

FACT SHEET/STATEMENT OF BASIS

Notice of Intent to Approve a Class 3 Permit Modification to Grant Corrective Action Complete Status for Five Solid Waste Management Units Listed in the RCRA Hazardous Waste Permit and a Class 1 Modification to Acknowledge Work Completed for SWMUs in Permit Table 8-2

RCRA Permit Number NM2750211235

**White Sands Missile Range
November 2015**

Fact Sheet / Statement of Basis

Notice of Intent to Approve a Class 3 Permit Modification to Grant Corrective Action Complete Status for Five Solid Waste Management Units Listed in the RCRA Hazardous Waste Permit and a Class 1 Modification to Acknowledge Work Completed for SWMUs in Permit Table 8-2

RCRA Permit Number NM2750211235

Under the authority of the New Mexico Hazardous Waste Act (Section 74-4-1 *et seq.*, New Mexico Statutes Annotated (NMSA) 1978, as amended, 1992) and the New Mexico Hazardous Waste Management Regulations (20.4.1 [New Mexico Administrative Code] NMAC), the New Mexico Environment Department (NMED) intends to approve, pending public input into this decision, a Class 3 permit modification request (PMR) received from White Sands Missile Range (WSMR or the Permittee) for the 2009 RCRA Hazardous Waste Permit, effective December 2009, (Permit) pursuant to 20.4.1.900 NMAC (incorporating 40 CFR 270.42(c)). NMED also plans to approve a Class 1 Permit modification requests to modify the requirement for release assessments for several solid waste management units (SWMUs) in Table 8-2 of the Permit in accordance with 20.4.1.900 NMAC (incorporating 40 CFR 270.42(a)).

If approved, the proposed modifications would grant Corrective Action Complete (CAC) status for five Solid Waste Management Units (SWMU) listed in the Permit. Currently, Table 4-1 in Permit Appendix 4 lists SWMUs and Areas of Concern (AOCs) where corrective action is required to characterize and remediate as necessary past releases of hazardous wastes or hazardous constituents. If this modification is approved by NMED, SWMU 21, SWMU 107, SWMU 140, SWMU 156, and SWMU 163 will be transferred from Appendix 4, Table 4-1 to Appendix 4, Table 4-3 that lists SWMUs and AOCs with the status of Corrective Action Complete Without Controls.

Additionally, if approved the proposed modification would modify Table 8-2 (SWMUs & AOCs Requiring Corrective Action) to indicate that Release Assessment requirements have been met for SWMUs 116 (Rhodes Canyon Subgrade Asphalt Tanks), 125 and 126 (Veterinary Clinic and McAfee Clinic Incinerators), 137 (Paint Shop Sump), and 153 (Vandal Burial Site). Currently Table 8-2 requires Release Assessments for these SWMUs; however, since the Permit was issued, the Permittee conducted investigations at all of the SWMUs. If this modification is approved, Table 8-2 will be updated to indicate that SWMUs 116, 125, 126, 137, and 153 have met the requirements for Release Assessments.

Section 1. Facility Description

WSMR is a United States Army Installation Management Command (IMCOM) Installation established in 1945. WSMR is the largest land area military installation in the United States, encompassing approximately 3,200 square miles of land in Doña Ana, Socorro, Lincoln, Otero, and Sierra Counties in south-central New Mexico. The installation is approximately 99 miles long (north to south) and 25 to 40 miles wide (east to west). WSMR was established on July 9, 1945, as White Sands Proving Ground (the name was changed in 1958) to be the nation's testing range for the newly developed missile weapons. WSMR is located in the Tularosa Basin of south-

central New Mexico, and portions of WSMR extend west into the Jornada del Muerto Basin. The headquarters (Main Post) area of WSMR is located at the southwestern corner of the installation, approximately 27 miles east-northeast of Las Cruces, New Mexico, and 45 miles north of El Paso, Texas. The main entrance to WSMR is on U.S. Highway 70, east from Interstate 25 at Exit 6.

Section 2. History of Investigation

The Permit requires investigation of SWMUs and AOCs listed in Appendix 4, Table 4-1. Section 9 of this fact sheet briefly describes the location, history, evaluation of relevant information, and the basis for determination for each of the SWMUs proposed for corrective action complete. More detailed descriptions of the SWMUs can be found in the permit modification request submitted by the Permittee and the references listed at the end of this fact sheet, which constitute the administrative record for this action.

The following sites are the subject of the proposed permit modifications:

SWMU	Description in Permit
Corrective Action Complete without Controls	
21	Main Post Former Fire Fighter Training Area
107	Temperature Test Facility Evaporation Tank
140	LC-37 Paint Dump (also identified as WSMR-84
156	Pesticide Storage Shed at Main Post Golf Course
163	Commissary Landfill Trench
Release Assessment Report No Longer Required	
116	Rhodes Canyon Subgrade Asphalt Tanks
125 and 126	Veterinary Clinic and McAffee Clinic Incinerators
137	Paint Shop Sump
153	Vandal Burial Site

Section 3. Administrative Record

The Administrative Record for this proposed action consists of the Fact Sheet/Statement of Basis, the Public Notice, and the December 2009 RCRA Permit that contains Appendix 4, and the following Class 3 Permit Modification Requests (PMR): *Corrective Action Complete Petition without Controls, Petition to Perform Class III Modifications to Change the Status of Solid Waste Management Unit 140 from Corrective Action Required to Corrective Action Complete without Controls*, dated September 2014; *Corrective Action Complete Proposals SWMU 107, 121 Through 123, 156, and 163*, dated January 2013 (note that WSMR formally removed SWMUs 121-123 from the PMR in a letter dated April 2014) ; and *Corrective Action Complete Proposal Petition to Perform Class III Modifications to Change the Status of Solid Waste Management Unit 21 from Corrective Action Required to Corrective Action Complete without Controls*, dated April 2014.

The Administrative Record may be reviewed at the following location during the public comment period:

NMED – Hazardous Waste Bureau
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303
(505) 476-6000
Monday - Friday from 8:00 a.m. to 5:00 p.m.

To obtain a copy of the Administrative Record of a portion thereof, in addition to further information please contact Ms. Pamela Allen at (505) 476-6064, or at the address provided above. NMED will provide requested copies, or portions thereof, of the administrative record at a cost to the requestor.

Section 4. Public Participation

Public meetings were arranged by the Permittee and held over several dates at the Thomas Branigan Memorial Public Library in Las Cruces, NM (SWMU 21 held June 26, 2012; SWMU 140 held February 19, 2014; SWMUs 107, 121 through 123, 156, and 163 held August 1, 2012), in accordance with 20.4.1.900 NMAC as part of the Permittee's 60-day public comment period on the PMR required by the regulations at 40 CFR §270.42(c)(5). NMED did not receive any comments from the public during the comment period provided by the Permittee.

