
FACT SHEET / STATEMENT OF BASIS

Request for Corrective Action Complete Status for
Four Solid Waste Management Units

RCRA Permit Number NM9570024423

**KIRTLAND AIR FORCE
BASE NEW MEXICO**

December 2017

FACT SHEET / STATEMENT OF BASIS

PROPOSAL FOR CORRECTIVE ACTION COMPLETE FOR FOUR SOLID WASTE MANAGEMENT UNITS AT KIRTLAND AIR FORCE BASE

RCRA Permit No. NM9570024423

Under 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, incorporating the Resource Conservation and Recovery Act [RCRA] implementing regulations at 40 Code of Federal Regulations 260 through 272), the New Mexico Environment Department (NMED) can approve or deny hazardous waste permits, closure plans, permit modifications, and amendments. Under this authority, NMED intends to approve, pending public input into this decision, a Class 3 permit modification request (PMR) received from the United States Air Force Kirtland Air Force Base (Permittee) for the Hazardous Waste Permit (Permit) pursuant to 20.4.1.900 NMAC (incorporating 40 CFR § 270.42(c)).

If approved, the proposed modification would grant Corrective Action Complete (CAC) status for four Areas of Concern labeled as Solid Waste Management Units (SWMUs CW-571, OT-572, OT-573, and SS-575) at the Kirtland Air Force Base (KAFB) facility. Currently, Table I-3 in Permit Attachment I of KAFB's Resource Conservation and Recovery Act (RCRA) Permit lists SWMUs and AOCs at the KAFB facility where corrective action is necessary to characterize and remediate past releases of hazardous wastes or hazardous waste constituents. While the four sites are not listed in Table I-3, the historical use and environmental investigation of these sites prior to this PMR warrant the addition of the four sites to the KAFB Permit. If this modification is approved by NMED, SWMU SS-575 will be added to a new table, Table K-2 of Attachment K, that lists SWMUs and AOCs with the status of Corrective Action Complete with Controls. SWMUs CW-571, OT-572, and OT-573 would be added to Table K-1 of Attachment K that lists SWMUs and AOCs with the status of Corrective Action Complete without Controls. The four site locations are shown on Figure 1.

The Permittee is located at the following address: Kirtland Air Force Base, 2000 Wyoming Blvd. SE, Kirtland AFB, NM 87117-5000. The Permittee's primary contact for this action is Mr. Scott Clark, Environmental Restoration, 2000 Wyoming Blvd. SE, Kirtland AFB, NM 87117-5600.

