New Mexico Office of Natural Resources Trustee

Natural Resource Damage Assessment: NASA White Sands Test Facility Groundwater Contamination

Water & Natural Resources Committee October 3, 2023



Maggie Hart Stebbins, Trustee Kate Girard, Executive Director

With Support from Abt Associates







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ONRT Mission

Restore natural resources and the services they provide when they have been injured by the release of hazardous substances or oil.









ONRT Mission

Under federal and state law, natural resource restoration is an essential component of the State's authority to hold polluters accountable.

When toxic substances pollute water, wildlife, fish, habitat, soils and other natural resources, laws require the party responsible to:

- clean up contamination to protect public health and the environment,
- restore natural resources to the way they were, precontamination, and
- compensate communities for lost natural resources and the services they provide – including cultural services
- ONRT's role established by:
 - New Mexico Natural Resources Trustee Act [NMSA 1978, §§ 75-7-1 et seq]
 - <u>Comprehensive Environmental Response, Compensation, and</u> <u>Liability Act of 1980 (CERCLA) [42 USC §§ 9601 et seq]</u>
 - Oil Pollution Act of 1990 [33 USC §§ 2701 et seq]
 - Federal Water Pollution Control Act or Clean Water Act of 1972 [33 USC §§1321 et seq]

Following a Release of Hazardous Substances into New Mexico's Environment, Responsibility is Shared:

NMED: Remediation

NMED Requires Responsible Party to:

- (1) Identify and Characterize the Release(s); and
- (2) Clean up contamination to protect public health and the environment.



ONRT: Restoration

ONRT uses the NRDAR Process to Require Responsible Party to:

Restore Injured Natural Resources to Pre-Release Conditions to Compensate Public for harm that has Occurred Over Time, or

When that's not possible in a timely way, to replace or acquire the equivalent.



Natural Resource Damage Assessment and Restoration (NRDAR)

NRDAR is a process that allows Natural Resource Trustees to evaluate natural resource injuries caused by the release of hazardous substances to the environment.

Evaluate and quantify natural resource injury

Determine type and scale of restoration needed Engage with Responsible Parties to obtain compensation for natural resource injuries With Community Input, Plan and implement restoration actions

Compensate the public for losses



Natural Resource Damage Assessment: Service Losses



ONRT acts on behalf of the people of New Mexico to <u>seek damages for injury to</u> <u>natural resources, and</u> <u>resulting service losses</u>





COMPENSABLE SERVICES:

Claimable categories of service losses include <u>existence, bequest, option,</u> <u>and human use</u>, e.g., as a drinking water source (we'll discuss these further later in the presentation)



<u>All of these categories of loss</u> <u>have occurred at WSTF</u> as a result of the contamination of a very large volume of groundwater due to releases of hazardous substances at the site



Recovered damages (money) <u>used to restore the injured</u> <u>resource, or replace/acquire</u> <u>the equivalent; restoration</u> <u>ideas are solicited from the</u> <u>public</u> and projects are selected based on applying established criteria

White Sands Test Facility (WSTF) NRDA

- Contaminants:
 - Trichloroethylene (TCE)
 - Perchloroethylene (PCE)
 - Nitroso dimethylamine (NDMA)
 - Freon
- Co-Trustees:
 - ONRT
 - NASA
 - US DOD/US Army
- Potentially Responsible Parties:
 - NASA
 - US Army
- Milestones:
 - 2016: Preassessment Screen complete
 - 2019: Damage Assessment
 - 2022/2023: ONRT invited NASA and DOD to enter into discussions. Awaiting Answer.





WSTF Operations

- Established to support the NASA Apollo Space Program in the early 1960s
 - Testing spacecraft propulsion systems
- Over time, focus shifted to Space Shuttle program hazard tests
- Ongoing operations at the Site:
 - Field test facility under NASA's Lyndon B. Johnson Space Center, supporting United States space program, private industry, and foreign government agencies



https://www.nasa.gov/sites/default/files/thumbnails/image/s69-39961.jpg





Location of WSTF Groundwater Contaminant Plume Relative to Las Cruces



Groundwater NDMA + TCE Contaminant Plume & Treatment System



NDMA = N-Nitrosodimethylamine TCE = Trichloroethene

Impacts are Likely Greater than Suggested by NASA's Plume Depiction



NDMA data source: NASA, Augus 2021. Work Plan for Drilling and Installation of Monitoring Well 600C-001-GW at the NASA White Sands Test Facility (WSTF)

Pathway of Contaminants

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Per NASA's 2011 modeling: In 100 years:

- Cleanup will be ongoing; and,
- NDMA plume front will be about the same.





