



2016 Secretary of Defense Environmental Awards

White Sands Missile Range

Cultural Resource Management - Installation



Introduction and Background

White Sands Missile Range (WSMR) was established in 1945 as White Sands Proving Ground (WSPG). WSMR consists of more than 3,200 square miles, making it the second largest installation in the Department of Defense (DoD) and the largest overland testing facility in the DoD. WSMR includes two major remote installations. The Green River Test Site (GRTS), in southeastern Utah, used extensively in the 1960s and Fort Wingate Launch Complex in northwestern New Mexico. Additional off post sites include telemetry and optics sites located in the Lincoln National Forest, as well as throughout the Western US.

The location was selected in February of 1945 and named White Sands Proving Ground, referencing the adjacent White Sands National Monument (WSNM).

On July 16, 1945, one week after WSPG was formally established, the world's first atomic bomb was detonated at WSPG. The first atomic bombs were dropped on Japan on August 6th and 9th, leading to their surrender in September. Almost simultaneously over 300 railroad freight cars loaded with rocket components and equipment obtained from Mittelwerk rocket assembly plant in Nordhausen Germany were being unloaded at WSPG.

JUDGING CRITERIA



Program Management



Technical Merit



Orientation to Mission



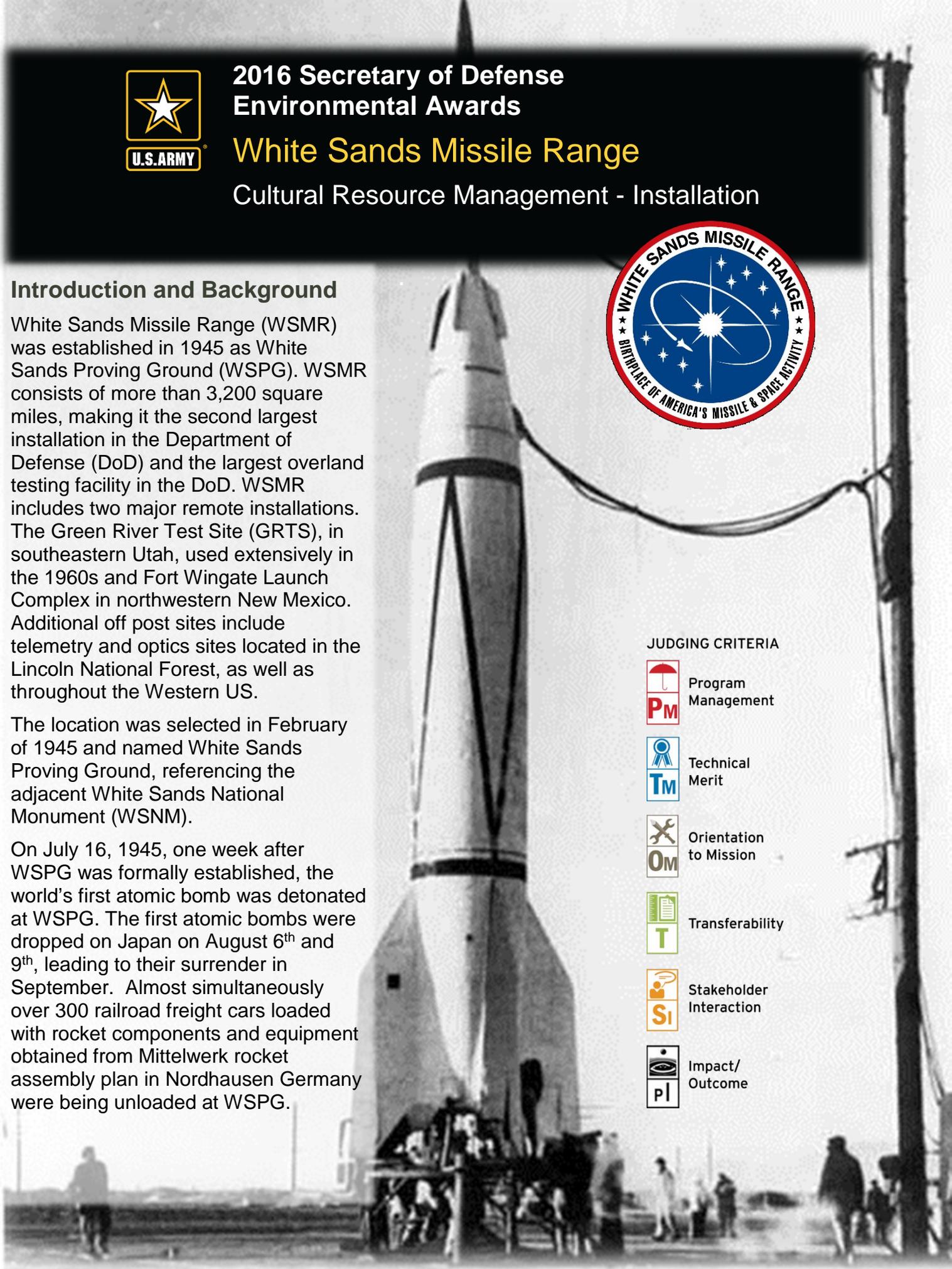
Transferability



Stakeholder Interaction



Impact/Outcome



Background cont'd

September 1945 witnessed the arrival at Fort Bliss of the first wave of German rocket scientists to arrive under Operation Paperclip as “War Department Special Employees”. The “Paperclippers” would show us how to build and launch the V-2 rocket and a missile range to support it.