NMED issued a public notice on **November 19, 2015** to announce the beginning of a 60-day comment period that will end at 5:00 p.m. **January 17, 2016**. Any person who wishes to comment on this action or request a public hearing should submit written or electronic mail (e-mail) comments with the commenter's name and address to the physical or e-mail address listed below. Only comments or requests received on or before 5:00 p.m. **January 17, 2016** will be considered.

Dave Cobrain, Program Manager
Hazardous Waste Bureau - New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505-6303
Or via e-mail: dave.cobrain@state.nm.us
Ref: WSMR Class 1 and WSMR Class 3 Permit Modification Requests

Written comments must be based on the Administrative Record. Documents in the Administrative Record need not be re-submitted if expressly referenced by the commenter. Requests for a public hearing shall provide: (1) a clear and concise factual statement of the nature and scope of the interest of the person requesting the hearing; (2) the name and address of all persons whom the requestor represents; (3) a statement of any objections to the proposed action, including specific references; and (4) a statement of the issues which such persons propose to raise for consideration at the hearing. Written comments and requests for Public Hearing must be filed with Mr. Dave Cobrain on or before 5:00 p.m. January 17, 2016. NMED will provide a thirty (30) day notice of a public hearing, if scheduled. The final decision will become affective thirty (30) days after service of the decision unless an alternate date is specified.

Section 5. Next Steps

After consideration of all public comments received, NMED will issue a final decision that will approve, modify or deny the request. If NMED modifies or denies the request, NMED will provide written justification for the decision to the Permittee by mail. NMED will make the final decision publicly available and will notify the Permittee and each person who submitted written comments of the final decision. The final decision will constitute a final agency decision and may be appealed as provided in the Hazardous Waste Act.

Section 6. Contact Person for Additional Information

For additional information, contact the following individual:

Dave Cobrain, Program Manager
Hazardous Waste Bureau - New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505-6303
Telephone: (505) 476-6000
Fax: (505) 476-6030
e-mail: dave.cobrain@state.nm.us

Section 7. Arrangements for Persons with Disabilities

If any person requires assistance, an interpreter or auxiliary aid to participate in this process, please contact Juan-Carlos Borrego at the NMED Human Resources Bureau, Room S-4303, 1190 St. Francis Drive, P.O. Box 5469, Santa Fe, New Mexico 87502. Mr. Borrego's telephone number is 505-827-0424. TDY users please access Mr. Borrego's number through the New Mexico Relay Network at 1-800-659-8331.

Section 8. Class 1 Permit Modification

This modification affirms that the Permittee met release assessment requirements in Table 8-2 for SWMUs 116 (Rhodes Canyon Subgrade Asphalt Tanks), 125 and 126 (Veterinary Clinic and McAfee Clinic Incinerators), 137 (Paint Shop Sump), and 153 (Vandal Burial Site). The SWMUs are listed in Permit Table 8-2 as requiring Release Assessments; however, the Permittee proposed and conducted investigation activities approved by NMED at these sites. This work meets the requirement to conduct release assessments. Therefore, the requirements for release assessments in Table 8-2 are removed for these SWMUs.

The following are an outline of the corrective action work completed to date at the SWMUs:

- The Permittee conducted investigations at SWMU 116 based on an approval with modifications of the work plan (WSMR, February 2011; NMED, June 2012). The RFI Report (WSMR, March 2013) was approved by NMED in October 2014 (NMED, October 2014). The Permittee submitted a Final Accelerated Corrective Action Work Plan (WSMR, May 2014), which NMED approved (NMED, August 2014).
- The Permittee conducted an investigation of SWMUs 125 and 126 based on a Work Plan (WSMR, November 2011) approved by NMED (NMED, June 2012). The RFI Report (WSMR, January 2013) was approved by NMED (NMED, February 2014).

- The Permittee investigated SWMU 137 in accordance with the NMED approved work plan (WSMR, January 2011; NMED August 2011). The Investigation Report (WSMR, May 2012) was approved by NMED in August 2014.
- SWMU 153 was investigated based on a work plan (WSMR January 2011) approved by NMED (NMED April 2012). The Permittee submitted the Investigation Report (WSMR December 2012), which was approved by NMED (NMED December 2014).

Section 9. Descriptions of SWMUs Proposed for CAC without Controls

9.A SWMU 21, Former Fire Fighter Training Area Location

SWMU 21, Former Fire Fighter Training Area (FFTA) is located immediately south of the WSMR Main Post. The site is located approximately 250 feet south of Martin Luther King Boulevard (formerly Raritan Avenue), near the intersection with Headquarters Avenue (Figure 1-1).

9.A.i History

The Former FFTA operated from the 1960s until 1982. The RCRA Facility Assessment (RFA) consisted of a search of the WSMR records of hazardous waste-related activity at SWMU 21. No records were found; however, several heavily-stained areas on the ground of greater than four feet in diameter were noted in RFA Report (AT Kearney, 1988). Training for the WSMR Fire Department involved the release and ignition of petroleum-based fuels. Petroleum-based fuels were ignited to simulate fire emergencies. Two aboveground storage tanks (ASTs) at the site reportedly held waste jet fuel and diesel fuel. One partially buried tank on the eastern boundary of the property was reportedly used as a holding tank for water (IT Corporation, 1992a). After the Former FFTA was deactivated by the WSMR environmental office in 1982, an excavation was conducted that extended to a depth of 8 feet below ground surface (bgs); however, contaminated soil was apparently used to backfill the excavation (Dow Environmental, 1997). Through five phases of investigation and corrective action activities, the Permittee addressed total petroleum hydrocarbons (TPH) and metals contamination at SWMU 21. Contaminated soil was removed from the site and confirmation sampling demonstrates that the residual contamination is less than NMED's residential soil screening levels (SSLs).

9.A.ii Evaluation of Investigation Results

The Phase I investigation, conducted in 1991, consisted of six soil borings and a soil vapor study (SVS). Sampling locations and the analytical results are available in the *Final RCRA Facility Investigation Report, Appendix I Sites, White Sands Missile Range, New Mexico, Volume 1* (IT Corporation 1992a). TPH was detected in all of the soil samples and lead was detected above the EPA Regional Soil Screening Levels (RSSLs) in several near-surface samples. The SVS indicated elevated VOCs and carbon dioxide in subsurface soils south of the ASTs.

A second phase of investigation was conducted in 1993. The Phase II investigation consisted of 17 soil borings. The sampling locations and analytical results are available in the *Phase-II RCRA Facility Assessment, Appendix I, II, III, IV Sites, White Sands Missile Range, New Mexico, Revision 1* (Sverdrup Environmental, Inc. [Sverdrup], 1994). After the investigation, the extent of the contamination was assumed to be limited to the area around the ASTs and the upper 1 foot

of soil in a portion of the site. The report recommended soil excavation and removal of the tanks.

