U.S. Department of Energy

Status of Legacy UMTRCA Sites in the Navajo Nation and New Mexico

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UMTRCA Sites in the Navajo Nation Managed by LM

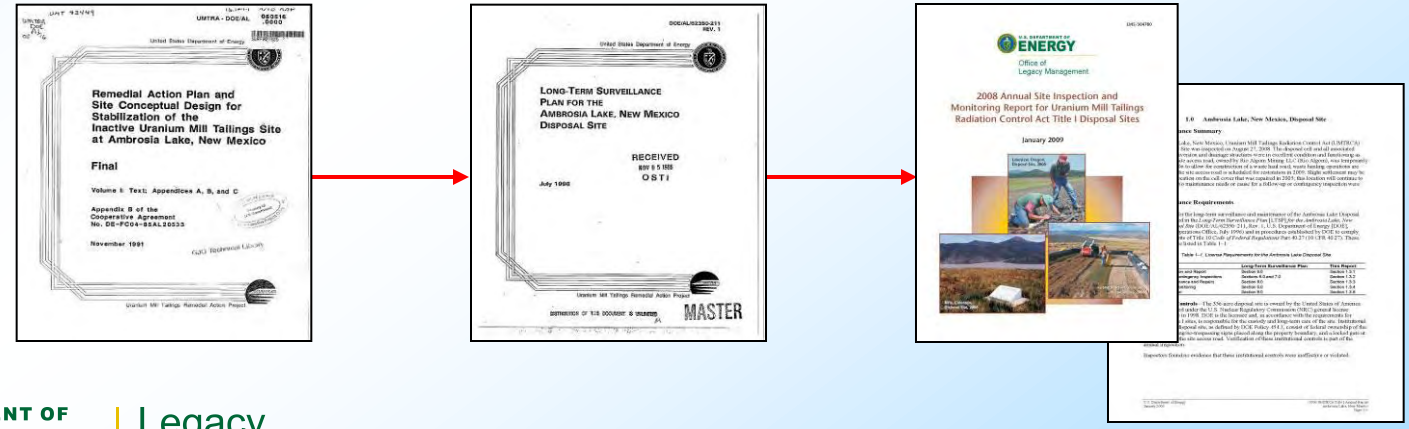
- LM currently manages four UMTRCA sites in the Navajo Nation
  - Mexican Hat, Utah
  - Monument Valley, Arizona
  - Shiprock, New Mexico
  - Tuba City, Arizona

UMTRCA Sites in New Mexico Managed by LM

- LM currently manages four UMTRCA sites in New Mexico
  - Ambrosia Lake
  - Bluewater
  - L-Bar
  - Shiprock
- Three more UMTRCA sites will transition to LM for long-term custody and care after all reclamation goals have been met and monitoring requirements have been established
  - Ambrosia Lake West (Rio Algom)
  - Church Rock (UNC)
  - Grants (Homestake)

Status of Activities

- LTS&M activities at DOE sites in the Navajo Nation and New Mexico
- Five-year plan commitments to address impacts on uranium contamination in the Navajo Nation
- LM technical support, cooperation, and coordination with the Navajo Nation
- LM technical support, cooperation, and coordination with NMED



Status – Surveillance and Maintenance of DOE Sites in the Navajo Nation and New Mexico

- Routine surveillance and maintenance responsibilities include the following activities to ensure protectiveness of public health and the environment at former mill sites
  - Conduct annual site inspections to verify cell performance
  - Perform groundwater treatment and monitoring and other actions as required
  - Repair site features as needed
  - Maintain site security
  - Prepare an annual compliance report (http://www.LM.doe.gov)
  - Coordinate activities with state, federal, and tribal entities and the public

Status – Surveillance and Maintenance of DOE Sites in the Navajo Nation and New Mexico (continued)

- LM has collected data on disposal cells for the past 20 years including inspections and groundwater and limited radon monitoring, as well as other studies
- LM will evaluate performance as additional data is gathered
- Concern about long-term water balance condition of some disposal cells has prompted studies to evaluate and provide alternatives if ever deemed necessary to remain protective
- Initiated studies, such as the Renovated Evapotranspiration Cover Assessment Project (RECAP), to look at alternatives if cell covers need renovation

Status – Surveillance and Maintenance of DOE Sites in the Navajo Nation and New Mexico (continued)

- Control of residual radioactive material (RRM) and release Rn-222 is demonstrated though approved designs, no post-construction monitoring is required
- Performance of 40 DOE, UMTRCA, and CERCLA disposal facilities located across the country in varying climates are all within EPA regulations, thus protective of human health and the environment
- DOE is ready to respond to problems if they occur