On April 16, 1946 the first successful launch of a V2 rocket occurred. In the next decade the U.S. Missile program was firmly in place as the Cold War and the Space Race unfolded, with WSPG playing a pivotal role. On April 29, 1958 WSPG was renamed White Sands Missile Range and became an Integrated Range, combining the Army, Air Force and Navy and continues today, as a world class tri-service test facility.

Program Summary

The WSMR Cultural Resource Management Program is led by a professional staff of three Army civilians, supported by cooperating partner employees, who bring specialized expertise and abilities to the program to manage the installation’s tremendous cultural resource inventory. All of the staff meet the *Secretary of Interior’s Standards for Historic Preservation* qualifications.



The CRM program manages more than 8,300 recorded sites, several thousand facilities/structures, a cantonment historic district, and two NHLs; the Trinity Site and the V-2 Launch Complex 33.



Trinity NHL, site of the first atomic explosion. The obelisk is the official marker of the site. The roofed structure covers a portion of preserved trinitite, a green solidified sand.

Accomplishments

Integrated Natural and Cultural Resources Management Plan



In FY15, the CRM team, working closely with the Natural Resources Management Team, completed the WSMR Integrated Natural and Cultural Resources Management Plan (INCRMP). This innovative document was the first of its kind within the Department of Defense, fully integrating cultural resources management objectives with those for natural resources and the military mission.

Use of the WSMR Enterprise Geographic Information System (GIS) makes the INCRMP virtually paperless and allows users to focus in on specific mission elements, in context with both cultural and natural resource values in the vicinity. CRM staff are able to quickly identify potential conflicts and take appropriate actions to meet everyone’s objectives. This holistic approach to resource planning and mission support becomes an example for other DoD installations to consider.

Mission Support



In FY14-15 the CRM program completed inventory evaluations on approximately 92,000 acres of land.

This had the effect of opening more acres of real estate to off-road maneuvers and ground-disturbing activities than most DoD installations have land. The surveys and subsequent consultation were the result of mission support for the Network Integration Evaluation (NIE) program, a 2X a year, training/operational testing event with the goal of optimizing the Brigade Modernization Command's (BMC) expanded network capabilities. The CRM program's support proved essential to NIE's success, as well as supporting future operational/test missions.



During the review period the CRM program, in consultation with the New Mexico State Historic Preservation Officer (SHPO), developed a strategy of site preservation using a sample of NRHP eligible sites. This strategy has resulted in the protection of approximately 150 NR eligible sites and opening up of the maneuver area to mission activities. The eligible sites were marked with Siebert stakes. In-field monitoring was improved during the NIE 15.1 exercise and included mobile site monitors, briefings and go/no-go area maps, provided by CRM staff to the NIE Commanders. The result has been greatly increased awareness of cultural resources and no identified adverse impacts. The New Mexico SHPO concurred with these mitigation measures, which were implemented for and are in support of the FY 15 NIE 16.1, the largest NIE exercise yet conducted, with more than 9,000 U.S. and coalition Soldiers and 3,000 civilians participating nation wide.



Program Data Management

The tremendous size of the installation and the volume of resources presents a

significant data management challenge for the CRM program. The CRM program uses multiple data management techniques to streamline both the review of undertakings and the management of resources and data. During the FY14-15 review period the CRM staff reviewed over 600 undertakings, a process involving close coordination with many internal stakeholders, including Master Planning, ATEC and test engineers. The CRM program uses the WSMR NEPA manager software to provide prompt review of undertakings and is implemented in accordance with the WSMR INCRMP.



Reviews of undertakings also utilize the robust WSMR Enterprise GIS. Trained CRM staff actively assist in the management of cultural resource geospatial data. The WSMR GIS includes a Pictometry web interface that provides high resolution orthogonal and oblique imager, providing invaluable desktop views of topography and resources. This results in an efficient and high volume evaluation of undertakings necessary to support the mission requirements at WSMR.