Service Losses to New Mexicans Resulting from the WSTF Plume



The Ultimate Goal - Restoration!



Goal of NRDA is to implement restoration projects to make the New Mexico public whole



Examples of groundwater projects include

Installing recharge enhancement structures Preventing future contamination (wastewater systems) Funding water conservation Providing alternative water supplies Removing invasive species

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Once a claim is settled, ONRT seeks input from the public on restoration projects to spend the settlement money

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ONRT applies established criteria to select projects

For example:

Geographical nexus to the injured resource and public Consistency with regional/local plans

Current Status/Next Steps



ONRT has invited NASA and the Army to discussions regarding natural resource injuries;

or

ONRT is hopeful and awaiting NASA and DOJ's response





Supplemental Information



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Settlements Since 2000 - \$45,341,226



*Funds deposited into Federal Court Registry Accounts

Gold King Mine Spill

- EPA contractors: \$2,000,000 (Dec 2022)
- United States EPA \$10,000,000 (June 2022)*
- Mining Defendants: \$1,000,000 (Jan 2021)
- Ft Wingate Depot Activity/DOD \$1,451,069 (March 2022)*
- Fronk Oil/Cimarron River: \$150,000 (Dec 2020)
- Freeport-McMoRan Groundwater: Chino, Cobre, and Tyrone Mines (\$12,794,308)
- Freeport-McMoRan Wildlife and Wildlife Habitat: (\$5,500,000)
- AT&SF: Albuquerque's South Valley Tie Treater Facility (\$989,417)
- South Valley Superfund Site: Albuquerque/South Valley (\$4,857,548)
- Sparton Technology: Albuquerque Facility (\$1,000,000)
- SOHIO Western Mining L-Bar: Tailings Facility near Moquino (\$29,830)
- AT&SF: Clovis Rail Yard (\$404,456)
- Van Waters & Rogers: Albuquerque's South Valley Facility (\$135,000)
- ASARCO (Five Facilities): Blackhawk Mine near Hanover, (\$1,029,598)
- Chevron Mining: Molydenum Mine in Questa, (\$4,000,000)

Gold King Mine Settlements

- EPA Contractors: \$2 million (Dec. 2022)
- US EPA: \$10 million (June 2022)
- Mining Defendants: \$1 million (Jan. 2021)

Mining Defendants Restoration Projects

- Cedar Hill Boat Ramp on the Animas River - San Juan County \$160,000
- Festival and Farmer's Market Pavilion at Gateway Park - City of Farmington \$300,000
- San Juan Valley Soil Health Restoration Project - San Juan County Soil and Water Conservation District \$280,000
- Agricultural Irrigation System Upgrade Project - Tse Daa Kaan (Hogback) Navajo Community. \$250,000





GKM: EPA & EPA Contractors Restoration Projects - \$12m

- City of Aztec, North Main Wastewater Management Infrastructure (\$480,000)
- City of Aztec, Rehabilitation of Raw Water Reservoir 1 (\$950,000)
- City of Farmington, Whitewater Wave and Irrigation Diversion Dam at Farmington Gateway Park (\$2,000,000)
- Navajo Nation Department of Fish and Wildlife, Nenahnezad Chapter San Juan River Boat Ramp (\$65,575)
- New Mexico Interstate Stream Commission, San Juan River Water Lease Agreement Partnership (\$1,803,000)

STATE OF NEW MEXICO

- New Mexico State Parks Division, Aquatic Invasive Species Station on San Juan River Quality Waters (\$205,226)
- San Juan County, San Juan River Public Boat Ramps and Park Improvements (\$681,440)
- San Juan County, San Juan County Extension Service Office Building (\$2,300,000)
- San Juan County, Water and Wastewater Improvements for the Totah Subdivision (\$1,000,000)
- San Juan Soil and Water Conservation District, Irrigation Ditch Diversion Project (\$1,616,600)



Economic Impact

Farmington Daily Times

"Infusion of government funding could mean good news for San Juan County labor market"

"Despite continued concerns over the scheduled closure of the San Juan Generating Station later this month, several recent developments have helped generate a sense of optimism when it comes to economic development and the future of the job market in San Juan County.

