



New Mexico Environment Department

Regulatory Update White Sands Test Facility (WSTF) Corrective Action Rick Shean, Division Director, Resource Protection Division

**Radioactive and Hazardous Materials Committee
October 15, 2024**



HWB Regulatory Authority

- Regulations
 - Federal Resource Conservation and Recovery Act (RCRA)
 - New Mexico Hazardous Waste Act (HWA)
 - New Mexico Hazardous Waste Permit and Corrective Action Fee Regulations [20.4.1 and 20.4.2 New Mexico Administrative Code (NMAC)]

- WSTF Permit (EPA ID# NM08800019434)
 - Governs Corrective Action and Post-Closure Care at the Facility and Contains requirements for Corrective Action Process at WSTF



Corrective Action Process

Investigation



CM Evaluation



CM Selection



CM Implementation

- Investigation – Determine the nature and extent of the contamination in all media at the site
- Corrective Measures Evaluation – Evaluate the potential methods to remediate the site
- Corrective Measures Selection – Cleanup technology is chosen by NMED with input from public, stakeholder, and facility
- Corrective Measures Implementation – Selected remedy installed, operated and maintained



NASA WSTF RCRA Regulatory History

- Initial Resource Conservation and Recovery Act (RCRA) permits issued for WSTF
 - Feb. 1993 - Treatment, Storage, and Disposal Facility (TSDF) Permit
 - Sept. 1994 - Post-closure Permit for five closed hazardous waste management units (HWMUs) located at WSTF 200, 300, 400, and 600 Industrial Areas
 - RCRA Permits are issued for a period of 10-years but remain in effect until a Permit update is issued by NMED.

- NMED reissued a RCRA Permit in 2009 for:
 - TSDF operations
 - Treatment of hazardous waste at an Evaporation Treatment Unit (ETU) and Fuel Treatment Unit (FTU)
 - Corrective action at facility Solid Waste Management Units (SWMU), AOCs, and closed-Hazardous Waste Management Units (HWMU), and post-closure care for HWMUs



NASA WSTF RCRA Regulatory History (2)

- NASA has ceased TSDF operations as documented in NASA's June 2019 RCRA Permit Renewal Application
- Current Permit (March 2023) includes NASA WSTF RCRA Post-Closure Care Permit
- Requires corrective action at SWMUs, AOCs, and closed-HWMUs and continued post-closure care of the 200, 300, 400, and 600 Industrial Area HWMU Closures
- NASA WSTF currently manages hazardous waste generated during routine facility operations as a RCRA large quantity generator that does not require a permit

