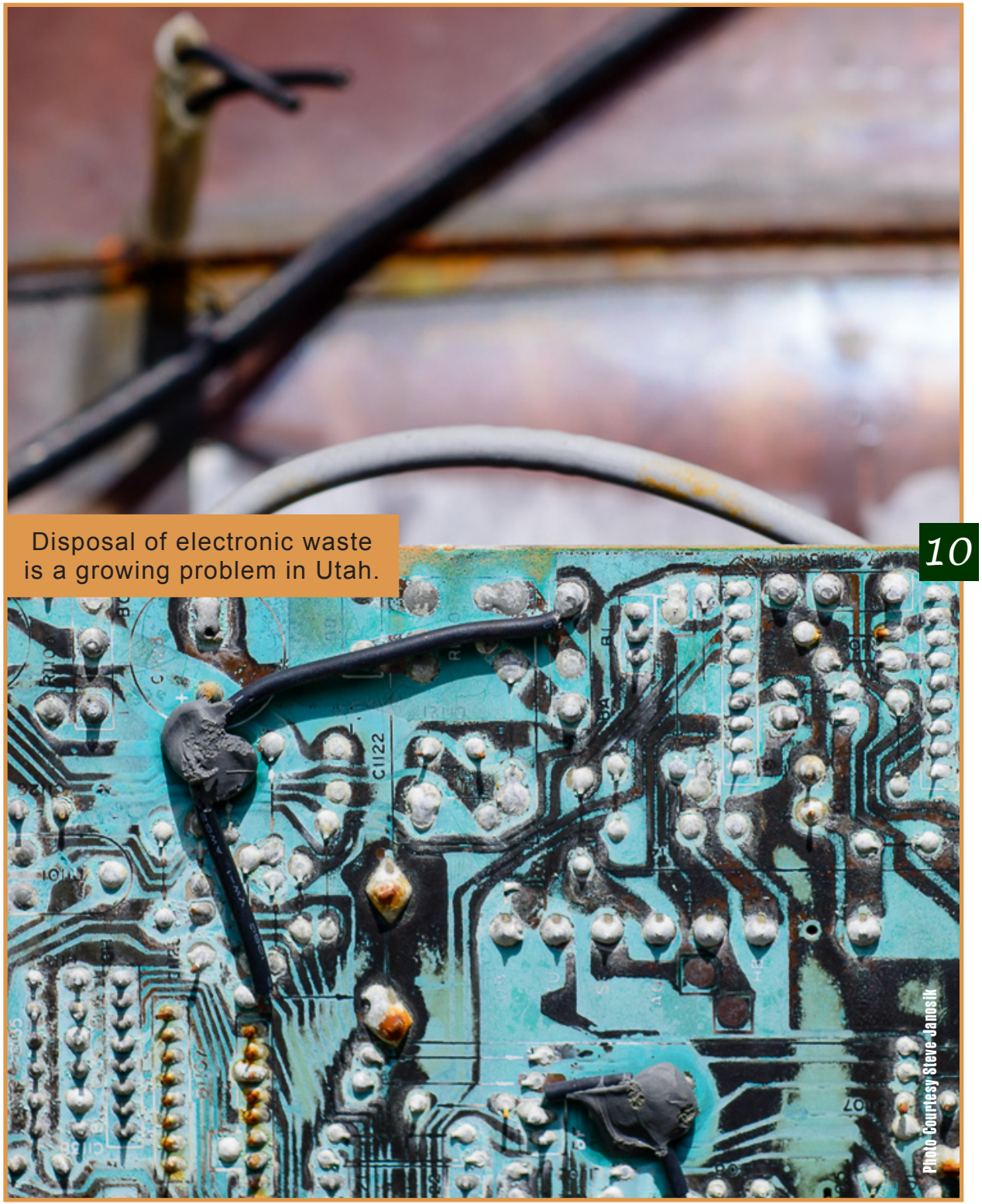
Small Quantity Generators of Hazardous Waste

DSHW provides compliance assistance for small businesses that generate less than 2,200 pounds of hazardous waste per month. This program has been successful in helping small businesses understand the requirements necessary for compliance with hazardous waste management rules specific to small business. Although DSHW visits approximately 150 companies a year through this program, many small generators are not aware of the compliance assistance program. The Division collects information about these other small quantity generators through trade associations, word-of-mouth, and complaints received from neighbors. The aim is to educate these small waste generators on the proper disposal of hazardous wastes to protect their workers and the environment.

Electronic Waste (e-Waste)

Electronics are the fastest growing waste stream in the country. It's predicted that approximately 3 billion electronics will be discarded by the year 2016. DSHW is particularly concerned about the mismanagement of recycled and discarded Cathode Ray Tube (CRT) TVs and computer monitors. E-waste contains a wide range of hazardous materials, including heavy metals such as lead, mercury and cadmium. CRT screens in particular contain high levels of lead. Improperly disposed e-waste can end up in landfills, where these toxic substances can contaminate soils and groundwater.

To combat this problem and inform the public of environmentally safer options, DSHW publicizes electronic recycling events, maintains a list of recycling centers that accept electronics, and identifies manufacturers that participate in electronics take-back programs. DSHW also inspects electronics recyclers to ensure that they are managing recycled electronics appropriately.



Disposal of electronic waste is a growing problem in Utah.

Photo Courtesy Steve Jansik

Division of Radiation Control

Land

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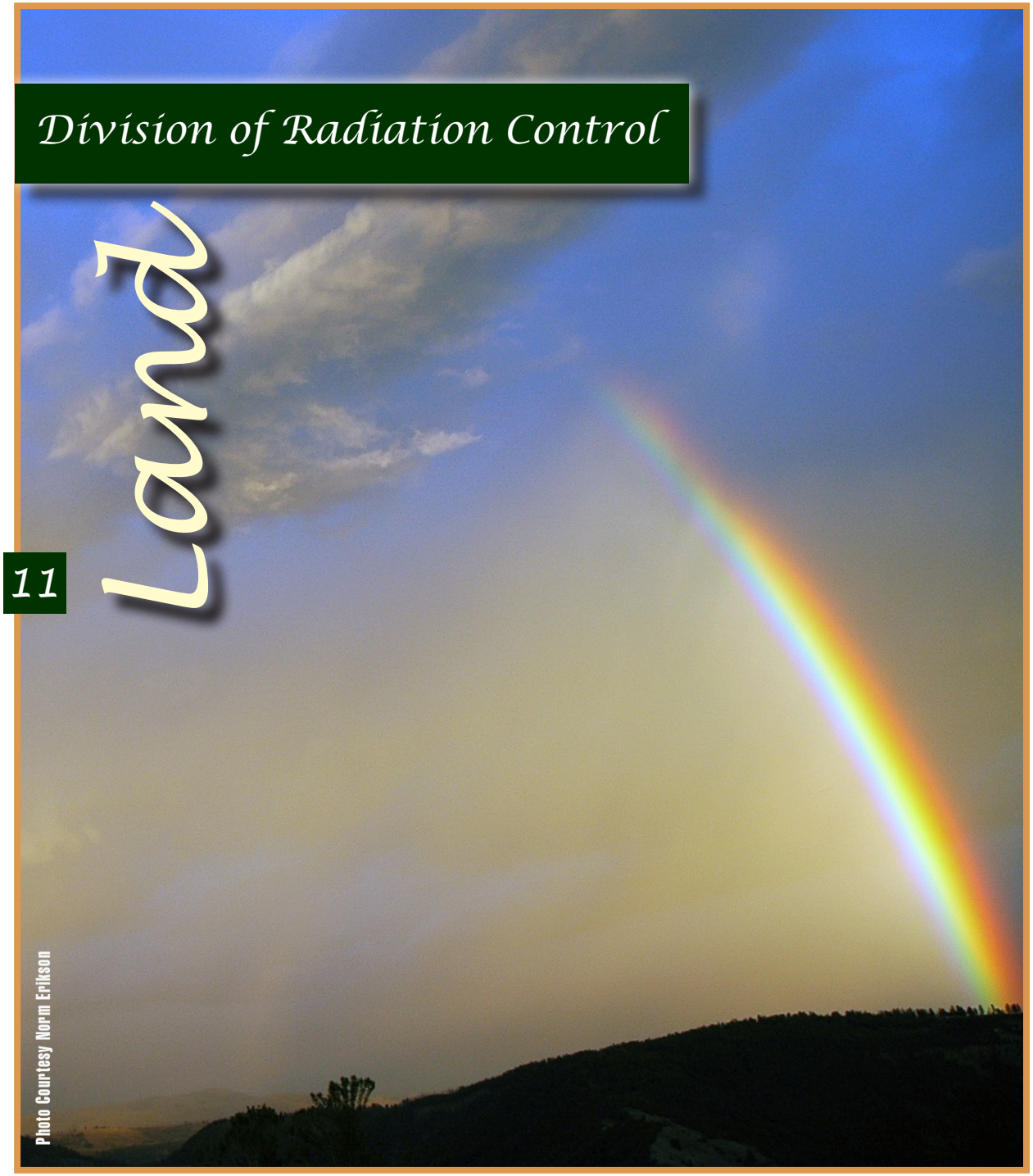


Photo Courtesy Norm Erikson

The Division of Radiation Control (DRC) plays a critical role in safeguarding Utah residents from harmful exposure to radiation. DRC fulfills its responsibility to protect public health and safety through its inspection, monitoring, licensing, compliance, and outreach programs. The division has also implemented operational efficiencies designed to streamline its inspection processes.

In 2014, DRC accomplished its objectives by providing the following services:

- X-ray equipment inspections at medical, veterinary, dental, and various non-medical, industrial and institutional facilities across the state.
- Increased public awareness of the dangers from indoor radon.
- Improved efficiencies.
- Educational materials on radioactive materials in consumer products.
- Daily inspections and compliance monitoring of low-level radioactive waste.
- Verification that radioactive materials shipped from generator sites to Utah meet state classification requirements.
- Evaluation of the performance assessment for depleted uranium disposal.

These activities ensure that the public is protected from radiation exposure across a variety of settings and circumstances through the efficient and effective use of DRC resources and scientific expertise.