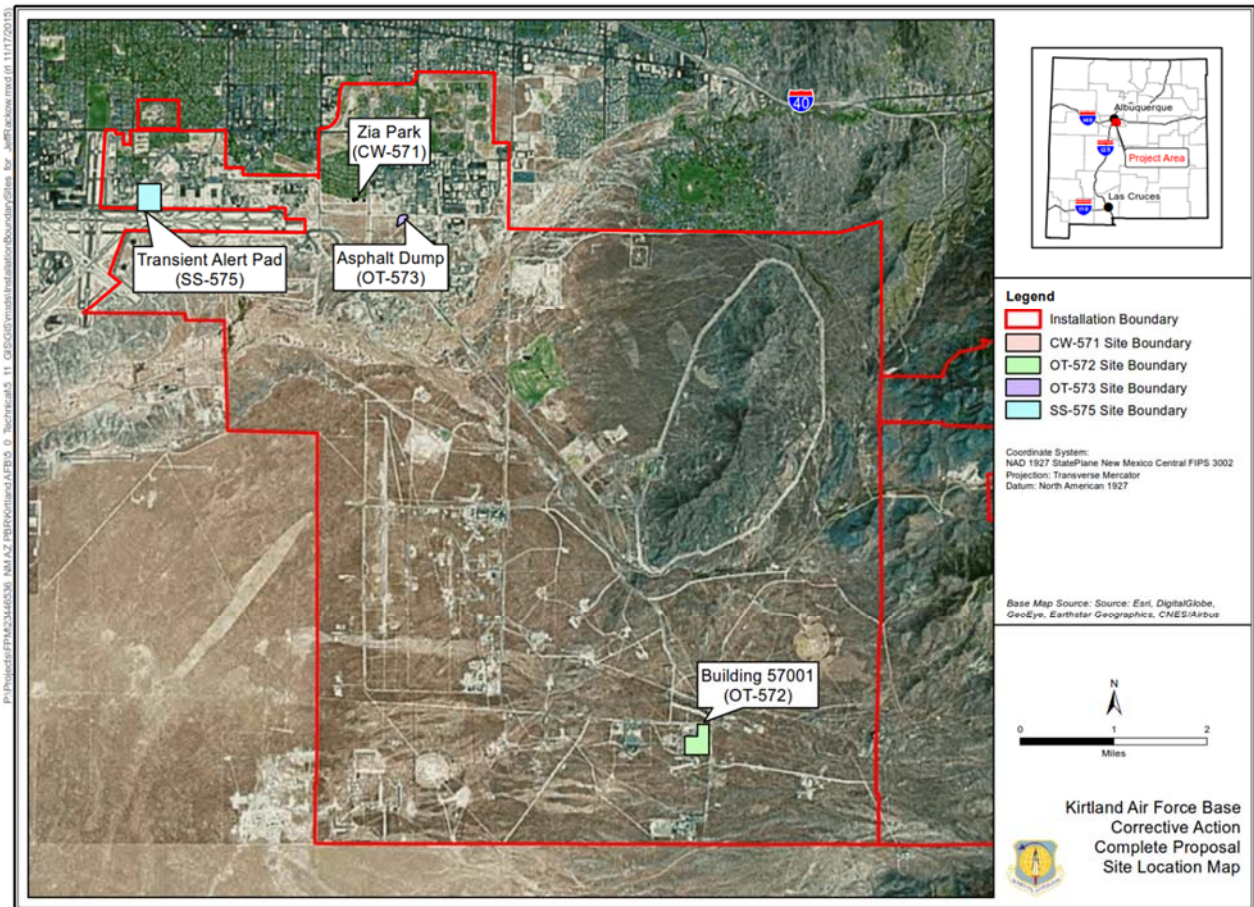


Figure 1. Site Location Map (USAF, 2016)

A. Facility Description

KAFB is located in Bernalillo County between the Sandia and Manzano mountain ranges in southeastern Albuquerque, New Mexico (Figure 1) and occupies approximately 51,558 acres (USAF, 2014c). It is home to the USAF Nuclear Weapons Center and its subordinate wings, the 498th Armament Systems Wing and the 377th Air Base Wing. KAFB also houses the following:

- Defense Threat Reduction Agency Albuquerque Office,
- Air Force Safety Center,
- Air Force Inspection Agency,
- Air Force Operational Test and Evaluation Center,
- 58th Special Operations Wing,
- Space Development and Test Wing,
- New Mexico Air National Guard 150th Fighter Wing,
- Directed Energy and Space Vehicle Directorates of the Air Force Research Laboratory,
- Department of Energy Albuquerque Office,
- National Nuclear Security Administration, and
- Sandia National Laboratory (SNL) (USAF, 2014c).

B. History of Investigation

NMED issued Attachment I as part of the KAFB RCRA Permit in June 2010. The KAFB RCRA Permit requires corrective action for SWMUs and AOCs listed in Table I-3 of Attachment I of the Permit. While the four sites are not listed in Table I-3, the historical use and environmental investigation of these sites conducted prior to this PMR warrant the addition of the four sites to the KAFB Permit. Sections I and J below briefly describe the locations, histories, evaluations of relevant information, and the basis for determination for the AOCs proposed for corrective action complete with and without controls, as appropriate. More detailed descriptions of the AOCs 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.

C. Administrative Record

The Administrative Record for this proposed action consists of the KAFB Fact Sheet/Statement of Basis, the Public Notice, and the June 2010 Permit that contains Tables I-3 and K-1, the Class 3 Permit Modification Request dated June 2016, the draft Permit that includes the proposed Tables I-3, K-1, and K-2. 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 87505-6313
(505) 476-6000
Monday - Friday from 8:00 a.m. to 5:00 p.m.