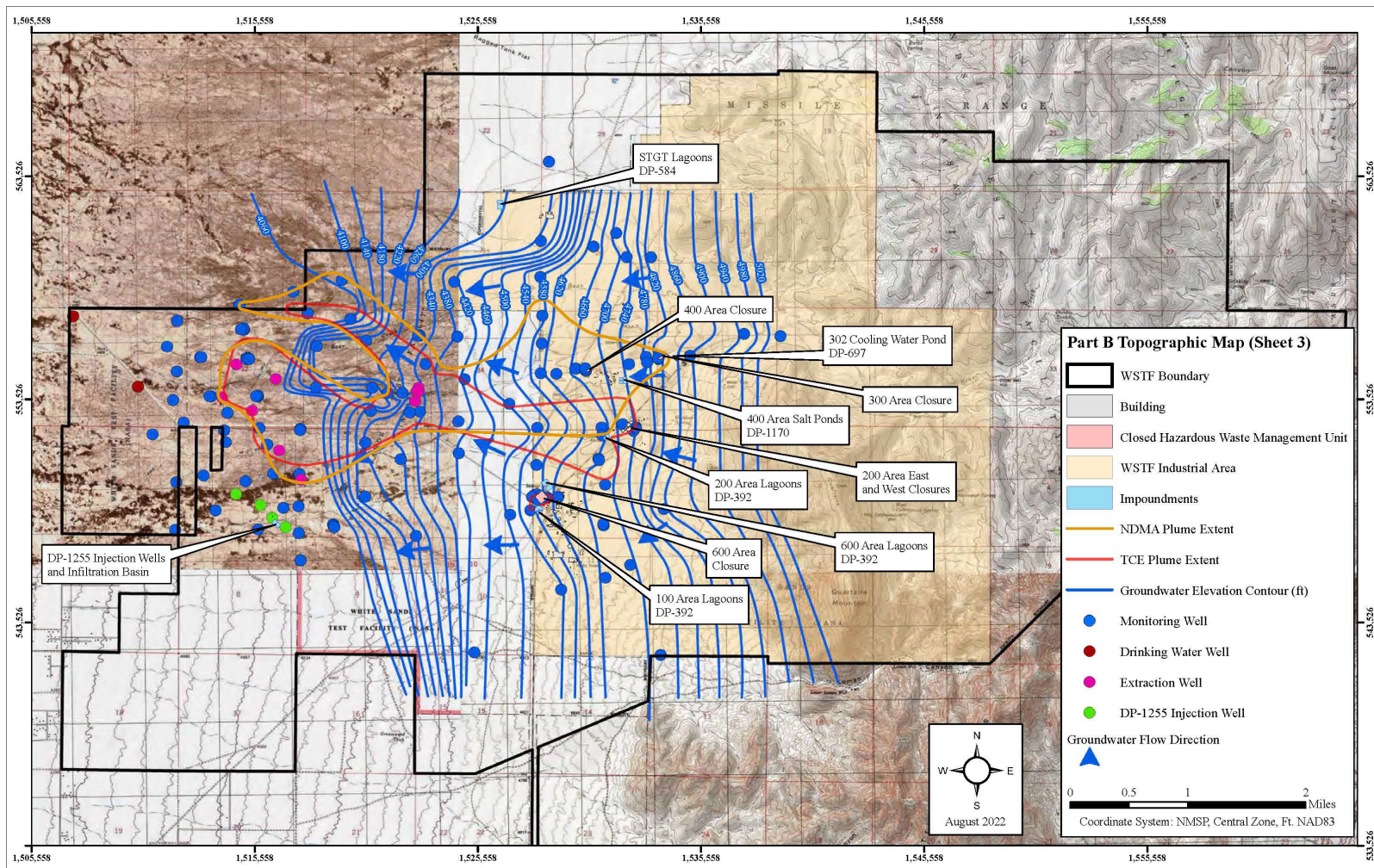


Source of WSTF Contamination

- Historic release of hazardous waste generated by propulsion and materials testing associated with space exploration projects beginning in 1964
- Releases of hazardous waste to the environment likely occurred during early 1960s through the mid-1980s
- Primary contaminants of concern released to the environment at WSTF include N-nitrosodimethylamine (NDMA), trichloroethene (TCE), tetrachloroethene (PCE), trichlorofluoromethane (Freon 11), and 1,1,2-trichloro-1,2,2-trifluoroethene (Freon 113)



WSTF TCE and NDMA Contamination Plumes, Groundwater Flow, and Well Locations



For scale: TCE and NDMA contaminant plumes are approximately four-miles long and one-mile wide at their most extensive point. Groundwater Flow is east to west.



NASA WSTF Corrective Action

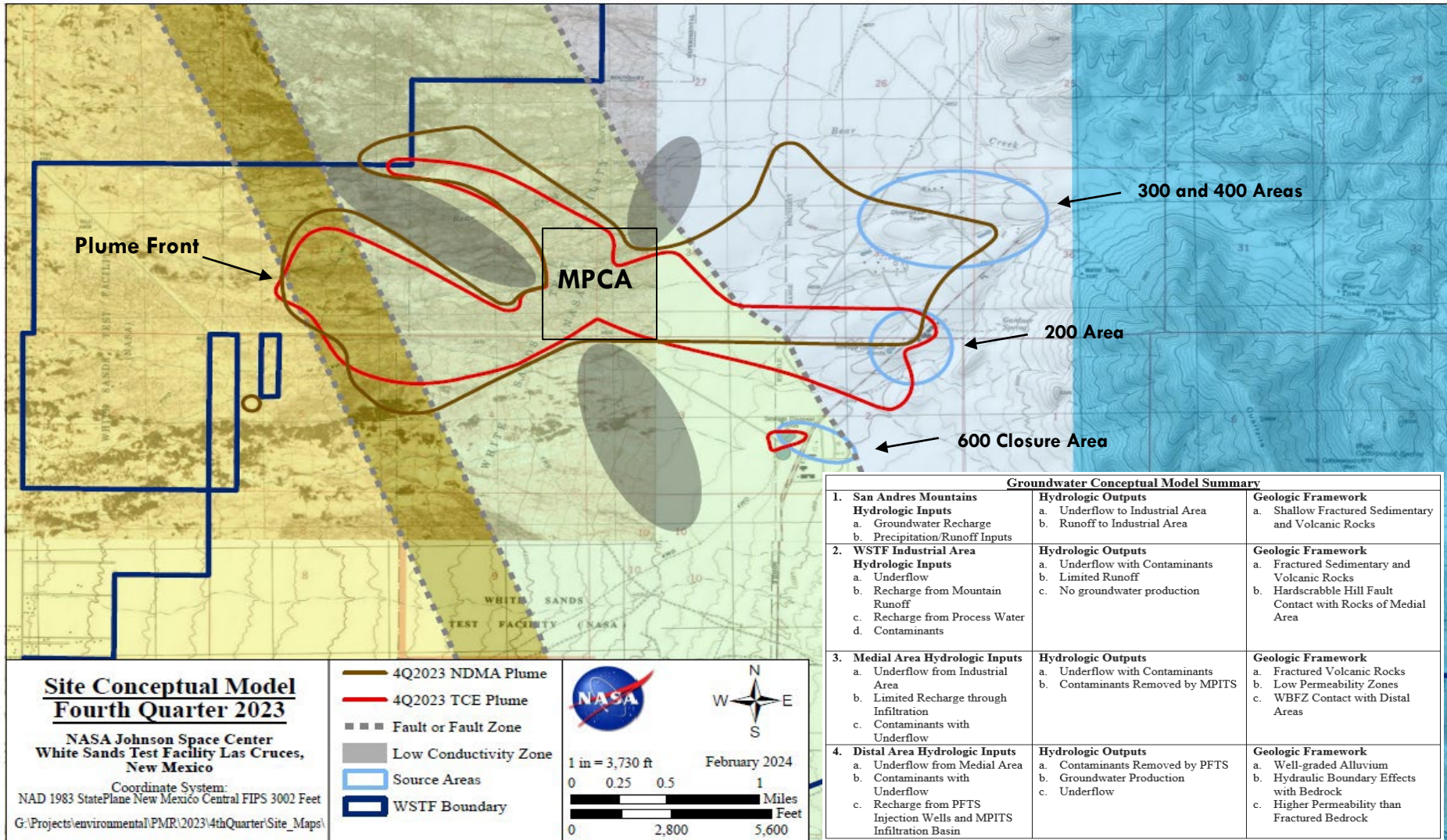
- Investigations since 2012 include:
 - 31 SWMUs
 - 1 AOC
 - 5 closed-HWMUs and groundwater data collection
 - Remediation system monitoring and maintenance
- Three HWMUs have been subject of investigation and have subsequently been “clean-closed” and do not require post-closure care