Status – Surveillance and Maintenance of DOE Sites in the Navajo Nation and New Mexico (continued)

Summary of LTS&M Activities

LTS&M Activity	Ambrosia Lake	Bluewater	L-Bar	Mexican Hat	Monument Valley	Shiprock	Tuba City
Groundwater treatment					X (pilot)	X	X
Annual inspection	X	X	X	X		X	X
Site maintenance	X	X	X (on-site erosion repair)	X		X	X
Water sampling and analysis	Every 3 years, Aug. 2010	Every 3 years, Aug. 2010	Every 3 years, Aug. 2010		Semi-annual, last June 2010	Semi-annual, last Aug. 2010	Semi-annual, last May 2010

Status – Five-Year Plan Commitments to Address Impacts on Uranium Contamination in the Navajo Nation

- Continued groundwater treatment at Tuba City, Arizona, and Shiprock, New Mexico
- Continued LTS&M activities
- Progress toward characterization and remediation of site located across Highway 160 from the former mill site outside Tuba City, Arizona
  - Funding provided to the Navajo Nation for remediation via a Cooperative Agreement
  - DOE will support cleanup planning and action as requested by the Navajo Nation and will verify that cleanup is completed

Status – LM Technical Support, Cooperation, and Coordination with the Navajo Nation

- LM continues to:
  - Provide funds for Navajo Nation participation in all site activities per our Cooperative Agreement (includes additional funds for new wells near Tuba City to address concerns about groundwater contamination they suspect originates at the DOE UMTRCA site near Tuba City)
  - Supply technical expertise to the Indian Health Service and Bureau of Indian Affairs, as requested
  - Collaborate with the Navajo Nation on status and issues surrounding the UMTRCA Title II, NRC-licensed, Church Rock mill tailings and associated mine sites under remediation through EPA Superfund authority

Status – LM Technical Support, Cooperation, and Coordination with the Navajo Nation (continued)

- LM continues to:
  - Hold regular quarterly meetings, as they have since 1988, with Navajo UMTRA program and Navajo EPA staff to discuss groundwater remedies
  - Provide groundwater monitoring data, annual treatment system performance reports, and annual site inspection reports, along with a number of special study reports to evaluate alternative treatment technologies
  - Maintain continuous involvement of Navajo UMTRA staff through the Cooperative Agreement in site management and surveillance and maintenance
  - Sponsor periodic field trips for students and faculty of the Diné College to UMTRCA sites and has arranged for class visits at several campuses

Status – LM Technical Support, Cooperation, and Coordination with NMED

- LM entered into a Cooperative Agreement with the state of New Mexico to ensure that LM's disposal cell sites do not pose risks to human health and the environment
- NMED may comment on the draft LTS&M plans that guide post-closure care of LM sites
- This agreement will support NMED staff participation in inspections and review of monitoring data
- LM will coordinate activities with NMED and respond to their concerns and recommendations
- LM has allocated approximately $470,000 to support NMED in performing these activities over the next 5 years

