

PERMIT ATTACHMENT 8
CORRECTIVE ACTION PLAN

8.0 Corrective Action Unit Identification

TABLE 8-1
SOLID WASTE MANAGEMENT UNITS (SWMUs) & AREAS OF CONCERN
(AOCs) REQUIRING CORRECTIVE ACTION

UNIT ID NUMBER	UNIT DESCRIPTION	COMMENTS
SWMU 1	Floor Drain System for Building 1621	Also identified as CCWS-81
SWMU 2	Bleach and Fixer Collection Containers at Building 1621	Also identified as CCWS-81
SWMU 3	Bleach and Fixer Collection Containers at Building 1621	Also identified as CCWS-81
SWMU 4	Bleach and Fixer Collection Containers at Building 1621	Also identified as CCWS-81
SWMU 5	Bleach and Fixer Collection Containers at Building 1621	Also identified as CCWS-81
SWMU 6	Bleach and Fixer Collection Containers at Building 1621	Also identified as CCWS-81
SWMU 7	Silver Recovery Unit Tailing Tank at Building 1621	Also identified as CCWS-81
SWMU 8	Former Waste Oil Tank & Sump East of Building 1794	SWMUs 8 & 9 were combined into SWMU 8, Also identified as WSMR-36
SWMU 10	Vehicle Wash Ramp, Drains, Sump, & Oil/Water Separator West of Building 1778	SWMUs 10 & 11 were combined into SWMU 10, Also identified as WSMR-74 (Pad #1780)
SWMU 12	Wash Ramp, Drains, Sump, & Oil/Waste Separator @ Building 1778	SWMUs 12 & 13 were combined into SWMU 12, Also identified as WSMR-60 (Pad #1777)
SWMU 14	Used Battery Accumulation Area at Main Post Building 1776 & 1742	SWMUs 14 & 15 were combined into SWMU 14, Also identified as WSMR-33
SWMU 16	Heavy Equipment Wash Pad & Drain at Building 1736	Also identified as WSMR-79 (Pad #1747) Active, Deferred
SWMU 17	Waste Underground Injection Pipe Southwest of Building 1753	Also identified as WSMR-73

UNIT ID NUMBER	UNIT DESCRIPTION	COMMENTS
SWMU 19	Steam Wash Pad & Oil/water Separator North of Building 1753	SWMUs 19 & 20 were combined into SWMU 19, Also identified as WSMR-80 Active, Deferred
SWMU 22	Main Post Former Fire Fighting Training Area Waste Pile	Also identified as WSMR-32
SWMU 23	Hazardous Waste Tank at HELSTF	Also identified as WSMR-78
SWMU 24	Hazardous Waste Tank at HELSTF	Also identified as WSMR-78
SWMU 25	Waste Accumulation Area at HELSTF	Also identified as WSMR-78
SWMU 26	Vapor Recovery Unit at HELSTF Building 26131	Also identified as WSMR-78
SWMU 27	Former Sanitary Treatment Impoundment at HELSTF	SWMUs 27, 28, 29, & 30 were combined into SWMU 27, Also identified as CCWS-79
SWMU 31	Chemical Waste Tank at HELSTF	Also identified as WSMR-43
SWMU 32	Chemical Waste Tank at HELSTF	Also identified as WSMR-43
SWMU 33	Fluorspar Tank at HELSTF	Also identified as WSMR-49
SWMU 34	Fluorspar Tank at HELSTF	Also identified as WSMR-49
SWMU 35	Ethylene Glycol Tank at HELSTF	Also identified as WSMR-50
SWMU 36	Ethylene Glycol Tank at HELSTF	Also identified as WSMR-50
SWMU 37	Waste Oil Accumulation Area at Building 26121 at HELSTF	
SWMU 40	Waste Oil Accumulation Drum at Oscura Range Center near Building 9000	
SWMU 47	Former North Oscura Peak Landfill	Also identified as WSMR-71
SWMU 48	Former North Oscura Peak Landfills	SWMUs 48 & 49 were combined into SWMU 48, Also identified as WSMR-71
SWMU 62	Former STP Imhoff Tank	Also identified as WSMR-59
SWMU 63	Former Main Post Landfill 1A	Also identified as WSMR-39
SWMU 64	Former Main Post Landfill 2A	Also identified as WSMR-40
SWMU 66	Main Post Sewage Treatment Plant Subsurface Influent Line	Also identified as WSMR-17 Active, Deferred
SWMU 67	Main Post Sewage Treatment Plant (STP) Bar Screen and Grinder	Also identified as WSMR-17 Active, Deferred
SWMU 68	North Primary Clarifiers at the STP	SWMUs 68 through 78 were combined into SWMU 68, Also identified as WSMR-17 Active, Deferred

UNIT ID NUMBER	UNIT DESCRIPTION	COMMENTS
SWMU 79	Former Sludge Beds at the STP	Also identified as WSMR-29
SWMU 80	STP Sludge Waste Pile Main Post	Also identified as WSMR-30
SWMU 81	Boiler at the STP	Active, Deferred
SWMU 84	Effluent Pipeline at the STP	Active, Deferred
SWMU 85	STP Discharge at Playa Lake	Also identified as Davies Tank, WSMR-42. Active, Deferred
SWMU 102	Burn Pan South of Building 21547	
SWMU 103	Scrap Metal Yard at Building 21280	Active, Deferred
SWMU 109	Drum Storage Area (Splash Pan) at TTF	Also identified as CCWS-82 Active, Deferred
SWMU 110	Methylene Chloride Catchment System at TTF	Also identified as CCWS-82 Active, Deferred
SWMU 111	Methylene Chloride Separation System at TTF	Also identified as CCWS-82 Active, Deferred
SWMU 112	Methylene Chloride Separation System at TTF	Also identified as CCWS-82 Active, Deferred
SWMU 113	Salt Water Evaporation Tanks at TTF	Also identified as CCWS-82
SWMU 119	Former Stallion Range Landfill	Also identified as WSMR-70
SWMU 120	Former Stallion Center Landfill	Also identified as WSMR-70
SWMU 121	Stallion Asphalt Tank	Also identified as WSMR-67
SWMU 122	Stallion Asphalt Tank	Also identified as WSMR-67
SWMU 123	Stallion Asphalt Tank	Also identified as WSMR-67
SWMU 124	Waste Oil Storage Tank @ Stallion North of Building 34250	Also identified as CCWS-83
SWMU 127	Autoclave at McAfee Clinic Building 530	

UNIT ID NUMBER	UNIT DESCRIPTION	COMMENTS
SWMU 128	Silver Recovery System Tailing Tank at Building 1512	Also identified as CCWS-84
SWMU 129	Cyanide Treatment Unit at Building 1512	Also identified as CCWS-85
SWMU 130	Former Spent Developer Storage Tank at Building 1512	Also identified as CCWS-86
SWMU 131	Acetic Acid Spill Containment Tank at Building 1524	Also identified as CCWS-86
SWMU 132	Orogrande Waste Stabilization Pond	Ft. Bliss operated SWMU, Also identified as WSMR-76
SWMU 133	NOMTS Machine Shop Accumulation Area at Building 1436	Also identified as CCWS-87 Active, Deferred
SWMU 134	NOMTS Outdoor Accumulation Area at Building 1436	Also identified as CCWS-87 Active, Deferred
SWMU 135	Paint Shop Accumulation Area at Building 1742	Also identified as CCWS-88
SWMU 136	Paint Shop Spray Booth at Building 1742	Also identified as CCWS-88
SWMU 138	Waste Accumulation Area @ RATSCAT	Also identified as CCWS-89
SWMU 141	HELSTF Equipment Storage Area	Also identified as WSMR-83
SWMU 143	HELSTF Storage Yard Chromium Spill Site	Also identified as WSMR-54
SWMU 144	HELSTF Laser System Test Center Wastewater Discharge Pond	Also identified as WSMR-47
SWMU 145	HELSTF Test Cell Lagoons	Also identified as WSMR-53
SWMU 146	HELSTF STP Dry Pond	Also identified as WSMR-45
SWMU 147	HELSTF Decontamination Pad & Underground Holding Tank	Also identified as WSMR-78
SWMU 148	HELSTF Former MAR Waste Stabilization Pond	Also identified as WSMR-83
SWMU 149	HELSTF Maintenance Building Septic System	Also identified as WSMR-46
SWMU 150	HELSTF MAR Dump Site	
SWMU 151	HELSTF Trailer Area Septic System	Also identified as WSMR-46
SWMU 152	HELSTF Property and Supply Building Septic System	Also identified as WSMR-46
SWMU 153	Vandal Burial Site	Also identified as WSMR-58
SWMU 154	HELSTF Systemic Diesel Spill Site	Also identified as WSMR-55

UNIT ID NUMBER	UNIT DESCRIPTION	COMMENTS
SWMU 157	Former Oscura Range Center Landfill-A	Also identified as WSMR-05
SWMU 159	Former Oscura Range Center Landfill-C	Also identified as WSMR-05
SWMU 164	AMRAD Facility UST near Building 25900	
SWMU 165	LC-34 Contaminated Soils @ Buildings 23104 & 23106	Also identified as CCWS-90
SWMU 166	Denver AST Site	Also identified as CCWS-18
SWMU 167	Malpais AST Site	Also identified as CCWS-20
SWMU 168	Lance Missile Impact @ White Sands National Monument	Also identified as WSMR-86
SWMU 197	HELSTF Technical Support Area Gasoline Spill	Also identified as CCWS-16
SWMU 198	LC-38 Diesel Fuel Oil Release	Also identified as CCWS-09
SWMU 199	Hardin Ranch First AST Site	Also identified as CCWS-27
SWMU 200	Hardin Ranch Second AST Site	Also identified as CCWS-27
SWMU 201	RAM (Facility 6002) AST Site	Also identified as CCWS-42
SWMU 202	Dead Horse Instrumentation AST Site	Also identified as CCWS-43
SWMU 203	Oscura (Facility 31795) Communication AST Site	Also identified as CCWS-29
SWMU 204	Harriet (Facility 34600) Instrumentation AST Site	Also identified as CCWS-30
SWMU 205	SE-70 (Facility S-31427) Instrumentation AST Site	Also identified as CCWS-31
SWMU 206	Atom (Facility S-33151) First AST Site	Also identified as CCWS-32
SWMU 207	Atom (Facility S-33151) Second AST Site	Also identified as CCWS-32
SWMU 208	SE-50 (Facility 29055) Instrumentation AST Site	Also identified as CCWS-34
SWMU 209	EC-50 (Facility 29085) Instrumentation AST Site	Also identified as CCWS-35
SWMU 210	Minnow (Facility S-31132) Instrumentation AST Site	Also identified as CCWS-36
SWMU 211	Cowan Instrumentation AST Site	Also identified as CCWS-37
SWMU 212	NW-70 (Facility S-31620) Instrumentation AST Site	Also identified as CCWS-53

UNIT ID NUMBER	UNIT DESCRIPTION	COMMENTS
SWMU 213	Gran Jean (Facility S-34050) Instrumentation AST Site	Also identified as CCWS-38
SWMU 214	NE-50 (Facility 29090) Instrumentation AST Site	Also identified as CCWS-39
SWMU 215	Missile Graveyard	Also identified as CCWS-23
SWMU 216	UST at Timing Station, Building 20710, LC-32 (Uncle Site)	Also identified as CCWS-91
SWMU 217	AAFES Gas Station at Building 270	Also identified as CCWS-78 Active.
SWMU 218	LC-38 UST at Building 23626	1,764-gallon steel UST
SWMU 219	Main Post POL AST Release Site	Also identified as CCWS-83
AOC A	Sink & Drain System @ Building 1621	Also identified as CCWS-93
AOC B	Battery Accumulation Area @ North Oscura	Also identified as CCWS-94
AOC D	Drum Storage Area @ STP	Also identified as CCWS-95
AOC E	Pesticide Storage Area at Building 1708	Also identified as CCWS-96 Active, Deferred
AOC G	Brine (MeCl) Storage Tank at TTF	Also identified as CCWS-97 Active, Deferred
AOC H, I, J, K, & L	Methylene Chloride Tanks (five tanks) at TTF	Also identified as CCWS-82 Active, Deferred
AOC P	Chemistry Laboratory Drains at Building 1530	
AOC S	Septic Tanks with Leach Fields	Also identified as WSMR-69 Active, Deferred
AOC V	HELSTF Pressure Recovery System	
AOC W	Rhodes Canyon Impoundment	
AOC X	Stallion Range Desalinization/Sewage Lagoons	Active, Deferred
AOC Y	Stormwater Drainage Ditches	Run-off from various operations related to SWMUs 10, 12, 14, 15, 16 and 19.
AOC Z	Abandoned Underground Storage Tank	Also identified as CCWS-98
AOC AA	Alamogordo Bombing Range	Also identified as Stallion Range Center Cantonment Area, WSMR-003-R-01;
AOC AB	Sewage Lagoon	Also identified as Main Post Wastewater Treatment Plant WSMR-004-R-01
AOC AC	Condron Field	Also identified as WSMR- 005-R-01. Active, Deferred

UNIT ID NUMBER	UNIT DESCRIPTION	COMMENTS
AOC AD	Main Cantonment Area	Also identified as WSMR-006-R-01
AOC AE	Red Rio Bombing Range	Active Range, Deferred
AOC AF	Oscura Bombing Range	Active Range, Deferred
AOC AG	Main Post Skeet Range	Active Range, Deferred

