James G. Arnold, Oregon ARNG

Environmental Restoration, Individual

SUMMARY

James Arnold is the Restoration manager for the Oregon Army National Guard (ORARNG). He is responsible for matters related to environmental condition of property, environmental baseline studies, compliance-related cleanup and military range assessments. Arnold is committed to streamlining and fast tracking cleanup processes, exemplifying environmental stewardship and reducing risks to human health and the environment and improving partnerships between the Department of Defense (DoD) and other entities.

His efforts have allowed him to achieve significant advances in three environmental projects: landfill cleanup at Camp Rilea, large-scale range cleanup at Camp Withycombe and environmental restoration at Army Aviation Support Facility #1 (AASF #1).

James Arnold Accomplishments:

Camp Rilea

- Developed two baseline studies that revealed a low level of residual contaminants in a landfill site used from the 1940s to the 1980s
- Concluded that landfill contaminants posed little risk to the environment or human health but organized the construction of an asphalt cap on the landfill to eliminate surface exposure and rainwater infiltration
- The landfill's asphalt cap was completed in four days and doubled as a parking lot for a maintenance shop on the installation

Camp Withycombe

- Worked closely with a freeway project consortium to cleanup an old range site to be turned into a highway
- Integrated all cultural-resources-related work into the range cleanup process to ensure cultural resources were properly protected
- Saved the camp over $2 million by implementing a soil cleaning, rather than soil-removing process to move contaminated soil from the range site

Army Aviation Support Facility #1

- Conducted a baseline study to assess and delineate contamination levels in soil and groundwater around a legacy World War II Navy Underground Storage Tank
- Provided technical guidance and support to the installation and neighboring property owners about chlorinated solvent and chromium leaks into soil and groundwater

"Jim Arnold has clearly done an exceptional job as Restoration Manager for the Oregon Army National Guard. He has excelled in all areas of restoration managment - program management, technical merit/innovation, orientation to military mission and stakeholder interaction."

- Jo Anne Walser

BACKGROUND

James Arnold, Restoration Manager, U.S. Army National Guard – Oregon

POSITION DESCRIPTION

As Restoration Manager for the Oregon Army National Guard (ORARNG), Jim Arnold is responsible for matters related to environmental condition of property, environmental baseline studies, compliance-related cleanup and military range assessments. Arnold manages five active sites working with compliance-related cleanup. These include:

- Military Munitions Response Program: 2 active sites
- Formerly Used Defense Sites: 2 active sites
- Non-DOD Owned Non-Operational Defense Sites: 53 potential sites identified
- Operational Range Assessment Program: 3 active sites
- Environmental Condition of Property: Coordinates environmental aspects

The majority of Arnold's work is spent with 12 different installations. The remainder of his time is split between the remaining 44 fixed facilities, leased training support land, community service projects and lands with proposed/pending real estate actions. Specifically, at the Camp Rilea Wastewater Treatment Plant Operation, Arnold is responsible for permitting compliance matters and coordinating design for planned plant expansion and permit modification. At the Camp Rilea Water Supply System Operations, Arnold coordinates water withdrawal permitting, water right certification, system design and implementation.

Arnold is committed to streamlining and fast tracking cleanup processes, exemplifying environmental stewardship and reducing risks to human health and the environment and improving partnerships between the Department of Defense (DoD) and other entities. His efforts have allowed him to achieve significant advances in three environmental projects: landfill cleanup at Camp Rilea, large-scale range cleanup at Camp Withycombe and environmental restoration at Army Aviation Support Facility #1 (AASF #1).

AWARDS & SERVICES

Arnold's restoration expertise earned recognition from the ORARNG when he received a 2006 Oregon National Guard Meritorious Service Medal. The medal highlighted Arnold's work – specifically calling out his demonstration of outstanding ability and initiative in supporting ORARNG environmental programs – and his leadership within the ARNG, notably becoming the ORARNG's "go-to" man for environmental issues.

