ENVIRONMENTAL MANAGEMENT

EM UPDATE

Working Today To Protect Your Future

U.S. Department of Energy Nevada Site Office Environmental Management Program

New Waste Verification System Comes to NTS

by Dona Merritt

The ability to perform on-site verification of low-level and mixed low-level waste packages is one step closer to becoming a reality at the Nevada Test Site (NTS) with the delivery of the new and much-anticipated Real-Time Radiography (RTR) system.

The RTR system, which arrived at the NTS on May 5, 2004, produces *real-time* x-ray images of waste package interiors allowing operators to verify package contents on the spot without having to disrupt the package. The system will serve as a final on-site check of randomly selected waste packages (i.e., boxes and drums) to ensure that incoming waste is free of prohibited items and that contents match the documentation provided by the waste generators.

Until now, information on incoming waste was verified through detailed generator waste descriptions, scheduled audits, and random inspections of waste certification processes. (Link to the NTS Radioactive Waste Acceptance Program fact sheet at http://www.nv.doe.gov/news&pubs/dirpdfs/DOENV_671REV1.pdf) The addition of the RTR system further strengthens this process

(left) Completed RTR system similar to the one being installed at the NTS.
(bottom) Workers erect back wall of the new RTR system at the NTS.

(continued on page 3)

DOE Focusing Cleanup Strategies on Risk

by Angela Ramsey

In its continuing effort to streamline cleanup and closure at former nuclear sites around the complex, the U.S. Department of Energy (DOE) has stepped up efforts to ensure that remediation activities are directly related to the risks that are present at individual sites. DOE Headquarters requested that each Environmental Management site office, including DOE Nevada Site Office (DOE/NSO), prepare a document detailing the *risk-based end state* for each site under its purview. For DOE/NSO, documents were to cover the Nevada Test Site as well as sites in Colorado, Nevada, New Mexico, and Mississippi.

With these *Risk-Based End State Vision* documents, DOE wants to establish a primary resource that clearly communicates the long-term risks and ultimate end states envisioned for each site. DOE is looking specifically to determine whether DOE's cleanup strategy is driven by risks to human health and the environment, and not solely upon regulatory and compliance issues. The documents are also designed to accomplish the following:

- Provide a detailed site history and overview;
- Describe planned future uses of the properties;

(continued on page 4)

AMEM Corner

by Carl Gertz

Carl Gertz is the Assistant Manager of Environmental Management (AMEM)

As I've noted at several recent meetings, the Community Advisory Board (CAB) for Nevada Test Site Programs is celebrating its ten years of service to the Environmental Management (EM) Program. At any given time, the CAB is working on several EM initiatives in order to better understand issues and provide timely feedback to the U.S. Department of Energy's Nevada Site Office (DOE/NSO). Keeping in that tradition, spring has been a busy time for the CAB, so I'd like to take this opportunity to commend CAB members for their hard work on a number of issues.

Charles Phillips, CAB Chairperson, and Kathleen Peterson, Chairperson of the CAB's Underground Test Area Committee, recently traveled to Washington, DC to participate in the semi-annual Site-Specific Advisory Board Chairs meeting. The meeting provided an opportunity for representatives of all nine EM advisory boards to network and share perspectives on environmental management activities at their respective sites. The meeting focused on risk-based end state documents that have been developed for all EM sites. Assistant Secretary for Environmental Management Jessie Roberson participated in the meeting, so it was a wonderful opportunity for CAB members to hear firsthand her perspectives on the EM program as a whole.