TABLE 8-2-1
SWMUs & AOCs
CORRECTIVE ACTION COMPLETE WITHOUT
CONTROLS

UNIT ID NUMBER	UNIT DESCRIPTION	COMMENTS
SWMU 116	Rhodes Canyon Subgrade Asphalt Tanks	SWMUs 116, 117, & 118 were combined into SWMU 116, Also identified as WSMR-75
SWMU 125	Veterinary Clinic Incinerator	Also identified as WSMR-77
SWMU 126	McAfee Clinic Incinerator	
SWMU 137	Paint Shop Sump	Also identified as WSMR-56
SWMU 162	Stallion Range Center Former Firefighter Training Area	Also identified as WSMR-66
SWMU 219	Hawk Facility, Building 204548 at LC-38	3,000-gallon UST
SWMU 220	Rhodes Canyon Range Center POL Station, Building 30725-1 & 2)	
SWMU 139		No corresponding SWMU unit assigned to this number
AOC C	Areas where heavy pesticides and/or herbicides were used	
AOC F	Methane Vent (Flare) at STP	
AOC M	Exploded / Unexploded Low Level Radioactive Ordnance	
AOC N	Process Spills at HELSTF	
AOC O	Miscellaneous Areas ID'd by Aerial Photos	
AOC Q	HELSTF Lab Drains	
AOC T	Collection Lines to the STP	
AOC U	Miscellaneous Spills	
SWMU 21	Main Post Former Fire Fighting Training Area & Pit	
SWMU 140	LC-37 Paint Dump	Also identified as WSMR-84
SWMU 107	Storage Tank at Temperature Test Facility (TTF)	Also identified as WSMR-35
SWMU 108	Vapor Extraction Well at TTF	Also identified as WSMR-41

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SWMU 137	Paint Shop Sump at Building 1742	Also identified as WSMR-56
SWMU 156	Former Golf Course Pesticide Storage Shed @ Building T-1348	Also identified as WSMR-57
SWMU 163	Abandoned Disposal Trench @ New Commissary	Also identified as WSMR-72

TABLE 8-2-2
SWMUs and AOCs
CORRECTIVE ACTION COMPLETE
WITH CONTROLS

UNIT ID NUMBER	UNIT DESCRIPTION	COMMENTS
SWMU 86	Former Sanitary Landfill at the Main Post	Also identified as WSMR 81
SWMU 87	Former Construction Landfill	Also identified as WSMR 82

TABLE 8-3
HAZARDOUS WASTE MANAGEMENT UNITS

UNIT ID NUMBER	UNIT DESCRIPTION	COMMENTS
SWMU 38	HELSTF Landfill	Also identified as WSMR-52, Closure required
SWMU 39	HELSTF Landfill	Also identified as WSMR-52, Closure required
SWMU 41	Oscura Munitions Landfill	Also identified as WSMR-03, Closure required
SWMU 42	Oscura Munitions Landfill	Also identified as WSMR-03, Closure required
SWMU 43	Oscura Munitions Landfill	Also identified as WSMR-03, Closure required
SWMU 44	Oscura Munitions Landfill	Also identified as WSMR-03, Closure required
SWMU 45	Oscura Munitions Landfill	Also identified as WSMR-03, Closure required
SWMU 46	Oscura Munitions Landfill	Also identified as WSMR-03, Closure required
SWMU 50	Red Rio North Landfill	Also identified as WSMR-02, SWMUs 50-54 were combined into SWMU 50, Closure required
SWMU 55	Open Burn Pit at the OB/OD	Post Closure Care Plan Required
SWMU 56	Open Detonation Pit at the OB/OD	Post Closure Care Plan Required
SWMU 56A	Open Detonation Pit at the OB/OD	Post Closure Care Plan Required
SWMU 57	Tula Peak Burial Sites	Also identified as WSMR-23, SWMUs 57-60 were combined into SWMU 57, Post-Closure Care Plan Submitted
SWMU 61	Tula Peak Incinerator	Also identified as WSMR-24, Clean Closure Complete
SWMU 65	Former Main Post Landfill #3 at Scrap Yard	Also identified as WSMR-61, Closure required
SWMU 82	Former STP Ditches	SWMUs 82 and 83 were combined into SWMU 82, Also identified as WSMR-62, Post- Closure Care Plan Submitted
SWMU 88	Container Storage Area at Building 22895	Operating

UNIT ID NUMBER	UNIT DESCRIPTION	COMMENTS
SWMU 89	Former Acid Neutralization Unit at the Hazardous Waste Storage Facility Building 22895	Also identified as WSMR-27, Clean Closure complete
SWMU 90	Evaporation Tank at Building 22895	Also identified as WSMR-37, Clean closure complete
SWMU 91	Hazardous Waste Landfill near Building 2295	Clean closure complete
SWMU 92A	Liquid Propellant Evaporation Neutralization Pits at Building 21546	Clean Closure complete, Also identified as WSMR-11
SWMU 92B	Liquid Propellant Evaporation – Neutralization Pit 2 at Building 21512	Clean Closure complete, Also identified as WSMR-11
SWMU 93	Liquid Propellant Evaporation at Neutralization Pits at Building 21532	Clean Closure complete, Also identified as WSMR-11
SWMU 94	Liquid Propellant Evaporation – Neutralization Pit 4 at Building 21502	Clean Closure complete, Also identified as WSMR-11
SWMU 95	Liquid Propellant Evaporation Neutralization Pits at Building 21510	Clean Closure complete, Also identified as WSMR-11
SWMU 96	Liquid Propellant Evaporation Neutralization Pits at Building 21506	Clean Closure complete, Also identified as WSMR-11
SWMU 97	Liquid Propellant Evaporation Neutralization Pits at Building 21501	Clean Closure complete, Also identified as WSMR-11
SWMU 98	Liquid Propellant Evaporation Neutralization Pits at Building 21511	Clean Closure complete, Also identified as WSMR-11
SWMU 99	Liquid Propellant Evaporation Neutralization Pits at Building 21507	Clean Closure complete, Also identified as WSMR-11
SWMU 100	Liquid Propellant Evaporation Neutralization Pits at Building 21500	Clean Closure complete, Also identified as WSMR-11
SWMU 101	Acid Neutralization Pit South of Building 21547	Clean Closure Complete
SWMU 104	Temperature Test Facility Former Evaporation Pond	Also identified as WSMR-34, Clean closure complete
SWMU 105	New Evaporation Tank at TTF	Clean Closure complete

UNIT ID NUMBER	UNIT DESCRIPTION	COMMENTS
SWMU 106	Discharge Pipe at TTF	Closure required
SWMU 114	Rhodes Canyon Landfill	Also identified as WSMR-14, Closure complete Post-Closure Care Plan Submitted
SWMU 115	Rhodes Canyon Landfill	Also identified as WSMR-14, Closure complete Post-Closure Care Plan Submitted
SWMU 142	HELSTF Cleaning Facility Sump	Also identified as WSMR-48, Closure required
SWMU 155	Red Rio South Landfill	Closure required
SWMU 158	Former Oscura Range Landfill	Also identified as WSMR-05, Clean closure complete
SWMU 160	Nuclear Effects Reactor Facility Pond #1	Also identified as WSMR-09, Clean closure complete
SWMU 161	Nuclear Effects Reactor Facility Pond #2	Also identified as WSMR-09, Clean closure complete

8.1 Solid Waste Management Unit Summaries

SWMU 1 – Floor Drain System for Building 1621

This unit is listed as a Solid Waste Management Unit. The floor drain system, covered by a one foot square metal grate in the concrete floor of Building 1621 was used to dispose of photochemical waste. The system lines flowed into piping underneath the first floor. These lines then drained into the sewer main located west of the building. From the sewer main, the waste flowed to the STP via sewage lines made of vitrified clay and concrete. Specific dimensions of the unit are not known. Photo processing operations at Building 1621 were active from approximately 1958 to 1990. The floor drains were grouted and abandoned in place. The types of chemicals and waste managed, stored, and treated included prehardener, neutralizers, developer, bleach, fixer, and stabilizer residues that contained concentrations of chromium, silver, cyanide, SVOCs, and nitrate. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMUs 2-6 – Bleach and Fixer Collection Containers at Building 1621

These solid waste management units at Building 1621 were active from approximately the mid-1970's to 1990. The bleach and fixer collection containers were used to store liquid waste bleach and fixer from photo processing equipment. The structures for SWMUs 2-6 were previously located on the first floor of building 1621 but were removed during remodeling activities. The containers had a ten-gallon capacity. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 7 – Silver Recovery Unit Tailing Tank at Building 1621

The SWMU 2-6 containers were emptied into the silver recovery unit tailing tank (SWMU 7) which operated from March 1988 to 1990. This solid waste management unit was used to recover silver from photo processing operations. The structure for SWMU 7 was located on the first floor of building 1621 near SWMUs 2-6 and was removed during remodeling activities. The dimensions of this unit are not known. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 8 – Waste Oil Tank & Sump East of Building 1794

SWMU 8 was located at the Maintenance Area on the Main Post. The waste oil tank was an underground steel tank with a 5,000-gallon capacity. Waste oil entered the tank via the waste oil sump. The waste oil tank and sump started operation in the 1950's and was removed in 1990. The tank and the sumps received waste oil that was routinely drained from vehicles on post. There is no indication of any significant release of hazardous waste or hazardous constituents from this solid waste management unit.

SWMU 10 – Wash Pad, Drains, & Sump West of Building 1778

The Vehicle Wash Pad, Drains and Sump are located immediately west of Building 1778 in the Main Post area. The dimensions of the concrete wash pad are 30 feet by 30 feet, and it is surrounded by a 2-foot-wide drain. The drain is 2-feet deep, constructed of concrete and covered with metal grates. The drain empties to a concrete, 500-gallon sump and oil/water separator at the northwest corner of the Vehicle Wash Pad. The Vehicle Wash Pad and Oil/Water Separator were built in the mid 1950's and used till an unknown date. The concrete pad collected wastewater from the spray washing of vehicles. The wastewater formerly discharged through a subgrade pipe to the drainage ditch located east of the wash pad. After the Main Post sewage treatment plant was built, the oil/water separator outlet was plumbed to the sanitary sewer system for treatment and disposal of the wastewater. There is no indication of any significant release of hazardous waste or hazardous constituents from this solid waste management unit.

SWMU 12 – Wash Ramp, Drains, Sump, & Oil/Waste Separator @ Building 1778

SWMU 12 was built in the 1950s and used for spray washing of vehicles till 1997 when the steel ramp was dismantled. The dimensions of the concrete wash pad are 40 feet by 15 feet, and it slopes to a central, longitudinal drain that discharges to the 200-gallon sump with oil/water separator at the north end of the drain. The separator/sump is constructed of concrete and covered by a metal grate. When the facility was operational, waste oil and debris from the separator/sump were periodically transferred to a waste oil tank for recycling and disposal, while the effluent flowed to the STP through the sanitary sewer. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 14 – Used Battery Accumulation Area at Main Post Building 1776

The former Used Battery Accumulation Areas are located immediately south and approximately 50 feet northeast of Building 1776 Battery Shop. Lead-acid batteries were stored on wood pallets placed on asphalt pavement at this solid waste management unit. A sump located on the east side of Building 1776 collected solids prior to wastewater entering the sanitary sewer system. The sanitary sewer system ultimately discharges the wastewater flowing through this sump into the Sewage Treatment Plant. The date of initial operation of the unit is unknown but is expected to be from the 1950's. Battery storage reportedly ceased at the site in 1990 when the covered battery

storage area was built. There are no indications of a significant release of hazardous waste or hazardous constituents from this unit.

SWMU 16 – Heavy Equipment Wash Pad & Drain at Building 1736

The Heavy Equipment Wash Pad is located in the southern section of the WSMR Main Post, west of Building 1736. The wash pad is constructed of concrete and measures 50 feet by 40 feet. The pad slopes toward the center where a grate covers the drain. The drain flows to a drainage ditch located south of the wash pad. The Heavy Equipment Wash Pad came into use during the 1960's and has been used primarily for spray washing trucks and heavy equipment maintenance. This solid waste management unit is still in operation. Contaminants of concern are those associated with petroleum, oil, and lubricants. There are no indications of a significant release of hazardous waste or hazardous constituents from this unit.

SWMU 17 – Waste Underground Injection Pipe Southwest of Building 1753

The Waste Underground Injection Pipe (SWMU 17) was reportedly located at the southwest corner of Building 1753, the Heavy Equipment Maintenance Shop, at the WSMR Main Post. The dimensions, composition and depth of the pipe are unknown. SWMU 17 was reportedly used to dispose of waste oils from the Heavy Equipment Maintenance Shop, Building 1753. According to site personnel, the pipe was installed vertically in the ground and waste was poured into the open end. The dates of operation are unknown. There are no physical indications of a significant release of hazardous waste or hazardous constituents from this unit other than anecdotal evidence.

SWMU 19 – Steam Wash Pad & Oil/water Separator North of Building 1753

SWMU 19 consists of a wash pad, drain, and an oil/water separator sump. This site is located immediately north of Building 1753, in the southern part of Main Post. The wash pad and sump have been active since approximately 1968 and 1984, respectively. The wash pad is still in operation. The wash pad is 50 feet by 15 feet concrete pad with an interconnected network of three drains. The drains are spaced 15 feet apart along the center of the pad. Fluids and debris flow via underground pipes to a 500-gallon oil/water separator. The above-grade separator is constructed of reinforced concrete and is covered by a metal plate. The waste oil and debris from the separator are periodically transferred to an aboveground waste oil tank, while effluent flows to the sewage treatment plant via the sanitary sewer. Contaminants of concern are those associated with petroleum, oil, and lubricants. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 22 – Main Post Former Fire Fighting Training Area Waste Pile

The purpose of the SWMU 22 waste pile has not been identified based on previous studies and, therefore, its operational history is unknown. The site is located approximately 350 feet south of Martin Luther King Boulevard and immediately west of Headquarters Avenue. The solid waste management unit was identified as SWMU 22 based on its proximity to the Fire Fighter Training Area (FFTA) (SWMU 21) and due to its petroleum-stained soil. The dimensions of the SWMU pile were 25 by 50 feet. It was speculated that the pile was excavated from the FFTA (SWMU 21). The potential for minor amounts of metals and constituents related to fuels have been released to soils exists at the site.

SWMUs 23-24 – Hazardous Waste Tanks at HELSTF

Between approximately 1981 and 1984, the tanks identified as SWMUs 23 and 24 were used to accumulate waste from the cleaning facility (Building 26131) at the High Energy Laser Systems Test Facility. SWMU 23 was a 5,000-gallon AST and SWMU 24 was a 2,500-gallon AST. The

footprints for each SWMU were approximately 4 feet by 10 feet. The tanks were constructed of metal and lined with fiberglass and stood on concrete pads in an asphalt-covered area. The tanks received wastes containing phosphoric acid, sodium hydroxide, sodium carbonate, nitric acid, hydrofluoric acid, methyl ethyl ketone, isopropyl alcohol, and deionized water. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 25 – Waste Accumulation Area

SWMU 25 is an asphalt-paved fenced area that was used for the storage of spent degreasing solvents (e.g., 1,1,1-trichloroethane) in 55-gallon drums. Drums were stored on pallets and were reportedly stored for less than 90 days. Use of the site for this type of storage began in 1984 and continued through at least the early 1990s. In 2001 and 2002 the area was used as a sorting yard for wastes awaiting analysis and a storage area for non-hazardous wastes. The solid waste management unit area is approximately 75 feet by 60 feet. A leak from a drum containing chromate additive (thought to contain hexavalent chromium and zinc) was reported in the 1990 Ground-Water Quality Survey. The report stated that soil adjacent to the west side of SWMU 25 had been contaminated by the chromate release between 1984 and 1986.