WSMR conducted a site close-out in 1996 which included excavation of a 50 foot by 50 foot area down to a depth of 1 foot. Confirmation sampling results are available in the *Close-Out Report, SWMU-21, Former Fire Fighting Training Area* (Dow Environmental, 1997). Waste characterization samples of the excavated soil demonstrated that the soils in all but one of the roll-off containers could be returned to the excavation.

After submitting the Phase II RCRA Facility Assessment and Site Close-Out Reports, the Permittee submitted a petition for a Class 3 modification to remove the site from the Permit (MEVATEC, 2000a). The NMED responded that the petition was administratively incomplete and that “excavated soil returned to the pit. Need a final RFI report including an ecological risk assessment. The report must show that the soil was clean before it was returned to the pit” (NMED, 2002).

The Permittee then conducted a Phase III investigation in 2005 to delineate the extent of possible contamination from the backfilled soil. Three boreholes were advanced to collect samples of the backfill; the results are presented in the *Phase III RFI Report, Main Post Multiple Sites SWMUs 8-17, 21, 22, 80, 140, and 156* (WTS, 2006).

A Voluntary Corrective Measure (VCM) was also conducted in 2005. The VCM results are included within the Phase III Report. Approximately 180 cubic yards of soil was excavated. After confirmation sample results demonstrated that the site contamination was addressed, the excavation was backfilled with clean soil. NMED approved the Phase III Report with conditions requiring the provision of Exposure Point Calculations (EPC) at the site. WSMR responded to these comments in a letter dated April 14, 2014 (WSMR, 2014) explaining that the results from the Phase III RFI were no longer representative of current conditions and instead confirmation sample results from the VCM in December 2005 were used to calculate the new EPCs; the EPCs were provided as part of the response.

9.A.iii Basis of Determination

Soil excavations and the placement of clean fill at the site addressed all contamination. The SWMU has been characterized or remediated in accordance with current applicable state and/or federal regulations, and the available data indicate that any remaining contaminants pose an acceptable level of risk under the residential land use scenario. The SWMU meets the criteria for corrective action complete without controls.

9.B SWMU 140, LC-37 Paint Dump Location

SWMU 140, the Former LC-37 Paint Dump, is located approximately 12 miles east of the Main Post and 1.8 miles north of Nike Road (Range Road 2) (Figures 2-1 and 2-2).

9.B.i History

SWMU 140 was an open trench, 8-foot-deep and approximately 70 feet long by 35 feet wide. The trench was rimmed on its north side by a soil berm. The trench was constructed as an unlined excavation; construction debris was deposited in the trench and left uncovered (WTS, 2006). The dates of operation for SWMU 140 are unknown. SWMU 140 contained paint and

solvent cans, construction debris, several wooden pallets, wire, and two empty 55-gallon drums (one drum was labeled as “Flashograph Fixer Liquid” the other drum was unlabelled). In 2000, WSMR submitted a petition for corrective action complete (MEVATEC Corporation, 2000b) which NMED denied in October 2000 (NMED, 2000) stating that analytical data summary tables provided for the SWMUs were incomplete. NMED also stated that a background soil study may be needed, if lead and/or arsenic were detected at concentrations above the NMED residential SSLs after soil excavation (NMED, 2002). Further phases of investigation (Phase II, Site Close-Out, and Phase III) and a soil background study were subsequently conducted.

Two soil background studies were conducted: one in 2003 which was not approved by NMED (NMED, 2007) and one in 2013 (Shaw, 2013), which was approved by NMED (NMED, 2014). Details of the Soil Background Study may be found in the Soil Background Study Report (Shaw, 2013). The soil background study provides both the actual concentration of elements in the soil samples as well as the statistical distributions of the elements in the soil samples collected at SWMU 140 (Shaw, 2013). Arsenic is the only analyte for which the soil background screening level at SWMU 140 exceeds the NMED residential SSL of 3.9 mg/kg (NMED 2012 SSL).

9.B.ii Evaluation of Investigation Results

The first investigation conducted at SWMU 140 consisted of a visual site survey of debris in the trench and collection of surface soil samples within the trench. Figures and analytical results are included in the *Final RCRA Facility Investigation Report, Appendix II, III, and IV Sites, White Sands Missile Range, New Mexico, Volume 1* (IT Corporation, 1992b) Report. The sample results were compared to the 2012 NMED residential SSLs and the site-specific soil background value established by the Soil Background Study (Shaw, 2013) as provided in Table 2-1 of the CAC Petition (Shaw, 2014). The Phase I Report concluded that no release had occurred and recommended that the debris be removed from the trench and the trench backfilled.

The Phase II RFI included four hand auger borings inside the trench and four 20-foot borings outside the trench. Figures of the boring locations and the analytical results are available in the *Phase-II RCRA Facility Assessment, Appendix I, II, III, IV Sites, White Sands Missile Range, New Mexico, Revision 1* (Sverdrup, 1994) Report. One sample inside the trench contained a lead concentration above EPA HHMSSLs; however, it was noted during collection that there were visible, glassy paint shards in the soil sample. Arsenic also exceeded the NMED residential SSL; however, based on the background screening levels established in the *Soil Background Study Report* (Shaw, 2013), the arsenic levels are below background screening levels. A table listing the analytical results compared to the Background Study is available in the CAC Petition. The Phase II RFI recommended that a Corrective Measure Study be performed to evaluate the proper removal and disposal of the contents inside the trench and the top 1 foot of soil (Sverdrup, 1994). NMED approved the Phase II RFI report (NMED, 1996).

In December 1994 as part of a site Close-Out all debris from the trench was removed and six shallow soil samples were collected from one foot below ground surface (bgs) of the trench floor (Dow, 1996). No debris containers were observed to have spilled product onto the floor of the trench. Analytical results are available in the *Close Out Report, SWMU 80 - Dried Sludge Piles, SWMU 90 - Waste Accumulation Area, SWMU 140 - LC 37 Paint Dump, SWMU 153 - Vandal Site at Hazardous Test Area, SWMU 156 - Pesticide Shed at WSMR Golf Course, White Sands Missile Range, New Mexico* (Dow, 1996) Report. In 1995, the trench was backfilled with native

soil from the trench berm and contoured to the surrounding terrain. The Close-out Report recommended that WSMR apply for site closure for SWMU 140. In January 2000, WSMR submitted a no further action petition to NMED (MEVATEC Corporation, 2000); however, NMED denied the petition in October 2000 (NMED, 2000) and stated that analytical data summary tables provided for the SWMU were incomplete and a final RFI report including results from the confirmation sampling and ecological risk assessment was required. NMED also stated that a background soil study could be needed if lead and/or arsenic were detected at concentrations above the NMED residential SSLs after soil excavation (NMED, 2002b).