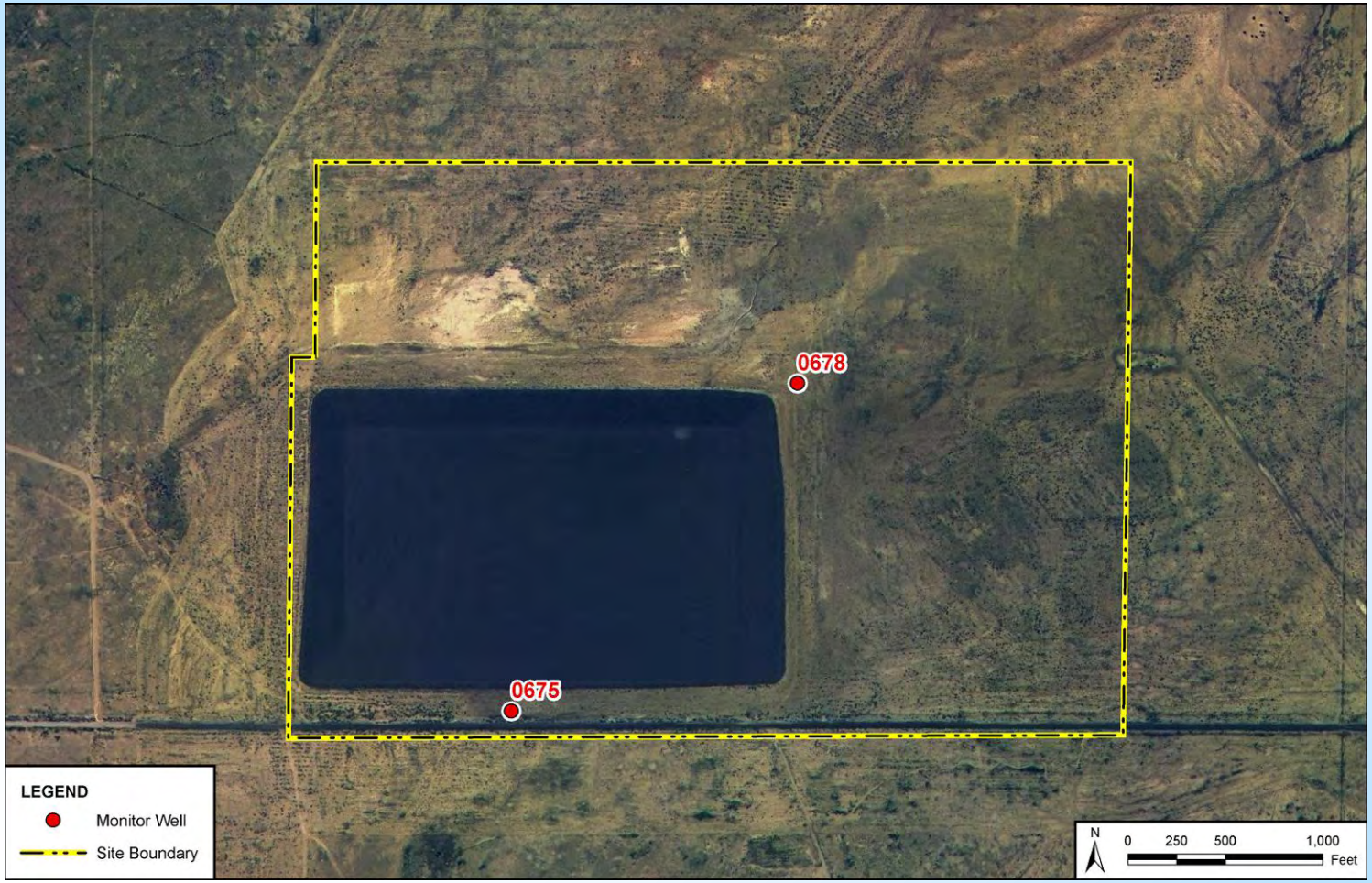
Status – LM Technical Support, Cooperation, and Coordination with NMED (continued)

- LM is currently responsible for two uranium disposal cell sites near Grants, New Mexico—Ambrosia Lake and Bluewater
- LM manages UMTRCA sites to ensure protection of public health and the environment according to long-term surveillance plans approved by the U.S. Nuclear Regulatory Commission (NRC)
- NMED has stated regional groundwater quality is degraded by uranium deposits, mines, and former mills
- LM must demonstrate that its sites are not exceeding UMTRCA groundwater standards
- Groundwater monitoring results indicate that no NRC-approved alternate concentration limits (ACLs) are exceeded at any point of compliance (POC)