X-ray Inspections

DRC's X-ray inspection program safeguards patient health by making sure that diagnostic and therapeutic radiological equipment uses the lowest amount of radiation necessary for a given procedure. Highly trained radiological inspectors evaluate the

performance of X-ray units and radiation safety practices at facilities that use radiological equipment. DRC provides support and guidance to facilities with X-ray equipment, including procedures for measuring and reducing patient and non-patient exposure. Regularly scheduled visits from inspectors provide medical and dental professionals with the opportunity to ask questions, receive additional safety guidance, and review exposure levels and instrument calibration. Inspections and radiation safety advice during inspections have increased compliance rates from 70 percent to 90 percent over the past seven years. As the use of radiological diagnostics increases in medical, dental, veterinary, and industrial practices, the proper operation of X-ray units is crucial for protecting individuals from unnecessary or even harmful exposure to radiation.

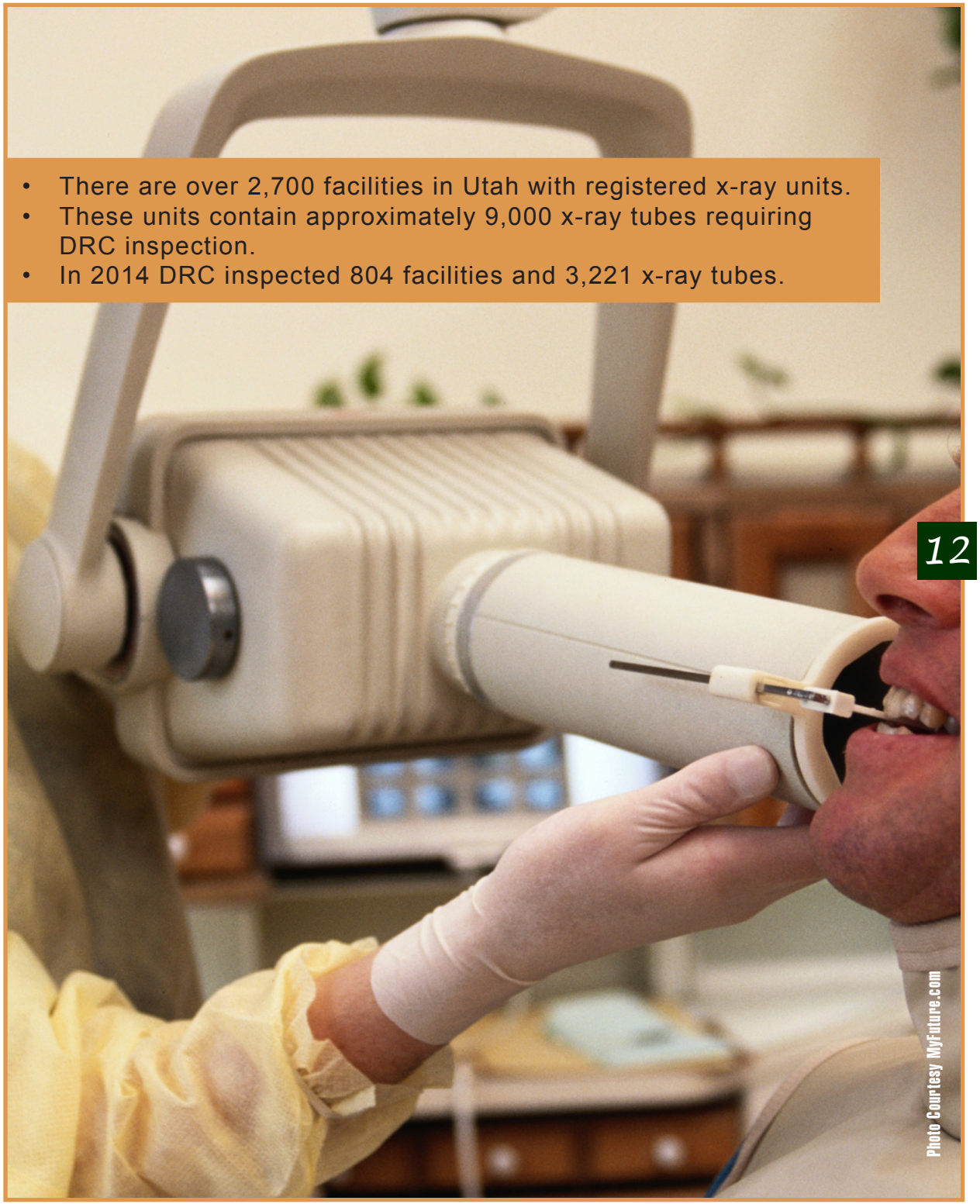
Radon

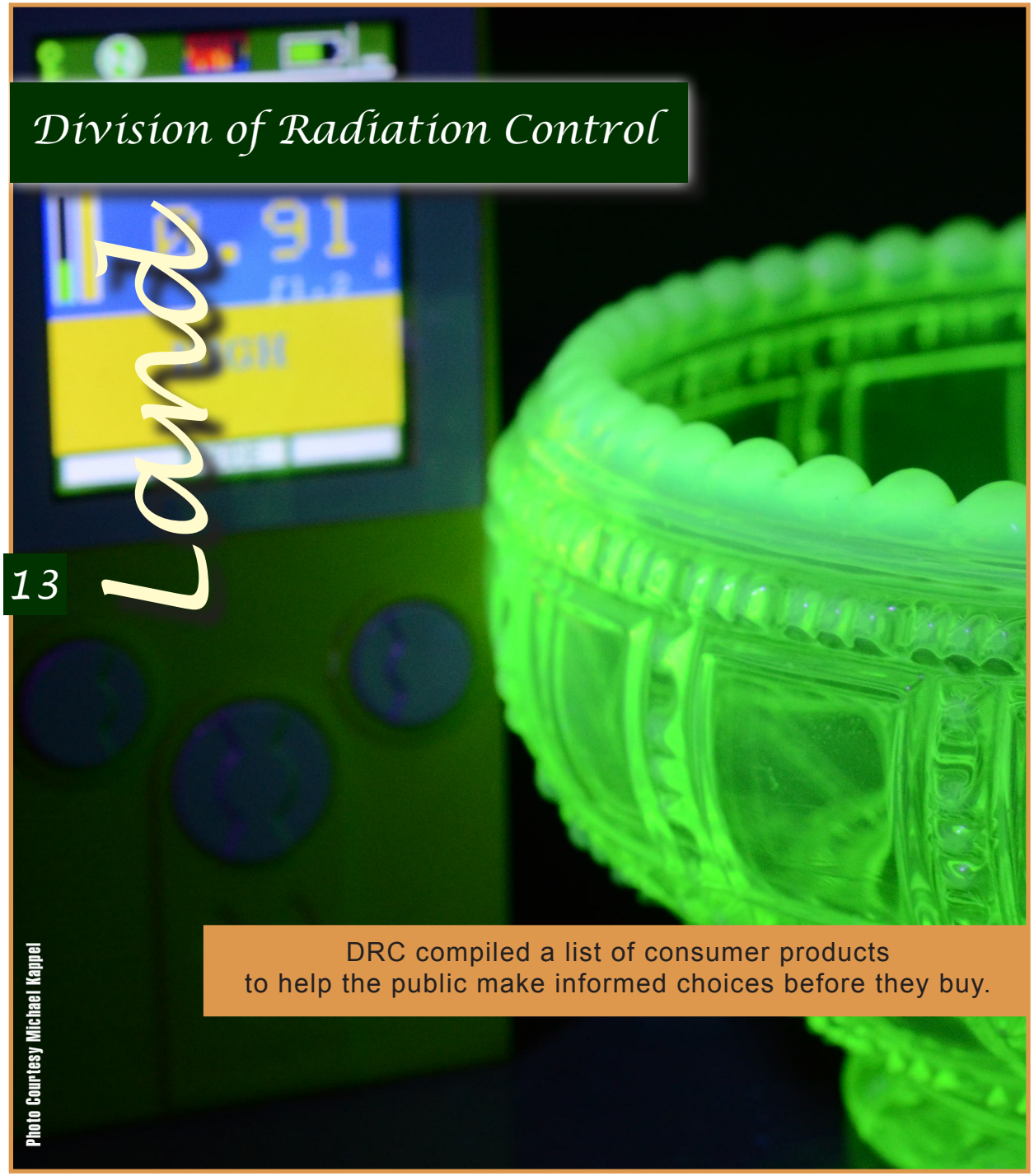
According to the U.S. Environmental Protection Agency (EPA), indoor radon is the second-leading cause of lung cancer in the United States, and it is a serious problem in Utah. One in three homes in the state test above the EPA action level of 4 picocuries per liter (pCi/l) of air, and the average radon level in homes tested in Utah measured 5.3 pCi/l. DRC's Indoor Radon Program is dedicated to providing the public with the tools to recognize and remediate elevated levels of radon in homes and schools.

The program focuses on the following areas:

- Radon awareness through public outreach and education.
- Indoor radon surveys in target areas.
- Individualized assistance to homeowners and public agencies.
- Public school testing.
- Real estate training on testing, disclosure, and mitigation.

DRC offers an online link through its website to access and order $8.00 radon test kits, provides information on radon test results by zip code, sponsors a radon poster contest in the schools,





DRC compiled a list of consumer products to help the public make informed choices before they buy.

works with home builders and organizations such as Habitat for Humanity to incorporate radon-resistant construction into new building projects, and provides free continuing education (CEU) courses for real estate professionals throughout Utah on radon in homes.

Improved Efficiencies

Over the past few years, DRC has maximized business processes to decrease expenses, resulting in a reduction in the cost per inspection by 30-38 percent over a two-year period. Adding staff with skills that complement in-house expertise allowed DRC to cut outsourcing costs for EnergySolutions licensing and permitting actions by 91 percent.

In 2014, the X-ray program purchased new, lighter equipment that cuts the time required for setup and inspections, giving inspectors more time to discuss radiation safety during inspection visits. DRC is in the process of developing a tablet-based data entry system for X-ray facility inspections and low-level waste inspections at Clive, and is also working on a process for online fee payments.