A Phase III RFI was completed in 2005 and consisted of the collection of confirmation soil samples, a Screening Level Ecological Risk Assessment (SLERA) and a screening level human health risk assessment. Three confirmation soil borings were advanced. Soil samples were collected from each boring at depths of 8 to 10 feet bgs. Soil sample locations are available in the *Phase III RFI Report, Main Post Multiple Sites SWMUs 8-17, 21, 22, 80, 140, and 156 (IRP Sites WSMRs 30-33, 36, 57, 60, 73, 74, 79, and 84)* (WTS, 2006). Table 2-4 in the CAC Petition summarizes the analytical results from the Phase III RFI report compared to 2012 NMED residential SSLs and the background values established by the Soil Background Study Report (Shaw, 2013). NMED approved the Phase III RFI report (NMED, 2008).

Based on the lead result in the Phase II RFI that exceeded the NMED residential SSL of 400 mg/kg a screening for human exposure to lead was conducted in 2014. The Integrated Exposure Uptake Biokinetic (IEUBK) Lead Model for children (EPA, 1994, 2002b, 2003, 2010) was used to assess the lead exposure and hazard based on a conservative estimate of the average lead concentrations. The exceedance likely does not exceed the threshold criteria, so the hazard is acceptable.

9.B.iii Basis of Determination

SWMU 140 is recommended for CAC without Controls based on the following criteria:

- Debris was removed from the trench and the trench was backfilled;
- Site-specific statistical results from the Soil Background Study (Shaw, 2013) at SWMU 140 indicate that concentrations of arsenic in soil samples from previous investigations are within natural background levels for SWMU 140. Based on the background study conducted in 2012, concentrations of arsenic occur naturally at levels greater than the NMED residential SSLs in site-specific background samples. Although many arsenic concentrations at SWMU 140 are above the NMED residential SSL of 3.9 mg/kg, no additional corrective action is recommended for SWMU 140 because arsenic concentrations are below background concentrations (EPA, 2002a);
- The conclusion of the screening level human health risk assessment indicates that the only other constituent of concern that exceeded NMED residential SSLs in a soil sample other than arsenic, is lead. A lead concentration of 674 mg/kg was found in one sample during the Phase II RFI. However, this result was determined to not be an exposure hazard for human health because lead exposure is more appropriately assessed using a conservative estimate of the arithmetic average concentration for the site. The estimated

95% UCL EPC for lead at the site was 183 mg/kg. This value is well below the NMED residential SSL of 400 mg/kg, and when used as input to EPA's IEUBK Model for Children, resulted in an acceptable blood lead level. Therefore, lead concentrations are not a risk to human health.

9.C SWMU 107, Temperature Test Facility (TTF) Evaporation Tank Location

The TTF is located 1.5 miles east of the Main Post on Nike Avenue (Figures 3-1 and 3-2); SWMU 107 was an evaporation tank that was installed within the former TTF Evaporation Pond (SWMU 104). The evaporation tank (SWMU 107) had a capacity of 25,000 gallons and was installed to store any overflow from the TTF (AT Kearney, 1988). SWMU 107 is no longer present at the site and SWMU 104 was remediated and covered with an engineered cap (MEVATEC, 2000a).

9.C.i History

The TTF was designed to simulate extreme weather conditions by inducing a wide range of temperature and climatic variations. The facility consisted of a main test building, several underground storage tanks with ancillary piping, and a surface evaporation pond (MEVATEC, 2000a). The TTF complex was completed in early 1984. Methylene chloride was used to cool the test chamber and was recycled via underground storage tanks. The TTF was designed so that floor drains collected wastewater which was then discharged to the evaporation pond. Before construction was completed, in 1983, methylene chloride was flushed from the TTF to the evaporation pond due to leaks within the system. In 1985 it was discovered that the methylene chloride eroded the polyvinyl chloride liner in the evaporation pond and allowed the methylene chloride to leak to the subsurface (MEVATEC, 2000a). Standing liquid in the pond was collected, placed into drums, and transferred to the Hazardous Waste Storage Facility. SWMU 107 consisted of a 25,000 gallon, closed, steel, cylindrical tank horizontally mounted on a concrete pad inside the former evaporation pond. The evaporation tank was used prior to the construction of a 220,000 gallon stainless steel evaporation tank (SWMU 105). In 1990 an impermeable, engineered cap was installed that covered the soil contamination beneath the evaporation pond and in the surrounding area (MEVATEC, 2000a). Before installing the cap, SWMU 107 was decontaminated, dismantled, and removed (MEVATEC 2000a). The contaminated soil beneath the evaporation pond was not excavated.

9.C.ii Evaluation of Investigation Results

WSMR performed a voluntary corrective action (VCA) at SWMU 107. Tank decontamination and closure were selected as the remedy (MEVATEC, 2000a). The decision was based on several factors: an engineered cap was to be constructed over the former evaporation pond (SWMU 104) and in order to construct the cap, removal of SWMU 107 was necessary (MEVATEC, 2000a).

The tank was dismantled, decontaminated and removed. The tank interior was decontaminated using hot steam and water with low-suds, biodegradable soap in four successive cycles. After removal, the tank was disposed of (MEVATEC Report, 2000a).

A records search found no documented evidence of a release, previous sampling activities had not been conducted at SWMU 107 but no evidence of a release was observed during the visual site

inspection (AT Kearney, 1988). The field notes indicated that no cracks or deficiencies were visually observed in the tank wall. Rinsate samples were collected to evaluate the effectiveness of the tank-cleaning process (MEVATEC 2000a).

The rinsate sample collected from SWMU 107 did not detect any analytes except for toluene at 3.8 milligrams per liter (mg/L). However, this rinsate sample was collected after the first wash/rinse cycle. The tank was then rinsed with clean water four additional times. The results are available in the *Decision Document for the Temperature Test Facility, 25,000 Gallon Evaporation Tank, SWMU 107, White Sands Missile Range, New Mexico* Report (MEVATEC 2000a).

Sampling at SWMU 107 did not include collection of confirmatory soil samples, because the tank did not exhibit any evidence of leaks and because clean closure of SWMU 104 consisted of a cap over the entire area (BAE Systems, 2003).

9.C.iii Basis of Determination

Tank decontamination and removal eliminated any potential for a release from SWMU 107 and eliminated any risk to human health or the environment. The SWMU meets the requirements for corrective action complete without controls.

