



H3 Environmental, LLC
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Statement of Qualifications

October 2021

Introduction

H3 Environmental is a small business founded in New Mexico in 2020. We provide radiological consulting services for all aspects of radioactive materials management, especially within the uranium fuel cycle.

H3 Environmental staff work with the owners of sites through all phases of licensing, operations, and decommissioning or reclamation of properties. We assist clients in meeting their strategic and regulatory goals throughout each project's life cycle.

About Our Business

H3 Environmental consists of experienced professionals solving complex technical and regulatory challenges. We pride ourselves on innovation, integrity, and work ethic.

Our team brings expertise in health physics, radiochemistry, and environmental health to offer uniquely customized, defensible solutions and support. We are committed to providing scientifically sound work products of the highest quality.

Specific Expertise

- Radioactive materials license preparation, maintenance, and termination
- Radiological measurements, monitoring, analysis, and reporting
- Planning and support for site characterization, decommissioning, final status surveys, release of property, and waste management within U.S. Nuclear Regulatory Commission (NRC), U.S. Environmental Protection Agency (EPA), and State frameworks
- Radiation safety training and auditing
- Development and implementation of Radiation Protection Programs



Experience

Our staff brings over 30 years combined experience licensing new facilities, drafting license amendments for currently licensed sites, decommissioning, and reclamation planning for NRC, EPA, and U.S. Department of Energy (DOE)-regulated sites as well as interfacing with State and local authorities.

Our staff can serve as Radiation Safety Officers (RSOs) for NRC and Agreement State radioactive material licenses. We are currently serving as RSO for one NRC and two Agreement State sites.

Our team includes Certified Health Physicists and radiation protection and environmental science specialists familiar with the following frameworks:

- MARSSIM, MARSAME, and MARLAP guidance for sample plan development and analytical approach (including Visual Sample Plan software)
- Dose modeling and compliance demonstration using RESRAD family of codes, EPA PRG tool, CAP88, MILDOS, and MICROSIELD
- Statistical data analysis using R, JMP, and ProUCL
- Field data collection including global positioning system (GPS)-based radiation surveys and surface and near-surface soil sampling
- Geographic Information System (GIS) data management including ArcMap and ArcGIS Pro
- Data management including EQuIS and SQL Server

Client List

We are currently working with:

- Rio Algom Mining, LLC licensed sites in New Mexico and Utah and former uranium mines
- Woodard & Curran former uranium mine currently under CERCLA
- Arcadis former rare earth element processing facility



Project List

Radiation Safety Officer Support, Ambrosia Lake Facility, McKinley County, NM and Lisbon Valley Facility, San Juan County, UT

Responsible for administering Radiation Protection and Environmental Monitoring Programs for two facilities, including:

- Performing annual radiation awareness training for all site personnel as required by the NRC
- Facilitating the annual site inspection conducted by the NRC, as well as any other site-related interaction with the NRC
- Records management,
- Routine site inspections,
- ALARA program audits,
- Coordinating equipment maintenance and calibration, and
- Emergency response planning

Environmental Monitoring, Ambrosia Lake Facility, McKinley County, NM

Monitoring consists of deploying, retrieving, and analyzing radon track etch detectors, as well as reporting results in semiannual effluent monitoring reports to the NRC. Reports include analysis of data for trends as well as the creation and integration of GIS data.

Strategic and Technical Support to Uranium Mine Closures, Ambrosia Lake Facility, McKinley County, NM

Provide strategic planning and technical support to develop closure strategy for multiple uranium mines.

Amendments to NRC Source Material License SUA-1437, Ambrosia Lake Facility, McKinley County, NM

Prepared a comprehensive license amendment request provided to the NRC to streamline client's source material license (SUA-1437). Engaged in negotiations of license amendment scope agreeable to all parties. Responded to NRC's Requests for Additional Information.