Arnold actively participates in a variety of professional organizations including the Northwest Environmental Conference, the Environmental Law Education Center and the Oregon Association of Environmental Professionals. Vocal participation in these organizations is an avenue for Arnold to communicate and interact with community stakeholders and identify effective solutions for cleanup challenges and procedures. These groups allow Arnold to stay in contact with key stakeholders such as the Oregon Departments of Water Resources, Forestry and Fish and Wildlife. Further, Arnold is able to maintain continuity with federal and state regulators including the U.S. Environmental Protection Agency (EPA) and the Oregon Department of Environmental Quality (ODEQ). These groups act as open forums for the regulated, legal and technical communities to discuss environmental issues and solutions.

ACCOMPLISHMENTS

Dedication to Fast Track Cleanup by Working with Non-DoD Entities and Stakeholders

Over the past two years, Arnold has succeeded in developing environmental restorative programs for the ORARNG. He instituted No Further Action for a legacy underground storage tank (UST) site, implemented restoration activities for the largest cleanup project in the ORARNG and established a landfill capping initiative. Highlights of his work over the past 24 months include:

Professional Highlight	Description
Arnold reviews the restoration program plan and collaborates with the ORARNG environmental program manager and branch chiefs from operations, construction and master planning offices.	This collaboration allows Arnold to identify department goals and timelines and ensure that the condition of all properties is ideal for each mission. His compliance-related cleanup program is reviewed twice a year, and Arnold has successfully met every data call on time.
Arnold tailored the restoration program to comply with the ORARNG environmental management system (EMS) and Environmental Policy Statement requirements.	By incorporating the planning, communication, reporting, accountability and sustainability protocols, Arnold's restoration program was successful.
Arnold strives to simplify and streamline all cleanup processes, supporting restoration decisions with extensive quantitative analyses to ensure the greatest cost efficiency is achieved.	Arnold is advancing a plan for using new soil washing technology for the range soil remediation at a savings of $2 million. Arnold's decision to cap an existing landfill is less expensive than excavation/ disposal at a hazardous waste landfill, or by re-establishing grade at the landfill site by importing fill material.
Arnold completes restoration activities without interruption and delivers results on time, and often ahead of, project schedules.	Advance planning and completion of timely estimates allows Arnold's projects to receive full funding from NGB and the Compliance Cleanup Program.

Camp Rilea: Fast Track Cleanup to Reduce Risks to Health and the Environment

Arnold conducted assessments and developed a streamlined plan for managing a former landfill site at Camp Rilea. The landfill on the installation was used from the 1940s to the 1980s. In the 1990s, a maintenance shop was constructed over the landfill. The extent of the landfill was not specifically known, and there were environmental concerns for contamination. Excavating the fill site would have meant demolishing the maintenance facility and disrupting weapons training and qualification on the adjacent MARF range – two options that would negatively impact Camp Rilea's military mission. Instead, Arnold conducted an investigation to find a regulatory compliant solution that would demonstrate stewardship and be oriented to ORARNG's needs.

Restoration contractor removing encountered landfill debris during grading for installation of an engineered cap at MARF Range Maintenance Building, Camp Rilea.

Using technological demonstrations and initiatives, Arnold used existing Environmental Assessment (EA) data to develop two baseline studies that augmented information on the landfill. The first

Completed engineered cap over former landfill at MARF Range Maintenance Building, Camp Rilea.

study used hydraulic push-probe equipment to rapidly delineate contaminant extents and concentrations in the soil and groundwater around the site. Results identified only a low level of residual contaminants, which did not present an adverse risk to human health or the environment. The second study conducted was a groundwater feasibility study where several wells were installed for ground water monitoring. The samples have thus far confirmed that contamination is not an issue. Based on Arnold's research and monitoring, ORARNG received ODEQ approval for leaving the landfill in situ for long-term, natural attenuation.

The landfill was capped with asphalt to eliminate surface exposure and rainwater infiltration. As it was environmentally necessary to build a cap over fill material, ORARNG designed the cap as a parking lot for the MARF Range Maintenance Shop, demonstrating an efficient use of resources. The gravel parking area that existed before the cap enhanced infiltration into the former landfill. The asphalt cap now prevents infiltration of storm water into the former land fill debris and provides additional parking for the maintenance building. Thanks to Arnold's investigation, the ORARNG successfully implemented this environmentally sound, timely and cost effective solution to landfill infiltration problems without impeding activities at the maintenance shop or adjacent weapons ranges. Completed in four days and costing $85,000, the asphalt covers the MARF area and blocks any runoff to the landfill.