9.D SWMU 156, Pesticide Storage Shed

Building T-1348 (SWMU 156) was located at the Main Post Golf Course approximately 1,000 feet southeast of the Officer's Club (Figures 3-1 and 3-2). It was removed in 1996 during voluntary corrective action (VCA) activities. The pesticide storage shed was a metal building with wooden plank flooring which was set on a concrete foundation measuring 20 feet by 50 feet. Subsequent to site sampling, the building and foundation were removed and the site was graded to conform to the golf course topography (WTS, 2006).

9.D.i History

Building T-1348 (the Pesticide Storage Shed/SWMU 156) was used for over 30 years to store pesticides, fungicides, and pesticide equipment. The site was inactive by the time the Phase I RFI was conducted in 1992 (WTS, 2006). The investigations indicated the presence of pesticides and herbicides in site soil; however, the pesticide and herbicide compounds were detected at concentrations below the NMED residential SSLs. Based upon these results, WSMR elected to perform a VCA to remove the storage shed and excavate 2 feet of soil (WTS, 2006).

Five phases of investigation were conducted at SWMU 156: Phase I, Phase II, VCA, Phase III, and Phase IV. The pesticide storage shed was removed, soil was excavated and the site was backfilled and graded. Confirmation soil sample results collected from the former shed footprint indicated that no leachable contamination was left on site (Dow Environmental, Inc. [Dow], 1996). A Screening Level Ecological Risk Assessment (SLERA) was performed as part of the Phase III RFI, at the request of the NMED. The results of the SLERA indicated that a full ecological risk assessment was not warranted (WTS, 2006).

9.D.ii Evaluation of Investigation Results

The Phase I RFI was conducted in 1992. The contractor reported that "no visual evidence, odor,

or photoionization detector readings indicated contamination” (IT Corporation, 1992). The investigation included ten soil samples collected from five shallow borings located within the storage shed foot print. The sampling locations and analytical results are available in the IT Corporation, 1992b, *Final RCRA Facility Investigation Report, Appendix II, III, and IV Sites, White Sands Missile Range, New Mexico, Volume 1*, (IT Corporation, 1992) Report. None of the constituents were detected at concentrations above their relevant EPA HHMSSSLs. The Phase I RFI concluded that the data did not indicate a significant release to the subsurface or migration of contaminants. However, it also concluded that the detected constituent concentrations beneath the storage shed and possibly in the wooden floor could pose a hazard to children or adolescents if the building were used as a place to congregate or play and recommended removal of the building, excavation of soil to a depth of 1 foot, proper disposal of all generated waste, and re-grading of the area (IT Corporation, 1992).

Additional soil samples were collected during the 1994 Phase II RFI. Eleven five-foot hand-auger borings were installed beneath the floor of the shed. Soil sampling locations and analytical results are presented in the *Phase-II RCRA Facility Assessment, Appendix I, II, III, IV Sites* (Sverdrup, 1994) Report. The Phase II RFI report recommended no further investigation (Sverdrup, 1994). In a letter dated September 4, 1996, the NMED “approve[d] the investigative data within the Phase II RFI Report” (NMED, 1996).

WSMR performed a VCA in 1995. The concrete pad, wooden floor, plastic cover, and 2 feet of soil from the building footprint were removed and disposed in the WSMR landfill. The excavated area was contoured to match the surrounding area (Dow, 1996). During the VCA, pre-excavation samples were collected. Analytical results are available in the VCA Report. Following excavation of approximately 2 feet of soil, three confirmation soil samples were collected as shown in the in Dow Report Confirmation sample results are summarized in the *Close Out Report, SWMU-21, Former Fire Fighting Training Area*.

After submitting the Phase II RFI report and completing the VCA the Permittee submitted a Petition for a Class 3 Permit Modification in 2000 (MEVATEC, 2000b). The NMED responded in a letter dated March 11, 2002 that the petition was administratively incomplete (NMED, 2002). Site-specific comments regarding SWMU 156 stated, “Phase I [and] II RFIs shows no HWCs [hazardous waste constituents] above NMSSSLs – no significant contamination from this unit” (NMED, 2002). However, the NMED required that WSMR submit an ecological risk assessment.

As part of the Phase III RFI, WSMR performed a risk assessment (WTS, 2006). The SLERA found no sensitive environmental areas within 3 miles of the site and determined that the site does not serve as a habitat or foraging area for endangered or rare species of plants or animals (WTS, 2006). The SLERA indicated that a complete exposure pathway for SWMU 156 does not exist, and a full ecological risk assessment was not warranted. The NMED approved the Phase III RFI in a letter dated November 7, 2008 (NMED, 2008).

9.D.iii Basis of Determination

Soil sampling results from the Phase II RFI report, prior to soil excavation and removal, were below the NMED residential SSLs. WSMR performed a VCA by removing and disposing of the pesticide storage shed, floor, and foundation, which eliminated the contaminant source. As part of

the VCA, the soil beneath the pesticide storage shed was excavated and disposed. No COCs are present at concentrations that present an unacceptable risk to human health or the environment; therefore, this SWMU meets the requirements for corrective action complete without controls.

9.E SWMU 163, Commissary Landfill Trench Location

SWMU 163, the Commissary Landfill Trench, is located on Picatinny Avenue, approximately one-quarter mile west of Headquarters Avenue at the WSMR Main Post, 27 miles east-northeast of Las Cruces, New Mexico (Figures 3-1 and 3-2).

9.E.i History

During the construction of a new WSMR commissary in 1994, an old, inactive landfill was discovered. Little is known about the landfill; however, it is estimated that the landfill operated between 1946 and 1952 (ASI, 1994a and 1994b). To allow construction of the commissary to proceed, the landfill was investigated to determine the extent and waste type, excavated to remove the waste and stained soil, sampled to confirm waste removal, and backfilled with clean fill prior to facility construction (ASI, 1994a). The former trench is now partially covered with asphalt (Figure 3-8).

9.E.ii Evaluation of Investigation Results

Soil sampling was first conducted in 1994. A total of eight soil samples were collected. The analytical results are summarized in *Commissary Landfill Trench Sampling at White Sands Missile Range, New Mexico* Report (ASI, 1994a). NMED notes that the soil samples were collected improperly; however, because VOCs are not constituents of concern at the site and confirmation samples were collected after excavation, the results are considered acceptable for screening purposes.

WSMR prepared and implemented a voluntary corrective action (VCA) plan to excavate, remove, and dispose of contaminated soil (ASI, 1994b). The landfill material was excavated and placed into roll-off containers. Confirmatory soil samples were collected. Waste characterization samples were collected from the excavated landfill material in the roll-off containers to determine the appropriate disposition. A representative from the NMED Hazardous and Radioactive Materials Bureau observed the sampling event and collected split samples. Soil samples were collected from various locations to determine whether the soil contained any hazardous constituents; however, the sampling locations were not documented.