Updating NRC-Approved Soil Decommissioning Plan, Ambrosia Lake Facility, McKinley County, NM

Development of technical basis documents to support an update to the facility's soil decommissioning plan including non-radiological constituents, subsurface contamination, changes related to K_d value used for radiation dose modeling, and final status survey strategy. Project scope also included the development of a technical memorandum describing historical sampling work performed related to organics contamination and a subsequent recommendation for an approach to address these affected areas.



Shielded Gamma Survey, Ambrosia Lake Facility, McKinley County, NM

Performed shielded gamma surveys of over 400 acres both on foot and by UTV to characterize gamma-emitting radionuclides in soil. Developed a workplan, established and validated data against data quality objectives, routinely performed checks and maintenance of screening equipment, and managed acquired data using GIS. Prepared a report suitable for delivery to NRC.

Historical Site Assessment of Former Uranium Mill.

Developed a historical site assessment (HSA) through the research of historical documents and imagery. HSA included information on topography, environmental setting, description of ore grade and production, permits, licensing, waste handling procedures, reclamation activities, and all relevant surveys and environmental disturbances. Conducted soil sampling and facilitated laboratory analysis to further supplement the historical site assessment with necessary data. Identification and organization of key historical mine-and mill-related records critical to site closure.

Radiation Safety Officer and Health Physics Support at Mountain Pass, Primm, NV

Responsible for radiological oversight of operation and maintenance (O&M) and decommissioning activities associated with a former waste disposal pond for a rare earth element mining facility. Activities include radiation protection monitoring of site personnel and workplan development, implementation, reporting and remediation support for soil remediation of the former waste disposal pond.

Jackpile-Paguate Remedial Investigation and Feasibility Study, Laguna, NM

Development of Remedial Investigation and Feasibility Study (RI/FS) including a strategy for implementing airborne contaminant monitoring. Technical and strategic support of this project is ongoing.

Scoping Gamma Survey, Lisbon Valley Facility, San Juan County, Utah

Performed gamma surveys to characterize gamma-emitting radionuclides in soil. Developed a workplan, established and validated data against data quality objectives, routinely performed checks and maintenance of screening equipment. Performed soil sampling to evaluate site-specific correlation between gamma count rate and concentration of Radium-226 in surface soil. Produced a data summary report evaluating gamma survey and correlation results,



Our Team

Mike Schierman, CHP

Principal Health Physicist

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(505) 317-4416

Experience (26 Years Relevant)

Radiation Safety Officer, Uranium Mill Closure Sites

Radiation Safety Officer at two uranium mill closure sites; one regulated by the Nuclear Regulatory Commission, and the other by an agreement state.

Radiological Final Status Survey of Buildings, Former Naval Weapons Station, Concord, CA

Performed QA/QC and occasional advisory role in the sampling and survey effort to support the Final Status Survey of several naval buildings. Mr. Schierman assisted in review of Final Status Survey Reports.

Reconnaissance-Level Characterization of Select Buildings with "Old Town" area of the Lawrence Berkeley National Laboratory, Berkeley, CA

Performed as the Radiological Sample Manager for the reconnaissance-level characterization of building used primarily for research laboratories and secondary support facilities to the 184-inch cyclotron. Radiological surveys of walls, ceiling, and floors and volumetric sampling of equipment, piping, sumps, and building materials was conducted. Radiological survey data and analytical results were reported in three dimensions, using a combination of ArcView GIS® and Google Sketch Up®.

Characterization of Above-Grade Structures, DP West, Technical Area 21, Los Alamos National Laboratories, Los Alamos, NM

Performed as sample manager and lead work plan author for characterization of approximately 50,000 square feet of structures built as part of the world's first large scale plutonium production facility. The data collection effort included an automated low energy photon survey of building floors, using the 3-DISS system appointed with an array of FIDLER detectors. Traditional radiological surveys of walls, ceiling, and equipment and volumetric sampling of equipment, HEPA and HVAC systems, piping, sumps, and building materials were also conducted. A variety of PPE and containments (including HEPA vacuum-controlled) were employed to protect workers and prevent migration of contaminants. Other work included sampling for asbestos and beryllium, XRF screening for lead, and field tests for perchlorate, using methylene blue as an indicator. Radiological survey data and analytical results were reported in three dimensions, using a combination of ArcView GIS®, AutoCAD® and Google Sketch Up®. Contaminants observed included heavy metals and the following radionuclides: tritium, americium-241; and isotopes of uranium and plutonium.