Consumer Products

Many consumer items contain radioactive materials, either for their operation or as a naturally occurring material contained in the product. Consumer products with small levels of radioactive materials can be used safely, but it is important for consumers to know about these sources of radiation so they can handle these items properly. DRC has posted a comprehensive list of these products on its website to help consumers identify products that contain radioactive materials so they can make informed choices before they buy.

Low-level Radioactive Waste (LLRW) Oversight

DRC is responsible for licensing, permitting, and compliance monitoring for the EnergySolutions waste management facility in Clive, Utah, one of only four shallow-land disposal facilities in the country that

can accept LLRW. The division is also responsible for the Generator Site Access program that regulates all radioactive waste generators, processers, and collectors that utilize the Clive facility for waste disposal. DRC licensing and oversight ensure that radioactive waste entering Utah meets Class A state requirements and that the handling and disposal of LLRW at the site is protective of public health and safety.

Depleted Uranium

In 2009, EnergySolutions requested a license amendment for the disposal of large quantities of depleted uranium (DU) at its facility. DU is a unique form of low-level radioactive waste that becomes more radioactive over time. State rules require the company to complete a performance assessment (PA) to determine whether it can meet federal and state performance standards to protect public health and safety before it can accept DU at the facility. EnergySolutions submitted a site-specific performance assessment in 2011 and DRC, in recognition of the inherent scientific and technical complexities involved, hired outside contractor S. Cohen & Associates (SC&A) at the request of the licensee to provide technical support for DRC's evaluation of the PA for adequacy.

DRC and SC&A have conducted meticulous reviews of the PA over the past 15 months, submitting detailed questions, observations, and concerns regarding technical and regulatory issues surrounding the disposal of DU. EnergySolutions has requested and been granted extensions to perform and submit additional analyses of and respond to various items raised in the technical evaluations conducted by DRC and SC&A. Once DRC receives these responses, the division and its consultant will finalize a safety evaluation report (SER) and hold public hearings on the issue, currently scheduled for April 2015.

Proposed disposal of depleted uranium required a comprehensive performance assessment.

Photo Courtesy Mad House Photography

Division of Environmental Response and Remediation

Land

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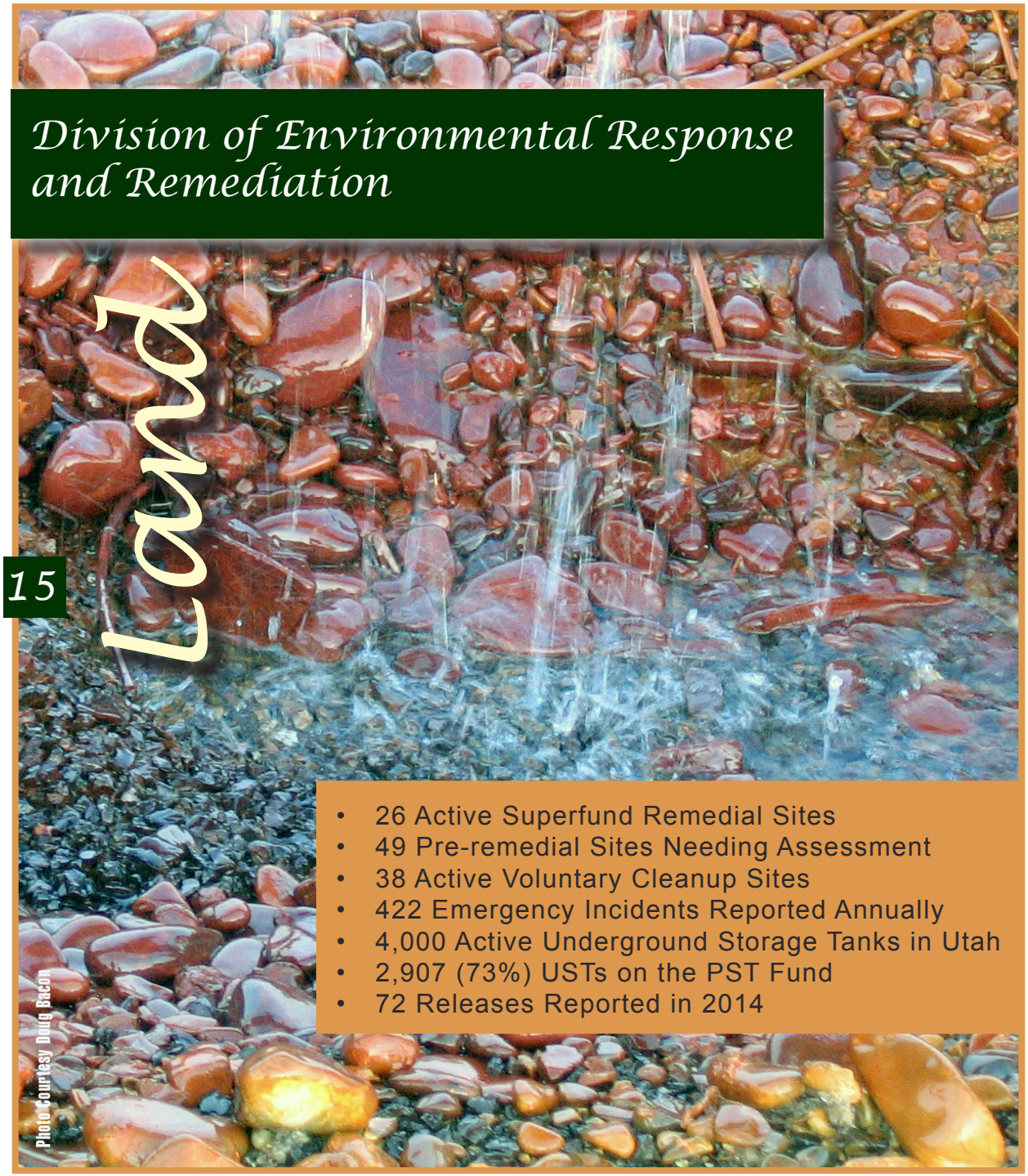


- 26 Active Superfund Remedial Sites
- 49 Pre-remedial Sites Needing Assessment
- 38 Active Voluntary Cleanup Sites
- 422 Emergency Incidents Reported Annually
- 4,000 Active Underground Storage Tanks in Utah
- 2,907 (73%) USTs on the PST Fund
- 72 Releases Reported in 2014

Photo Courtesy Doug Bacon

In 2014, the Division of Environmental Response and Remediation (DERR) continued to strengthen its commitment to clean up properties for reuse, provide exceptional customer service, and develop collaborative partnerships through the following program initiatives:

- Improvements to operational efficiencies.
- Community involvement in cleanup decisions.
- Easier access to agency documents.
- Assessment and cleanup of contaminated properties to protect human health and the environment and return the lands to beneficial reuse.

DERR's efforts gained the attention of the Environmental Protection Agency (EPA), which presented the division with a national award for its long standing Superfund cleanup efforts and commitment to property reuse and redevelopment in Utah.

Improved Efficiencies

DERR employs technological tools that increase public access to information and improve operational efficiencies, including the following applications:

- The DEQ Interactive Map, a web-based tool that helps the public locate information about Superfund sites, Voluntary Cleanup Program sites, Brownfields, underground storage tanks and areas with potential contamination.
- A tracking system that reports the rate at which owners are meeting underground storage tank (UST) program requirements.
- A database-driven reminder system that lets tank operators know when their tank tests are due.
- Increased uploads of documents into the agency's electronic documents system (eDocs)

to ensure that the public, businesses, and environmental consultants have easy access to the documents they need.

The Division is also in the process of developing a mobile app for UST inspections. The new inspection app will allow for greater efficiencies in conducting and following up on tank compliance inspections.

Community Involvement

DERR is committed to effective community outreach and works diligently to involve residents, property owners, elected officials, and health agencies in cleanup decisions for Superfund sites. Listening to community concerns and building strong relationships helps the division collect and disseminate information about sites and find workable solutions for cleaning up contaminated areas.

DEQ has been working closely with residents affected by the 700 South 1600 East PCE Plume site in Salt Lake City. Public meetings for the site, which was added to the National Priorities List (Superfund) in 2013, were held in March and September 2014. Over 100 people attended the March 2014 meeting. Residents told DERR that their major concerns about the plume were drinking water contamination, impacts on property values, and vapor intrusion into their homes from PCE (perchloroethylene).