A copy of the Fact Sheet/Statement of Basis, the Public Notice, the June 2010 Permit that contains Table I-3 in Permit Attachment I and Table K-1 in Permit Attachment K, and the Class 3 Permit Modification Request dated June 2016 are also available electronically on the NMED website at: <https://www.env.nm.gov/hazardous-waste/kafb/>. To obtain a copy of the Administrative Record or a portion thereof, in addition to further information, contact Ms. Pam Allen at (505) 476-6064, or at the address given above. NMED will provide copies, or portions thereof, of the administrative record at a cost to the requestor.

D. Public Participation

A public meeting was held by the Permittee on July 21, 2016, at the Cesar Chavez Community Center, 7505 Kathryn SE, Albuquerque, NM 87108, in accordance with 20.4.1.900 NMAC as part of the Permittee's 60-day public comment period on the PMRs required by 40 CFR § 270.42(c)(5). NMED did not receive any comments from the public during the Permittee's comment period.

NMED issued Public Notice 17-013 on **December 21, 2017**, to announce the beginning of a 60-day comment period that will end at **5:00 p.m. MDT, February 19, 2018**. Any person who wishes to comment on this action or request a public hearing should submit written comments, by mail or electronic mail (e-mail), with the commenter's name and address to the physical or e-mail address below. Only comments and/or requests received on or before **5:00 p.m. MDT, February 19, 2018** will be considered.

Dave Cobrain, Program Manager
Hazardous Waste Bureau - New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505-6313
Or via e-mail: dave.cobrain@state.nm.us
Ref: Proposals for CAC for Four Sites at KAFB

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. MDT, February 19, 2018**. NMED will provide a thirty (30) day notice of a public hearing, if scheduled.

E. Next Steps

NMED will respond, in writing, to all comments received during the public comment period. NMED will notify the Permittee and each person on the facility mailing list of the final decision. The final decision will become effective 30 days after service of the decision to the Permittee unless a later date is specified by the Secretary as specified by New Mexico Hazardous Waste Regulations, 20.4.1.901.A(10) NMAC.

F. Contact Person for Additional Information

For additional information, contact:

Dave Cobrain, Program Manager
Hazardous Waste Bureau - New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505-6313
Telephone: (505) 476-6000
Fax: (505) 476-6030
e-mail: dave.cobrain@state.nm.us

G. Arrangements for Persons with Disabilities

Any person with a disability and requiring assistance or auxiliary aid to participate in this process should contact Donna Wright, New Mexico Environment Department, P.O. Box 5469, 1190 St. Francis Drive, Santa Fe, New Mexico, 87502-6110, (505) 827-9769. TDD or TDY users please access Ms. Wright's number via the New Mexico Relay Network at 1 (800) 659-8331.

H. Non-Discrimination Statement

NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the administration of its programs or activities, as required by applicable laws and regulations. NMED is responsible for coordination of compliance efforts and receipt of inquiries concerning non-discrimination requirements implemented by 40 C.F.R. Part 7, including Title VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972, and Section 13 of the Federal Water Pollution Control Act Amendments of 1972. If you have any questions about this notice or any of NMED's non-discrimination programs, policies or procedures, you may contact:

Kristine Pintado, Non-Discrimination Coordinator
New Mexico Environment Department
1190 St. Francis Dr., Suite N4050
P.O. Box 5469
Santa Fe, NM 87502
(505) 827-2855
NMED.NDC@state.nm.us

If you believe that you have been discriminated against with respect to a NMED program or activity, you may contact the Non-Discrimination Coordinator identified above or visit our website at <https://www.env.nm.gov/non-employee-discrimination-complaint-page/> to learn how and where to file a complaint of discrimination.