Development of Radiological Remedial Action Work Plan for the Marsulex, Ore Storage, Sulfur and Chloride/Research Areas. National Lead Industries Site. Sayreville, NJ

Primary author of the radiological component of a Remedial Action Work Plan (RAWP) for a radiologically contaminated site. The RAWP was MARSSIM based for the land area.

Pipeline Removal Project, Mountain Pass, CA

Radiation Safety Officer (RSO) for a project which involves removing 15 miles of wastewater pipe containing pipe scale elevated with naturally occurring radionuclides. Developed the radiation protection program and oversees remedial activities as they relate to radiation protection and soil cleanup.

Baseline Radiological Investigation, Multiple Uranium Mine and Mill Sites

Developed, implemented, and presented the results of a Baseline Radiological Investigations of multiple uranium mines and mills (both conventional and in-situ recovery). The baseline investigations included evaluations of soil, ambient external radiation, biota, and ambient radon-222 in air. Investigations have been in support of both license applications, renewals, and terminations.

Baseline Radiological Investigation, Dewey-Burdock Uranium Project, Edgemont, SD

Developed, implemented, and presented the results of a Baseline Radiological Investigation at a proposed uranium in situ recovery (ISR) facility near Edgemont, South Dakota. The baseline investigation included evaluation of soil, air, ambient external radiation and biota. The Baseline Radiological Investigation Report was included as part of license application for a uranium in-situ recovery site. This project has been issued a radioactive materials license by the USNRC.

License Application and Dose Assessment, Bear Lodge Project, Upton, WY

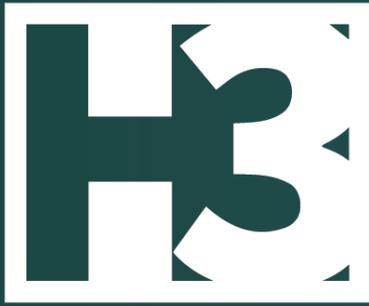
Performed prospective radiation dose assessments, both public and occupational, to support an Environmental Impact Statement (EIS) and USNRC license application for the Bear Lodge Project. The Bear Lodge Project is a proposed rare earth recovery facility with the raw material containing naturally occurring uranium and thorium. AERMOD was used to model atmospheric transport of particulates and radon gas in a very complex terrain environment. The results of the AERMOD modeling were used to assess the radiological dose to the public potentially attributable to the facility.

Baseline Radiological Investigation, Bear Lodge Project, Sundance, WY

Developed and implemented a Baseline Radiological Investigation at a proposed rare earth mining facility near Sundance Wyoming. The baseline informed a license application and EIS, both submitted to the USNRC.

Public Dose Assessment, Ludeman Uranium Project, Casper, WY

Performed a prospective radiation public dose assessment to support an Environmental Report (used for an environmental impact statement) and USNRC license application for the Ludeman Project. The Ludeman Project is a proposed in-situ uranium recovery facility located near Casper Wyoming. MILDOS-AREA was used to model atmospheric transport of particulates and radon gas in a complex terrain environment. The results of the modeling were used to assess the potential radiological dose to the public attributable to the facility.