Chief among those is an announcement by the New Mexico Office of the Natural Resources Trustee that proposals are being accepted for projects that could receive some of the \$10 million the state received from the U.S. Environmental Protection Agency in June as part of a settlement over the 2015 Gold King Mine Spill . . ." *Mike Easterling, Farmington Daily Times, September 4, 2022*

Full text of article available at: https://www.daily-times.com/story/news/politics/2022/09/04/san-juancounty-to-see-50-million-for-various-projects/65464662007/

TUESDAY, AINE 13, 2023 | DARY-TIMES.COM

'The new facility will give us endless possibilities'



organization's Growing Forward Farm in Arter, yest successful weather their

New building will allow County Extension Office plenty of room to grow

Mike Easterling

Farmington Daty Tanes USA 10047 ALTINOM - MEMINERCO ATTEC - Aside from its hallways, there is scarcely a square foot of space at the San Juan County Extension Office of Byers New Mexico State University that just't filled with office supplies, files, electronics and other equipment that help the tors and chapter because." staff members do their job of adapting and developing programs, primarily agri-cultural, to benefit the lives of county res-That's as it should be, says Bonnie topkins flyers, the county program direvice. The NMER/ Cooperative Extension

Service has a presence in all 33 counties in the state, and most of its offices are mill tucked away in the basement of a county Mer courthouse or some other out-of-the-boh way space where extension agents go

the 2005 Gold King Mine spill nese Da many, Culturado, when millions of galions of toxic waste wound up washing into the Animas and San Joan elvers The 1.250-space-foot project car ties a price tag of \$3.5 million, according and, for the most part, to County Manager Mike Stark, who well outside the public said the county is porping up a 30% match of \$350,000 while other learnship 'Our job in extension is softlement money will be used to cover ready to be in the commuthe balance. Preliminary designs for th nity, to use the facilities new building have been drawn up for the structure, which will be located or

we have," Syces said. "We an acre of county land northeast of the even have workshops in community conextension office's Growing Forward But the peofile of the San Juan County Farm on South Oliver Delve in Actor and Extension Office will increase considerworth of Astor Magistrate Court the ably in approximately two years when Law Offices of the Public Defender. the staff moves into a new home being Stark said it will take four to sil funded substantially by a \$2.3 million months for the architectural and civil grant awarded to the county by the New engineering plans to be draw

> "Our commission absolutely is committed to agriculture as a key part of our economy and a key part of our quality of life here. ... (The new Extension Service building) will pay dividends for many years to come and enhance local food production here."

Mike Stark, San Juan County Manager



the lasted addition to the occurity's in-mationy of outdoor secretation attention to get their first look at the also. The tions on Transfey as they half a stillon. namp in the first project to be completed entring researce for user actional life with & nollon in settlement accord from the New Mission Brokemaner (a-A crosed gathers at the case Cade 100 boat range on the Annua Bluer on Fuends hadness a rithden contribut completely and contributed for their test

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Officials mark opening of boat ramp funded by mine spill lawsuit funds

CREAR HELL - A variety of has Juan pie - including county commit bunty and shate officially christmand atom hepithesis, shate officials and on

with a barrier the

Antologica (ada Texas Ala Texas de Texas), que recento

"A new boat ramp opening in Cedar Hill on the Animas River allows our community and the river boating public to enjoy a larger piece of the river with a safe boat ramp that provides easy access to both the river upstream and downstream going to Aztec," said. "For a small business like mine, this boat ramp provides more options for customers' outdoor recreation and allows us to increase the number of people that can get on the river safely."

Cody Dudgeon, owner of Desert River Guides in Farmington





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'A tremendous impact on the people of San Juan County'

Final approval issued for projects. "These insentionents total inproving water multiy and awarded mine spill second the second tendence will settlement money

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day tower because a safety or the I when state officials assumed had millions of gallous of tonic tear second by these endersedants deepedy decharged into the and has have share sight yours The New Mexico Office of the Natural Incomes Tructus guildings for final The little statement of the motion of the scalars) measure realists two plan for the spill on May 20. That month with the UNA way SIG roll. The list includes second initiation and mathematical

inclusion spells of here \$5 million asmoved by the free Median Environ-ment Department from the U.S. Environmental Protocilian Agency 17th conpropried by the City of Parming City of Autor, free Jame County Strings Stations sufficient south residential south of and because a Manufactured Ballinson, the set tay this because with a part of the part o marity efforts of the incident that was a gained the UPA and its contract



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"Water is life. The projects funded by settlement money from the EPA will serve to start to heal the wounds left in our community from the Gold King Mine Spill ... These investments into improving quality and recreation water opportunities will pay dividends in securing the future of safe water for drinking, agriculture, and quality of life for years to come."