SWMU 26 – Vapor Recovery Unit at HELSTF Building 26131

SWMU 26 is a vapor recovery unit that removes vapors from the solvent cleaning baths located in the gross cleaning room inside the cleaning facility. The original vapor recovery system operated from approximately 1984 to 1998, when it was replaced with a similar unit that was in operation until April 2009. The vapor recovery unit is constructed of plate metal, fiberglass, and Plexiglas. The VOC vapors from the vapor recovery unit were vented to the atmosphere. After the chemical waste tanks were taken out of service, the scrubbing solution was drummed and transferred to a permitted waste management facility. The footprint of SWMU 26 is approximately 8 by 10 feet and abuts the cleaning facility (Building 26131), to which the unit is connected. The ground under and around the vapor recovery unit is covered with concrete and asphalt. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 27 – Former Sanitary Treatment Impoundment at HELSTF

In 1981 a lined, two-cell, total evaporation lagoon was constructed at HELSTF for sanitary wastewater. The two cells associated with the 1981 lagoon are connected by a narrow inlet. The two cells had a total operating volume of approximately 1.3 million gallons, and dimensions of 120 feet by 120 feet by 6 feet deep. Another two-cell lagoon became operational in 1984, and are connected by a narrow inlet and have a total operating volume of approximately 2.3 million gallons. Dimensions for these cells are 123 feet by 214 feet by 6 feet deep. The lining material for the lagoons consisted of a reinforced Hypalon® sheet made by encapsulating reinforced fabric between two sheets of 15-millimeter or heavier gauge Hypalon® sheeting. SWMU 27 was taken out of service at the end of 2007. Historical releases of chromated water to this SWMU have been reported.

SWMUs 31-32 – Chemical Waste Tanks at HELSTF

The chemical waste tanks were constructed for containment and evaporative treatment of chromated de-ionized water and hazardous waste generated at the cleaning facility. The hazardous waste treatment system included a double-walled drain line (1,000 feet long) to carry wastewater from the cleaning facility sump to the chemical waste tanks. The drain line consisted of a 3-in.-diameter reinforced thermosetting resin service pipe encased by a 6-in.-diameter reinforced thermosetting resin secondary containment pipe. The chemical waste tanks (SWMUs 31-32) were identical above-grade, open-top tanks constructed of reinforced concrete. Each tank had an

industrial grade 45-millimeter Hypalon® liner with a leak detection system and was contained a 6-inch layer of ballast sand. The interior dimensions of the tanks were 37 feet by 74.7 feet by 7 feet deep sloping to 7.5 feet deep in the center. The west tank (SWMU 31) was first used for storage of hazardous wastes in late 1985 and was in operation until 1989. In addition to the cleaning facility sump wastewater, the west tank also received wastes that were dumped directly into it including chromate wastes, scrubbing water from the low-power chemical laser, chemistry lab wastes, and potassium hydroxide waste. According to facility records and reports, the east tank (SWMU 32) was never used. Shortly after tank operations began in 1985, the leak detection ports for both tanks were observed to contain a measurable amount of liquid. However, the water in the ports was attributed to either concrete hydration or groundwater intrusion because the chromium concentrations in the ports were significantly lower than the chromium concentrations in the liquid contained in the west tank.

SWMUs 33-34 – Fluorspar Tanks at HELSTF

The fluorspar tanks (constructed in approximately 1984) consist of two 30-feet by 60-feet concrete tanks that extend 2 feet to 4 feet below ground surface with no secondary containment. The tanks served as drying beds for fluorspar sludge that was generated by an emissions control scrubbing tower at the laser systems pressure recovery system (AOC V). The scrubbing tower on the system used a solution of sodium hydroxide to react with the hydrogen fluoride and deuterium fluoride to form sodium fluoride, which was then treated with lime to form fluorspar (calcium fluoride, CaF_2). The fluorspar sludge is assumed to have had a very high pH. Fluorspar sludge was pumped to the tanks/drying beds through a 4-inch-diameter PVC pipe. Each tank has a sloped entrance from the south for use by a front-end loader to remove the dry fluorspar solids. The tanks were historically used once per week but were later used only once every 3 months until use of the pressure recovery system and the SWMU 33 and 34 fluorspar tanks was discontinued in 2009. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMUs 35-36 – Ethylene Glycol Tanks at HELSTF

The two former ethylene glycol tanks were portable, 500-gallon steel aboveground tanks. Each tank was approximately 5 feet long, 4 feet wide, and 4 feet tall. The tanks were filled with ethylene glycol in 1988 when the compressor system at HELSTF developed a problem and the ethylene glycol had to be removed. This reportedly only happened once. Following reuse or disposal of the ethylene glycol, the tanks were decommissioned and removed from the site in 1989. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 37 – Waste Oil Accumulation Area at Building 26121 at HELSTF

This Solid Waste Management Unit consisted of 55-gallon drums of waste oil which were stored on a concrete pad under a roof at Building 26121 beginning in 1982. Information obtained during interviews with WSMR personnel in 2009 indicated that drums of waste oil were at that time stored inside the building within a secondary containment structure. In addition, there were no floor drains to septic systems or wastewater treatment lagoons in the waste oil accumulation area. At the time of the 2009 interviews, Building 26121 was in use as the Heavy Equipment Maintenance Building, and there was no reported storage of waste oil outside of the building. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 40 – Waste Oil Accumulation Drum at Oscura Range Center near Building 9000

This solid waste management unit consisted of a single drum (closed-top 55-gallon metal container) under a roof near building 9000 at Oscura Range Center on WSMR. When the drum was full it was taken to the Holloman Air Force Base for final disposal. The waste oil came from range vehicle maintenance. The dates of operation of this SWMU are not known but was active in 1988 during the WSMR RCRA Facility Assessment. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMUs 47-48 – Former North Oscura Peak Landfills

SWMU 47 consisted of an open trench landfill with the approximate dimensions of 40 feet by 50 feet and five feet deep and was rimmed by a barbed-wire fence. Debris visible in the trench included glass and plastic bottles, rubber tubing, aluminum cans, wood and wastepaper. The second open trench (SWMU 48) was located in an area which is above the surrounding grade with little vegetation and disturbed soil. The trench is oriented north-south, and its dimensions are approximately 120 feet long, five feet wide, and six feet deep. Material visible in the trench included glass and plastic bottles, rubber tubing, aluminum cans, wood and wastepaper. The startup date of the landfill is unknown but both landfill cells were removed by 2002. There are no indications of a significant release of hazardous waste or hazardous constituents from this unit.

SWMU 62 – Former STP Imhoff Tank

The sanitary sewage from the WSMR Main Post was treated by the former STP Imhoff tank at SWMU 62 during the 1940s and 1950s, prior to construction of the current STP in 1958. This tank consisted of a single, large, metallic and concrete, multi-chambered, subsurface structure that was used to treat sewage sludge through the processes of sedimentation and anaerobic digestion. Based on information from previous investigations, the former STP Imhoff tank is believed to have been abandoned in place during the abandonment of the historical sewage lines and construction of the current STP. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 63 – Former Main Post Landfill 1A

SWMU 63 was thought to be Landfill 1 located in the southeast area of the present site of Building 1678 near the Main Post of WSMR. Investigations indicated that the landfill was not under building 1678 and therefore it was recommended to direct further investigations to the east of the golf course and south of Martin Luther King Avenue which was referred to as Landfill 1A. The area subsequently investigated covers approximately 18 acres. An exact start-up date of the previously identified area could not be determined, but possibly coincides with the beginning activities on White Sands in the early 1940s. It is believed that the area was in operation prior to implementation of RCRA and prior to the operation of the Hazardous Waste Landfill (SWMU 91). Investigations have determined that no landfill exists. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 64 – Former Main Post Landfill 2A

Phase I and Phase II RFI investigated what was thought to be Landfill 2 located in the southeast area of the present site of Building 1747. Historical aerial photographs, aerial searches and personnel interviews indicated that the landfill was not under building 1747 and directed further investigations to the south of Martin Luther King Avenue near the motor pool storage area which is referred to as Landfill 2A. The area subsequently investigated covers approximately 68.8 acres. An exact start-up date could not be determined, but possibly coincides with the beginning activities

on White Sands in the early 1940s. Investigations have determined that no landfill exists, either at the site of the original investigation (Building 1747) or south of Martin Luther King Drive near the motor pool storage area. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 66 – Main Post Sewage Treatment Plant Subsurface Influent Line

This unit is the underground sewer line which extends several miles from the Post Area to the sewage treatment plant. Facility representatives reported that the line is constructed of concrete or vitrified clay. The line is reported to be the original line installed in 1958 to convey sanitary sewage when the sewage treatment plant was constructed and is still active. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 67 – Main Post Sewage Treatment Plant (STP) Bar Screen and Grinder

This unit is the first unit to receive waste at the STP, and is located in the eastern end of the STP. It is a partially below-grade tank constructed of six-inch concrete. The estimated dimensions are six feet by ten feet, and three to five feet deep. The unit is equipped with a bar screen and grinder for the separation and grinding of large pieces of debris present in the influent. The waste stream is received from the Sewage Influent Pipe (SWMU 66). This unit was active from 1958 to present. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 68 – North Primary Clarifiers at the STP

These units are two circular, open-topped, concrete tanks located in the eastern portion of the STP. They are 35 feet in diameter, and approximately seven feet deep, with slightly below-grade construction. The reported operating capacity of the units is one million gallons/day. The purpose of the unit is for the gravity settlement of solids. Facility representatives reported no chemicals are added to facilitate settlement. Film is skimmed from the surface and pumped along with the bottom solids to the Primary Digester. The effluent overflows a weir and is conveyed to Splitter Box 2 by an 18-inch vitreous clay pipe. This unit was active from 1958 to the present. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 79 – Former Sludge Beds at the STP

This unit was a series of 11 parallel beds used for the drying of the STP sludge. The beds were separated by two-foot-high concrete walls and have sand bottoms. The unit is bounded on the north by a concrete distribution trough, (approximately two feet wide and two feet high) for the entire length of the beds. Each bed was approximately 15 to 20 feet wide and 50 feet long. The sludge beds were built as part of the STP in 1958. The original structures were constructed with concrete retention walls. One documented release occurred in 1978 when a flash flood damaged retention structures causing sludge to be spread across an area approximately 200 feet to the south and 500 feet to the east and west of the sludge beds (SWMU 80). The sludge beds at the STP were reconstructed within the same general footprint and consisted of 11 basins having dimensions of 20 feet by 50 feet with 2-foot-deep concrete retention walls and bottoms and operated till the late 1990's.

SWMU 80 - STP Sludge Waste Pile Main Post

This solid waste management unit consists of a former sludge waste pile. A flash flood in 1978 damaged the Main Post Sewage Treatment Plant sludge drying beds (SWMU 79). Debris from the flood damage cleanup, including reinforced concrete, excavated soil, and sludge, was stockpiled approximately 200 feet to the south and 500 feet to the east and west of the sludge beds creating the SWMU 80 unit in 1978. SWMU 80 was approximately 50 feet by 75 feet by 10 feet high. The

site was subsequently used for the stockpiling of dried sludge following construction of the new sludge drying beds at SWMU 79. Following the removal of the sludge pile at SWMU 80 in 1996, no waste disposal activity at the site has occurred. There are no indications of a significant release of hazardous waste or hazardous constituents from this unit.

SWMU 81 – Boiler at the STP

This unit is an Envirox Boiler located inside the boiler house within the central portion of the STP. Sludge from the Primary Digester is circulated through four-inch pipes through the boiler for heating. The sludge remains in the enclosed pipe with no entry into the heating chamber. The heated sludge is returned to the Primary Digester. The boiler is fueled by a natural gas supplemented with methane from the Primary Digester. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 84 – Effluent Pipeline at the STP

This unit is an underground PVC pipeline which carries treated effluent from the STP to the Playa Lake (SWMU 85) starting in 1986. The pipeline extends a distance of approximately three miles. The unit is still in place but is no longer in use when a new effluent pipeline was constructed near to SWMU 84 in the late 2010's. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 85 – STP Discharge at Playa Lake

The unit is a dry lake bed which is located approximately three miles east of the STP. Effluent from the STP is discharged to the Playa via the Effluent Pipeline (SWMU 84). The estimated dimensions of the Playa are 1000 feet by 1000 feet. At the time of the WSMR RCRA Facility Assessment in 1988 the water level appeared to be very shallow (six to eight inches deep) and the area heavily vegetated with reeds and grasses. The unit has been active from 1986 to the present. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 86 – Former Sanitary Landfill at the Main Post

The Main Post Landfill has been in operation since 1983 and covers an area of approximately 82.9 acres, although only 38.6 acres have actually been utilized. The MPL ceased receiving municipal solid waste (SWMU 86) in 1996 and no longer accepts C&D waste (SWMU 87). The sanitary landfill unit covers an area of approximately 60 acres and is surrounded by an eight-foot chain link fence. The active disposal cell was excavated to an approximate depth of 20 feet. Waste collected from the Post area was transported to the landfill and placed in the active cell. The cell was backfilled with soil as the cell was filled with waste on a reported daily basis. The MPL (SWMU86) was closed in 2011 in accordance with NMED Solid Waste Bureau requirements. The current cover thickness per the cap design is at least 30 inches of native soil and 6 inches of erosion control layer capable of supporting vegetation. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 87 – Former Construction Landfill