ENVIRONMENTAL

Education

Colorado State University, MS, Health Physics	1994
University of Nevada, BS, Geological Sciences	1991

Certifications and Skills

Certifications

Certified Health Physicist, 2007; OSHA 40-hr HAZWOPER Supervisor; 40-hr RSO Training; DOT Shipper Training for Radioactive Materials, AHA First Aid/CPR/AED Certified

Professional Registrations / Affiliations

Member, American Board of Health Physics; Member, Health Physics Society-Plenary



Jess Joyce

Health Physicist

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(505) 317-6089

Experience

H3 Environmental, Health Physicist, Rochester, MN, Jun 2020 – Present

Project lead for survey design, implementation, analysis, and reporting

Environmental Restoration Group, Health Physics Consultant, Rochester, MN, Apr 2018 – Jun 2020

Supported closure/closeout planning, survey and release of land impacted by uranium mining and milling in New Mexico, Utah, and Wyoming, data analysis, developing plans and reports consistent with federal and state guidance.

M.H. Chew & Associates, Health Physicist, Rochester, MN, Jul 2018 – Jun 2020

Supporting triennial assessment of radiation protection programs at Argonne National Laboratory.

Rochester Farmers Markets, Manager, Rochester, MN, Apr 2017 – Jun 2020

Executive director of operations, finance, marketing, and events for a 501(c)4 nonprofit, vendor-owned farmers market association with approximately 100 member businesses. Managed and grew a budget of \$200-300k and team of 4-10 employees.

Los Alamos National Laboratory, Health Physicist, Los Alamos, NM, Jun 2014 – Sep 2016

Ensured institutional compliance with DOE Order 458.1 including radiological dose and ALARA assessment. Conducted atmospheric dispersion modeling using NARAC, HotSpot, EpiCode, and CAP88 codes. Supported site-wide emergency response exercises and compliance with 40 CFR 61 radiological NESHAPs requirements. Developed MARSSIM/MARSAME-based radiological release surveys to support property transfer to the public and personal property (material) release to offsite facilities.

Education

Colorado State University, *MS, Radiological Health Sciences*

2014

Colorado State University, *BS, Environmental Health*

2014

Studies abroad at Fukushima University, Japan

2014

Studies abroad at and Universidad de Granada, Spain

2012

Minors in Music (Viola Performance) and Spanish May



Certifications and Skills

Certifications: Certified Health Physicist, 2021; 40-hr HAZWOPER Supervisor, ArcGIS Pro: Essential Workflows, ESRI introduction to GIS/ArcGIS, DOT & NRC UN2910, AHA First Aid/CPR/AED Certified

Professional Affiliations: Associate Member, American Board of Health Physics – Certified Health Physicist Exam: Part I (2014); Member, Health Physics Society, Environmental/Radon Section and Women in Radiation Protection Section, North Central Chapter (Secretary/Treasurer 2017-2019)

Skills: Office Suite, ProUCL, Visual Sample Plan, RESRAD family, EPA PRG, CAP88, HotSpot, ArcPro



Chrissy Allen

Environmental Scientist

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(505) 317-4636

Experience

H3 Environmental, Environmental Scientist, Albuquerque, NM, Jun 2020 - Present

Environmental Restoration Group, Environmental Scientist, Albuquerque, NM, Feb 2020 – Jun 2020

Performed radiological site characterization and sampling field work, including conducting gamma radiation surveys, collecting radon flux measurements, and soil sampling.

Tetra Tech EMI, Geologist, Albuquerque, NM, Jan 2018 – Feb 2020

Performed investigation fieldwork for abandoned uranium mines, including sample collection of various environmental media, x-ray fluorescence surveys, gamma radiation surveys, groundwater monitoring, geologic site mapping, and geotechnical drilling and field oversight. Assisted in data entry and analysis, technical writing, project reporting, and conducting human health risk assessments. Participated in community outreach within tribal communities on the Navajo Nation. Performed an EPA oversight role for a former uranium mine CERCLA site.