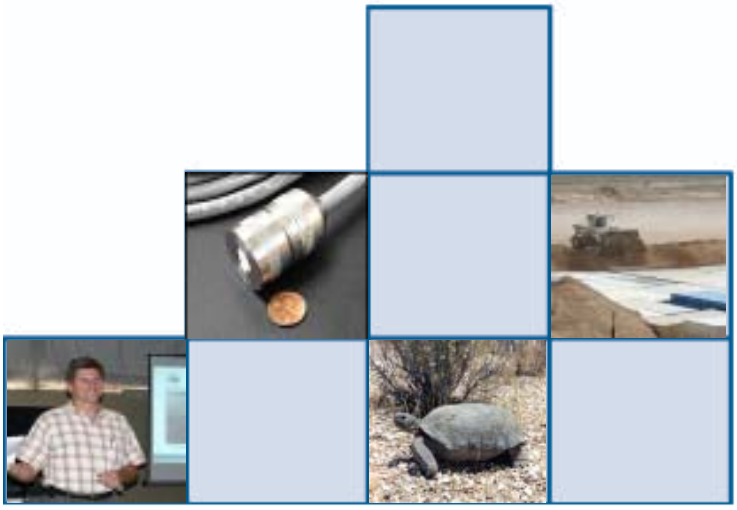
The CAB also deserves recognition for their recent work on the fiscal year 2006 EM budget prioritization. Each year the CAB shares its insights and recommendations on how the DOE/NSO should prioritize the EM projects in its submittal to the Office of Management and Budget. After weighing all of the input from the state of the CAB, the state of Nevada, and EM project managers, we have developed a prioritization list that closely resembles that of the CAB's.

Additionally, I appreciate the ongoing commitment of the CAB's Underground Test Area Committee in providing the UGTA project team with guidance related to future site(s) for monitoring wells at the Nevada Test Site (NTS). Needless to say, this is a complicated task, but we do appreciate the CAB's interest in this effort and look forward to receiving their recommendations.

Finally, I want to acknowledge the CAB for their recent new member recruitment campaign. Applications were received from 24 interested stakeholders, and CAB members conducted personal interviews with 13 candidates. Five new volunteer members representing Nevada stakeholders have now been selected and will soon join the CAB. I look forward to introducing them to you at an upcoming CAB meeting.

In other news, we at EM have received information from the Secretary of Energy's office that the National Nuclear Security Administration (NNSA), which also operates under the DOE, will incorporate EM work thatis currently being done at NNSA sites, into its purview. Up to this point, EM work at the NTS has operated under the management of the Assistant Secretary of Environmental Management even though NNSA is the landlord of the NTS. Details should be finalized by the end og the fiscal year, but I will keep the CAB and our community-at-large informed as we move throught this process. The ultimate goal is to ensure a seamless transition with no impact to ongoing projects or CAB activities. ■

Also Inside this Issue...



Nevada Counties to Receive DOE Grant

by Michelle Meade

The U.S. Department of Energy's (DOE) Grant Assistant Program was initiated to assist six Nevada counties impacted by the re-routing of low-level waste out of the Las Vegas Valley. In its fourth year now, the program will distribute an estimated $2.3 million to these counties in fiscal year (FY) 2004 . To date, the total amount granted to the counties approaches $7 million.

The funding, administered by the Nevada Division of Emergency Management, is based on a waste generator fee of $0.50 per cubic foot of waste disposed at the Nevada Test Site and is awarded annually to the counties of Clark, Elko, Esmeralda, Lincoln, Nye, and White Pine.

The remainder of funds allocated for FY 2003, approximately $320K, was distributed in April 2004 along with the initial FY 2004 allotment of $905K. The emergency expenditures for the six counties will go toward: enhanced communication tools, salaries, training, personal protective equipment, ambulances, fire trucks, squad cars, rescue equipment, and computer equipment, etc.

An Emergency Preparedness Working Group reviewed the proposed FY 2004 distribution; the final approval of the grant is awaiting the development of a new agreement between DOE and the State of Nevada. The DOE's Environmental Management division will continue to fund the grants to the counties for Emergency Preparedness through FY 2007. ■

Grant Money Put to Good Use

(top) West Wendover female fire fighters receive training on typical tank operations. (bottom) A decontamination facility is staged in Lincoln County.

(Waste Verification... continued from cover)

by providing the NTS the ability to perform immediate verification. An additional benefit of the RTR verification process is that it is totally non-invasive, thereby reducing the risk of any potential contamination exposure to the workers or the environment.

Once operational, the RTR system will first be used to verify *low-level waste* packages, which are regularly shipped to the NTS for disposal by waste generators from across the U.S. Department of Energy (DOE) complex. Verification of *mixed low-level waste* packages will commence once the State of Nevada issues a permit allowing the NTS to accept this waste type from DOE generators outside of Nevada. (Link to the MLLW fact sheet at http://www.nv.doe.gov/news&pubs/dirpdfs/DOENV_920.pdf)

However, before the RTR system can be deemed "operational," assembly of the equipment must be accomplished, followed by training and a readiness assessment. Waste management personnel expect the RTR system to be up and running by the fall. ■

The equipment will be housed in Building 5-6 at the Area 5 Radioactive Waste Management Complex located on the NTS. In December 2002, several Community Advisory Board members toured the building and received a briefing on the benefits of RTR.