The Main Post Landfill has been in operation since 1983 and covers an area of approximately 82.9 acres, although only 38.6 acres have actually been utilized. The MPL ceased receiving municipal solid waste (SWMU 86) in 1996 and no longer accepts C&D waste (SWMU 87). SWMU 87 received construction debris from various locations in the Post area. The landfill cell was approximately 300 feet long and 20 to 30 feet in depth. The Construction Landfill (SWMU 87) was closed in 2011 in accordance with NMED Solid Waste Bureau requirements. Current cover thickness per the cap design is at least 30 inches of native soil and 6 inches of erosion control layer

capable of supporting vegetation. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 102 – Burn Pan South of Building 21547

The Burn Pan site is located approximately 3.5 miles east of WSMR Headquarters, south of Route 2 and west of Route 19. The Burn Pan was a steel pan, 7 feet long by 3 feet wide by 1 foot deep that was used for open burning of spent rocket fuel. The startup date of the burn pan is not known but operations ceased in 1984. WSMR chose to discontinue using the site for thermal treatment and decontaminated and removed from the site in 1989. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 103 – Scrap Metal Yard at Building 21280

This is a fenced yard used for the storage of scrap metal which is eventually sold as scrap. The fenced area is approximately 100 yards by 100 yards and is unpaved. The ground surface is partially covered with gravel. The unit is located about four miles southeast of the Post. The unit operated from 1958 to the present. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 108 – Vapor Extraction Well at TTF

SWMU 108 was a soil vapor extraction system installed in 1995 to remediate methylene chloride and other constituents in soils associated with a release at the Temperature Test Facility (TTF). The constituents in the soil were the result of releases of approximately 8,000 gallons of coolant from a lined wastewater pond (SWMU 104), approximately 5,000 gallons from faulty valves associated with an underground tank located between SWMU 104 and the TTF building, and approximately 4,500 gallons spilled during building construction. SWMU 108, consisting of 19 Soil Vapor Extraction (SVE) wells, was installed in 1998. Operation of the SVE system continued until October 2002. Dismantling of the SVE system was completed in August 2004. Vapor and groundwater wells were plugged and abandoned in December 2007. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 109 – Drum Storage Area (Splash Pan) at TTF

SWMU 109 is primarily a concrete equipment pad which was occasionally used for temporary storage of drummed waste generated at TTF. Drummed waste could possibly have contained methylene chloride and freons. Methylene Chloride and freons are no longer used at the facility. A concrete dike surrounds the pad which slopes to a drain/sump which ties into the drain line and discharges to the Evaporation Tank (SWMU 105). Dates of operation of the SWMU are unknown but was active at the time of the WSMR RCRA Facility Assessment in 1988. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 110 – Methylene Chloride Catchment System at TTF

This unit consists of a series of 2.5-gallon safety cans which collect drips from pump seals. A piece of copper tubing runs from below the pump seals into each can. Methylene chloride collected in the cans is recycled into the refrigerant system. Each pump has its own collection can. The cans sit on a concrete floor inside the TTF building. Methylene Chloride is no longer used at the facility. The catchment system was installed in 1985 and is still in use. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMUs 111-112 – Methylene Chloride Separation System at TTF

This unit was installed as an interim measure after the former Evaporation Pond (SWMU 104) was removed and prior to installation of the New Evaporation Tank (SWMU 105). The units operated during 1985. This unit consists of two tanks which were formerly used to prevent possible methylene chloride spills from reaching the wastewater Storage Tank (SWMU 107). The first tank in the separation system is an in-ground 1000- gallon rectangular steel tank equipped with a baffle. Water containing methylene chloride was conveyed to the second tank, a horizontally mounted cylindrical 500-gallon in-ground steel tank. Both units have been removed from the site and Methylene Chloride is no longer used. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 113 – Salt Water Evaporation Tanks at TTF

Salt fog condensate from the TTF test chambers drains to two galvanized steel open-topped tanks each approximately ten feet in diameter and two feet deep. The tanks sit directly on the ground.

Water evaporates from the tanks leaving crystallized sodium chloride in the tank. The tanks receive only salt water from the test chambers. No hazardous waste or hazardous constituents are managed in these tanks. These units have operated from 1984 to the present. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 116 – Rhodes Subgrade Asphalt Tanks

SWMU 116 consisted of three steel tanks which were found to be partially exposed above the ground surface. Each steel tank had an estimated 2,500-gallon capacity and was likely used for fuel or oil storage. The dates of operation and information detailing the historical tank contents are unknown. The tanks and an unknown amount of soil were removed in 1994. A release of hydrocarbons to the soil occurred at the site which was removed in 2016.

SWMU 119 – Former Stallion Range Landfill

This unit is located at Stallion Range Center approximately 100 miles north of the Main Post in the northeast portion of WSMR. The landfill is about 300 feet by 380 feet in size and is surrounded by an eight-foot chain link fence. The cells were excavated to a size of approximately 60 feet wide by 100 feet long and sloped to depth of about 15 feet. Waste was collected in dumpsters and emptied into active cells, where it was reportedly covered with soil daily. The landfill operated from 1984 to approximately 2001. The landfill is reported to have received only nonhazardous paper, office, kitchen, and yard/grounds waste from the Stallion Range Center. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 120 – Former Stallion Center Landfill

The unit was a sanitary landfill used for sanitary waste generated at Stallion Range Center from 1970 until 1984. The landfill is about 300 feet by 380 feet in size. The cells were excavated to a size of approximately 60 feet wide by 100 feet long and sloped to depth of about 15 feet. Waste was collected in dumpsters and emptied into active cells, where it was reportedly covered with soil daily. The unit is located adjacent to SWMU 119) and is not fenced. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMUs 121-123 – Stallion Asphalt Tanks

Three sub-grade storage tanks were used in the 1960s during the paving of the Stallion Range Center roads. The storage tanks were labeled Tank 1 (SWMU 121), Tank 2 (SWMU 122), and Tank 3 (SWMU 123). Tanks 1 and 2 were constructed of plate steel. Tank 3 was constructed of aluminum. Each storage tank had a capacity of approximately 15,000 gallons and dimensions of

26 feet in length by 9 feet in diameter. All three tanks appeared to be empty and abandoned during the WSMR RCRA Facility Investigation in 1988. The ground on the north side of the tanks appeared to be stained with a tar-like substance that looked dry, dark, and cracked, and appeared to have been there a long time. Facility personnel were unable to provide a list of materials that may have been managed within the tanks, the age of the tanks, and the dates of operation of the units although it is expected to have been coal tar. Although there is evidence of a release of a tar-like substance to the ground surface, there are no indications of a significant release of hazardous waste or hazardous constituents from this unit.

SWMU 124 – Waste Oil Storage Tank at Stallion North of Building 34250

This unit was a portable 500-gallon closed steel tank sitting on concrete pavement. The tank was used for storage of waste oil generated at Stallion Range Center. The tank was reportedly transported to the WSMR Main Post for emptying and disposal as needed. The tank was in use at the time of the 1988 WSMR RCRA Facility Assessment and it was noted that the concrete around the tank was stained with oil. The tank was located north of Building 34250 at Stallion Range Center. The operational dates of the tank are unknown, however as of this date, the tank is no longer in use. There are no indications of a significant release of hazardous waste or hazardous constituents from this unit.

SWMU 125 – Incinerator at Veterinary Clinic Building 1834

SWMU 125, the Veterinary Clinic Incinerator, is located approximately 50 feet south of Building 1834 in the southeast portion of the WSMR Main Post. The incinerator was a Stamco gas-fired unit that measured 3 feet by 5 feet by 2 feet high. It was mounted outside on a concrete slab next to the Veterinary Clinic. The incinerator was formerly used to dispose of “red bag” waste and “sharps” generated at the veterinary clinic. Currently, only the 6-inch-thick concrete slab is present at the site. The startup date of the incinerator is unknown and was used until approximately 1986. No hazardous wastes were managed within this unit, and no history of a release at this site is documented. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 126 – Incinerator at McAfee Clinic Building 530

SWMU 126, the McAfee Clinic Incinerator, was located in the northwest portion of the WSMR Main Post. The incinerator was a double-hearth unit inside Building 530, the McAfee Clinic, on the Main Post. It was formerly used to dispose of clinical wastes that had been sterilized in a nearby autoclave prior to incineration. Residue and ash from incineration was placed into bags and disposed of in the Sanitary Landfill on the Main Post. The unit was decommissioned in 1988 and is no longer located on site. The startup date is not known. No hazardous wastes were managed within this unit, and no history of a release is documented at this site. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 127 – Autoclave at McAfee Clinic Building 530

The autoclave at McAfee Clinic was a laboratory-sized unit which used high pressure steam at 121°C to sterilize clinical waste prior to disposal. After treatment, the solid waste was disposed in the WSMR Sanitary Landfill. Condensate from the unit drained via sewer liner to the sewage treatment plant. The autoclave was in use as of the mid to late 1970's. This unit did not manage hazardous waste. The McAfee Clinic building 530 is no longer present at WSMR. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 128 – Silver Recovery System Tailing Tank at Building 1512

The silver recovery system tailing tanks (SWMU 128) were located in the basement of Building 1512 and were used to store recovered silver from the photo fixer solution. The solid waste management unit was constructed of fiberglass and operated from the 1970s to the 1990s. The silver recovery system discharged effluent to the sewer system. The tank had an approximately 40-gallon capacity with its specific dimensions unknown. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 129 – Cyanide Treatment Unit at Building 1512

The cyanide treatment unit (SWMU 129) was used to oxidize spent photographic bleacher solutions containing ferrous cyanide. The solid waste management unit was constructed of stainless steel and operated from the 1970s to the 1990s. After 1985, sodium persulfate replaced ferrous cyanide in the bleaching process. The cyanide treatment unit discharged effluent to the sewer system. The dimensions of this unit are not known. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 130 – Former Spent Developer Storage Tank at Building 1512

SWMU 130 consists of one cylindrical plastic tank (1,000-gallon capacity) that was used at both Building 1512 and Building 1524. Before 1985, the tank was located outside Building 1512 (SWMU 130) where it was used to store spent developer (ferrous cyanide solution) from photo processing operations. The starting date of tank usage is not known. The dimensions of the tank are approximately 64 inches in diameter and 80 inches high. The tank was removed from building 1512 in 1985. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 131 – Acetic Acid Spill Containment Tank

SWMU 131 consists of one cylindrical plastic tank (1,000-gallon capacity) that was used at both Building 1512 and Building 1524. Before 1985, the tank was located outside Building 1512 where it was used to store spent developer (ferrous cyanide solution) from photo processing operations. The dimensions of the tank are approximately 64 inches in diameter and 80 inches high. After 1985, the tank was relocated outside of Building 1524 (SWMU 131) where it was used as a secondary containment tank for the acetic acid storage area until an unknown date. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 132 - Orogrande Waste Stabilization Pond Stabilization Pond

The Orogrande Waste Stabilization Pond (OWSP) is roughly trapezoidal in shape and is surrounded by a berm approximately 6 feet high and 18 feet wide at the base. When measured on the highest point of the berm, the pond measures approximately 560 feet along the western boundary, 570 feet along the eastern boundary, 300 feet along the southern boundary and 500 feet along the northern boundary. A barbed wire topped fence surrounds the OWSP, but the fence has fallen. The OWSP was originally constructed in 1972 as a disposal facility for sanitary waste and liquid wastes generated by Army personnel, maintenance operations, and other related activities at the Fort Bliss Orogrande Range Training Camp. The OWSP is a one-cell pond, with a 10-mil plastic liner, covering approximately 4.74 acres of land. The pond was constructed with a plastic liner placed over compacted soil that was then covered with an approximately 12-inch-thick soil layer. The liner extends up the side slopes of the pond, which were designed with a side slope ratio of about 1:4. The OWSP is managed by Fort Bliss and is currently in operation. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 133 NOMTS Machine Shop Accumulation Area at Building 1436

SWMU 133 is located in the southern portion of the Machine Shop (Building 1436). The area is in use as waste drum storage. The drums rest directly on the concrete floor of the building. According to NOMTS personnel, the drums were stored in the building until the content of the drums was characterized for proper disposal. The accumulation area has been active since late 1987. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 134 - NOMTS Outdoor Accumulation Area at Building 1436

The NOMTS Outdoor Accumulation Area is located on the east side of Building N197 (Building 1436), the Machine Shop Oil Shed, on the Main Post. At the time of the WSMR RCRA Facility Assessment, three 55-gallon drums in overpack containers were stored here. The accumulation area is above-ground, open-topped concrete box that has the approximate dimensions of 3.5 feet tall, ten feet wide, and five feet wide. The unit has been active since late 1987. The accumulation area manages drummed waste. The composition of the waste in the drums was unknown at the time of the WSMR RCRA Facility Assessment but is expected to be waste oil. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 135 – Paint Shop Accumulation Area at Building 1742

SWMU 135 is located at Building 1742 (former paint shop) in the southeast portion of the WSMR Main Post. SWMU 135, located outside of Building 1742, was a fenced, gravel-covered accumulation area where drums containing paint waste and solvent were stored on wooden pallets that were used in operation of the paint spray booth (SWMU 136). As of 1988, the spray booth had been in use for approximately 5 years. Building 1742 is no longer a paint shop and is currently used for office space and storage related to janitorial services at the WSMR Main Post. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 136 – Paint Shop Spray Booth at Building 1742

SWMU 136, located inside of Building 1742, was a water cascade-type spray booth used for airless and conventional spray painting. The dimensions of the spray booth were approximately 15 feet by 10 feet by 8 feet. While the spray booth was in operation, a curtain of water captured overspray.