Education

University of New Mexico, *MS, Earth and Planetary Sciences*

2017

University of New Mexico, *BS, Geological Sciences*

2014

Certifications and Skills

Certifications: 40-hr HAZWOPER Supervisor, AHA First Aid/CPR/AED certified, Navajo Nation EPA Cultural Sensitivity Training, DOT UN2910

Skills: Office Suite, ProUCL, Adobe Illustrator, Grapher



Tom Bottomly

Environmental Scientist

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(505) 317-6676

Experience

H3 Environmental, Environmental Scientist, Albuquerque, NM, June 2020 - Present

Environmental Restoration Group, Environmental Scientist, Albuquerque, NM, Jan 2019 – Jun 2020

Performed radiological site characterization and sampling field work, including gamma radiation surveys, radon flux, and soil sampling. Quality assurance, processing and analysis of field-derived data. Helped in the production of radiological procedures and work plans. Gained experience with radiological instrumentation. Extensive GIS experience.

Post-Remediation Radiological Investigation, Jackpile Uranium Mine, Pagate, NM

Implemented a radiological investigation of a previously remediated open-pit uranium mine located near Pagate, NM. The investigation included evaluations of ambient external radiation, soil sampling for radium-226 correlation to gamma count rate, and ambient radon-222 sampling.

Education

University of New Mexico, *BS, Environmental Science*

2018

Certifications and Skills

Certifications: 40-hr HAZWOPER Supervisor, AHA First Aid/CPR/AED certified, DOT UN2910

Skills: ArcGIS, ArcProOffice Suite; Visio; SketchUp; Visual Sampling Plan; JMP



Elon O'Malia

Environmental Scientist

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(505) 312-6401

Experience

H3 Environmental, Environmental Scientist, Albuquerque, NM, Jan 2021 - Present

Pacific Architects and Engineers, CAD/GIS Technician, Albuquerque, NM Jun 2019 – Jan 2020

Part of the Mapping and Drafting group within the Civil Engineering Department on Kirtland Air Force Base. maintained, organized, and created spatial data for utilities, buildings, and planning infrastructure. Produced large format wall maps and technical map books. Conducted various GPS-based field surveys for construction and utility placement projects.

EA Engineering, Environmental Scientist III, Albuquerque, NM, Oct 2015 – April 2019

Report coordinator for Kirtland Air Force Base jet-fuel spill remediation project – coordinated the production of quarterly groundwater, soil vapor, and drinking water monitoring reports (four per year) ranging between 15,000- and 46,000-pages including text, tables, figures, and data files. Wrote text, created and formatted tables, composed and produced figures in ArcGIS, responded to comments from internal and external clients, and oversaw the compilation of documents into final deliverables. Additionally, produced monthly technical memorandum letters including text, tables, and figures for various projects. Groundwater sample coordinator and field manager for Kirtland AFB jet-fuel spill remediation project - managed up to eight junior scientists in the collection of groundwater, soil vapor, and drinking water samples from over 400 sampling locations.

University of Minnesota, Graduate Teaching Assistant and Research Assistant, Aug 2013 – Jun 2015

Designed and implemented master's thesis project. Modeled spatial and temporal aquatic invasive species introduction patterns caused by human activity in the Great Lakes. Communicated research results through technical writing and scientific presentations at the Society for Freshwater Science and the American Fisheries Society conferences. Participated in fish sampling using fyke-nets, beach seines, benthic sleds, and electrofishing equipment, processed samples for stable isotope mass spectroscopy and otolith aging.

City of Longmont, Wastewater Treatment Operator, Longmont, CO, Jun 2012 – May 2013

Performed daily water quality laboratory analysis to assess treatment efficacy using multiparameter photometers, DO and pH probes, and microscopy. Adjusted treatment parameters and maintained equipment to ensure proper operations. Developed SCADA (Supervisory Control and Data Acquisition) user-interfaces to monitor and control treatment processes remotely.



The Nature Conservancy, GIS Technician, Boulder, CO, Dec 2011 – Jun 2012

Created digital property maps from legal descriptions and aerial photography. GIS /GPS hardware and software support and training. Digitized land parcels for use in priority acquisition identification.