I. Description of AOCs and SWMUs Proposed for Corrective Action Complete with Controls

1. SWMU SS-575, Transient Alert Pad

SWMU SS-575 is a part of Pad B6 of Parking Apron D, a section of the Transient Alert Pad, which is located between Building 333 and Hangar 1000 on the west side of KAFB. On June 19, 2006, a disabled aircraft spilled an estimated 50 to 250 gallons of jet propellant grade 8 (JP-8) fuel. US Air Force (USAF) personnel used absorbent sheeting, mobile dikes, and spill socks to contain the spill. (Shaw, 2012b). According to the KAFB Environmental Program, the pad had been newly rebuilt in the early to mid-2000s, and fuel from the spill eroded the seams between the concrete pads. In the years following the spill, KAFB personnel reported observations of fuel floating up between seams and cracks in the concrete during heavy rainstorm events (USAF, 2014d). The location of SWMU SS-575 is shown in Figure 2.

History/Current and Anticipated Future Land Use

The *Final SWMU Assessment Report Transient Alert Pad (SS-C575), Kirtland Air Force Base, March 2012* (2012 SS-C575 SAR), states that KAFB personnel verified that there are no abandoned fuel lines crossing beneath the Transient Alert Pad. An abandoned 8-inch jet propellant grade 4 fuel-line (ST-108) is located southeast of Parking Apron D; however, it has not been in operation since the late 1980's when it was abandoned in-place. In 2004, KAFB cleaned the portion of ST-108 fuel line still in place to remove any remnant fuel in the line (Shaw, 2012b).