Wastewater from the spray booth contains particulates from paint overspray. Volatiles from paint solvents are vented through an exhaust duct to the atmosphere. Building 1742 had a floor drain system installed in the concrete floor that connected to the paint shop sump (SWMU 137), which drained to the sewer system. Water containing paint overspray was discharged from the spray booth to the SWMU 137 paint shop Sump. As of 1988, the spray booth had been in use for approximately 5 years. Building 1742 is no longer a paint shop and is currently used for office space and storage related to janitorial services at the WSMR Main Post. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 137 - Paint Shop Sump at Building 1742

SWMU 137 is located at the northeast end of Building 1742 on the Main Post. Operation of the paint shop began in 1968; however, it is no longer used as a paint shop. Wastewater generated from the paint spray booth located inside Building 1742 was discharged by gravity flow into a concrete sump. Sludge (mixture of water and solids), paint, and other debris (trash, leaves, and minor sediment) were separated by gravity and transferred by gravity flow to the Sewage Treatment Plant. The sludge was removed periodically and disposed of as hazardous waste. The paint shop sump was square-shaped (3 feet by 3 feet) and 3 feet deep with 3-inch concrete walls. The head of the 6-inch steel drainpipe was exposed in the northern face of the sump and extended for 6 feet north and

then transitioned to a 6-inch vitreous clay pipe. In 2013, the sump and drain lines were abandoned. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 138 - Waste Accumulation Area at RATSCAT

The former waste accumulation area is located at the RATSCAT site on WSMR. This site is located approximately 35 miles north of the main Post area and 23 miles west of Alamogordo, NM. The accumulation area consisted of metal drums containing waste hydraulic fluid, waste oil and paint waste. The area was in the open and was underlain by a curbed, concrete pad. This unit has been in operation since the mid 1980's. The waste managed at this unit included waste hydraulic fluid, oil and paint from vehicle maintenance. Less than 350 gallons of petroleum waste and five gallons of paint waste are generated per year. The unit is no longer in operation (unknown date). There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 141 – HELSTF Equipment Storage Area

Prior to establishment of the equipment storage area, the area where SWMU 141 is located was the multifunction array radar waste stabilization pond (SWMU 148). Historical photographs indicate that the pond was filled and graded by 1982 but was not yet used for equipment storage. By 1986 the area had been fenced and was being used for storage. The area is a flat, fenced yard approximately 1.2 acres in size. Spare hardware, materials employed in HELSTF operations, and, for short periods of time, drums of chemicals, scrubber liquors, and waste oils have been stored at SWMU 141. Currently, the site is used for storage of site materials and parts on pallets. There are no indications of a significant release of hazardous waste or hazardous constituents from this unit.

SWMU 143 – HELSTF Storage Yard Chromium Spill Site

SWMU 143 consists of a release of approximately 55 gallons of Entec 300, a corrosion inhibitor containing hexavalent chromium and zinc, which resulted from the mishandling of the drum. The release was discovered in December 1989 while the area (equipment storage area) was being prepared for paving. The spill site was initially covered by a shingled, wooden roof to inhibit leaching and runoff. The cover was removed in 1998 when a gaseous reduction test using injection and extraction wells was conducted. A plastic sheet barrier was installed in the subsurface to inhibit leaching and runoff of chromate associated with the spill. Hexavalent chromium has been released to the soil and perched groundwater at the site.

SWMU 144 - HELSTF Laser System Test Center Wastewater Discharge Pond

SWMU 144 is a rock-filled irregularly shaped pit surrounded by thick brush. The pit is approximately 10 feet in diameter and 8 feet deep. The discharge pond received wastewater from the laser systems test center from the 1960's through 2008. A sump and discharge pump in the basement of Building 26129 collected and ejected chiller coil condensate, water drained periodically from the building fire sprinkler system, and blowdown from the cooling tower water treatment system. The collected liquid was pumped to a French drain located outside the HELSTF fence. Because of area soil characteristics, the discharged water dissolved the gypsiferous soil and caused subsidence of the original drain. This resulted in fracturing of the drainpipe just upstream of the French drain and leaking of wastewater from the fractured pipe. The pit was filled with rocks in 1991. Discharge to the pit no longer occurs. A potential release of chromium and solvents to groundwater has likely occurred.

SWMU 145 - HELSTF Test Cell Lagoons

The Test Cell Lagoon was constructed in 1988 with a single 6-millimeter Hypalon® liner with no secondary containment. The lagoon was 105 feet by 60 feet by 6 feet deep. The Test Cell Lagoon

was used once in 1989 to treat 30,000 gallons of sodium fluoride wastewater. The wastewater level in the lagoon dropped 2 feet in the two to three days after it was filled, indicating that the integrity of the liner was compromised. The lagoon was not used again. The liner and impacted soil were removed in 1996 and then the area was backfilled and paved. There are no indications of a significant release of hazardous waste or hazardous constituents from this unit.

SWMU 146 - HELSTF STP Dry Pond

The sewage treatment plant dry pond is 120 feet by 120 feet by 7 feet deep unlined surface impoundment that formerly received non-sewage wastewater from the Test Cell 2 Mechanical Building (26115) at a reported rate of 30-50 gallons per minute. In addition, the dry pond received overflow of wastewater from the sanitary treatment impoundments (SWMU 27) on an as-needed basis. Discharges from SWMU 27 included a 1983 discharge of 15,000 gallons of domestic sewage and discharge of cooling tower water, pressure recovery system pump cooling water, and pressure recovery system boiler water in 1984 and 1985. Discharges to the dry pond likely began before the early 1980's and continued till 2008. There are no indications of a significant release of hazardous waste or hazardous constituents from this unit.

SWMU 147 – HELSTF Decontamination Pad & Underground Holding Tank

The decontamination pad was constructed in 1982 and had a sump measuring 3 feet by 5 feet by 6.5 feet (deep), with an open top, grate and steel cover. The pad emptied into the adjacent sump (which may have been referred to as a tank in the RFA) and that it was connected to an above ground tank. The pad was used for cleaning large pieces of equipment that could not be cleaned in the HELSTF Cleaning Facility (SWMU 142). Accumulated wastewater was periodically removed from the tank and disposed of. Sediment/sludge and water collected from within the sump were found to be contaminated with VOCs, SVOCs, and TPH. The contents of the sump were removed and properly disposed. The sump was filled with concrete in April 1996 to prevent its continued use. There are no indications of a significant release of hazardous waste or hazardous constituents from this unit.

SWMU 148 – HELSTF Former MAR Waste Stabilization Pond

The former multifunction array radar waste stabilization pond was an unlined pond with an earthen berm that was used to treat sewage effluent and possibly industrial wastewater generated by the former multifunction array radar facilities. The pond, built in 1962, was 110 feet by 130 feet and 7 feet deep. The pond was backfilled and graded during construction of HELSTF in 1981, and a replacement sanitary treatment system was constructed, which is now referred to as SWMU 27. The area was paved with asphalt in 1990 and now lies below the northeast corner of SWMU 141. SWMU 141 is still an active equipment and materials storage area. There are no indications of a significant release of hazardous waste or hazardous constituents from this unit.

SWMU 149 – HELSTF Maintenance Building Septic System

The maintenance building septic system (SWMU 149) has been in use since the 1960s and consists of a 200-gallon septic tank and a drainage field measuring approximately 30 feet by 70 feet. There are two subsurface 4-inch drainage lines measuring 30 feet in length. There are no indications of a significant release of hazardous waste or hazardous constituents from this unit.

SWMU 150 – HELSTF MAR Dump Site

When discovered, the multifunction array radar dump site (SWMU 150) was inactive and consisted of an open trench that was partially filled with what was thought to be building debris and old paint materials. The trench measured approximately 225 feet by 35 feet by 8 feet deep. An approximately

50 feet diameter spoil pile of soil was located approximately 40 feet northwest of the trench and was believed to be the soils excavated during trench construction. In 1996 the contents of the trench were removed and transported to the WSMR Main Post Construction landfill. The entire area was then graded to blend with the existing terrain. It is presumed that the trench was used as a landfill in the 1960s and early 1970s during the operation of the MAR facility. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 151 – HELSTF Trailer Area Septic System

SWMUs 151 and 152 shared a drain field that measured approximately 40 feet by 110 feet. The office trailers that discharged to SWMU 151, previously located just to the north north-east of SWMU 151, had been removed by the early 1990s. Only the property and supply building (Building 26145) used the SWMU 151 and 152 drain field once the trailers were removed. Between 2009 and 2019 usage of the septic systems was discontinued. There are no indications of a significant release of hazardous waste or hazardous constituents from this unit.

SWMU 152 – HELSTF Property and Supply Building Septic System

SWMUs 151 and 152 shared a drain field that measured approximately 40 feet by 110 feet. The office trailers that discharged to SWMU 151, previously located just to the north north-east of SWMU 151, had been removed by the early 1990s. Only the property and supply building (Building 26145) used the SWMU 151 and 152 drain field once the trailers were removed. Between 2009 and 2019 use of septic systems was discontinued. There are no indications of a significant release of hazardous waste or hazardous constituents from this unit.

SWMU 153 – Vandal Burial Site

The Former Vandal Burial Site, SWMU 153, is an area approximately 270 feet by 140 feet that is located in the Hazardous Test Area of WSMR adjacent (25 feet south) to the OB/OD Area (SWMUs 55, 56, and 56A). The site is approximately 7 miles north of the Main Post. During the mid-1950s, missile and rocket parts were buried in three distinct cells and covered with approximately 2 to 3 feet of soil. All buried material was removed in 1994 and the site was backfilled with soil. There are no indications of a significant release of hazardous waste or hazardous constituents from this unit.

SWMU 154 – HELSTF Systematic Diesel Spill Site

A 30,000-gallon underground storage tank (UST) was installed east/northeast of SWMU 141 in late 1979 or early 1980 at the HELSTF facility. Two-inch fuel oil supply steel piping connected the UST to the Test Cell No. 2 area (approximately 120 feet to the south) and to the cleaning facility (approximately 360 feet east-northeast of the UST). These lines were installed during renovation of the multifunction array radar site for use at HELSTF about 1981. The UST supplied No. 2 fuel oil to a turbine generator at Test Cell No. 2 and boilers at the cleaning facility. The UST was removed in April 1988 as part of a facility-wide tank replacement program when aboveground storage of fuel became the preferred material handling practice.

A release of diesel fuel from the supply line for the cleaning facility boilers was discovered on the south side of the cleaning facility in early 1990 during an investigation of the cleaning facility sump. Diesel fuel contamination was discovered starting at 11 feet below ground surface and free product diesel was discovered at 20 feet below ground surface. Approximately 100,000 gallons of diesel fuel was released to soil and groundwater at the site.

SWMU 157 – Former Oscura Range Center Landfill-A

The operation dates of SWMU 157 are unknown, however, the site was identified by WSMR environmental personnel in 1997. The units consisted of an approximately 30 feet by 30 feet area in which waste material was dumped. A description of debris at the site included communications wire, wood pallets, refrigerator, and a propane tank. Landfill A was located 100 yards south of the ORC Commo building 31775. Dumped waste material was removed and properly disposed of in 1998. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 159 – Former Oscura Range Center Landfill-C

SWMU 159 consisted of a bladed area approximately 3 acres in size that was used in 1987 as the site for a landfill trench. An area having scattered surface debris was located south of the landfill trench and is where dump trucks likely backed into the site to unload debris into the landfill trench. The landfill trench was approximately 200 feet in length by 20-30 feet in width by 10-20 feet in depth. The landfill trench was excavated in 2006. Waste material from the trench including concrete, scrap metal, and scrap wood was properly disposed off-site. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 162 – Stallion Range Center Former Fire Fighting Training Area

SWMU 162 was the Fire Fighting Training Area (FFTA) at Stallion Range Center. The exact dates of use of the area are unknown but activities took place before the late 1980s. The FFTA consisted of an area approximately 200 feet by 50 feet adjacent to a dirt road where firefighter training occurred. Typically, a flammable liquid was used to start the training fires and may have included diesel and/or gasoline. No structures were present at the FFTA and no further details regarding the training activities were available. Though no records of the cleanup have been discovered, in the late 1980's an area of soil approximately 50 feet by 100 feet by 4 feet deep was excavated, aerated in the sun, and used as clean fill for the Stallion Range Center Landfill. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 164 – AMRAD Facility UST near Building 25900

SWMU 164 is a 3,000-gallon steel Underground Storage Tank discovered near Building 25900, at the Anti-Missile Radar Facility (AMRAD) in 1997. The tank contained oil from the operation of the large radar dish at the site. A release of motor oil range hydrocarbons has occurred at the unit. WSMR implemented a Voluntary Corrective Action (VCA) in 2004 which consisted of filling the tank in place with a mixture of sand, concrete, fly ash and water. The tank was closed in place to avoid costly relocation of or potential damage to the structural integrity of the radio frequency fence and anchor system under the tank.

SWMU 165 – LC-34 Contaminated Soils @ Buildings 23104 & 23106

Diesel fuel tanks were installed near Buildings 23104 and 23106 at an undetermined date to provide heating oil. The buildings are located within LC-34 in the southern portion of WSMR and approximately 5 miles northeast of the WSMR Main Post. The UST at Building 23104 was a 500-gallon steel tank, and the UST at Building 23106 was a 1,000-gallon steel tank. A minor release of fuel from the tanks has occurred. The two tanks were removed from WSMR in 1998. Approximately 90 cubic yards of soil were removed from Building 23104 and 35 cubic yards from Building 23106.

SWMU 166 – Denver AST Site

The Denver AST Site consists of two spatially distinct contamination zones. Diesel-contamination resulted due to releases from a former Above Ground Storage Tanks (AST) and associated piping

and equipment which occurred prior to 1999. Dates of operation of the AST and generators on site are not known. The ASTs provided diesel fuel for portable generators on site. By 1999, the AST and generators had been removed. Since a diesel fuel release to soil had occurred at the site, WSMR completed soil removal of approximately 660 cubic yards of contaminated soil.

SWMU 167 – Malpais AST Site

SWMU 167 consisted of a 2,000-gallon AST located approximately 40 miles northwest of Alamogordo, New Mexico on the northeastern portion of the range. The AST and associated product line was used to provide fuel for a field generator. Operations reportedly ceased in 1989. Dates of operation of the AST and generators on site are not known. The site was discovered during a 1999 WSMR Range-wide AST survey, where the leaking diesel AST was identified at the Malpais site. The tank contents were removed, and the tank and concrete pedestals were removed in 1999. As of 2004, 3,500 cubic yards of diesel contaminated soil were removed from the site.

SWMU 168 – Lance Missile Impact Site

SWMU 168 is located within the White Sands National Monument (WSNM) near Lake Lucero on property managed by the National Park Service (NPS). On Dec. 14, 1999, a Lance Missile Launched from WSMR impacted within WSNM. The propellant used in the Lance Missile included Unsymmetrical Dimethyl Hydrazine (UDMH) and Inhibited Red Fuming Nitric Acid (IRFNA).