Steve Lanier, San Juan Co Commission Chairman

Current and Potential Natural Resource Damage Assessments



Current Cases

- Los Alamos National Laboratory
- NASA White Sands Test Facility
- Rio Algom Quivira Uranium Mill and Mine Sites

Potential New Cases

- 1. Cannon Air Force Base PFAS (Clovis)
- 2. Holloman Air Force Base PFAS (Alamogordo)
- 3. Grants Mining District Researching natural resource injuries, ONRT jurisdiction, and responsible parties across district. Over 85 legacy mines in the area.
- 4. Researching potential PFAS releases at other military installations

STATE OF NEW MEX

Ongoing Assessment - Los Alamos National Laboratory



- Injuries: ۲
 - groundwater, soils, surface water, and sediments contaminated with radiological substances, metals, and organic compounds
 - cultural service Losses
- PRP: DOE ٠
- **Co-Trustees**
 - ONRT
 - Pueblo de San Ildefonso
 - Pueblo de Cochiti
 - Pueblo of Jemez
 - Santa Clara Pueblo
 - **U.S.** Forest Service
 - DOE (potentially responsible party)
- Status: Cooperative Damage Assessment

 Cleanup and decommissioning ongoing ٠

 - Damage Assessment Plan was completed in 2014 implementing the assessment activities described in
 - that plan
 - Early restoration working group
- Next steps •
 - complete injury assessment work and estimate damages
 - Begin settlement discussions with DOE



Ongoing Assessment - Rio Algom Quivira Mill and Mines Sitea: Ambrosia Lake

- Injuries:
 - groundwater resources & terrestrial resources contaminated with radiological substances, metals, and organic compounds
 - radium, radon, thorium, and uranium
 - zinc, arsenic, beryllium, cadmium, copper, lead, nickel, sulfuric acid
- PRP: Rio Algom Mining LLC subsidiary of BHP Billiton
- Co-Trustees;
 - ONRT
 - Navajo Nation
 - DOI
 - US Fish and Wildlife
 - Bureau of Indian Affairs
 - Rio Algom (PRP)
- Status: Cooperative Damage Assessment
 - injury assessment phase, evaluating existing data to determine the nature and extent of potential natural resource injuries
- Next steps:
 - quantifying type and magnitude of natural resource injuries, estimate damages, settlement discussions with RAML





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Potential Natural Resource Damage Assessment: San Mateo Creek Basin

Intensive uranium mining and milling late 1940s - early 1980s

4 uranium mills and 85 uranium mines

Mining and milling in these areas released uranium and other hazardous substances, contaminating soils, surface water, sediment, and groundwater







Potential New Assessments – PFAS Releases at Cannon AFB and Holloman AFB

- PFOS
- PFOA
- PFHxS
- PFBS
- PFBA
- Perfluoropentanesulfonic acid (PFPeS)
- Perfluoropentanoic acid (PFPeA)
- PFHxA
- Perfluoroheptanesulfonic acid (PFHpS)
- Perfluoroheptanoic acid (PFHpA)
- PFNA
- PFDA
- Perfluoroundecanoic acid (PFUnA)
- Perfluorododecanoic acid (PFDoA)
- Perfluorotridecanoic acid (PFTrDA)
- Perfluorotetradecanoic acid (PFTeDA)
- 4:2 Fluorotelomer (4:2 FTS)
- 6:2 Fluorotelomer (6:2 FTS)
- 8:2 Fluorotelomer (8:2 FTS)
- Perfluorooctanesulfonamide (PFOSA)
- N-Ethyl perfluorooctanesulfonamidoacetic acid (NETFOSAA)
- N-Methyl perfluorooctanesulfonamidoacetic acid (NMEFOSAA)







ONRT Partners and Project Locations

Current Partners Include:

Navajo Nation, Zuni Tribe, Pueblo of San Ildefonso, Santa Clara Pueblo, Jemez Pueblo, Cochiti Pueblo, Aztec, San Juan County, City of Farmington, San Juan Soil & Water Conservation District, Tse Daa Kaan (Hogback) Navajo Community, US Dept of Energy, US Dept of Interior, Bureau of Indian Affairs, US Fish and Wildlife Service, US Dept. of Agriculture, US Forest Service, Cimarron Watershed Alliance, Amigos Bravos, Trout Unlimited, Village of Questa, Town of Silver City, Albuquerque/Bernalillo County Water Utility Authority, NM Environment Department, NM Interstate Stream Commission, NM Dept of Game and Fish, NM State Parks, NM Soil and Water Conservation Districts, private landowners

Current/Past Project Locations:

San Juan County, Farmington, Aztec, Cedar Hill, Questa, Cimarron, Silver City, Albuquerque, Red River, Hogback, Nenahnezad, Los Lunas, Belen, Socorro, Alamogordo, Aztec, Clovis, Grants, Milan, Gallup, Santa Clara, Bayard, Hurley, Isleta Pueblo, Central Rio Grande corridor, Rio Rancho, Cebolleta, Bibo, Bosque Farms,, Los Alamos, White Rock, Hanover, Faywood, White Signal, Gila, Pinos Altos, and Cliff



Questions?

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