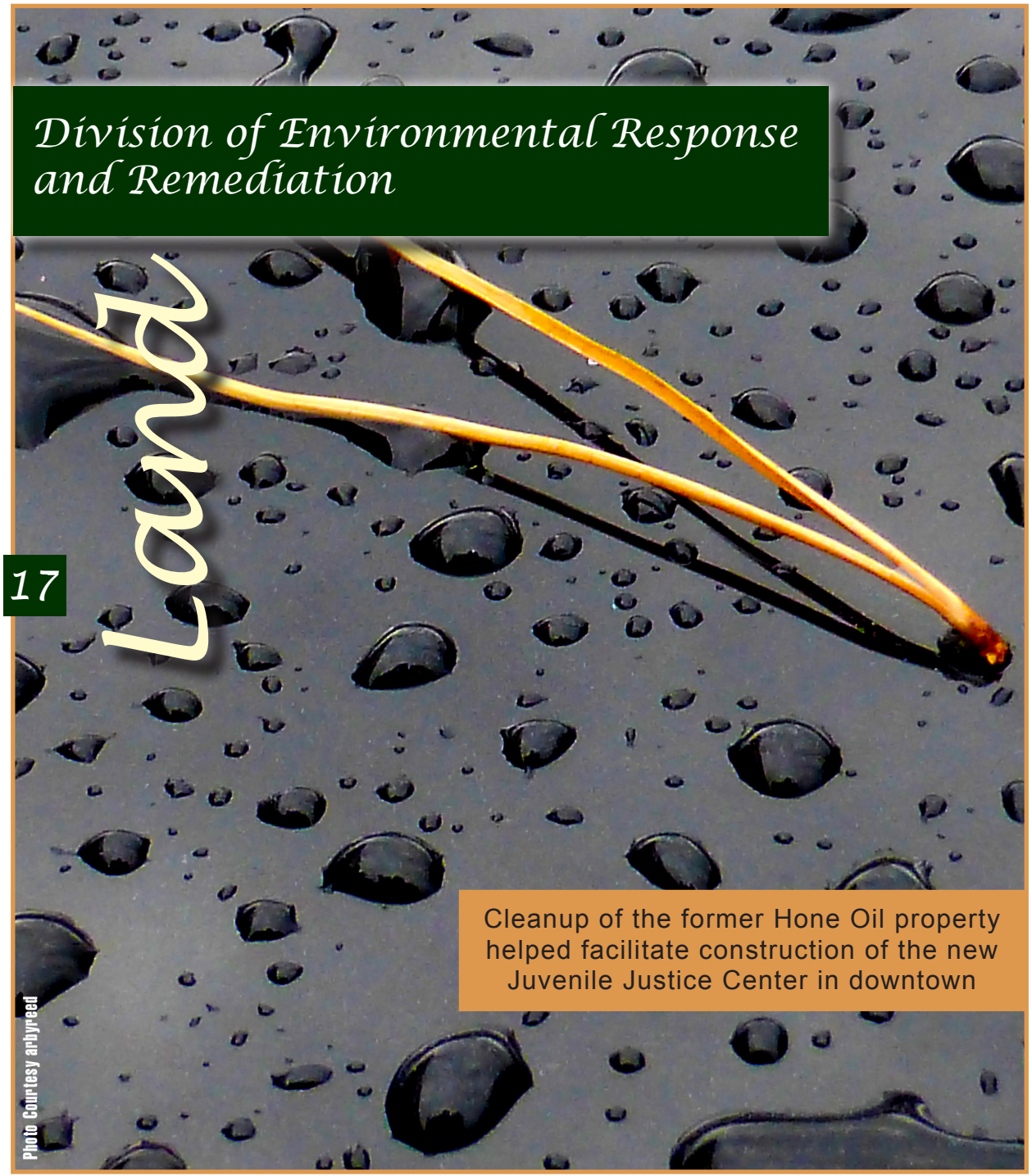
DERR worked collaboratively with the Veteran's Administration (VA) and Environmental Protection Agency (EPA) to write a Community Involvement Plan that ensures that residents are fully informed about remediation actions at the site and given the opportunity to participate in decisions. The document was finalized in June 2014.

Site Cleanups

In addition to providing oversight for Superfund cleanups, DERR administers two other programs that return property to beneficial reuse. The division has had great success in remediating contaminated lands and revitalizing areas through these programs.

A VCP partnership led to the construction of the Artspace Commons at the former Utah Barrel and Scrap site in Salt Lake City several years ago.

Photo Courtesy Peter Lovstrom



Division of Environmental Response and Remediation

Land

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Cleanup of the former Hone Oil property helped facilitate construction of the new Juvenile Justice Center in downtown

Photo Courtesy arbyreed

Brownfields Program

Brownfields include property where the expansion, redevelopment, or reuse may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Assessment and cleanup of these sites helps return Brownfields properties to beneficial reuse.

Salt Lake Apartments-500 South

New apartments and condominiums being built in downtown Salt Lake City on the site of a former gas station will provide additional housing in the central city area. DERR's Underground Storage Tanks program facilitated the cleanup of the gas station, and the Brownfields program issued an Enforceable Written Assurance (EWA) that protects public health while allowing for redevelopment of the property.

Voluntary Cleanup Program

The Utah Voluntary Cleanup Program (VCP) was created to promote the voluntary cleanup of contaminated sites and encourage redevelopment of Brownfields and other impacted properties through a streamlined cleanup program. The VCP has been a great success, providing communities and businesses with a way to partner with DEQ to find solutions for environmental contamination on affected properties. The program protects public health and the environment and returns impacted properties to beneficial reuse, which creates new economic opportunities for businesses and communities.

Artspace

A VCP partnership led to the construction of the Artspace Commons at the former Utah Barrel and Scrap site in Salt Lake City several years ago. Artspace recently added a new Solar Gardens to its mixed-use commercial and residential development. The solar panel arrays produce 350 kilowatts of electricity for

the property, creating a sustainable energy source for the future.

The Commons houses nonprofit organizations and apartments, and the building has a 99.7 percent lease rate, including 132 residential units and 67 commercial spaces. Artspace reports that 114 permanent jobs were created as a result of this project.

Hone Oil

Portions of the former Hone Oil property were assessed and cleaned up as part of the adjacent Ogden Gas VCP. This cleanup project helped facilitate construction of the new Juvenile Justice Center in downtown Ogden.

National Award from EPA

The EPA recognized DERR in 2014 with its inaugural "State Excellence in Supporting Reuse Award." This national honor recognizes DERR's effective partnerships with EPA and local governments to clean up contaminated sites and successfully return them to beneficial reuse.

As a result of DERR's efforts, more than 20 Superfund sites in Utah are currently in reuse or continued use. The 83 businesses and organizations at these sites now provide the following economic benefits:

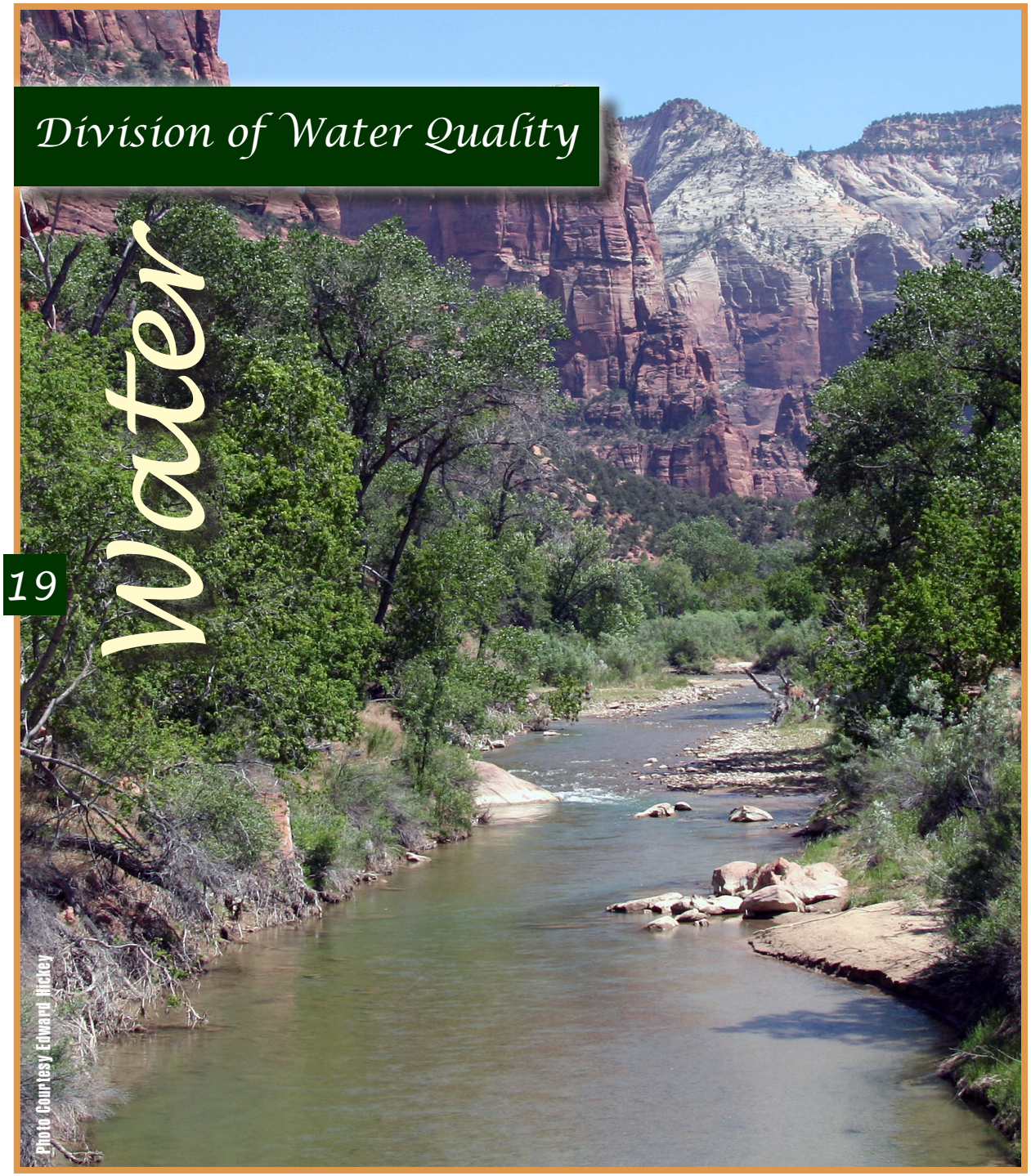
- Employment for more than 2,600 people.
- An estimated $141 million annual employment income.
- Approximately $423 million in estimated annual sales.

Two of the remediated Superfund sites—Midvale Slag and Murray Smelter—house mixed-use transit oriented development, a major hospital, and a large retail warehouse.

Superfund cleanups also protect human health and the environment by removing or controlling contaminants so they no longer pose a risk to the public.

The EPA recognized DERR in 2014 with a national award for its successful efforts to clean up contaminated sites and return them to beneficial reuse.

Photo Courtesy Andy



The Division of Water Quality (DWQ) protects surface and ground water through programs designed to prevent or water pollution in state waters. DWQ issues permits for point discharges into waterbodies, works with stakeholders to reduce nonpoint pollution from agricultural operations and residential runoff, and uses scientific data to develop strategies to protect the water quality of Utah's lakes, rivers, and streams. DWQ is particularly concerned about the impacts of growth on water quality. Utah's population and economic growth carry the potential for significant impacts to the state's water quality. To address these growth-related issues, DWQ has focused its protection efforts on the following areas:

- Nutrient Pollution
- Great Salt Lake Water Quality
- Spill Response and Mitigation
- Water Quality Monitoring, Assessment, and Assurance

The Division is also working to improve operational efficiencies through increased online permitting, enhanced tracking tools for permits, contracts and grants, ongoing development of a centralized database for onsite wastewater treatment data, and electronic report submissions.