City of Boulder, GIS Technician, Boulder, CO, Jan 2008 – Jun 2010

Maintained, organized, and analyzed spatial and non-spatial data. Created and maintained Microsoft Access and SQL Server databases. Developed GIS models to identify critical habitat for spotted towhee and northern goshawk using metrics of vegetation structure, terrain characteristics, and human impacts. Contributed to the development of wildlife and vegetation monitoring projects through sample site selection, methodology, and data storage and analysis logistics. Trained employees in GPS and GIS software usage.

Education

University of Minnesota, <i>MS, Integrated Biosciences</i>	2015
Red Rocks Community College, <i>A.A.S, Water Control Management</i>	2012
University of Pittsburgh, <i>BS, Biology</i>	2005

Certifications and Skills

Certifications: 40-hr HAZWOPER Supervisor, AHA First Aid/CPR/AED certified, DOT UN2910

Skills: ESRI GIS, ArcPro, Microsoft Office Suite, Technical Writing, SQL and VBA programming, AutoCAD, SigmaPlot, R statistic, QGIS, Python



Will Schaffer

Office Administrator

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(505) 317-4623

Experience

H3 Environmental, Office Administrator, Albuquerque, NM, Jan 2021 – Present

Mt. Taylor Hotshots, Wildland Firefighter, Grants, NM, Jul 2015 – Oct 2020

Established and built specific qualifications to provide initial attack on wildfires in the U.S. with elite wildland firefighters. Gained leadership capabilities to strategically plan and execute safest tactical course forward. Position required adaptability to high stress situations, strategic planning and execution, advanced communication skills, physical fitness, and mental discipline.

Ahmad Assed & Associates, Legal Assistant, Albuquerque, NM, Jan 2020 – May 2020

Headed the personal injury division working as a liaison between clients and attorneys. Position required integration of specialized oral and written communication skills with high level organizational competence to meet critically important deadlines. Composed and revised legal documents including demand letters, depositions, and court filings. Proficiently utilized the full Microsoft Office suite and cloud-based legal practice management software for case and project use.

Plasencia Cigars, Lead Account Manager of Southwest Sales, Jun 2018 – March 2019

Oversaw end-to-end logistics of supply chain operations to ensure accurate and consistent order fulfillment to end consumers. Responsible for brand growth, customer relationship management, product visibility in partnering retailers, development of marketing materials, and event planning. Utilized multiple customer resource management applications including Salesforce. Played an intricate role in the development and implementation of company policy related to pricing, user agreements, company guidelines and employee handbook.

Education

University of New Mexico, BBA, International Business
National Student Exchange Program, Juneau, AK

2017

2014

Certifications and Skills

Certifications: AHA First Aid/CPR/AED certified, DOT UN2910

Skills: Microsoft Office Suite, Salesforce, Intermediate Spanish fluency, Supply Chain Management, Strategic Management, Project Management



Therese Kondash

Environmental Scientist

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(505) 312-6401

Experience

H3 Environmental, Environmental Scientist, Albuquerque, NM, Sep 2021 – Present

H3 Environmental, Student Intern, Albuquerque, NM, June 2021 – September 2021

Assisted with field efforts and miscellaneous tasks and duties. Completed capstone project related to determining spatial extent of radiologically impacted areas.

Colorado State University, Research Assistant in Department of Environmental and Radiological Health Sciences, Fort Collins, CO, Feb 2019 – May 2021

Investigated and documented potential biases present in National Oceanic and Atmospheric Administration's Storm Events database and developed code for an R package which explores and plots Storm Events data.

Colorado State University, Research Assistant in Department of Microbiology, Immunology, and Pathology, Fort Collins, CO, May 2019 – Dec 2019

Performed sampling field work throughout Northern Colorado and laboratory analysis to characterize native mosquito species' behavior as part of a study regarding susceptibility and barriers to infection with Rift Valley fever virus.

Education

Colorado State University, B.S. Environmental Health

2021

Certifications and Skills

Certifications: AHA First Aid/CPR/AED, ESRI ArcGIS Pro: Basics, Radiation Safety Awareness, DOT UN2910

Skills: Microsoft Office Suite, Microsoft Access, ArcGIS Pro, R statistic program