(Focusing on Risk... continued from cover)

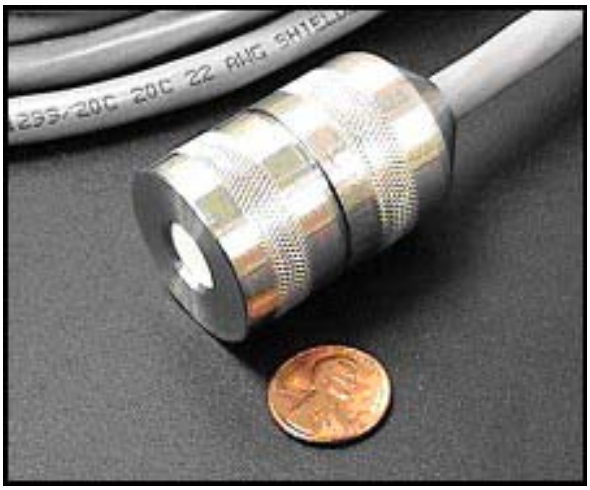
- Aid decision-making regarding cleanup and the sustainability of current and future missions;
- Serve as a communication and risk assessment tool for discussion with state and federal regulators regarding cleanup;
- Offer a high-level view of expected cleanup results and risk reduction; and
- Enhance public and stakeholder awareness.

The end state vision for each former test site will vary based on future-use scenarios. Ultimately, the surface at most of the DOE/NSO Offsites may be considered clean closed (once remediation is complete) and the land turned over for public use. The end state at the NTS will differ dramatically, however, as national security missions are ongoing and the land is to remain restricted for the foreseeable future. The subsurface at *all* former nuclear test locations will be restricted indefinitely due to the lack of feasible remediation technologies to reduce or eliminate the contamination.

In an effort to encourage stakeholder participation in reviewing and commenting on the *Risk-Based End State Vision* documents, DOE/NSO developed a public participation plan that provides draft versions of the documents as well as information sheets for each site. A public participation letter within this package asks that any public feedback be provided in written format by June 20, 2004. The Nevada Site Office will respond to each comment in a *comment/resolution* document. Final *Risk-Based End State Vision* documents will be sent to DOE Headquarters for approval by September 1, 2004. Once approved, the documents will be posted on the internet at http://www.nv.doe.gov. ■

AMSI Helps Bridge the Technological Gap

by Nick Duhe



Innovative, sophisticated monitoring systems using advanced sensors are becoming critical components in a wide range of technology-driven fields such as medicine, interstellar exploration, and environmental quality. Researchers striving to move advanced sensors to the forefront of the technological stage often find it difficult, however, to successfully negotiate through the seemingly endless maze between initial concept and applied use.

The Advanced Monitoring Systems Initiative (AMSI) program is helping bridge this gap by providing scientists the tools to actually perform and verify their research. Utilizing what could be the nation's largest laboratory, the Nevada Test Site (NTS), the AMSI program is able to provide a venue for rapid prototyping, systems integration, and field testing to customers like universities, national laboratories, U.S. Department of Energy (DOE) contractors, and the private sector.

> With over 1,375 square miles of remote, arid, secure land, the NTS provides an ideal location for large scale sensor testing. The AMSI program is also able to take advantage of the NTS' extensive test and evaluation infrastructure, which is already in place.

The advanced sensors being tested at the NTS are used to monitor various environmental conditions such as the presence of contaminants (both radiological and chemical), temperature, and Ph levels in the surrounding soil or water. The information gathered by the sensors can then be used to generate reports, models, and in some cases produce real-time data accessed via the Internet. The AMSI program approach is especially valuable to DOE Project Managers who are continuously looking for ways to get updated monitoring data at a reduced cost.

Advanced sensors come in a wide variety of shapes and sizes—from 6' cylinders to only millimeters in length. All of the sensors are considered miniaturized because their diameter allows them to be placed inside monitoring wells to collect continuous data.