The missile penetrated the ground surface and exposed the water table approximately three feet below ground surface. The impact created a crater approximately 18 feet in diameter and 5 feet deep. All surface debris has been removed from the site and the crater filled in with native soil from the site. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 197 – HELSTF Technical Support Area Gasoline Spill

SWMU 197 consists of a fueling station with a 3000-gallon AST that released approximately 1490 gallons of unleaded gasoline. The pump island at the TSA included one dispenser supplied by the AST which is located approximately 35 feet west of the dispenser island. The single AST serving the facility is mounted within a concrete secondary containment structure and stored unleaded gasoline for motor vehicle fueling. The release was discovered on March 16, 2000. The magnitude of the loss was estimated on the basis of an inventory review. The fuel station at the site was shut down in March 2000. It is unknown when fueling operations at the site began. Investigation results indicate that both soil and groundwater at the site has been affected by constituents related to unleaded gasoline.

SWMU 198 – LC-38 Diesel Fuel Oil Release

SWMU 198 is the Launch Complex (LC)-38 Diesel Fuel Spill Site, which consisted of a steel 150,000-gallon AST and surrounding contaminated area. Corroded piping, connected to the AST, resulted in the loss of approximately 31,000 gallons of diesel fuel to soil beneath the site. The tank and associated piping were removed in 2005. Fuel is no longer stored at the site. Investigation results indicate that both soil and groundwater at the site have been affected by constituents related to diesel fuel. Chromium has been detected at concentrations above regulatory criteria in groundwater at the LC-38; however, the chromium is not attributed to the diesel fuel release.

SWMU 199 – Hardin Ranch First AST Site

SWMU 199 was discovered in May 2003 as a result of preliminary investigation of the AST originally identified during a Range-Wide AST survey (1997-1999). This SWMU consisted of a

former AST which was used for fueling generators supporting testing operations on the Range. An unknown amount of diesel fuel was released at this site over an extended period of time ending in 2003. Start of operations of the AST and generator at the site is not known. The AST and generator have been removed. The diesel fuel release resulted in an area of soil contamination approximately 20 feet by 16 feet by 14 feet deep. Contaminated soil was removed from this unit in 2007.

SWMU 200 – Hardin Ranch Second AST Site

SWMU 200 was discovered in May 2003 as a result of preliminary investigation of the AST originally identified during a Range-Wide AST survey (1997-1999). This SWMU consisted of a former AST which was used for fueling generators supporting testing operations on the Range. An unknown amount of diesel fuel was released at this site over an extended period ending in 2003. Start of operations of the AST and generator at the site is not known. The AST and generator have been removed. The diesel fuel release resulted in an area of soil contamination approximately 16 feet by 10 feet by 12 feet deep. Contaminated soil was removed from this unit in 2007.

SWMU 201 – RAM (Facility 6002) AST Site

The Range-Wide AST survey (1997-1999) identified a surface stain beneath the location of an active AST at the Ram site. It is not known when the AST was first used at the unit. The AST had been removed at the time of the preliminary investigation conducted in May 2003, but a small stain was located near a concrete pad sloping toward the building at the site. Investigation results indicate that a release at this unit has not occurred.

SWMU 202 – Dead Horse Instrumentation AST Site

The Range-Wide AST survey (1997-1999) identified the location of an AST at the Dead Horse Instrumentation site. It is not known when the AST was first used at the unit. The AST had been removed at the time of the AST survey in 1998. Investigation results indicate that a release at this unit has not occurred.

SWMU 203 – Oscura (Facility 31795) Communication AST Site

SWMU 203 was discovered in May 2003 as a result of preliminary investigation of the AST originally identified during a Range-Wide AST survey (1997-1999). This SWMU consisted of a former AST which was used for fueling generators supporting testing operations on the Range. An unknown amount of diesel fuel was released at this site over an extended period ending in 2003. Start of operations of the AST and generator at the site is not known. The AST and generator have been removed. The diesel fuel release resulted in an area of soil contamination approximately 15 feet by 15 feet by 10 feet deep. Contaminated soil was removed from this unit in 2006.

SWMU 204 – Harriet (Facility 34600) Instrumentation AST Site

SWMU 204 was discovered in May 2003 as a result of preliminary investigation of the AST originally identified during a Range-Wide AST survey (1997-1999). This SWMU consisted of a former AST which was used for fueling generators supporting testing operations on the Range. An unknown amount of diesel fuel was released at this site over an extended period ending in 2003. Start of operations of the AST and generator at the site is not known. The AST and generator have been removed. The diesel fuel release resulted in an area of soil contamination approximately 15 feet by 8 feet by 14.5 feet deep. Contaminated soil was removed from this unit in 2007.

SWMU 205 – SE-70 (Facility S-31427) Instrumentation AST Site

SWMU 205 was discovered in May 2003 as a result of preliminary investigation of the AST originally identified during a Range-Wide AST survey (1997-1999). This SWMU consisted of a

former AST which was used for fueling generators supporting testing operations on the Range. An unknown amount of diesel fuel was released at this site over an extended period ending in 2003. Start of operations of the AST and generator at the site is not known. The AST and generator have been removed. The diesel fuel release resulted in an area of soil contamination approximately 45 feet by 22 feet by 5 feet deep. Contaminated soil was removed from this unit in 2005.

SWMU 206 – Atom (Facility S-33151) First AST Site

SWMU 206 was discovered in May 2003 as a result of preliminary investigation of the AST originally identified during a Range-Wide AST survey (1997-1999). This SWMU consisted of a former AST which was used for fueling generators supporting testing operations on the Range. Results of the investigation indicate that a release has not occurred at this site.

SWMU 207 – Atom (Facility S-33151) Second AST Site

SWMU 207 was discovered in May 2003 as a result of preliminary investigation of the AST originally identified during a Range-Wide AST survey (1997-1999). This SWMU consisted of a former AST which was used for fueling generators supporting testing operations on the Range. An unknown amount of diesel fuel was released at this site over an extended period ending in 2003. Start of operations of the AST and generator at the site is not known. The AST and generator have been removed. The diesel fuel release resulted in an area of soil contamination approximately 50 feet by 40 feet by 9 feet deep. Contaminated soil was removed from this unit in 2007.

SWMU 208 – SE-50 (Facility 29055) Instrumentation AST Site

SWMU 208 was discovered in May 2003 as a result of preliminary investigation of the AST originally identified during a Range-Wide AST survey (1997-1999). This SWMU consisted of a former AST which was used for fueling generators supporting testing operations on the Range. An unknown amount of diesel fuel was released at this site over an extended period ending in 2003. Start of operations of the AST and generator at the site is not known. The AST and generator have been removed. The diesel fuel release resulted in an area of soil contamination approximately 20 feet by 15 feet by 15 feet deep. Contaminated soil was removed from this unit in 2005.

SWMU 209 – EC-50 (Facility 29085) Instrumentation AST Site

SWMU 209 was discovered in May 2003 as a result of preliminary investigation of the AST originally identified during a Range-Wide AST survey (1997-1999). This SWMU consisted of a former AST which was used for fueling generators supporting testing operations on the Range. An unknown amount of diesel fuel was released at this site over an extended period ending in 2003. Start of operations of the AST and generator at the site is not known. The AST and generator have been removed. The diesel fuel release resulted in an area of soil contamination approximately 40 feet by 20 feet by 32 feet deep. Contaminated soil was removed from this unit in 2007.

SWMU 210 – Minnow (Facility S-31132) Instrumentation AST Site

The Range-Wide AST survey (1997-1999) identified a surface stain beneath the location of an inactive AST at the Minnow site. It is not known when the AST was first used at the unit. The AST had been removed at the time of the preliminary investigation conducted in May 2003, but a small stain was located near a concrete pad sloping toward the building at the site. Investigation results indicate that a release at this unit has not occurred.

SWMU 211 – Cowan Instrumentation AST Site

SWMU 211 was discovered in May 2003 as a result of preliminary investigation of the AST originally identified during a Range-Wide AST survey (1997-1999). This SWMU consisted of a

former AST which was used for fueling generators supporting testing operations on the Range. An unknown amount of diesel fuel was released at this site over an extended period ending in 2003. Start of operations of the AST and generator at the site is not known. The AST and generator have been removed. The diesel fuel release resulted in an area of soil contamination approximately 12 feet by 10 feet by 14 feet deep. Contaminated soil was removed from this unit in 2007.

SWMU 212 – NW-70 (Facility S-31620) Instrumentation AST Site

The Range-Wide AST survey (1997-1999) identified a surface stain beneath the location of a former AST at the NW-70 site. It is not known when the AST was first used at the unit. The AST had been removed at the time of the preliminary investigation conducted in May 2003, but a small stain was located near a concrete pad sloping toward the building at the site. Investigation results indicate that a release at this unit has not occurred.

SWMU 213 – Gran Jean (Facility S-34050) Instrumentation AST Site

SWMU 213 was discovered in May 2003 as a result of preliminary investigation of the AST originally identified during a Range-Wide AST survey (1997-1999). This SWMU consisted of a former AST which was used for fueling generators supporting testing operations on the Range. An unknown amount of diesel fuel was released at this site over an extended period ending in 2003. Start of operations of the AST and generator at the site is not known. The AST and generator have been removed. The diesel fuel release resulted in an area of soil contamination approximately 30 feet by 30 feet by 20 feet deep. Contaminated soil was removed from this unit in 2007.

SWMU 214 – NE-50 (Facility 29090) Instrumentation AST Site

SWMU 214 was discovered in May 2003 as a result of preliminary investigation of the AST originally identified during a Range-Wide AST survey (1997-1999). This SWMU consisted of a former AST which was used for fueling generators supporting testing operations on the Range. An unknown amount of diesel fuel was released at this site over an extended period ending in 2003. Start of operations of the AST and generator at the site is not known. The AST and generator have been removed. The diesel fuel release resulted in an area of soil contamination approximately 12 feet by 12 feet by 11 feet deep. Contaminated soil was removed from this unit in 2007.

SWMU 215 – Missile Graveyard

SWMU 215 is located off Range Road 202 on WSMR. Waste is concentrated on either side of an abandoned, dirt power-line road and covered with loose, native soil. The area of obvious ground disturbance and visible surface debris covers 4.4 acres. Waste materials are scattered and typically protrude from the soil cover that forms the longitudinal mounds. The site's appearance gives the impression that shallow trenches may have been filled with waste and then covered with the excavated soil. Waste exposed in the soil cover include scrap metal, glass, tires, wood, wire, batteries, cans, electric motors, hydraulic pump components and baseball-sized submunitions. The visible waste is scattered randomly and intermittently across the site. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

SWMU 216 – UST at Timing Station, Building 20710, LC-32 (Uncle Site)

SWMU 216 is a former 600-gallon UST at the LC-32 Building 20710 Timing Station. 600-gallon underground storage tank (UST) containing diesel fuel was installed north of Building 20710-A at an undetermined date. WSMR was unable to locate the tank dimensions from the installation records. The UST provided fuel for a generator that supplied electricity to Building 20710. The UST was removed in 1995. Diesel fuel has been released to soil at the unit.

SWMU 217 – AAFES Gas Station at Building 270

In May 2000 an unleaded gasoline spill occurred at the Army Air Force Exchange Service (AAFES) Desert Oasis Gas Station on White Sands Missile Range (WSMR) Main Post. The spill occurred from a capped fuel line at the gas station. Following discovery, the cap on the fuel line was tightened which prevented fuel from further leaking into the subsurface. The leak occurred at the access delivery lines for pumps #3 and #4. The leak had occurred at the site of the first dispenser on the concrete island. The dispenser housing had already been removed for replacement when the gasoline had leaked out the top of one of the capped standpipes on the dispenser island. Investigation results indicate that a significant release of unleaded gasoline to the subsurface has not occurred.

SWMU 218 – LC-38 UST at Building 23626

SWMU 218 is located near to Building 23626 which is included within the LC-38 complex and was used for maintenance as well as administrative offices for WSMR personnel. SWMU 218 consists of a UST, which stored gasoline fuel for vehicles, was installed east of LC-38, Building 23626, at an undetermined date. The facilities near SWMU 218 are associated with LC-38 operations that began in the 1950s. The gasoline UST was installed at an unknown date after operations began. The reported use of the UST was for unleaded gasoline storage to fuel vehicles. The UST was a single-walled, 1,764-gallon steel tank not equipped with a leak detection system. Releases were not documented during the period that the UST was actively in use. The UST and all associated conveyance piping were removed in 1993 and a release of unleaded gasoline to the surrounding soil was documented during the removal activities.

SWMU 219 – Main Post POL AST Release Site

SWMU 219 is located at the WSMR Main Post, within the Main Post POL Storage Area. The POL Storage Area provided storage and a fueling point for official government vehicles. The POL Storage Area began service in the 1960s. There were three 6,000-gallon diesel ASTs located to the northwest of the fueling island and three 6,000 gallon gasoline ASTs located to the west of the fueling island. The ASTs are located within containment areas which are constructed of concrete walls with a concrete floor. A release of approximately 1,370 gallons of gasoline occurred while transferring gasoline between ASTs identified as structure number 1772. The concrete walls of the containment prevented the release of the gasoline to the surrounding ground surface. However, a crack in the southeastern corner of the floor of the concrete containment allowed fuel to escape and be released to the subsurface.