Twenty-two confirmation soil samples were collected; sidewall samples were each located 1 foot above the trench floor. Samples from the trench floor were located on the bottom of the trench at a distance of 1 foot from the sidewall. Confirmation soil sampling showed that none of the analytical results for metals exceed the NMED 2012 residential SSLs (ASI, 1994b).

9.E.iii Basis of Determination

On the basis of the investigation and the VCA performed, which eliminated the potential for exposure to human health and the environment, a determination of CAC without controls is recommended for the following reasons:

- The initial investigation and characterization event indicated that only lead was a constituent of concern. All other detected constituent concentrations were less than the

NMED 2012 Residential SSLs.

- Landfill material and contaminated soil was excavated and disposed.
- Based on confirmation samples no COCs are present above NMED 2012 Residential SSLs.
- Currently the site is under asphalt pavement.

References

Advanced Sciences Inc. (ASI), 1993, *Final Closure Report for the Storage Tank Removal and Remediation at Stallion Range Center, White Sands Missile Range, New Mexico*, Contract No. DAAD07-90-C-0018, Work Assignment Order 400-11, Revision 4 and 5, August 30, 1993.

Advanced Sciences, Inc. (ASI), 1994a, *Commissary Landfill Trench Sampling at White Sands Missile Range, New Mexico*, Contract No. DAAD07-90-C0018, Work Assignment Order 600-11, October.

Advanced Sciences, Inc. (ASI), 1994b, *Commissary Landfill Trench Excavation Material Sampling at White Sands Missile Range, New Mexico*, Contract No. DAAD07-90-C0018, Work Assignment Order 600-11, December.

ASI, see Advanced Sciences, Inc.

BAE Systems, 2003, *RCRA Permit Modification Application for Post-Closure Care: TTF Disposal Surface Impoundment (SWMU 104), Permit Number NM2750211235-PCC, White Sands Missile Range, NM*, Report WS-ES-EC-0309.

Chicago Bridge & Iron (CB&I), 2013, *Final 2012 Long Term Monitoring Report, Multiple Sites: SWMUs 50, 155, 114, 115, 41-46, 143, 198, 154, 55, 56, 56a, 82, 197, 47, 48, 61, 38, 39 and 65, White Sands Missile Range, New Mexico*, July 2013.

Dow Environmental, Inc. (Dow), 1996, *Close Out Report, SWMU 80 - Dried Sludge Piles, SWMU 90 - Waste Accumulation Area, SWMU 140 - LC 37 Paint Dump, SWMU 153 - Vandal Site at Hazardous Test Area, SWMU 156 - Pesticide Shed at WSMR Golf Course, White Sands Missile Range, New Mexico*, USACE Contract DACA56-93-D-0016, DEI Project No. 6015.

Dow Environmental, 1997, *Close Out Report, SWMU-21, Former Fire Fighting Training Area, White Sands Missile, New Mexico*, USACE Contract DACA56-93-D-0016, Project No. 6015, January.

IT Corporation, 1992a, *Final RCRA Facility Investigation Report, Appendix I Sites, White Sands Missile Range, New Mexico, Volume I*, USACE, Huntsville, Alabama, Contract No. DACA 8790-D-0015, Delivery Order 0001, Project No. 421552, March.

IT Corporation, 1992b, *Final RCRA Facility Investigation Report, Appendix II, III, and IV Sites, White Sands Missile Range, New Mexico, Volume I*, USACE, Huntsville, Alabama, Contract No. DACA 8790-D-0015, Delivery Order 002, Project No. 42-1671, December.

Kelly, T.E., and G.A. Hearne, 1976, *The Effects of Groundwater Development on the Water Supply in the Post Headquarters Area, White Sands Missile Range, New Mexico*, USGS Open File Report 76-277, U.S. Geological Survey.

Kearney, A.T., 1988, *RCRA Facility Assessment Preliminary Review/Visual Site Inspection Report, White Sands Missile Range*, USEPA Contract No. 68-01-7374, prepared for the U.S. Environmental Protection Agency Region VI, August.

MEVATEC Corporation (MEVATEC), 1995, *SWMU Inventory Report*, White Sands Missile Range, Contract No. DAAD07-95-C-0125.

MEVATEC, 2000, *Petition to Perform Class III Modifications to Remove Solid Waste Management Units 8, 9, 12, 13, 14, 15, 21, 22, 145, 147 and 148*, White Sands Missile Range, New Mexico, January.

MEVATEC Corporation, 2000, *Petition To Perform Class 3 Modifications to Remove Solid Waste Management Units 10, 11, 16, 17, 19, 20, 80, 132, 140, 150, and 156 from the White Sands Missile Range RCRA Part B Permit, HSWA Module, Identification Number NM2750211235*, January.

MEVATEC Corporation (MEVATEC), 2000, *Decision Document for the Temperature Test Facility, 25,000 Gallon Evaporation Tank, SWMU 107, White Sands Missile Range, New Mexico*.

New Mexico Environment Department (NMED), 1995, Letter from M. Leavitt, Chief of the Ground Water Protection and Remediation Bureau, New Mexico Environment Department, to Brigadier General J.L. Laws, Commander, U.S. Army White Sands Missile Range, *RE: Approval of Corrective Action at the Commissary Landfill Site*, February 16.

New Mexico Environment Department (NMED), 1996, Letter from E. Kelley, Ph.D., Director, Water and Waste Management Division, New Mexico Environment Department, to T.A. Ladd, Director, Directorate of the Environment and Safety, White Sands Missile Range, *RE: Phase IIRCRA Facility Investigation (RFI) Report for Appendix I, II, III, and IV Sites, dated December 1994*, letter with attachment, September 4.

New Mexico Environment Department, 1998, *HRMB Standard Operating Procedures Manual, Volume 1*, New Mexico Environment Department, Santa Fe, New Mexico. New Mexico Environment Department (NMED), 2002, Letter from C. Frischkorn, WSMR Project Manager, Permits Management Program, New Mexico Environment Department, to T.A. Ladd, Director, Environment and Safety Directorate, White Sands Missile Range, *RE: Three (3) Petitions for Class III Modifications (January 2000 / HWBWSMR-99-004), (September 2000 / HWB-WSMR-01-007), and (JUNE 2000 / HWB-WSMR-99-009), White Sands Missile Range, EPA ID No. NM2750211235*, letter with attachments, March 11.

New Mexico Environment Department (NMED), 2000, Letter from J. Kieling, Program Manager, Permits Management Program, New Mexico Environment Department, to T.A. Ladd, Director, Environment and Safety Directorate, White Sands Missile Range, *RE: Notice of Initial Review, Petition to Perform Class 3 Modifications to Remove Solid Waste Management Units 10, 11, 16, 17, 19, 20, 80, 132, 140, 150, and 156 from the White Sands Missile Range Part-B Permit, Identification #NM2750211235*, January 2000.