Nutrient Pollution

Excess nitrogen and phosphorus in waterbodies, known as nutrient pollution, is a growing problem in Utah and across the country. This pollution comes from a variety of sources, including wastewater treatment plants, nonpoint pollution from agricultural operations, and residential and municipal stormwater runoff. Excess nutrients can lead to harmful algal blooms (HABs) that can threaten the health and safety of humans and animals.

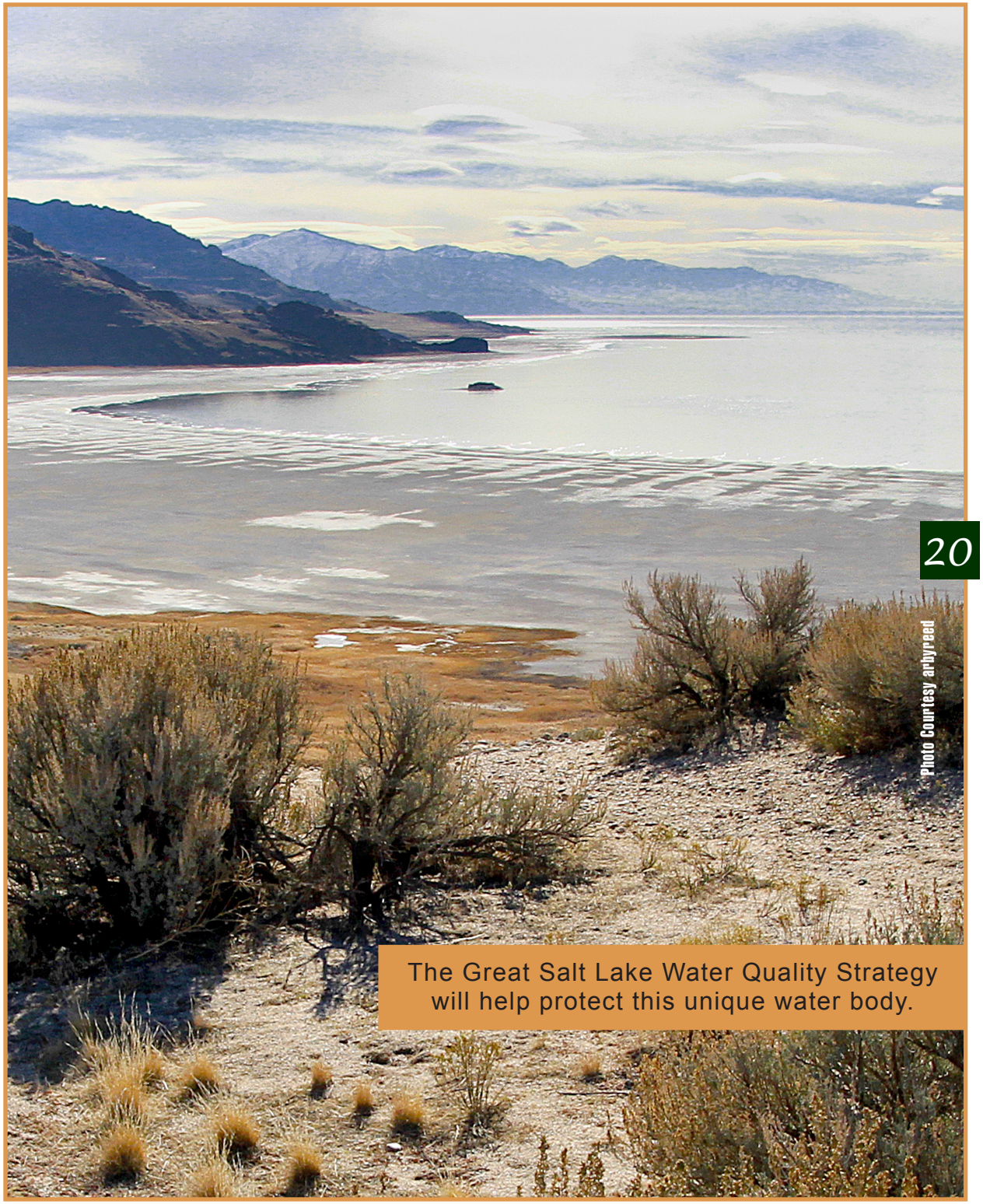
In 2014, DWQ developed rules that established technology-based phosphorus effluent limits (TBPEL) for wastewater treatment plants. Applying this rule will result in significant nutrient reductions to lakes and streams across the state at a cost of about $2.50 per month per household. The division is also working with stakeholders to reduce excess nutrients from agricultural and other nonpoint sources and utilizing an adaptive-management approach to develop site-specific nutrient standards.

Great Salt Lake Water Quality Strategy

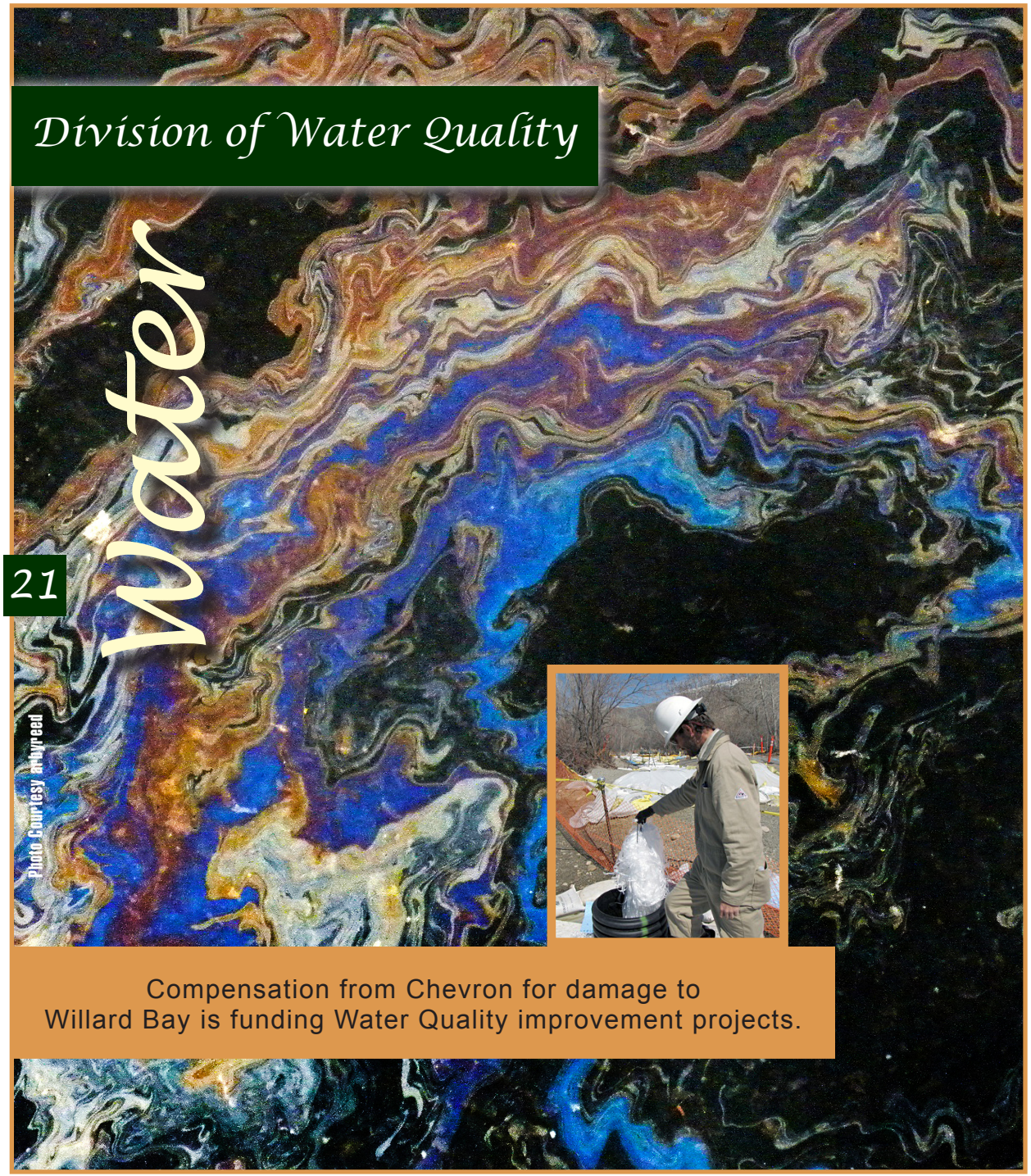
The unique qualities that make the Great Salt Lake (GSL) ecologically and economically significant also present considerable challenges for its protection. Strategies that protect freshwater lakes and streams do not necessarily work well for the saline lake. DWQ worked with stakeholders over the past two years to develop a comprehensive water quality strategy that addresses the lake's unique needs and characteristics, fills critical knowledge gaps, improves management decisions, and reduces regulatory uncertainty. In September 2014, DWQ released its Great Salt Lake Water Quality Strategy. The plan contains the following five core components:

- Aquatic Life Numeric Criteria for Priority Pollutants
- Strategic Monitoring and Research
- Wetland Program Plan (in progress)
- Nutrient Assessment Plan (in progress)
- Recreational Use Numeric Criteria (in progress)

These core components will help DWQ develop numeric water quality criteria to protect aquatic life and recreational uses, improve water quality monitoring, prioritize research, implement monitoring and assessment plans for wetlands, and assess the impacts of nutrient loading on water quality.



The Great Salt Lake Water Quality Strategy will help protect this unique water body.



Compensation from Chevron for damage to Willard Bay is funding Water Quality improvement projects.

Spills Response and Mitigation

The frequency of oil and chemical spills in Utah waters has increased in recent years. In 2014, DWQ completed a Spills Kaizen to identify the most effective and efficient ways to respond to spills and better coordinate efforts with other agencies. The Kaizen study helped the division pinpoint the areas where it could improve its processes and streamline its spills response.