Built Environment Program

Summary

The WSMR built environment is unusually extensive and includes structures and facilities over much of its 2.3 million acres. In the 1960s, at the height of the Cold War, WSMR had the most instrumented range in the world, containing hundreds of instrumentation sites with state-of-the-art tracking telescopes, cinetheodolites, radars, and telemetry equipment. As technology changed, many of these sites are no longer used. Presently the Built Environment Program, in close

coordination with the New Mexico SHPO, is actively creating comprehensive historic contexts to interpret these sites. In support of context development, the CRM program is working side-by-side with volunteers who previously worked at WSMR and now run the WSMR historical archives.

Archival Records Management

In FY14, the CRM program began using *Past Perfect* museum software to digitally house and archive documents relevant to interpreting the built environment at WSMR. This innovative use of the *Past Perfect* software provides for a singular searchable resource to identify many types of information that includes SHPO consultations, previous recordings, historic drawings, photographs, newspaper articles, images, and videos, as well as many other documents.



Student Interns

In FY15, the CRM program partnered with New Mexico State University Public History Program to provide opportunities for student interns to assist in the effort to populate the *Past Perfect* database.

Two students completed internship requirements through work with the CRM program. Two additional students were also hired through a contractor to provide additional support with data entry and also given the opportunity to work side by side with CRM staff.

Presently, there are 2,552 separate data entries in *Past Perfect*. This “one stop shop” provides exceptional support in streamlining the NR evaluation process and performs as a digital archive for the thousands of facilities and structures at WSMR.



Inventory and Evaluation

Between FY14-15 the Built Environment program at WSMR recorded and evaluated more than 175 facilities in support of the FRP. Included in those facilities was the full inventory and NRHP evaluation of the WSMR Small Missile Range Complex, consisting of 116 structures. This was the first ever comprehensive recordation of a facility of significant size at WSMR. The effort and methodology received significant praise from the New Mexico SHPO and will be utilized as a model for similar recordations in the future.



The FY14 the CRM program completed the inventory and NRHP evaluation of the GRTS in Green River Utah. The GRTS functioned as an off-range annex facility to WSMR and supported the Advanced Ballistic Re-entry System project and Pershing test firings. The facilities remaining at GRTS are no longer used and are targeted for demolition in FY16. The CRM program completed a memorandum of agreement (MOA) with the Utah SHPO and Utah State Institutional Land Administration, ensuring timelines were met in support of the demolition project. This 6,500 acre Cold War era test facility was determined a NRHP eligible Military Landscape.



Athena missile launch complex at Green River Test Site. Climate control shelters are rolled back to expose launcher.

The CRM program worked closely with the city of Green River to develop the MOA for mitigation of adverse effects to the former launch complex. Mitigations include development of an interactive eBook for the Green River community to use for educational purposes, restoration of a model of the Athena missile in a local park, in addition to developing new interpretive signage. These actions are to be completed in FY16.



Public Outreach on the Internet



In FY14 the WSMR CRM program identified a significant collection of historic newspapers stored at the Public Affairs Office. The newspaper, published for WSMR employees and residents, was titled *Wind and Sand* from 1950 to 1969, ultimately becoming *The Missile Ranger*, which is still published today. This collection contains an incredibly rich history of WSMR, including a great deal of information that had been lost until now. As part of the larger project of historic context development, the CRM program implemented a scanning project to digitize the paper from 1950 to 1990. The paper was scanned into high resolution PDFs that are searchable by publication date. Optical character recognition was enabled for keyword searching. This collection is now available on a public website with both high and low resolution download and a “flip page” that allows the viewer to flip through the paper like a printed newspaper. The project has been highly praised by the New Mexico SHPO, in addition to WSMR employees, former and present, and the public. As a research tool for historic context

development it has proven to be tremendously valuable.

Contributions to Research

Paleo Archaeology

In the summer of 2014 the CRM program contracted an interdisciplinary investigative team to perform archaeological and paleontological surveys in an area of interest within the relic shoreline of Lake Otereo, an area with known Pleistocene mammal trackways. The purpose of the investigation was to document the trackways and to identify an association of human occupation with the Ice Age artifacts or deposits. Although limited artifacts were identified in the gypsiferous sediments, the surprise finding of juvenile mastodon fossil material was most significant. Although mammoth fossils had been previously identified in the Tula Rosa Basin, this represented the first ever finding of a mastodon. The fossils predated any Paleoindian association, however the study produced significant data to provide insight into changes in the paleo-climate and paleo-hydrology of the area. Additionally, the study produced data that will be used to assess future management decisions, with a focus on identifying high probability areas for Late Pleistocene-age archaeological sites. The project received national attention with summaries of findings appearing in many newspapers.



Community Outreach Partnerships

The WSMR CRM program strives to maintain productive relationships with academic and community partners throughout New Mexico. Students and Instructors from regional universities, such as New Mexico State University

(NMSU) and the University of New Mexico and the University of Vermont, are able to access historic properties on WSMR to conduct research and publish papers that advance the knowledge of both prehistoric and historic periods in the Tula Rosa Basin. Currently, there are three Masters level students writing their theses on archaeological sites located on WSMR.