New Mexico Environment Department (NMED), 2002, Letter from C. Frischkorn, WSMR Project Manager, Permits Management Program, New Mexico Environment Department, to T.A.

Ladd, Director, Environment and Safety Directorate, White Sands Missile Range, *RE: Three (3) Petitions for Class 3 Modifications (January 2000 / HWBWSMR-99-004), (September 2000 / HWB-WSMR-01-007), and (JUNE 2000 / HWB-WSMR-99-009), White Sands Missile Range, EPA ID No. NM2750211235*, letter with attachments, March 11.

New Mexico Environment Department (NMED), 2006, Letter from J. Bearzi, Chief of Hazardous Waste Bureau, New Mexico Environment Department, to T.A. Ladd, Director, Environment and Safety Directorate, White Sands Missile Range, *RE: Notice of Deficiency, Phase III RCRA Facility Investigation Report, Main Post Multiple Sites (SWMUs 8-17, 21, 22, 80, 140, and 156), White Sands Missile Range, EPA ID No. NM2750211235, HWBWSMR-06-003*, December 8.

New Mexico Environment Department (NMED), 2007, *Response to Notice of Deficiency, Final Background Soils, RCRA Facility Investigation Report for the Main Post*, White Sands Missile Range, New Mexico, EPA ID No. NM2750211235, January 24.

New Mexico Environment Department (NMED), 2008, Letter from J. Kieling, Program Manager, Permits Management Program, New Mexico Environment Department, to T.A. Ladd, Director, Environment and Safety Directorate, White Sands Missile Range, *RE: Approval with Conditions, Phase III RCRA Facility Investigation (RFI) Report Main Post Multiple Sites (SWMUs 8-17, 21, 22, 80, 140, and 156), White Sands Missile Range, EPA ID No. NM2750211235, HWB-WSMR-06-003*, November 7.

New Mexico Environment Department (NMED), 2009, *Resource Conservation and Recovery Act Permit EPA ID No. NM 2750211235 to U.S. Department of Army for White Sands Missile Range Located in Doña Ana, Lincoln, Otero, Sierra and Socorro Counties, New Mexico*, Hazardous Waste Bureau, New Mexico Environment Department, Santa Fe, NM, December 3, 2009.

New Mexico Environment Department (NMED), 2011; *Approval with Modifications Subsurface Soil Investigation Work Plan SWMU 137, Paint Shop Sump*; August 2011.

New Mexico Environment Department (NMED), 2012a, *Risk Assessment Guidance for Site Investigation and Remediation, Volume I, Tier 1: Soil Screening Guidance Technical Background Document*, Tables 6-2 and A-1, New Mexico Environment Department., Hazardous Waste Bureau and Ground Water Quality Bureau, Santa Fe, NM, February 2012.

New Mexico Environment Department (NMED), 2012b, *Risk Assessment Guidance for Site Investigations and Remediation, Volume I, Section 6.0*, New Mexico Environment Department, Santa Fe, New Mexico, February.

New Mexico Environment Department (NMED), 2012c, *Technical Background Document for Development of Soil Screening Levels, Revision 5.0*, Voluntary Remediation Program, Table A 1, Hazardous Waste Bureau and Ground Water Quality Bureau, Santa Fe, New Mexico, June.

New Mexico Environment Department (NMED), 2012d, *Approval with Modifications RFI Work*

Plan SWMU 116, Subgrade Tanks at Rhodes Canyon; June 2012.

New Mexico Environment Department (NMED), 2012; *Approval with Modifications RFI Work Plan SWMUs 125 and 126, Veterinary Clinic and McAfee Clinic Incinerators, June 2012.*

New Mexico Environment Department, 2012; *Approval with Modifications RFI Work Plan SWMU 153 Vandal Burial Site; April 2012.*

New Mexico Environment Department (NMED), 2013, *Disapproval Release Assessment Report, SWMUs 107, 116, 117, 118, 121, 122, 123, 125, 126, 137, 153, 163, EPA ID# NM2750211235 to US Department of Army for White Sands Missile Range, New Mexico, Hazardous Waste Bureau, New Mexico Environment Department, Santa Fe, NM, August 28, 2013.*

New Mexico Environment Department (NMED), 2014. *Approval with Modifications Revised Soil Background Study Report Solid Waste Management Unit 80, Sewage Treatment Plant Sludge Waste Pile, Solid Waste Management Units 12, 14, 16, 17, 21, and 22, Main Post Sites, and Solid Waste Management Unit 140, Former LC-37 Paint Dump; to U.S. Army White Sands Missile Range; February.*

New Mexico Environment Department (NMED), 2014; *Approval with Modifications Final RFI Report SWMU 125 and 126; February 2014.*

New Mexico Environment Department (NMED), 2014; *Approval Final Accelerated Corrective Action Work Plan SWMU 116, Subgrade Tanks at Rhodes Canyon, August 2014.*

New Mexico Environment Department (NMED), 2014; *Approval Final RCRA Facility Investigation Report, SWMU 137 Paint Shop Sump, August 2014.*

New Mexico Environment Department (NMED), 2014; *Approval RFI Report SWMU 116 Subgrade Tanks at Rhodes Canyon; October 2014.*

New Mexico Environment Department (NMED), 2014; *Approval with Modifications Revised RFI Report SWMU 153 Former Vandal Burial Site; December 2014.*

White Sands Missile Range (WSMR), 2011; *Subsurface Soil Investigation Work Plan for the Paint Shop Sump; January 2011.*

NMED, see New Mexico Environment Department.

Shaw, see Shaw Environmental, Inc.

Shaw Environmental, Inc. (Shaw), 2011, *Soil Background Study Work Plan SWMU 80, Sewage Treatment Plant Sludge Waste Pile (WSMR-30), SWMUs 12, 14, 16, 17, 21 and 22, Main Post Sites (WSMR-60, WSMR-33, WSMR-79, WSMR-73, WSMR-31, and WSMR-32), and SWMU 140, Former LC-37 Paint Dump (WSMR-84), October.*

Shaw Environmental, Inc. (Shaw), 2013, *Soil Background Study Report (Revised Final), SWMU*

80, *Sewage Treatment Plant Sludge Waste Pile (WSMR-30), SWMUs 12, 14, 16, 17, 21, and 22, Main Post Sites, (and SWMU 140, Former LC-37 Paint Dump)*, September, prepared for U.S. Army Corps of Engineers, Tulsa District.

Shaw Environmental, Inc. (Shaw), 2013 *Corrective Action Complete Proposals SWMU 107, 121 Through 123, 156, and 163*, January.