For more information regarding AMSI, visit http://www.nv.doe.gov/news&pubs/dirpdfs/DOENV_600REV1.pdf. ■

THE LATEST...IN WASTE

The "Ins and Outs" of LLW Disposal at the NTS

by Angela Ramsey

For more than 40 years, the Nevada Test Site (NTS) has been safely disposing low-level waste at its radioactive waste management facilities. As one of two federally designated regional disposal sites for the entire U.S. Department of Energy (DOE) complex, NTS fulfills a critical service by accepting low-level waste resulting from ongoing DOE missions as well as complex-wide cleanup and closure activities. The NTS currently accepts low-level waste from a total of 26 low-level waste generators. Three new generators are expected to be added this year and two to three more in 2005.

The following points describe some of the ins and outs of the NTS waste disposal process:

How does the NTS make sure that incoming waste meets disposal criteria? Long before the waste even arrives at the NTS, it has undergone a thorough review to ensure that not only the waste itself meets the rigid NTS disposal criteria, but also that the DOE site generating the waste has followed all the appropriate rules to ensure regulatory compliance. This is done through onsite audits and reviews of the waste generator program and characterization data.

What happens when waste arrives at the Nevada Test Site? The waste shipment is closely inspected – from the paperwork carried by the driver to the waste packages themselves. Waste packages are checked to verify that they are intact and that the contents are secure. Once the paperwork and waste packages are inspected the waste is then staged for disposal.

Where is the waste disposed? Low-level waste is disposed at one of the NTS' two radioactive waste management sites (RWMS). At the Area 5 RWMS, low-level waste is disposed in engineered cells (i.e., cells have gone through formal engineering design and construction). At the Area 3 RWMS, low-level waste is disposed of in subsidence craters that resulted from underground weapons tests. Once filled, both cells and craters are covered with soil. The amount of soil used to cover the waste varies in depth depending on the type of low-level waste disposed.

Low-level waste boxes are methodically stacked in a numbered grid system, which aids in waste tracking.

How big are the disposal cells? Cells range from 83 to 1,133 feet long; between 30 to 336 feet wide, and between 12 to 48 feet deep.

What types of containers are used for low-level waste? At the Area 5 RWMS, low-level waste for the most part is packaged in standard 55-gallon drums or metal boxes. The boxes are constructed to specific strength standards to ensure worker safety in the disposal cells. At the Area 3 RWMS, waste is disposed in bulk-sized containers such as large cargo containers or supersacks. Pieces of large equipment are sometimes disposed of intact.

Can LLW be tracked and retrieved? Yes, the waste is disposed using a grid system so that waste can be tracked and, if necessary, retrieved.

(continued on page 6)

THE LATEST...IN WASTE

(Ins and Outs of LLW Disposal continued from page 5)

What does the waste consist of? The majority of low-level waste disposed at the NTS consists of equipment, protective clothing, building debris, and soil associated with the development and production of nuclear weapons.

Are workers required to wear protective clothing when handling low-level waste? For the most part, workers are *not* required to wear protective clothing when handling low-level waste. The waste packaging itself (i.e., drums, boxes, etc.) provides sufficient protection from the contents of the containers. However, NTS occasionally handles low-level waste streams that require workers to wear personal protective equipment, such as respirators.

What sort of monitoring is performed at the waste disposal facilities? Workers are monitored with radiation detectors called dosimeters. The air, ground, and biota at the RWMSs are continuously monitored as well.

How much land has been used so far for waste disposal? At Area 5, more than 700 acres are available for low-level waste disposal. At the present time, a little over 120 acres has been utilized for disposal activities. The Area 3 RWMS consists of 125 acres, containing 7 craters. Approximately, four and one-half craters have been used.

How much waste can be accepted? To date, over 29 million cubic feet have been disposed. Conservative projections place the upper limit of disposal at approximately 140 million cubic feet. ■

For more information on waste disposal visit our website at http://www.nv.doe.gov

It's Double Duty at the NTS

by Dona Merritt

Following the successful initial shipments of transuranic (TRU) waste in January of this year, intensified efforts are underway to ensure another 32 shipments are completed by the end of 2004.

Approximately 1,400 drums and 58 boxes of TRU waste remain at the Nevada Test Site (NTS) awaiting characterization and shipment to the Waste Isolation Pilot Plant (WIPP) in Carlsbad, N.M. Results from routing negotiations with the Western Governors' Association (WGA), allow the NTS to ship the waste on the current route through December 31, 2004. If additional shipments are required after this date, a new route must be negotiated with the WGA.