In FY15 the WSMR CRM program, through the Fort Worth Corps of Engineers and the Cooperative Ecosystems Studies Unit (CESU), has utilized partnerships with several educational institutions. In FY14 WSMR funded The School of Engineering, University of Vermont to perform condition assessments and treatment recommendations on 13 historic ranches at WSMR. The project is part of a broad plan to stabilize and further preserve the existing historic ranches that remain largely intact.



Also in FY14, using CESU, the CRM program began initial planning with Cornerstone Community Partnerships in Santa Fe to rehabilitate the McDonald Ranch house at the Trinity NHL. Cornerstones is an award winning non-profit that provides historic preservation services, utilizing field schools and volunteerism. Cornerstones will be partnering with the WSMR CRM program to stabilize and rehabilitate the McDonald Ranch house in FY16. This is a tremendous win/win/win for the Army, Cornerstones and the public.

First WSMR Field School



In FY14 WSMR CRM Staff coordinated its first ever archaeological field school with NMSU Department of Anthropology at the Cottonwood Spring Pueblo Site, a large late prehistoric pueblo. The site occupies a section of land jointly

administered by WSMR and the USDA's Jornada Experimental Range, a world class environmental research facility that has produced a wealth of studies concerning environmental change. The field school research design expands on questions regarding environmental processes and change and how they affected the pueblo community at Cottonwood. The field school was highly successful and strengthened ties between WSMR and NMSU with more plans presently underway for an FY16 field school.



Support of Ranchers Day

In FY15 the CRM program supported the annual Ranchers Day celebration, coordinated by the WSMR Public Affairs Office. The event is hosted each year to thank ranchers for their support to WSMR and the military mission. In FY14 the rancher's were taken to the mastodon site remains recently identified at WSMR. CRM staff provided the ranchers with the background on the finding and its significance to understanding the paleo-environmental history of the Tula Rosa Basin. The visit was greatly enriched by a visit to a historic ranch where one attendee was able to share his memories spent at the ranch as a young boy.



Interagency and Tribal Coordination



In FY14-15 the WSMR CRM program work closely with other agencies including Holloman Air Force Base, San Andres National Wildlife Refuge, White Sands National Monument, White Sands Test Facility (NASA), Fort Bliss, the Jornada Experimental Range and the Bureau of Land Management. These agencies all have land that is contiguous to WSMR or partially or fully contained within the installation's boundaries. Frequent coordination and collaboration

with these agencies is required due to the overlapping boundaries and is always conducted in a spirit of cooperation.

Mescalero Apache Partnership

In FY14-15 WSMR CRM program completed a project to assist the Mescalero Apache tribe in identifying and gathering plants that have traditional uses. The project was done in an effort to teach Mescalero youth about traditional Apache culture. The WSMR Native American Coordinator partnered with the natural resources staff to identify areas that the Mescalero could collect plants. These plants included Agave, Sumac, Banana Yucca and Sotol. The project resulted in the publication of an information field brochure outlining Mescalero Apache traditional uses of plants at WSMR.



Mescalero Apache tribal members removing agave plant. The CRM program partnered with the Mescalero to identify and gather plants of traditional importance at WSMR.

In the Fall of 2014 the CRM program was asked by the Tortugas Pueblo, a local non-federally recognized Indian tribe, to support their access to WSMR to collect yucca stalks for a religious ceremony. The ceremony takes place over several days in December and is known as the Our Lady of Guadalupe Fiesta and includes a religious pilgrimage up and down Tortugas Mountain, a local landmark, in addition to spiritual dances and a concluding



feast. The collection of stalks at WSMR was done in coordination with the CRM program Native American Coordinator and with the WSMR Natural Resource Program Land Manager. The collection involved both adults and children and was a particularly rewarding event, as both groups shared information and developed a new relationship. This success led to a repeat visit in December 2015.

Conclusion

The WSMR CRM program management successes during the award period have been exceptional. They have occurred in areas of mission support, data management, and public outreach. Highlights include:

- Completion of 92,000 acres of archaeological survey, clearing operational test/maneuver areas for the BMC NIE program.
- Completion of DoD's first Integrated Natural and Cultural Resource Management Plan.
- Digitized and created online web site for access to 40 years of the base newspaper.

The CRM program has achieved a high level of excellence by continually reaching beyond the confines of the office; reaching out to cooperators and partners, such as NMSU, University of Vermont, Cornerstones, New Mexico SHPO, as well as contractors, to protect and preserve cultural resources in a cost effective manner. Our efforts strengthen the foundation of the WSMR CRM program and its future, while ensuring a positive and productive impact to the military mission at WSMR.