Shaw Environmental, Inc. (Shaw), 2014 *Corrective Action Complete Petition without Controls, Petition to Perform Class III Modifications to Change the Status of Solid Waste Management Unit 140 from Corrective Action Required to Corrective Action Complete without Controls*, September.

Shaw Environmental, Inc. (Shaw), 2014 *Request to Remove SWMUs 121-123 from PMR* letter dated April 28.

Shaw Environmental, Inc. (Shaw), 2014 *Corrective Action Complete Proposal Petition to Perform Class III Modifications to Change the Status of Solid Waste Management Unit 21 from Corrective Action Required to Corrective Action Complete without Controls*, April.

Sverdrup Environmental, Inc. (Sverdrup), 1994, *Phase-II RCRA Facility Assessment, Appendix I, II, III, IV Sites, White Sands Missile Range, New Mexico, Revision 1*, USACE, Tulsa District, Contract No DACA5693-D-0002/0001, prepared for U.S. Army Corps of Engineers, Tulsa District.

U.S. Environmental Protection Agency (EPA), 1994, *Guidance Manual for the Integrated Exposure Uptake Biokinetic (IEUBK) Model for Lead in Children*, Office of Soil Waste and Emergency Response, Publication 9385.7-15-1, U.S. Environmental Protection Agency, Washington, D.C., February, 1994.

U.S. Environmental Protection Agency (EPA), 1995, *Statement of Basis, Final Decision and Response to Comments Summary, U.S. Army White Sands Missile Range, New Mexico, Approval of the Class III Permit Modification Request to remove twenty-four (24) Solid Waste Management Units (SWMUs) from the Corrective Action Permit (EPA Identification Number NM2750211235)*, Region 6, New Mexico and Federal Facilities Section (6PD-N), U.S. Environmental Protection Agency.

U.S. Environmental Protection Agency (EPA), 2000, Letter from D. Neleigh, Chief, New Mexico and Federal Facilities Section (6PD-N), U.S. Environmental Protection Agency, to T.A. Ladd, Director, Environment and Safety Directorate, Department of the Army, U.S. Army White Sands Missile Range, *RE: Confirmation for EPA Approval of the Class III Permit Modification Request to remove twenty-four (24) Solid Waste Management Units (SWMUs) from the Corrective Action Permit (EPA Identification Number NM2750211235)*, April 28, 2000.

U.S. Environmental Protection Agency (EPA), 2002a, *Guidance for Comparing Background and Chemical Concentrations in Soil for CERCLA Sites*, EPA 540-R-01-003-OSWER 9285.7-41, U.S. Environmental Protection Agency, Washington, D.C., September, 2002.

U.S. Environmental Protection Agency (EPA), 2002b. User's Guide for the Integrated Exposure Uptake Biokinetic (IEUBK) Model for Lead in Children Windows® Version. EPA 9285.7-42. May, 2002.

U.S. Environmental Protection Agency (EPA), 2002c, *Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites*, OSWER 9285.6-10, U.S. Environmental Protection Agency, Washington, D.C., December, 2002.

U.S. Environmental Protection Agency (EPA), 2003, *Determinants of Residential Lead Exposure*, EPA, U.S. Environmental Protection Agency, Washington, D.C., September 24, 2003.

U.S. Environmental Protection Agency (EPA), 2007, *Estimating the Soil Lead Concentration Term for the Integrated Exposure Uptake Biokinetic (IEUBK) Model*, Short Sheet, OSWER Directive 9200.1-78, Office of Soil Waste and Emergency Response, September, 2007.

U.S. Environmental Protection Agency (EPA), 2010. Integrated Exposure Uptake Biokinetic (IEUBK) Model for Lead in Children Windows® Version, (IEUBKwin v1.1 build 11). February, 2010.

U.S. Environmental Protection Agency (EPA), 2012, *Regional Screening Levels for Chemical Contaminants at Superfund Sites*, U.S. Environmental Protection Agency, Washington, D.C., November, 2012.

U.S. Environmental Protection Agency (EPA), 2013, *ProUCL Version 5.0.00, Technical Guide*, EPA/600/R-07/041, U.S. Environmental Protection Agency, Washington, D.C., September, 2013.

White Sands Missile Range (WSMR), 1989, *Temperature Test Facility Closure Plan*, White Sands Missile Range, New Mexico, May, 1989.

White Sands Missile Range (WSMR), 1990, *Temperature Test Facility Spill Site Closure*, White Sands Missile Range, New Mexico, October, 1990.

White Sands Missile Range (WSMR), 2008. *Response to the Approval with Conditions Letter for Phase III RCRA Facility Investigation Report, Main Post Multiple Sites (SWMUs 8-17, 21, 22, 80, 140, and 156)*, White Sands Missile Range, EPA ID No. NM2750211235, dated November 7, 2008.

White Sands Missile Range (WSMR), 2011; *RFI Work Plan for the Former Vandal Burial Site*; January 2011.

White Sands Missile Range (WSMR), 2011, *RFI Work Plan for the Subgrade Tanks at Rhodes Canyon*; February 2011.

White Sands Missile Range (WSMR), 2011; *Revised Final Work Plan for the Veterinary Clinic*

and McAfee Clinic Incinerators, November 2011.

White Sands Missile Range (WSMR), 2012; *Final Subsurface Soil Investigation Report, Paint Shop Sump*; May 2012.

White Sands Missile Range (WSMR), 2012; *Final RFI Report, SWMU 153 Vandal Burial Site*; December 2012.

White Sands Missile Range (WSMR), 2013; *Final RFI Report SWMUs 125-126, Former Veterinary Clinic and McAfee Clinic Incinerators*; January 2013.

White Sands Missile Range (WSMR), 2013; *RFI Report for the Rhodes Canyon Subgrade Tanks, SWMU 116*; March 2013.

White Sands Missile Range (WSMR), 2014; *Final Accelerated Corrective Action Work Plan SWMU 116, Subgrade Tanks at Rhodes Canyon*; May 2014.

White Sands Missile Range (WSMR), 2014, *Response to Comments for Notice of Deficiency, Phase III RCRA Facility Investigation Report, Main Post Multiple Sites (SWMUs 8-17, 21, 22, 80, 140, and 156)*, White Sands Missile Range, EPA ID No. NM2750211235, dated December 8, 2006.

White Sands Technical Services (WTS), LLC, 2006, *Phase III RFI Report, Main Post Multiple Sites SWMUs 8-17, 21, 22, 80, 140, and 156 (IRP Sites WSMRs 30-33, 36, 57, 60, 73, 74, 79, and 84)*, submitted to U.S. Army White Sands Missile Range, Directorate of Public Works – Environment Division, White Sands, New Mexico.

WTS, see White Sands Technical Services

FIGURES