AOC A – Sink and Drain System at Building 1621

Area of Concern A consisted of three sinks and a polyvinyl chloride (PVC) drain system associated with photochemical operations at building 1621 (SWMUs 1-7). Photochemical waste drained into the sewer main located west of building 1621. The types of chemicals and waste managed, stored, and treated included prehardener, neutralizers, developer, bleach, fixer, and stabilizer residues that contained concentrations of chromium, silver, cyanide, SVOCs, and nitrate. The dimensions of this unit are not known. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

AOC B – Battery Accumulation Area at North Oscura

AOC B was an accumulation area where approximately 10 vehicle lead/acid batteries were accumulated next to a tracking station at the North Oscura Range. As of 1988 the batteries had been there for 1 year. The batteries were placed in the open on soil, exposed to the weather. No evidence

of leakage or spills was observed as of 1988. Batteries were removed from the site at an unknown date following the WSMR RCRA Facility Assessment in 1988. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

AOC D – Drum Storage Area at STP

AOC D was located at the northeast corner of the Main Post sewage treatment plant, approximately 2 miles southeast of the WSMR Main Post. The site consisted of a concrete pad where lube oil and solvent were stored in drums. In 2015, it was noted that the concrete pad was still present; however, drums were no longer being stored at the site. Potentially hazardous materials are no longer stored at AOC D. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

AOC E – Pesticide Storage Area at Building 1708

Building 1708 is used to store and mix pesticides. Storage is in commercially approved containers including one- and five-gallon cans, 30- and 55-gallon drums for liquids and three- to 50-pound plastic lined bags for dry materials. The storage and mixing area is a concrete slab which was modified in 1981 to provide a 4-inch-deep concrete retaining basin to contain possible spills. The storage facility is within a controlled fenced area and securely locked. The site is still used currently. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

AOC G – Brine (MeCl) Storage Tank at TTF

The methylene chloride storage tanks at TTF are pressurized, underground, stainless steel tanks insulated with urethane foam. The two tanks have a combined capacity of 46,000 gallons. The methylene chloride (called Brine at TTF) is stored cold and under pressure to minimize losses from volatilization. The tanks are reportedly inspected on a routine basis. The tanks are still in use. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

AOC H, I, J, K, & L – Methylene Chloride Tanks (five tanks) at TTF

The five expansion tanks are mounted about 20 feet above ground level outside the TTF building. The expansion tanks are part of the TTF refrigerant system. Methylene chloride is used as a secondary refrigerant to control temperature in the test chambers. The expansion tanks are mounted above the Drum Storage Area/Splash Pad (SWMU. 109). During start-up activities at TTF in 1984, leaky gaskets in the expansion tanks and other equipment resulted in a release of methylene chloride. As a result, soil beneath the expansion tanks was contaminated with methylene chloride. The tanks are still in use. There are no indications of a significant release of hazardous waste or hazardous constituents from this unit.

AOC P – Chemistry Laboratory Drains at Building 1530

The Chemistry lab, Building 1530 is located in the Main Post near the Post Headquarters. The drains are connected to the Sewage Treatment Plant (STP). Prior to the mid 1980's, waste lab chemicals and samples reportedly may have been disposed of in the lab sinks. Lab practices changed to segregate the waste chemicals and samples for waste management. The chemistry lab was closed in the 2010's and is no longer in use. There are no indications of a significant release of hazardous waste or hazardous constituents from this unit.

AOC S – Septic Tanks with Leach Fields

Numerous septic tanks on the WSMR are drained to leach fields. As many as 60 septic tanks have been reported to be on the WSMR. Reportedly the sludge is periodically removed and discharged into the sewage treatment plant. It is uncertain if any of the septic tanks have ever been

contaminated with hazardous constituents. There are no indications of a significant release of hazardous waste or hazardous constituents from this unit.

AOC V – HELSTF Pressure Recovery System

The PRS was an engineered closed loop system on the Mid-Infrared Advanced Chemical Laser (MIRACL). The PRS was used to produce the vacuum required to operate the laser and to treat the effluent. No pumps were used in this system, as a result no fluorine-contaminated pump oils were produced by MIRACL. The PRS contained a scrubber to remove fluoride compounds from the deuterium fluoride chemical laser by reacting with 1% sodium hydroxide solution to neutralize the hydrogen fluoride. The PRS is approximately 400 feet long and 70 feet wide. It is comprised of two main exhaust trains, each with its own scrubber unit. Ancillary piping delivered sodium hydroxide to neutralize the hydrogen fluoride and calcium hydroxide (lime) to form fluorspar. AOC V was in operation from 1985 to 2009. There are no indications of a significant release of hazardous waste or hazardous constituents from this unit.

AOC W – Rhodes Canyon Impoundment

A disturbed area was observed on the south side of Range Road 6 south of the Rhodes Canyon Landfill (SWMU 114), and west of the Subgrade Tanks (SWMUs 116-118). The disturbed area had been identified as a possible former surface impoundment from observations made during the inspection of the adjacent landfills during the WSMR RCRA Facility Assessment in 1988. Facility personnel were unable to identify the possible function of the unit. At the time of the RFA, the disturbed area was not distinguishable as a surface impoundment. An old roadbed or a possible berm was observed near the perimeter of the disturbed area. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

AOC X – Stallion Range Desalinization/Sewage Lagoons

The SRC septic system sewage lagoons have been updated and it consists of two lined, bermed pits located approximately 700 feet southeast of Building 34265. Each pit is approximately 20 feet wide by 40 feet long. The current septic lagoons replaced, in the same approximate location, 4 sewage lagoons that were 20 feet by 40 feet. Sewage effluent is first processed in two parallel septic tanks located approximately 375 feet southeast of building 34265 along an unimproved access road to the sewage lagoons. The sewage lagoons have been operating since 1961 and are currently operational. The SRC desalinization pond consists of a large 300 feet by 60 feet unlined, bermed pit. Four pits were originally constructed to receive effluent; however, the northern-most pit is the only one that has been used since construction. In the past effluent discharged to the pond contained elevated concentrations of dissolved solids due to the desalinization process, but these consistent are much lower due to reverse osmosis unit now being used. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

AOC Y – Stormwater Drainage Ditches

The stormwater drainage ditches at the Main Post area have been reported to receive or potentially receive waste by run-off from various operations and spills. (SWMU 10, 12, 14, 15, 16, 18, 19, 21, and 22). The drainage ditch generally flows toward the Playa Lake area (SWMU 85). The stormwater drainage ditches on WSMR Main Post likely date back to the 1950's and are still in use. There are no indications of a significant release of hazardous waste or hazardous constituents from this unit.

AOC Z – Abandoned Underground Storage Tank

The former UST was located in the southern portion of the WSMR Main Post and was installed approximately 200 feet south of the intersection of Raritan Avenue (now Martin Luther King Jr. Boulevard) and Headquarters Avenue at an undetermined date. The dates of operation and contents are unknown. The UST was removed; however, the date of removal is not known. The former UST was approximately 10 feet long by 4 feet wide and constructed of steel. No records of the tank condition or removal were identified. There are no indications of a significant release of hazardous waste or hazardous constituents from this unit.

AOC AA – Alamogordo Bombing Range

AOC AA is a Munitions Response Site (MRS) located within the Stallion Range Center Cantonment Area (SRC) site and is comprised of 461 acres coinciding with an auxiliary cantonment area in the northern portion of WSMR. It is located approximately 115 miles north of the installation main post area within the northwest corner of the historical Alamogordo Bombing and Gunnery Range used to train bomber aircrews during the early to mid-1940s. The area is no longer used for this purpose. Based on available documentation, the nearest bombing target area was 5 miles east of this MRS. The MRS lies directly within the flight path for the aerial gunnery range used to train aircraft gun crews to shoot aerial targets. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

AOC AB – Sewage Lagoons

AOC AB is a Munitions Response Site (MRS) located around the Main Post sewage treatment plant. It encompasses 11 acres and lies within the northern boundary of an historical 3-inch Anti-Aircraft Artillery (AAA) range that was located to the south at former Camp Beasley and used from approximately 1940 to 1942. The area is no longer used for this purpose. Available records did not identify any response actions associated with munitions from the Camp Beasley AAA range activities. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

AOC AC – Condron Field

This is a closed range comprising 480 acres in the extreme southern portion of the installation where Condron Field (airfield) now exists. This area was used as an artillery impact area for 3-inch rockets from Fort Bliss' Camp Beasley between approximately 1942 and 1944, and as a mobile combat range utilizing small arms in 1944. The area is now used as an airfield for drones that serve as missile targets. There have been no known Unexploded Ordnance (UXO) responses in this area. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

AOC AD – Main Cantonment Area

AOC AD is the Main Cantonment Area (MCA) site which encompasses 1,687 acres and lies within the boundary of the 3-inch anti-aircraft artillery (AAA) range that was located to the south at Camp Beasley and used from approximately 1940 to 1942. The MCA is in the far northwestern area of the historical AAA range boundary. Available records did not identify any response actions associated with munitions from the Camp Beasley AAA range activities. There are no indications of a release of hazardous waste or hazardous constituents from this unit.

AOC AE – Red Rio Bombing Range

AOC AE is an active bombing range which is in the north-western portion of WSMR. The red rio bombing range is approximately 9 miles long and 6 miles wide. The bombing range began operation in the early 1960's and is still in use. Both the Oscura and Red Rio sites are used by the U.S. Armed Services as tactical fighter aircraft air-to-ground gunnery strafing practice and

bombing ranges. The sites are used daily. Located on site are numerous practice targets consisting of decommissioned cars, trucks, planes, and helicopters.

AOC AF – Oscura Bombing Range

AOC AF is an active bombing range which is in the north-western portion of WSMR. The Oscura bombing range is approximately 10 miles long and 4 miles wide. The bombing range began operation in the early 1960's and is still in use. Both the Oscura and Red Rio sites are used by the U.S. Armed Services as tactical fighter aircraft air-to-ground gunnery strafing practice and bombing ranges. The sites are used daily. Located on site are numerous practice targets consisting of decommissioned cars, trucks, planes, and helicopters.

AOC AG – Main Post Skeet Range

AOC AG has been in use since 1975 and is currently active. The range is a recreational target practice area used for shot gun shooting and competitions. Its use over the decades has fluctuated from very light to moderate. The site is presumed to contain lead contamination from various shot gun ammunitions. The WSMR Skeet Range is located approximately 2 miles south of the Main Post. The range consists of a firing range (facility 1801) and supporting infrastructure (concrete firing pads, observation towers; facility 1800). Including the Surface Danger Zone (SDZ) the site is approximately 35 acres.

8.1.1 Hazardous Waste Management Unit Summaries

HELSTF Landfills (SWMUs 38 and 39)

SWMUs 38 and 39 consist of two construction landfills located east of the High Energy Laser Systems Test Facility (HELSTF). Both landfills were in operation from the early 1960s to 1989 and described as two unlined trenches approximately 300 feet x 50 feet x 8 feet. They reportedly received non-hazardous construction waste including wood, piping material, paper, and insulation. The landfills may have also received drummed soil from the SWMU 143 hexavalent chromium spill. The units are listed as LDU-6 and 9. Completion of the RFI for the site is required. Following investigation completion, closure and post-closure care will be conducted.

It is likely that the corrective measures objective will be to design and construct a 25-year life soil cover over SWMUs 38 and 39, primarily intended to promote positive drainage away from the landfill. Post-Closure Care may include semi-annual inspections of the soil landfill cap, fences, and groundwater monitoring wells; As-needed maintenance of the corrective measures; and annual groundwater monitoring. A Frequent Monitoring Report addressing post closure care activities will be submitted on an annual basis.

Oscura Munitions Landfill (SWMUs 41 through 46)

Oscura Bombing Range is located at the northeast corner of WSMR, west of Range Road 9 and north of Range Road 12. The bombing range is situated on the eastern flanks of the Oscura Mountains, west of the Malpais Lava Flow, and encompasses approximately 26,400 acres which are used as a target area for inert munitions drops from aircraft. The munitions burial area is about 4 miles west of Range Road 9 and 4 miles north of Range Road 12. Approximately 10 acres are included within the boundaries of the munitions burial site. The total area of the pits is approximately 1,000 feet by 1,000 feet. The pits are trench-like with approximate dimensions of 50 feet by 15 feet and reportedly 12 feet deep. Individual pits vary in size from 20 feet by 50 feet by ten feet to 30 feet by 75 feet by ten feet. Bounding the munitions burial area on the north and west sides are low berms that prevent the occurrence of sheet wash across the landfill cap from

surface run-off water. This burial site was used for the disposal of practice bombs after all spotting charges had been detonated. The exact nature of materials disposed and the dates of landfill operations are unknown. Reportedly, explosives were placed in a pit, then detonated and burned. After burning, the debris was covered with four inches of fill. The disposal operation was conducted in a progressive manner of layering until the pit was filled, at which time a new pit was started.

The bombing range is active and restoration activities are deferred for the landfill until after completion of training activities. It is likely that the corrective measures objective will be to design and construct a soil cover over the landfill, primarily intended to promote positive drainage away from the landfill. Post-Closure Care may include Semi-annual inspections of the soil landfill cap, fences, and groundwater monitoring wells; as-needed maintenance of the corrective measures; and annual groundwater monitoring. A Frequent Monitoring Report addressing post closure care activities will be submitted on an annual basis.

Red Rio Munitions Landfills (SWMU 50 and 155)

Red Rio Bombing Range encompasses approximately 29,500 acres near the northeast boundary of WSMR, approximately 140 miles northeast of the Main Post. The bombing range is currently used as a target area for munitions drops from aircraft. Two separate areas were reportedly used for munitions burial from 1963 until 1987. These sites are located along the unimproved access road connecting the Hunter's Lodge gate to the Red Rio mock runway. The northern munitions burial site is approximately 0.75 miles south of the gate, along the east side of the road. The southern munitions burial site is located along the west side of the Red Rio mock runway, approximately 2.25 miles south of the northern burial site. The dimensions of the Red Rio Range Landfills area are 1,000 feet by 1,000 feet. Individual burial pits reportedly may vary in size from 20 feet by 50 feet by ten feet to 30 feet by 75 feet by ten feet including layers of earth between the waste materials. Reportedly, munitions were collected and brought to the unit. A pile of the projectiles would be placed in an open pit, detonated and burned. Following this, the residue was buried with four inches of fill material.

The bombing range is active and restoration activities are deferred for the landfill until after completion of training activities. It is likely that the corrective measures objective will be to design and construct a soil cover over the landfill, primarily intended to promote positive drainage away from the landfill. Post-Closure Care may include Semi-annual inspections of the soil landfill cap, fences, and groundwater monitoring wells; as-needed maintenance of the corrective measures; and annual groundwater monitoring. A Frequent Monitoring Report addressing post closure care activities will be submitted on an annual basis.