- Ongoing subsurface investigations characterize the nature and extent of contamination at the various units and identify additional sources
- About 21 projects have been initiated or are ongoing at Industrial Areas



WSTF Contamination Plume Conceptual Model





Current Status

- ❑ Corrective action at WSTF is still in the investigation phase of the corrective action process at various SWMUs, AOC, and closed-HWMUs
- ❑ NMED will continue to require NASA to submit work plans and investigation reports for SWMUs, AOCs, and closed-HWMUs
- ❑ WSTF groundwater monitoring program will continue for the foreseeable future under the authority of the RCRA Permit
- ❑ Groundwater remediation and post-closure care at five closed-HWMUs will continue as required by the current RCRA Permit for the foreseeable future



Current Status

- NMED has participated meeting discussions in 2024 with NASA WSTF staff to discuss technical topics, budget and staffing issues experience by the facility, and project priorities for fiscal years 2025 and 2026
- Between September 2023 and September 2024 NMED issued twenty-seven response letters to various WSTF corrective action document submittals
- NMED continues to receive regularly scheduled and new work plan and report documents from NASA WSTF and has issued fourteen document review fee assessments since September 2023 as required by New Mexico Hazardous Waste Permit and Corrective Action Fee Regulations, 20.4.2.201.B(2) NMAC



Current Status

- Documents Received Since September 2023:
 - *NASA WSTF Periodic Monitoring Report for Second Quarter 2023*
 - *Background Groundwater Study Investigation Report*
 - *Remediation System Monitoring Plan 2023*
 - *700 Area Landfill Closure (SWMU 49) Phase II Abbreviated Investigation Work Plan*
 - *600 Area Perched Groundwater Phase II Abbreviated Investigation Work Plan*
 - *NASA WSTF Periodic Monitoring Report for Third Quarter 2023*
 - *NASA WSTF Periodic Monitoring Report for Fourth Quarter 2023*
 - *Site Investigation Well Completion Summary Report for Well 100-001-GW and 600C-005-GW*
 - *Interim Status Report for 600 Area Perched Groundwater Extraction Pilot Test Project Year 11*
 - *Groundwater Monitoring Plan 2024*
 - *NASA WSTF Periodic Monitoring Report for First Quarter 2024*
 - *Remediation System Monitoring Plan 2024*
 - *500 Area Former Oxidizer Burner (SWMU 54) Investigation Report*
 - *NASA WSTF Periodic Monitoring Report for Second Quarter 2024*



Path Forward

- NASA will continue with subsurface investigations and the delineation of source zone contamination at WSTF.
- Additional site and source zone investigation may result in the need for additional subsurface investigation and site risk assessment.
- If needed, NMED will consider future corrective action status determinations for WSTF contamination sites under their RCRA Permit.
- NASA will continue to operate the PFTS and MPITS to ensure that WSTF contaminant plumes do not migrate further.
- The discovery of emerging contaminants of concern issues at WSTF may require the need for additional investigation.

Thank you!