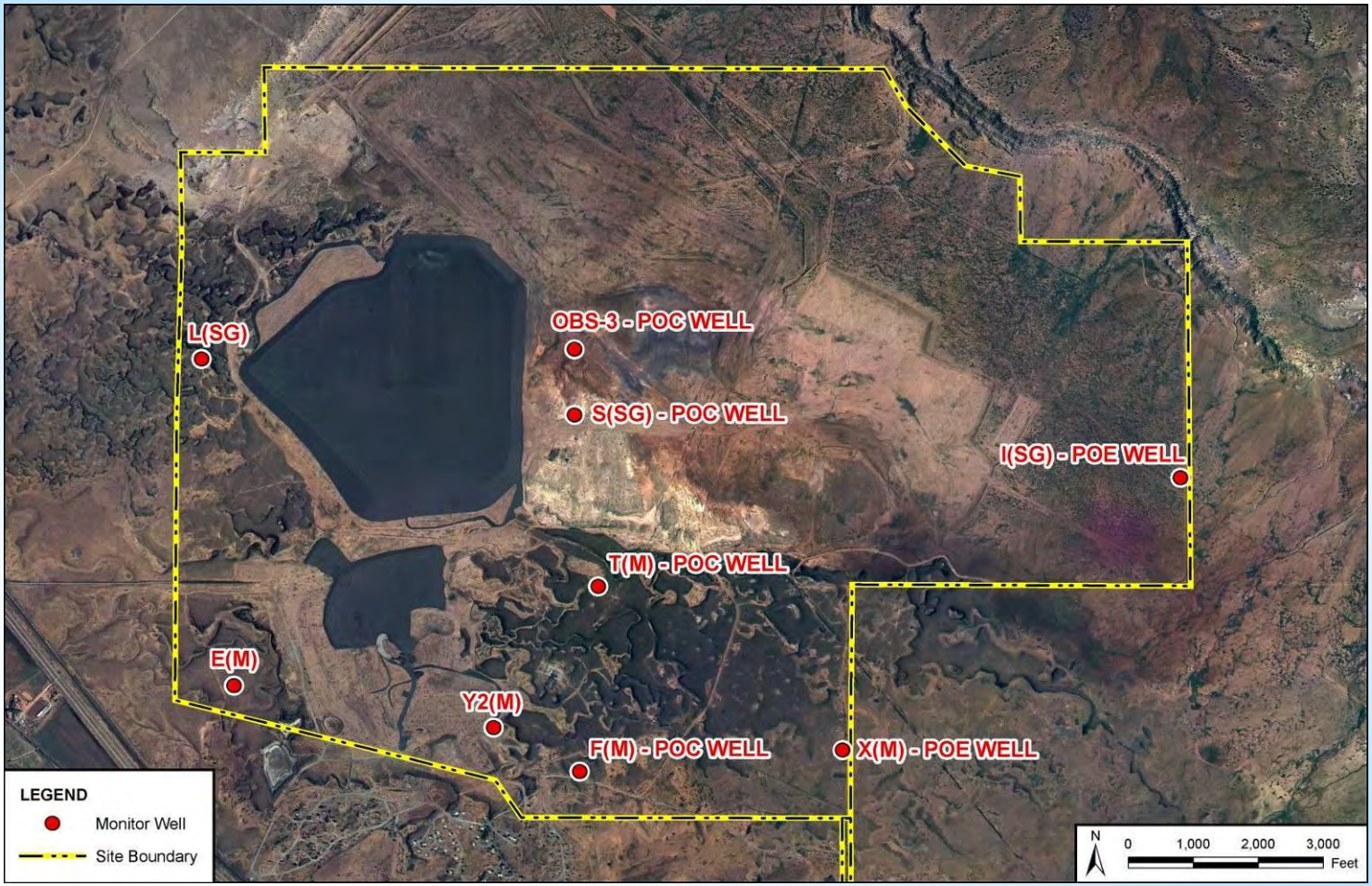
Status – LM Technical Support, Cooperation, and Coordination with NMED (continued)

- Groundwater remedy
  - NRC approves all standards
  - Ambrosia Lake – supplemental standards based on limited use
  - Bluewater – ACLs for molybdenum, selenium, and uranium
  - If ACLs are not exceeded at the POC wells, maximum concentration levels should not be exceeded at the site boundary, the point of exposure
  - If an ACL is exceeded in a POC well, then point-of-exposure (POE) wells located near the site boundary along the groundwater flow path will be sampled

Ambrosia Lake Disposal Site Monitoring Well Locations



Bluewater Disposal Site Monitoring Well Locations



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Status – LM Technical Support, Cooperation, and Coordination with NMED (continued)

- NMED regional groundwater quality investigation
  - Assisted NMED collecting groundwater samples and allowed samplers unescorted site access
  - Provided NMED all available groundwater data for both sites
  - Conducted additional groundwater sampling for nitrate
  - Provided a map and well completion logs for all existing and decommissioned LM monitor wells
  - Peer-reviewed NMED report evaluating isotopic signatures of contaminants

Ambrosia Lake Disposal Site

Status – NMED Regional Groundwater Quality Investigation (continued)

- Provided lists of all site-related LM documents
- Conducting evaluation of hydrogeology and groundwater geochemistry
- Plan to install several new monitoring wells at the Ambrosia Lake site and the Bluewater site
- Meeting with NMED at the end of September to discuss plans

Bluewater Disposal Site

LM Surveillance and Maintenance

- LM performs inspections and maintenance as required by NRC-approved long-term surveillance plans which serve as licensing documents
- LM has collected data on disposal cells for the past 20 years including inspections and groundwater and limited radon monitoring, as well as other studies
- LM will evaluate performance as additional data is gathered
- Concern about long-term water balance condition of some disposal cells has prompted studies to evaluate and provide alternatives if ever deemed necessary to remain protective
- Rifle and Lakeview seismic calculations performed to ensure ongoing stability
- Initiated studies, such as the Renovated Evapotranspiration Cover Assessment Project (RECAP), to look at alternatives if cell covers need renovation

Conclusion

- Control of RRM and release Rn-222 is demonstrated though approved designs, no post-construction monitoring is required
- Approved groundwater protection plans needed, monitoring of groundwater at POC required to verify groundwater protection, where required by the plan
- Performance of 40 DOE, UMTRA, and CERCLA disposal facilities located across the country in varying climates are all within EPA regulations, thus protective of human health and the environment
- DOE is ready to respond to problems if they occur