Open Burn/Open Detonation at the Hazardous Test Area (SWMUs 55, 56, and 56A)

SWMUs 55, 56, and 56A were the OB/OD site within the Hazardous Test Area (HTA) and are in the southwest portion of WSMR, approximately 5 miles north of U.S. Highway 70, and 10 miles north of the WSMR Main Post area. The HTA covers approximately 18 square miles and is surrounded by the San Augustin Mountains to the west, Mineral and Antelope Hills to the south, Bear Peak and Black Mountain to the north, and the Tularosa Basin to the east. The OB/OD site is in the northwestern corner of the HTA. The OB/OD site consisted of two open detonation pits (SWMUs 56 and 56A) and a burn pan (SWMU 55). The detonation pits were constructed in 1953 and used primarily for controlled destruction of primary and secondary explosives, low explosives, propellants, explosive ingredients of propellants, propellant compositions, powders, and smokes. The two areas measured approximately 100 feet by 180 feet (west pit) and 170 feet by 180 feet (east pit). The east pit operated as the primary treatment pit; the west pit, which operated as the secondary pit, was used less frequently. The burn pan was constructed in the mid-1980s and was

used for burning non-explosives such as solid and liquid propellants. The pan measured approximately 5 feet wide by 10 feet long by 1 foot deep and was constructed of .25-inch-thick steel and lined with firebricks. Groundwater analytical data indicates three contaminant plumes are commingled over the downgradient area. The contaminants of concern (COCs) include explosives (specifically RDX), perchlorate, and nitrate plus nitrite.

The two adjacent prepared pits were treated as a single thermal treatment unit under permit number NM275021123OB/OD. The New Mexico Environment Department (NMED), in a 12 January 2000 letter, instructed WSMR to cease using the unit by 31 Dec 2000. The last detonation at the OD pits occurred on 30 Nov 2000. The partial closure of OB/OD was completed, according to the provision of the closure plan, under the operating permit. Closure activities were performed in 2001. WSMR submitted a closure certification to NMED on 4 November 2002. Completion of site remediation consisting of groundwater remediation is required for the site. WSMR is looking at effectiveness of in situ enhanced bioremediation (ISEB) to reduce concentrations of the primary constituents of concern (COCs)—perchlorate, RDX, and nitrate—present in groundwater at the site. Post Closure Care may consist of the operation and maintenance of the system to keep it operating under peak conditions, and treatment performance monitoring.

Tula Peak Burial Sites and Incinerator (SWMUs 57 and 61)

Tula Peak Ordnance Disposal Site consisted of bomblet burial areas (pits) and an incinerator. The SWMUs are located near the eastern boundary of WSMR, approximately 10 miles west of the town of Tularosa, New Mexico, and 2 miles north of Tula Peak. The site is an approximately 12-acre area that contained an incinerator (a modified shell of an old boiler) and several former disposal pits. The incinerator was used to thermally treat ordnance prior to disposal. SWMU 57 was originally divided into SWMUs 57-60 but were administratively combined. These SWMU pits are designated as RCRA Subpart X units. SWMU 61 was an ordnance incinerator located on site to the east of the Unexploded Ordnance (UXO) burial areas. The start date of the unit is unknown. Operations at the site ended in 1988. Cluster bomb units and other small ordnance were placed in the incinerator as part of an ordnance disposal procedure. Additionally, miscellaneous aircraft and missile parts were present in the pits prior to removal.

Closure activities were completed at the site in 2018 with approval of the closure report achieved in December 2018. Post-closure care activities may consist of performing annual site inspections with UXO surveys, maintenance of site access controls and semiannual groundwater monitoring at four existing site monitoring wells. Groundwater monitoring will be performed semiannually for 2 years. If perchlorate concentrations remain stable and below the applicable groundwater screening levels, groundwater monitoring will be terminated. A Frequent Monitoring Report addressing post closure care activities will be submitted on an annual basis. SWMU 61 (former ordnance incinerator) was approved for clean closure in March 2018.

Former Main Post Landfill #3 at Scrapyard (SWMU 65)

SWMU 65, Former Main Post Landfill Number # 3, is an approximately 49-acre site located in the southeast portion of WSMR Main Post. In the north-south direction, the landfill measures approximately 1,700 feet long and 1,000 feet wide in the east-west direction. Trench sizes were reportedly 600 to 800 feet long, 10 to 12 feet deep, and 30 to 40 feet wide. The landfill was reportedly used to dispose of sanitary waste materials generated at WSMR. The northern portion of the site was also used as a scrap metal accumulation area, referred to as the Former Scrap Yard. Based on a review of the available records and historical aerial photographs, the landfill was in operation possibly as early as 1961. The landfill stopped receiving sanitary wastes in 1982. Historical information about landfill design, construction, or operating procedures is not available.

Scrap metal continued to be accumulated at the site for sorting and resale from the 1970s until the late 1990s. All scrap from the yard has since been removed.

Completion of the RFI for the site is required. Following investigation completion, closure and post-closure care will be conducted. The corrective measures objective is to design and construct a 25-year life soil cover over SWMU 65, primarily intended to promote positive drainage away from the landfill. Post-Closure Care may include semi-annual inspections of the soil landfill cap, fences, and groundwater monitoring wells; As- needed maintenance of the corrective measures; and annual groundwater monitoring. A Frequent Monitoring Report addressing post closure care activities will be submitted on an annual basis.

Former STP Ditches (SWMU 82)

The SWMU 82 site is located approximately 3 miles east of the WSMR Main Post in the southwestern corner of the installation. WSMR headquarters and most installation support activities are located at the WSMR Main Post area. The area encompasses the former WSMR Sewage Treatment Plant (STP) effluent drainage ditches and impoundment areas, the Main Post landfill (MPL), and undeveloped desert land surrounding these sites. Land near the SWMU 82 site has been minimally developed, with land use consisting of industrial and military use from the 1950s to the present. The area is unpaved with site features that include the percolation ditches, unpaved roads, and impoundment berms. The Former STP Percolation Ditches are two subparallel earthen ditches that begin at the former STP effluent head gates and end at the former unlined earthen impoundment area. The impoundment area is a natural topographic low with a road and berms providing barriers to surface drainage flow. The ditches remain intact and are approximately 1,500 and 1,700 feet long, respectively.

The SWMU 82 site was used to support STP operations beginning in the 1950s following construction of the current STP. The area served as a discharge point for treated sewage effluent from 1957 to 1986. During the initial period of operation from 1957 to 1967, effluent was discharged to the ground surface and allowed to drain naturally. In 1967, the Former STP Percolation Ditches were constructed to channel effluent to an impoundment area located to the east. Treated effluent from the STP was discharged into the percolation ditches and drained to the impoundment area. Discharge from the STP to the Former STP Percolation Ditches ceased in 1986 after a pipeline was constructed to convey effluent to the Davies Tank area.

Contaminant releases occurred at the site when photochemical wastes were discharged in the STP effluent. Site groundwater was contaminated with cyanide and nitrate due to the infiltration of sewage effluent as part of historical site operations.

Closure activities at SWMU 82 have been completed and approved in accordance with the closure plan dated September 2016. Proposed Post Closure Care activities may include the installation of additional monitoring wells to include interface wells and nested wells at the interface, mid-level, and deep level. The groundwater monitoring wells will be installed in accordance with the approved Closure Plan. Collection of groundwater samples from newly installed wells are additionally proposed post well installation, and a groundwater monitoring program will be implemented for post-closure care. Post-closure care will consist of continued groundwater monitoring to evaluate changes in the cyanide and nitrate plumes for the remedy of natural attenuation (no action with monitoring). A Frequent Monitoring Report addressing post closure care activities will be submitted on an annual basis.

Former Acid Neutralization Unit at Waste Storage Facility (SWMU 89)

The tank formerly consisted of an aboveground, open-topped, 21 foot long by 21 foot wide by 18 inch high, epoxy-coated double-walled concrete tank that was used to evaporate liquid chemical wastes generated at photographic laboratories. The unit was also occasionally used as a storage pad for damaged transformers containing polychlorinated biphenyls (PCBs). In 1981, the unit was converted to a loading dock by extending its walls to 4 feet high, filling it with clean fill dirt, and installing a reinforced concrete cap/seal over the structure. The exact date of construction of Evaporation Tank No. S-22896 was unknown, but the tank was reportedly operated for 10 to 15 years from the late 1960s until 1981, when it was converted to the loading dock. The tank was used to evaporate liquid chemical wastes generated at WSMR photographic laboratories. The wastes included potassium ferricyanide, potassium ferrocyanide, waste bleach solution, and soil contaminated with methylene chloride. Remediation activities were conducted in 2012 which included demolition of the loading dock and evaporation tank, and contaminated soil removal.

Closure activities consist of an investigation to evaluate the extent of potential cyanide contaminated soil at SWMU 89 through the collection and analysis of additional surface and subsurface soil samples, and, if needed, excavation of cyanide contaminated soil that exceeds the NMED risk-based soil screening level (RSSL). The soil samples will be analyzed for cyanide, which is the remaining contaminant of potential concern. Excavations will be backfilled with clean soil. Additional depth to groundwater measurements will be made in nearby monitoring wells to resolve uncertainties regarding groundwater flow direction and additional groundwater sampling will be conducted. NMED approved the clean closure report, the clean closure certification, and survey plat in 2023.

Liquid Propellant Evaporation Neutralization Pits (SWMUs 92A/B through 100)

The 63-acre Liquid Propellant Storage Area (LPSA) is located approximately three miles east of the Main Post area, south of Route 2. Ten Evaporation/Neutralization Pits, SWMUs 92A/B through 100, were constructed in the mid- to late 1950s at the LPSA and present on site until 1995. Each SWMU was an unlined earthen pit, which was approximately 20 feet in diameter and 10 feet deep, that provided secondary containment for a specific product storage area (i.e., a storage pad or building). In the event of a spill in a storage area, the associated pit would collect the spilled material via a drain and pipe leading from the storage area. The pits were associated with storage areas that contained Inhibited Red Fuming Nitric Acid (IRFNA); liquid propellants such as monomethyl hydrazine (MMH), unsymmetrical dimethyl hydrazine (UDMH), and ammonia; and petroleum, oil, and lubricants (POLs). The pit associated with the IRFNA tanks was covered with a layer of lime. In the event of a spill, the acid would be flushed to the pit with water and neutralized as it percolated through the lime layer.

In 1995, the pits underwent a removal action and materials associated with the drain lines were characterized and disposed of. The activities included plugging storage area drains, removing piping, collection of confirmatory soil samples from pipe trenches, backfilling pipe trenches and pits with soil and disposal of pipe materials and impacted soils encountered.

Closure activities consisted of completion of soil background study, soil sampling for contaminants of concern at each pit and survey of the location and ground surface elevation of each soil boring. NMED approved the revised clean closure report in 2021. NMED approved the clean closure certification and survey plat in 2024.

Acid Neutralization Pit (SWMU 101)

SWMU 101 is approximately 3.5 miles east of the WSMR Main Post in the southwestern corner of the installation. The study area encompasses the former acid neutralization pit and undeveloped desert land surrounding the site. The area is unpaved, without structures, and

surrounded by a barbed wire fence. From 1958 to approximately 1984, SWMU 101 was used for the disposal of up to 200 gallons of spent red fuming nitric acid once per year. The spent red fuming nitric acid was discharged into the pit that was lined with either lime or soda ash and allowed to infiltrate; the spent red fuming nitric acid was neutralized during infiltration. The Acid Neutralization Pit was an approximately 100 feet long, 50 feet wide, and 6 to 8 feet deep. A constructed liner was not present in the pit.

A Phase I closure plan for site investigation was approved by NMED and work completed in 2018. The Phase I closure report was approved in April 2019. NMED approved the clean closure certification and survey plat in 2024.

Discharge Pipe at the TTF (SWMU 106)

This is a six-inch cast iron pipe which drains wastewater and condensate from TTF to the Evaporation Tank (SWMU 105). The pipeline is approximately 300 feet long and does not connect directly to the tank. The level of the tank is slightly below the lower end of the pipeline which extends over the side wall of the tank. Liquid flowing from the pipe would freefall about four feet into the tank. Wastewater/condensate collected in the drains and sumps inside the TTF process area and from the test chambers discharges to the Evaporation Tank via this pipe. The pipe was installed in 1987 and is still in use.

This site is currently active and is deferred. Following completion of use, closure and post-closure care (if warranted) will be required.

HELSTF Cleaning Facility Sump (SWMU 142)

The sump is located in the Pre-Clean Room of the High Energy Laser Systems Test Facility Cleaning Facility that was used for general cleaning of parts and materials including degreasing, rust-stripping, and intermediate cleanings with caustics and acids. Solvents that were previously used included MEK, acetone, Freon 113, TCE, and TCA. Rinsate solutions and by-products (used solvents) from cleaning activities accumulated in the sump via a floor trench in the Pre-Clean Room. Operation of the sump began in 1982 and concluded in 1989 when a leak from the sump was discovered. The leak has led to a solvent contaminant plume that is currently mixed with diesel fuel from the SWMU 154 diesel spill. The cleaning facility is still in use at this time however it no longer uses the solvents that were attributed to the subsurface contamination. Construction details of the sump are unknown.

Completion of the RFI for the site is required. Following investigation completion, closure and potentially post-closure care will be conducted.

8.2 Closure Plan Submittal Schedule

Table 8-4
Closure Plan Submittal Schedule

Unit ID Number and Description	Due Date
Closure Plan for the Former Oscura Range Landfill (SWMU 158)	Clean Closure Complete
Closure Plan for the Tula Peak Burial Sites and Incinerator (SWMUs 57 and 61)	Submitted February 2008
Post Closure care plan of the OB/OD at the HTA (SWMUs 55, 56, and 56A)	Submitted January 2011
Closure Plan for the Former STP Ditches (SWMU 82)	Submitted July 2011
Closure Plan for the Former Main Post Landfill #3 at Scrap Yard (SWMU 65)	Submitted December 2010
Closure Plan for the Discharge Pipe at TTF (SWMU 106)	Deferred, Active
Closure Plan for the HELSTF Landfills (SWMUs 38 and 39)	Submitted June 2011
Closure Plan for the HELSTF Cleaning Facility Sump (SWMU 142)	December 2035.
Closure Plan for the Acid Neutralization Pit (SWMU 101)	Clean Closure Complete
Closure Plan for the Liquid Propellant Evaporation/Neutralization Pits (SWMUs 92A, 92B, and 93 - 100)	Clean Closure Complete
Closure Plan for the Former Acid Neutralization Unit at the HWSF (SWM 89)	Clean Closure Complete
Closure Plan for the Red Rio Munitions Landfills (SWMUs 50 and 155)	Deferred. Active
Closure Plan for Oscura Munitions Landfills (SWMUs 41 - 46)	Deferred. Active