DWQ aggressively pursued compensation from the Chevron for the damage to Willard Bay from the 2013 diesel spill. The division reached a Settlement Agreement with the company that provided $4.45 million to fund mitigation projects in the areas affected by the diesel spill as well as water improvement projects across the state. DWQ received over 80 project proposals for the funds. Among the projects selected:

- Willard Bay Improvements
- Logan River Restoration
- Ogden Nature Center Wetlands Restoration
- East Canyon Watershed Water Quality Improvement
- Jordan River Cleanup and Riparian Area Enhancement
- Weber River Partnership Symposium

These projects will not only enhance the recreational experience at Willard Bay but also improve water quality in select Utah rivers and streams statewide.

Water Quality Monitoring, Assessment, and Assurance

DWQ uses water quality data to characterize water conditions, identify trends over time, detect water quality problems, determine the effectiveness of pollution control programs, prioritize division efforts, and guide responses to spills. The division also utilizes a 401 certification program to ensure that federally permitted or licensed activities comply

with state water quality requirements and do not adversely impact state waters.

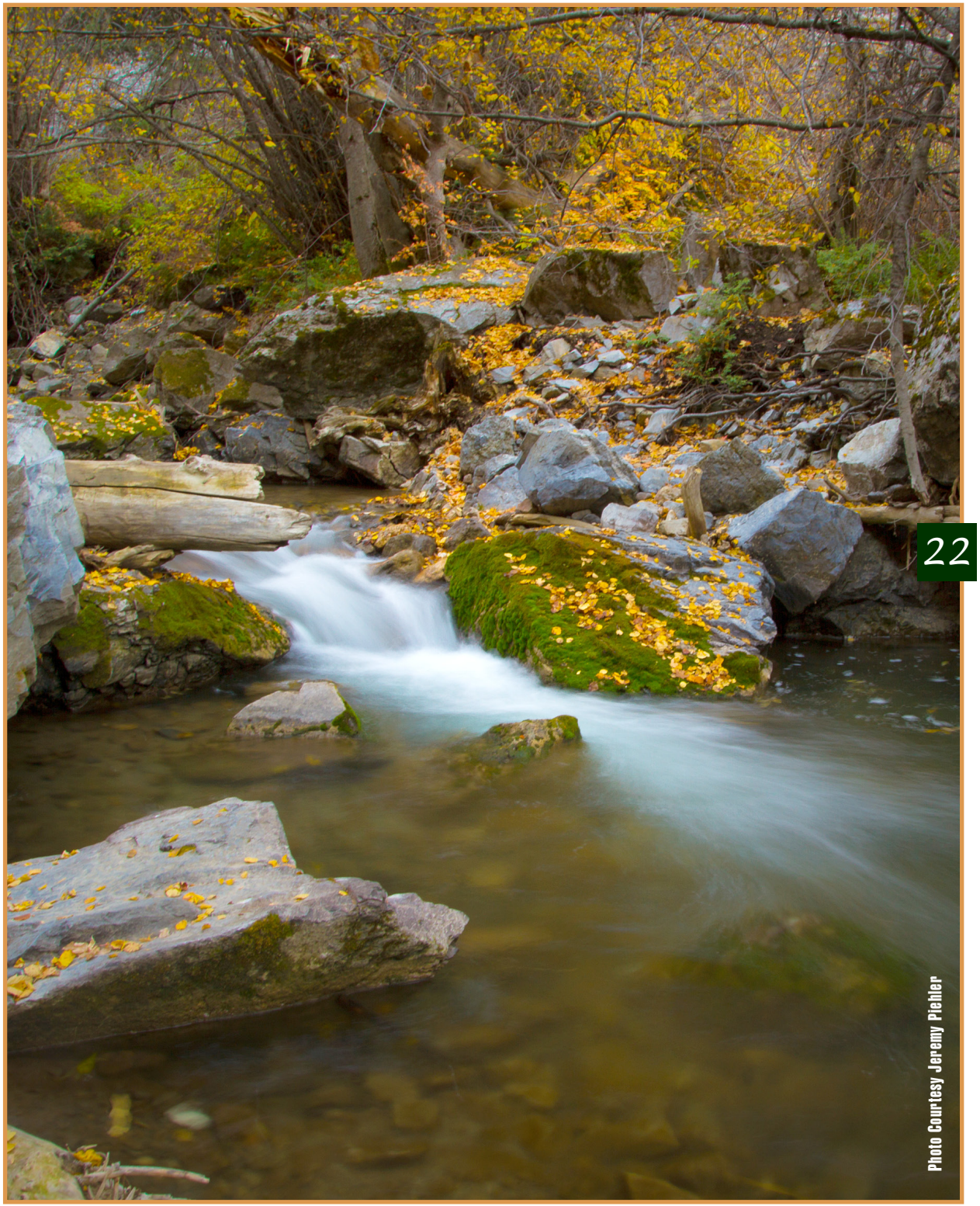
In 2014, DWQ used these tools to meet important water quality objectives:

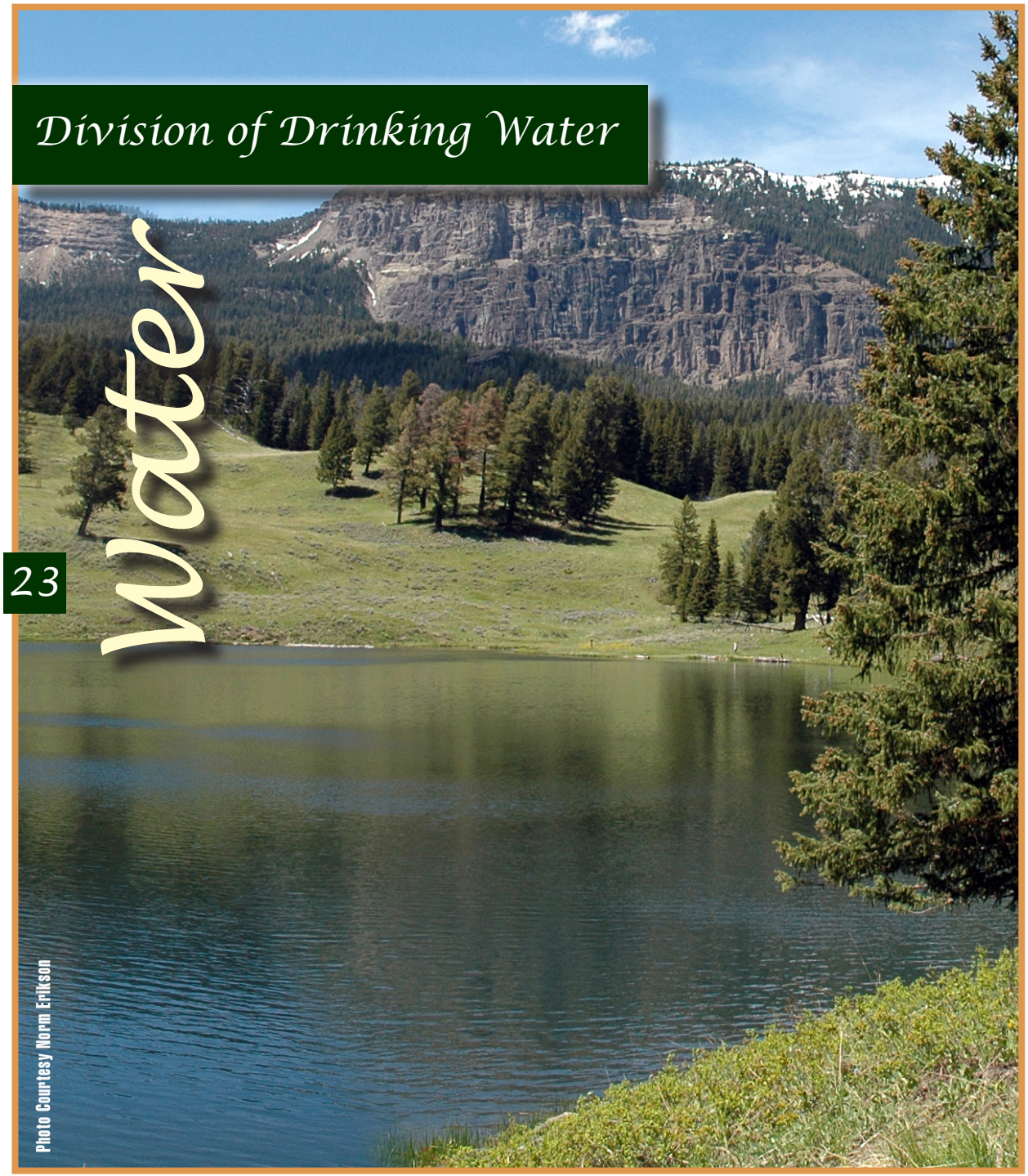
- **Revamp of the Integrated Report**
  Every two years, DWQ is required to assess the water quality of Utah's waters and report the results to Congress and the Environmental Protection Agency (EPA). The 2014 report is more user-friendly, more inclusive of other water quality partners, and tells a more accurate story of the conditions in the state's waters.

- **Expanded biological monitoring**
  DWQ's program for biological monitoring helps provide a more comprehensive picture of pollution impacts than chemical data alone. Biological monitoring data can show whether aquatic biota are stressed or threatened by biological pollutants such as E. coli or cyanobacteria and identify waters that pose a risk to human health and safety.

- **Nutrient criteria development**
  Monitoring and assessment of watersheds assists DWQ in the development of site-specific nutrient criteria and supports an adaptive management approach that takes into account differing needs and conditions in waterbodies throughout the state.

- **401 Certification**
  DWQ issued a 401 certification with conditions to the Union Pacific Railroad (UPRR) for culvert closures and a bridge redesign on the UPRR causeway across the Great Salt Lake. The certification is designed to ensure that the new bridge will protect the lake's unique ecological resources and replicate the water-salt balance in the two arms of the lake that are separated by the causeway. The division will also be preparing a 401 certification for the proposed expansion of Great Salt Lake Minerals.