Camp Withycombe: Innovative Approach to Soil Washing for Fast Track Cleanup

The range restoration project at Camp Withycombe remains the largest cleanup project in the ORARNG, with deadlines that have motivated Arnold to find new ways to accelerate the process. Ownership of the closed Withycombe ranges was transferred to the Oregon Department of Transportation (ODOT) for construction of a new highway. ODOT plans to break ground on the site in 2010, and the restoration project remains very high-profile, due to its size and importance to regional transportation development. The size of the Camp Withycombe project involves five former small-arms ranges and twelve contaminated post-target impact areas, resulting in 25,000 cubic yards of soil.

Arnold works closely with the freeway project consortium to accomplish all investigations and forward planning. Constructed in 1909, Camp

Soil washing treatment technology will be utilized at the small arms firing range restoration project to reclaim lead for recycling, Camp Withycombe.

Withycombe is known as the original Known Distance range and it contains cultural resources from the early 20th century. Arnold is integrating all cultural resources-related work into the cleanup process ahead of pending ODEQ requirements to ensure cultural resources are appropriately protected and potential delays avoided. While ODEQ staff worked on setting up historical excavation procedures, Arnold took the initiative to set up a plan to continue cleanup of the site – keeping in mind Army, National Guard and state procedures and ORARNG Cultural Resource Management plans – while also incorporating site reconnaissance and surveying. This plan included correspondence with Oregon State Historic Preservation Offices and nine Oregon Native American tribes to deal with inadvertent discovery training. Elements of the historic ranges, such as target lifters and stone work, will be preserved and displayed at the Oregon Military Museum at Camp Withycombe. The planning process is nearly complete with actual cleanup set to begin in 2008.

Arnold knew there was a more technologically innovative way to remove contaminated soil from the range than an onerous removal process. Removing the 25,000 cubic yards of soil would take over 2,000 trips to the disposal site, which includes driving though the Columbia River Gorge National Scenic Area, an air quality maintenance area. Arnold concluded that soil washing was the most effective way to remove soil contaminants and the washing saved Camp Withycombe more than $2 million. Over 50 percent of soil is cleaned and ready to be used in reforestation to refill a mountain. 25 percent is clean enough to be used as structural fill and only the remaining 25 percent will have to be moved to a waste site.

Typical expended rounds found in post-target impact area soil of the small arms firing range restoration project, Camp Withycombe.

Arnold's process of soil washing is as follows: the untreated soil is delivered by conveyor belt to the wet screening plant where the soil is separated into size fractions. Inside the plant the soil is sprayed with a high-pressure spray of water to break down the soil clods. The soil is distributed into the following individual size fractions:
The next step of the treatment process is different for each of the individual soil size:

Debris Size	Definition of Material
Oversized debris	Consists of rock and mineral material greater than ¾ of an inch in size
Dense material	Consists of soil less than ¾ of an inch in size and larger than a #10 mesh [2 millimeters (mm)] soil sieve size
Moderate material	Consists of soil less than a #10 mesh (2 mm) soil sieve size and greater than a #200 mesh (0.074 mm) soil sieve size
Fine fraction	Consists of soil and organic material that is less than a #200 mesh (0.074 mm) soil sieve size

- The oversized debris is removed from the treatment plant following the wet screening process. The oversized debris is generally considered to be clean, as it is primarily mineral rock.
- The dense material is distributed to a gravity separation circuit to remove particulate metal from the soil. Heavier metal fragments are retained on a screen at the bottom while the lighter rocks and debris are removed in the overflowing water stream. The heavier metal fragments are removed from the jig and stored in one-ton supersacks. The lighter rock and debris material is transported to a sandscrew and dewatered.
- The moderate material and fine fraction material is pumped from the wet sieving process directly through a series of sandscrews for dewatering. The moderate material is delivered by the conveyor through a belt press.

- The fine fraction that settles at the bottom of the clarifier is sent on a conveyor to a dewatering belt press. The belt press generates a dewatered fine fraction product, typically with residual moisture content from 15 percent to 20 percent.

Finally, recovered water generated during the screening, dewatering and clarifier processes is reused and recirculated within the treatment system. The clear water is removed from the top of the clarifier and pumped through a fine mesh screen to remove small-sized vegetation. Process water is subjected to treatment for lead and suspended solids removal between runs and upon project completion.