With so many drums and boxes awaiting characterization and such an aggressive schedule in place, the Environmental Management Program decided to step up operations and add an additional shift of characterization personnel to meet the deadline.

Double shifts began at the Waste Examination Facility in Area 5 of the NTS on May 10, 2004. The second shift begins an hour before the first shift ends, thus eliminating any downtime in characterization activities. The characterization process, which is required for each waste package, involves both non-invasive and invasive techniques to verify package contents and prevent prohibited items from being sent to WIPP.

Safety, as always, remains the number one priority. Numerous safety measures, including the addition of night-time lighting and shift status briefings, have been implemented to ensure the safety of characterization personnel and the integrity of operations. ■

For more information on the TRU waste project, visit: http://www.nv.doe.gov/new&pubs/dirpdfs/DOENV_787REV1.pdf

Once waste cells are filled, such as the one seen here at the Area 5 Radioactive Waste Management Site, they are covered with soil and closed.

It's a Roadshow

by Carla Sanda

Fiscal year 2004 is a real milestone for the CAB — ten years of operations and still going strong! Throughout the years, the CAB has focused on a myriad of Environmental Management projects ranging from radioactive waste issues to studying the effects of historical underground nuclear testing on the groundwater at the Nevada Test Site.

One thing that has always remained a constant, however, is the CAB's desire to keep the stakeholders of Nevada informed and involved in its activities. Although the public is always welcome at any of its meetings, CAB members have gone a step further to bring current information to stakeholders by developing the *CAB Roadshow*— an informal briefing designed to acquaint people with the CAB and its activities. To date, CAB members have sponsored the *CAB Roadshow* prior to CAB meetings in Pahrump, Amargosa Valley, and Las Vegas. It's a fun, informal way to learn more about the CAB as well as ongoing Environmental Management initiatives at the Nevada Test Site.

To schedule the *CAB Roadshow* in your community, please call the CAB office at (702) 657-9088. With some advance planning, CAB members will gladly arrive at your event with the briefing and informational materials in hand! ■

The Community Advisory Board for Nevada Test Site Programs (CAB) is a group of 10-15 volunteer citizens from Nevada's urban and rural communities. The CAB focuses on environmental management activities at the Nevada Test Site and represents Nevada stakeholders with a broad array of perspectives shared with the Department of Energy.

Charles Phillips, CAB Chairperson, welcomes the community with the "CAB Roadshow" at a recent CAB meeting in Pahrump, Nevada.

EM Employees of the Month

January 2004
Marla Libidinsky and Renee Thomas
AMEM Secretaries

February 2004
Christine Baker
Program Integration

March 2004
Sabine Curtis
Environmental Restoration

Managing the Wildlife at the NTS

by Rosemary Rehfeldt

Imagine…it's a warm, quiet, sunny day. You are standing in the middle of a vast, empty area of desert, surrounded by mountains and clear skies that you can see for miles and miles. It's serene, and you may think that nothing could be living in what appears to be dry, barren land. But, hidden beneath the surface, behind small bushes, or along dry drainage channels and atop high mesas, a diverse and complex mosaic of plant and animal communities are thriving at the Nevada Test Site (NTS).

Spanning approximately 1,375 square miles along the transition between the Mojave and Great Basin deserts, the varying elevations and climatic conditions at the NTS contribute to the abundant variety of plants and animals that inhabit the land. Approximately 1,500 animal species and 750 varieties of plants can be found at the site.

To ensure compliance with federal and state environmental laws and regulations, the ecosystem at the NTS is closely monitored under the Bechtel Nevada Ecological Monitoring and Compliance (EMAC) Program for the U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office (NSO). Managing the wide variety of animal and plant habitats around the diverse projects taking place at the site is nothing short of challenging. Just ask any one of the six biologists that are tasked with this phenomenal feat.

"Among its varied responsibilities, the Environmental Technical Services (ETS) group conducts biological monitoring of sensitive species and unique habitats, and monitors habitat restoration," said Cathy Wills, a biologist with Bechtel. Per state and federal regulations, sensitive species at the NTS include two reptiles, 18 mammals, 22 plants, and over 250 birds, not to mention the regionally-famous desert tortoise.