The Division of Drinking Water (DDW) is responsible for implementing programs that ensure a safe and reliable supply of drinking water throughout the state. These programs include:

- Source protection for drinking water supplies
- Engineering plan review
- Water quality report evaluation
- Site inspections of public water systems
- Certification and training for system operators
- Backflow prevention
- Financial assistance for the construction or upgrades to water systems

In 2014, DDW put together an Energy Savings Handbook to help water systems achieve significant cost savings through energy efficiency measures. Online training and testing offered by the division helps systems operators, particularly those in rural areas, obtain continuing education unit (CEU) credits and certification. DDW also makes extensive use of technology and planning tools to streamline its processes, increase operational efficiencies, and reduce costs.

Energy Cost Savings Program

DDW's "Drinking Water Energy (Cost) Savings Handbook" provides water system operators and managers with multiple strategies to reduce their energy costs. The 50-page handbook contains:

- A list of over 300 efficiency strategies that, if implemented, can cut a system's power costs
- Steps for obtaining the services of a qualified consultant
- Funding sources for implementing efficiency strategies
- Additional sources of information on the Internet, including how to conduct an energy audit

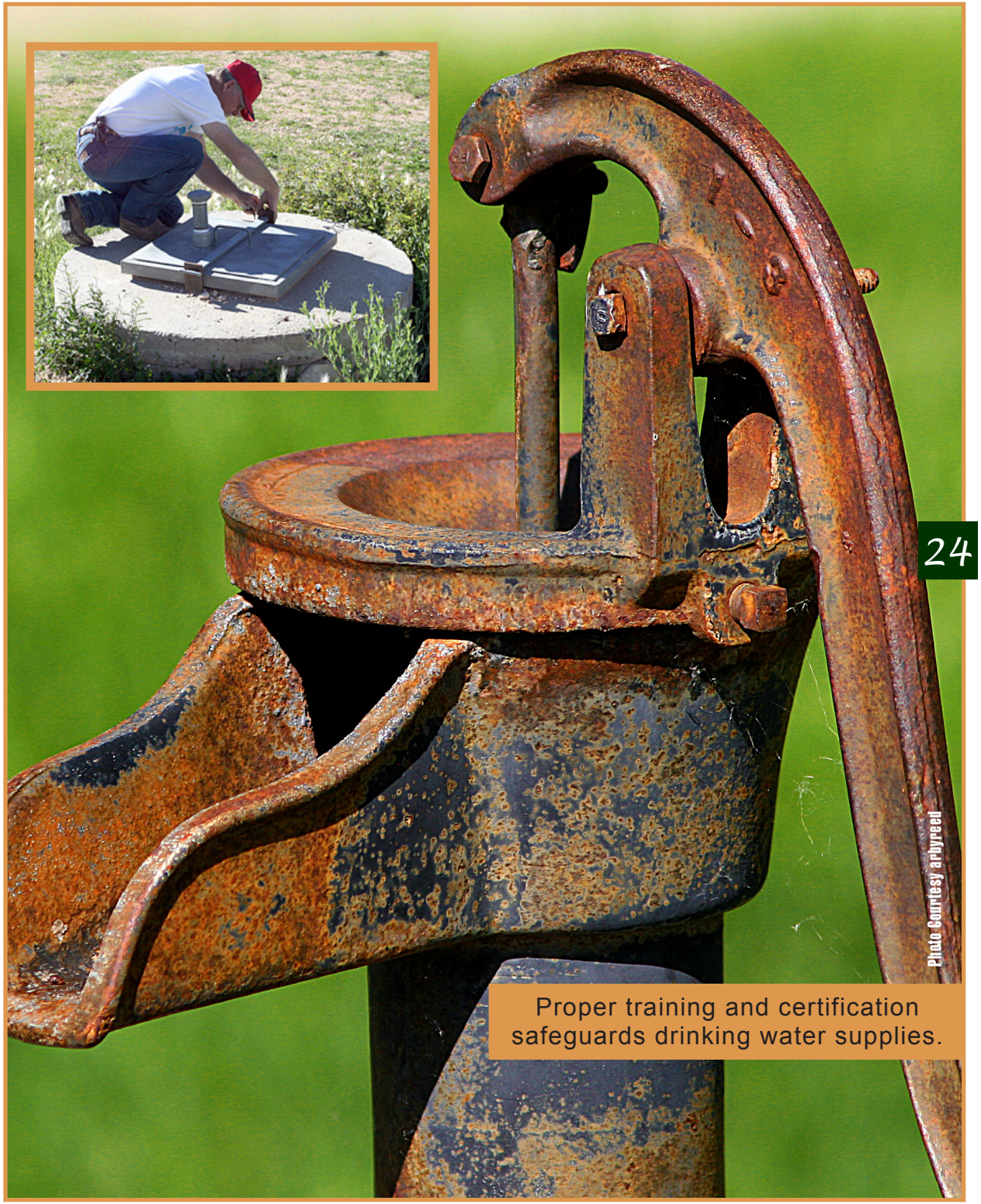
The Handbook's introduction presents case studies of three Utah drinking water systems that have benefited from their implementation of energy-saving strategies. One of these systems actually achieved an annual cost savings of $300,000 using a combination of the energy efficiency strategies listed in the Handbook. Icons show which energy efficiency projects can be implemented by water operators, which ones may require the help of a technical advisor, and which ones will require construction or equipment replacements to achieve the cost savings. Information on low-interest loan options and cost reimbursement programs offered by power companies, along with requirements for qualifying for these programs, helps system operators identify potential funding sources.

Cost savings from energy efficiency measures can be used to keep water rates low, fund equipment upgrades, and meet changing regulatory requirements.

Operator Certification and Training

Technical and engineering support, particularly for smaller rural water systems, is critical for the safe delivery of water to residents. Utah has 789 small water systems that serve less than 500 people. Since many operators of small water systems work on a part-time or voluntary basis, they depend heavily on DDW for technical assistance and training.

Proper training and certification safeguards water supplies by ensuring that water system operators are knowledgeable about operation and maintenance procedures as well as regulatory requirements. This protects the health and safety of customers served by these systems as well as the traveling public visiting or passing through the communities served by these water systems. Under Utah law, all community and non-transient non-community water systems must have a certified operator who is responsible for the proper operation and administration of their system. DDW's operator certification program works in collaboration with local health departments and the Rural Water Association of Utah to administer written, oral, and online certification exams. DDW also provides study guides and presentations to



Proper training and certification safeguards drinking water supplies.

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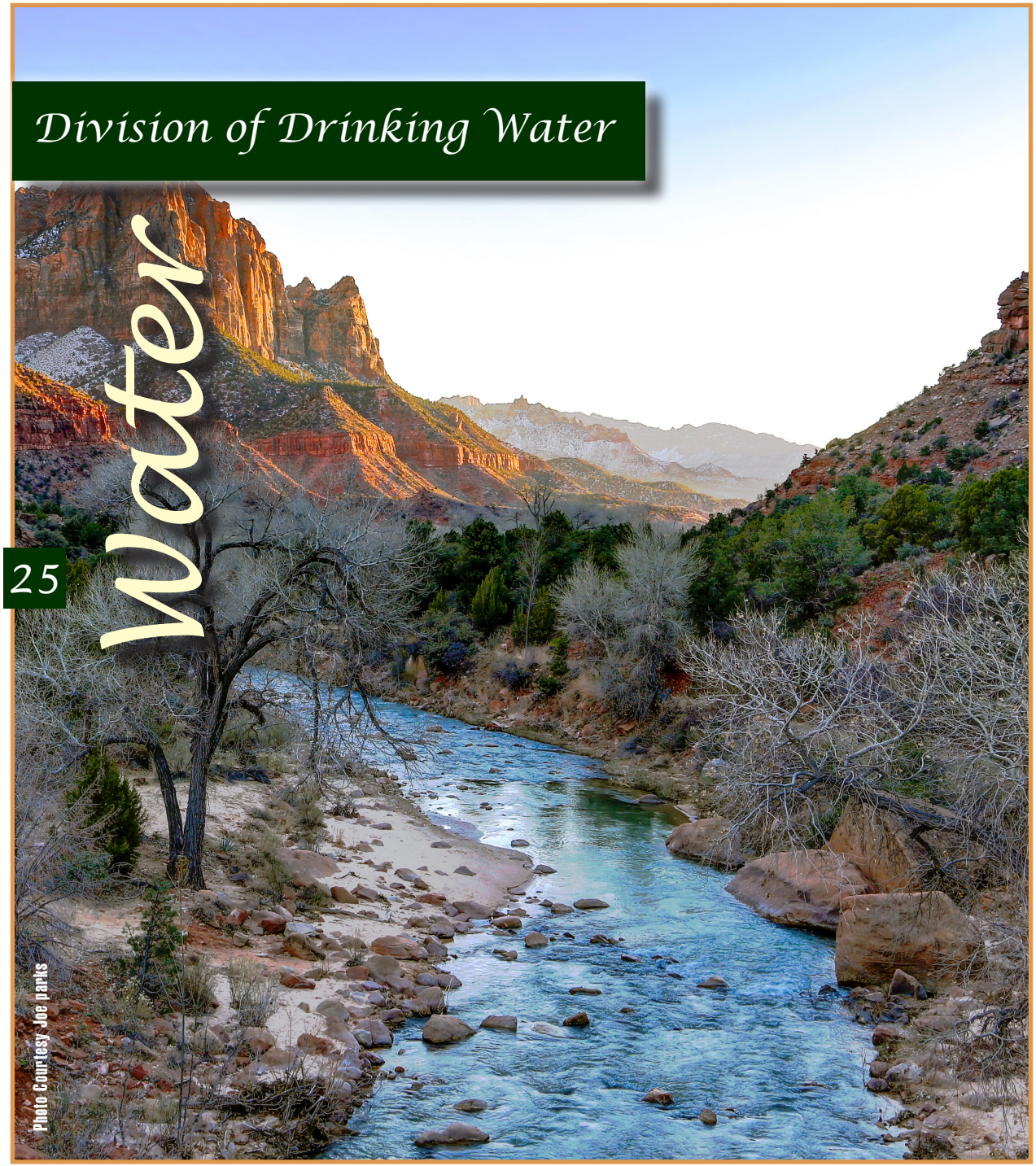


help applicants prepare for the certification exam. DDW's Cross Connection Control program trains and certifies backflow technicians who make sure that water cross connections don't allow contaminants to enter a drinking water system from back siphoning or back pressure.