Army Aviation Support Facility (AASF) #1 – Fast Track Cleanup of Underground Storage Tanks

Arnold addressed concerns associated with several USTs at Army Aviation Support Facility #1. At the AASF #1, environmental staff found a legacy World War II Navy UST system had leaked fuels into the ground. However, the system's components were removed between 20 and 50 years ago. To solve this mystery, Arnold put together a phase two environmental baseline study, in combination with historical data research and analysis. Based on the data results, he then used hydraulic push probe equipment to rapidly assess and delineate contamination levels in soil and groundwater around the UST system's tanks and fuel dispensing hydrants. To implement the sampling program, Arnold conducted historical research to determine the location of the sample points and obtain ODEQ concurrence.

Drilling contractors installing groundwater monitoring well for vapor intrusion assessment using limited access sonic drilling rig adjacent to active flight line, Army Aviation Support Facility #1.

The historical research revealed that the former components were located in the path of current active flight lines, requiring Arnold to coordinate with the state aviation office as well. He improved the site characterization technique by cooperating with local small business utility companies to avoid high profile fiber optic lines and in the course of investigation, Arnold used an air knife system to create drill holes that would not cut utility lines. Once the borehole was clear, the hydraulic probe finished the drilling to complete the soil and groundwater sampling. Overall, this process allowed optimal borehole placement and demonstrated that contamination levels were well below risk-based concentrations, and Arnold instituted No Further Action.

Arnold is also assisting with an important environmental cleanup project on the property adjacent to the AASF. Past industrial operations at the neighboring property released chlorinated solvents and chromium into soil and groundwater, which migrated onto the AASF #1. Arnold is providing technical guidance and support to the ODEQ, Department of Justice and property owners in the environmental restoration process. Arnold's assistance on this endeavor will reduce risk to both neighboring business personnel and the overall local environment.

Working as a Team for the Mission

All of Arnold's work is motivated to support the ORARNG training and readiness mission. Arnold's oversight on the environmental condition of properties and coordination with trainers and planners, ensures that all ORARNG's facilities are kept ideal for military activities. With regard to the projects over the past two years, Arnold has found ways to minimize the costs and time required for restoring or maintaining compliance, as in the Camp Withycombe soil washing project. He has also

Jim Arnold collecting location coordinates with a handheld Global Positioning System (GPS) unit of a groundwater monitoring well at one of his project sites.

successfully avoided impacts due to restoration, as with the Camp Rilea landfill project, which was completed without impeding maintenance shop or range use, and provided an additional source of parking for the maintenance shop. Joint coordination on the restoration management plan within the ORARNG and with National Guard ensures that restoration projects will continue at the same level of excellence, even if Arnold is no longer there to oversee them.

In the past, ODEQ assigned individual project managers to each restoration project, which did not allow stable relationships or continuity between the agencies. In short, multiple ODEQ project managers had to be "trained" to the Army restoration process. Sensing this would be an escalating challenge, Arnold developed a plan in concurrence with the Oregon Department of Justice and obtained an ODEQ buy-in to dedicate two project managers to the entire ORARNG restoration program. Because of this, Arnold now has stable relationships and continuity with the ODEQ, as well as increased face-time, communication and trust. Arnold also conducted outreach in support of the Camp Withycombe project. Though there is not an official Restoration Advisory Board (RAB) for restoration and freeway development, there is a Freeway Corridor Committee, consisting of ODOT, ODEQ, ORARNG personnel, local businesses and public representatives. Arnold frequently presents updates to this group on all restoration topics and concerns. This commitment to open engagement with all stakeholders demonstrates responsiveness, provides transparency and helps ensure that Arnold's projects proceed smoothly, while reinforcing the ORARNG's reputation as an excellent environmental steward.

CONCLUSION

Arnold's dedication to communicating with key stakeholders allows him to successfully complete his projects within schedule and save funds. His connection to ODEQ, specifically, has grown to a mutually beneficial relationship. His successes at Camp Rilea, Camp Withycombe and the AASF #1 site proves his excellence in environmental restoration programs – fast tracking cleanup, historical site preservation and innovative soil washing techniques – to reduce environmental risks to employees at these sites and the environment.