Wills stated that, "The desert tortoise is the only species protected under the Endangered Species Act and is listed as threatened." Because of this, the NSO is required to consult with the U.S. Fish and Wildlife Service (FWS) to ensure that test site activities do not jeopardize the continued existence and habitats of the tortoise. "The NSO is obligated, under permit with the FWS, to pay a mitigation fee for tortoise habitats that have been disturbed," said Wills, "or the NSO may revegitate disturbed habitats in lieu of paying the fee." To date, 217 acres of tortoise habitat have been disturbed on the NTS and no tortoises were found in or displaced from project areas, and none were accidentally injured or killed at project areas. Since 1992, however, a total of five tortoises have been killed on paved roads.

In addition to the species mentioned above, Wills reported that game animals and furbearers living on the site, such as the mule deer, Gambel's quail, mountain lion, kit fox, and bob cat, are managed by the State of Nevada. Wills added that, "If an NTS project was to disturb a kit fox den, the den would be relocated or the area would be avoided. All of the wildlife that roam the NTS, including rodents, rabbits, bats, wild horses, and birds, are considered valued natural resources and fall under the purview of the Nevada Division of Fish and Wildlife."

Along with animal species, the NTS boasts about 67 families of plants. Joshua trees, a Yucca variety found in most southwestern states, are numerous in this area. Many of them are around 100 years old. Early Native Americans used these plants for food, beverages, such as teas, medicines and ceremonial purposes. Currently, "none of the plant species are threatened or endangered," said Wills, "although several are on the State's 'watch' list."

In order to protect all of these plant and animal habitats, the ETS biologists survey an outdoor habitat or existing building where there are potential plans for drilling, construction or demolition, to ensure that sensitive animal species, such as certain bats or birds, as well as sensitive plant species, remain undisturbed. "In order to comply with the National Environmental Policy Act," said Wills, "new projects proposed for the NTS must be evaluated and environmental affects determined before project work is approved."

The protective measures set forth by federal and state laws and carried out by the ETS team of biologists, help assure that animal life, as well as desert trees and plants, continue to thrive at the Nevada Test Site. ■

The vast NTS is home to...

Desert Tortoise (top)
Baby Kit Fox (middle)
Wild Mustang (bottom)

Changes to NDEP

by Nick Duhe

The Nevada State bureau that works closely with and regulates the U.S. Department of Energy Nevada Site Office (DOE/NSO) has undergone a change in leadership. Until recently, the Bureau of Federal Facilities, which is part of the Nevada Division of Environmental Protection (NDEP), was headed by Bureau Chief Paul Liebendorfer; but after many years of dedicated service to NDEP, Liebendorfer retired in November of 2003.

Upon Liebendorfer's retirement, Terre Maize assumed oversight responsibility for the NTS Environmental Management Program. Maize has been with the State for the last 18 months. However, she brings with her more than 20 years of experience in environmental management, including approximately 15 years associated with NTS programs.

As Chief of Las Vegas Operations, Maize's primary responsibility will be to enforce the *Federal Facility Agreement and Consent Order* (FFACO), the *Federal Facility Compliance Act Consent Order* (FFAct) and the *Letter of Intent Agreement* (LOI), which serve as the primary regulatory drivers over DOE/NSO's cleanup and waste management activities in Nevada. She will also serve as NDEP's ex-officio member to the Community Advisory Board, a volunteer-based group that provides community perspectives on issues relating to DOE/NSO's Environmental Management Program.

DOE/NSO welcomes Maize and is confident she will continue the legacy established by Liebendorfer by working closely with the NTS to ensure that the workers, public, and the environment are protected.

For more information on NDEP, visit their website: http://www.ndep.nv.gov. ■

More About NDEP...

In its mission to preserve and enhance Nevada's environment, the nine bureaus' that encompass the Nevada Division of Environmental Protection regulate everything from air pollution to waste management. These regulations protect public health, sustain healthy ecosystems and contribute to Nevada's vibrant economy.

Operation Clean Desert Display -On the Road-

The "Operation Clean Desert" display is a fun way to teach children about historical and current activities at the Nevada Test.

To reserve the display for your school, library, or community event call Nick Duhe at (702) 295-2928.

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