Once certified, operators are required to complete continuing education unit (CEU) credits to stay current on the latest technological and regulatory developments. DDW offers training screencasts online to help operators obtain CEU credits towards certificate renewals. The division continues to add training videos for other program areas, and screencasts on source protection, construction assistance, and engineering will soon be available on DDW's Web page.

Operational Efficiencies

DDW is constantly developing strategies to improve allocation of its resources. Federal funding has decreased in recent years, requiring the division to do more with less. Optimizing staff time and reducing costs has been a top priority for the division and has led to some impressive results:

- **Online Reports**
  Five standard reports are now available online for each water system. These public water system reports are one of the most popular resources on the DEQ web site, providing the public with information on all aspects of each water system, including monitoring and sampling data.

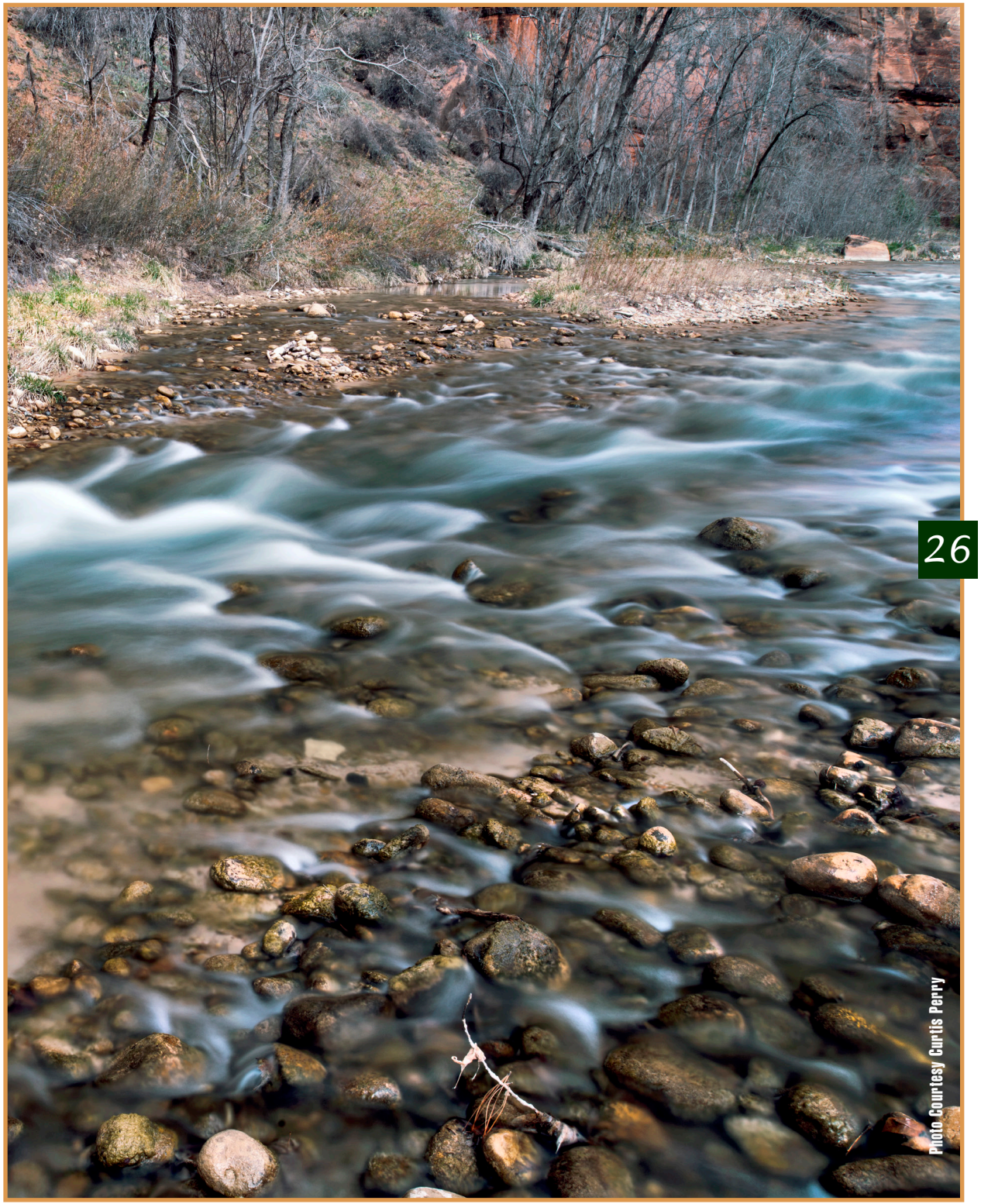
- **Data Input from On-site Inspections**
  Staff can now input information found during onsite inspections into handheld tablets that can be upload directly to DDW's database. This streamlines the previous process, which required staff to write field notes then return to the office to input the inspection data.

- **Electronic Data Entry to Labs**
  Bacterial sampling test data can now be sent electronically from labs into DDW's database, eliminating staff time that was spent reentering data into its database.

- **Streamlined Engineering Plan and Source Protection Plan Reviews**
  Increased collaboration among staff in division programs has simplified the review process, making it easier for water systems to prepare plans and staff to assist in plan preparation. In addition, DDW has streamlined the plan submittal and approval process through the use of comprehensive checklists that help consultants and staff process and review plans more effectively and efficiently.

- **Geographic or Administrative Grouping of Water Systems for Site Inspections**
  By organizing regularly required site inspections into geographic or administrative groupings, DDW makes more efficient use of division personnel. Geographic grouping lets inspectors travel to sites located near each other and inspect the water systems in the group in one day, saving travel time. By administratively grouping commonly owned or commonly managed water systems, DDW makes site inspections more convenient and efficient for both staff and common owners.

Inspections and monitoring ensure that drinking water sources are clean and safe.



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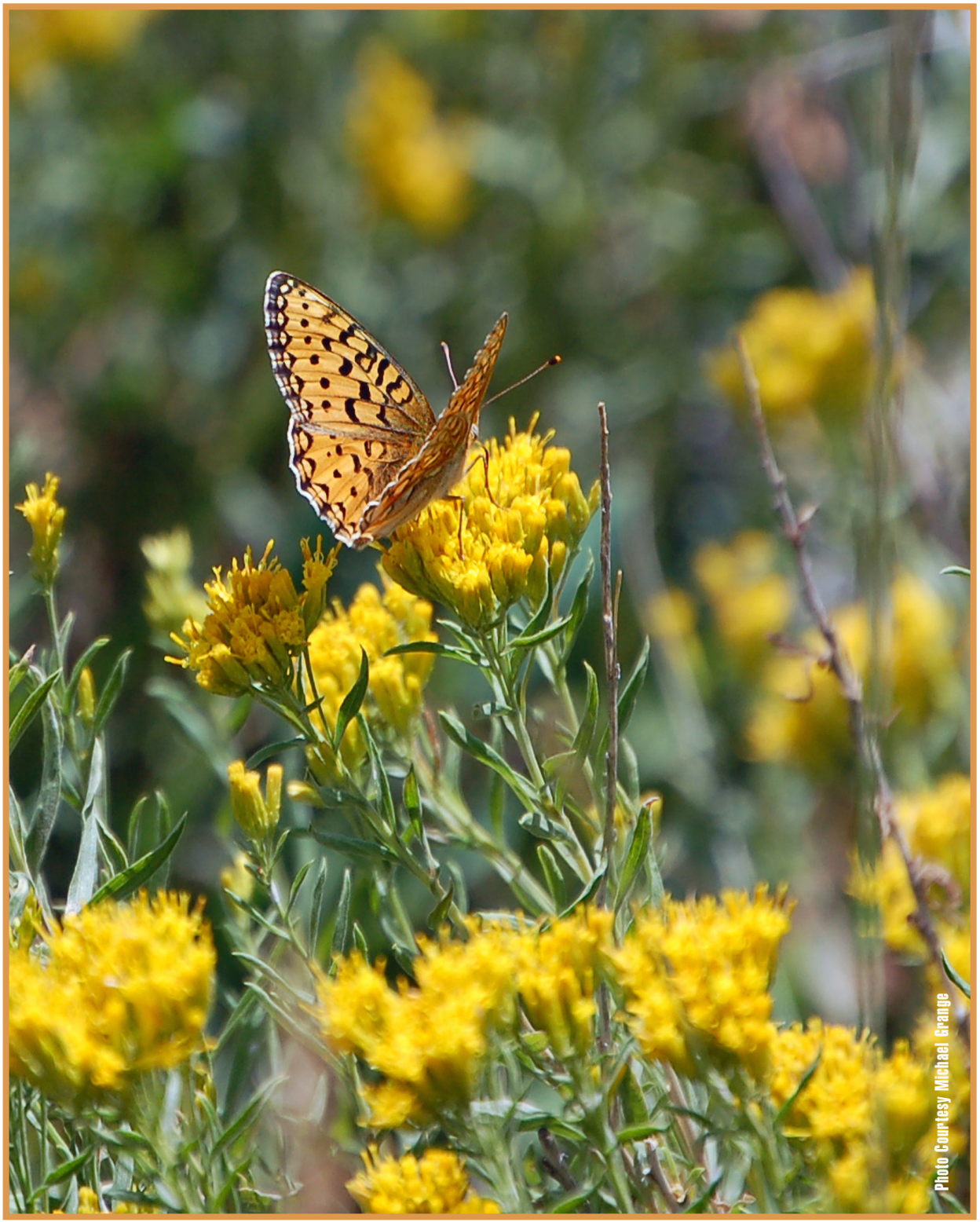
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