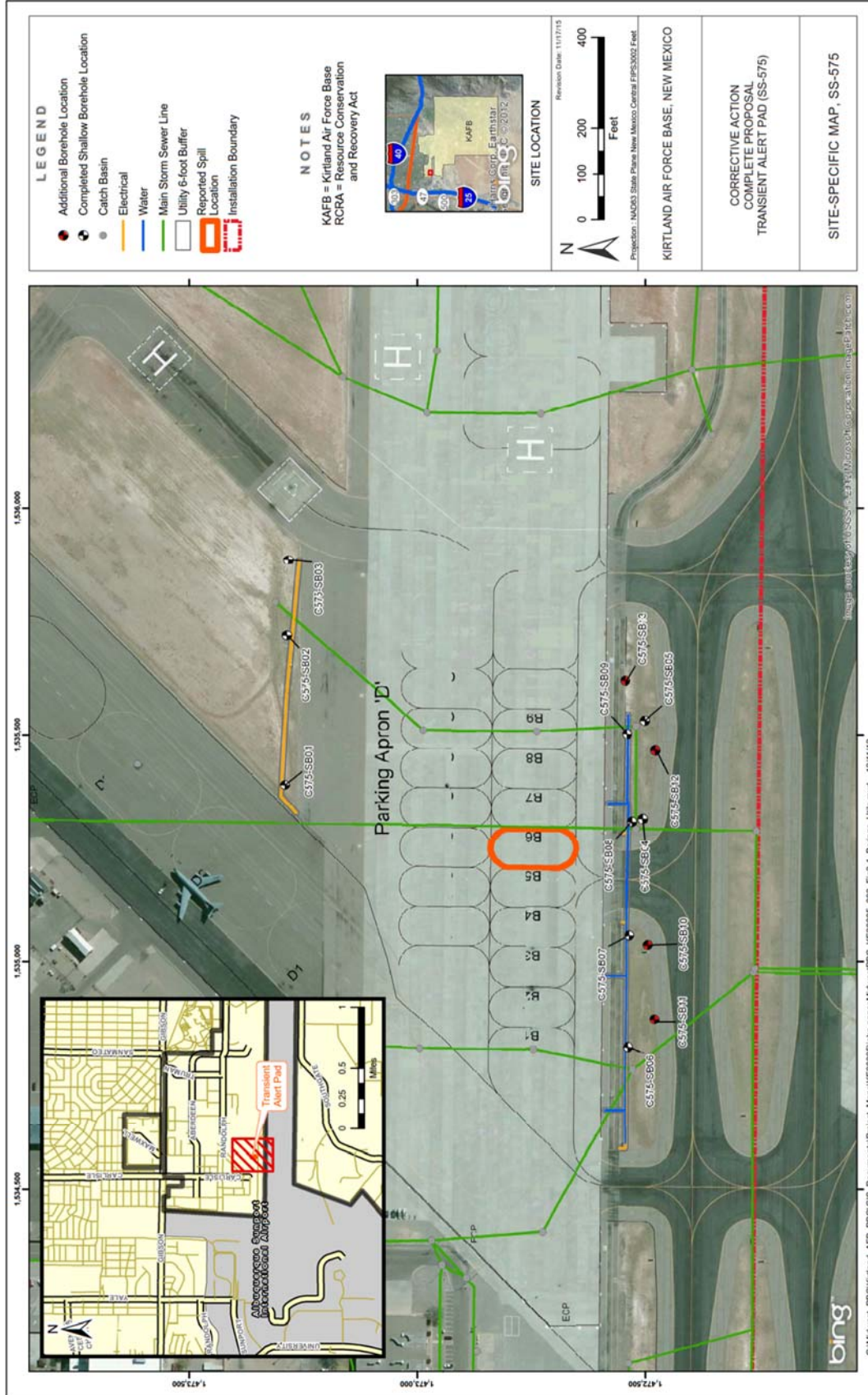


Figure 2. SWMU SS-575, Transient Alert Pad (USAF, 2014d)

The Transient Alert Pad and Parking Apron D are currently used for military aircraft moving to and from the runway and for parking aircraft and helicopters. A designated area on the northeast end of the Transient Alert Pad is also used for hot-fueling military helicopters immediately following landing (USAF, 2014d).

The current and anticipated future land use of SWMU SS-575 is classified as industrial.

Evaluation of Relevant Information

KAFB submitted a combined SWMU assessment report and work plan, titled *Final SWMU Assessment Report Transient Alert Pad (SS-C575), Kirtland Air Force Base, March 2012*, in June 2012. In September and November 2012, a total of 13 soil borings were advanced to depths of 20 feet below ground surface (bgs) at Parking Apron D. Sample locations were taken in unpaved areas to the northeast and to the south of concrete Parking Apron D, due to concerns that disturbing the subsurface and subsequent borehole abandonment and patching of the concrete would compromise the integrity of Parking Apron D. Soil samples were collected from the borings at 0 - 0.5 foot, 4-6 foot, 8-10 foot, 14-16 foot, and 18-20 foot depth intervals and were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), Total Petroleum Hydrocarbons – Gasoline Range Organics (TPH-GRO), Total Petroleum Hydrocarbons – Diesel Range Organics (TPH-DRO), and Target Analyte List (TAL) metals (USAF, 2014d). The sample results were compared to 2012 NMED soil screening levels (SSLs) and TPH screening guidelines.

VOCs were detected at concentrations below 2012 residential SSLs. TPH-GRO and TPH-DRO were detected at concentrations below 2012 NMED TPH screening guidelines. All TAL metals except arsenic and thallium were detected at concentrations below 2012 residential SSLs. Arsenic was detected at concentrations above 2012 SSLs but below the NMED-approved SNL/KAFB background concentration of 5.6 mg/kg for surface samples and 7 mg/kg for subsurface samples. All thallium samples were flagged as being below the method detection limit; however, the method detection limit for thallium for most samples was above the 2012 NMED SSL. The lack of a source of thallium in JP-8 suggests that if it is in fact present above SSLs, it is likely representative of natural background variation.

Two SVOCs, benzo(a)pyrene and benzo(b)fluoranthene, were detected above the NMED 2012 residential SSLs. All other SVOC sample detections were below the 2012 residential SSLs. All detected SVOC concentrations were less than the NMED industrial SSLs (USAF, 2014d). NMED approved the *Resource Conservation and Recovery Act Facility Investigation Report, Transient Alert Pad (SS-575), Kirtland Air Force Base, April 2014* (2014 SS-575 RFI), on November 30, 2015.

NMED conducted a human health and ecological risk assessment for SWMU SS-575 in accordance with the methods provided in the 2017 *NMED Risk Assessment Guidance for Site Investigations and Remediation* using the data from the 2014 SS-575 RFI report. The human health risk assessment compared site concentrations to NMED residential, industrial, and construction worker soil screening levels. Based on the RFI report, the SWMU was adequately characterized; therefore, the 95% UCL of the average concentrations of COCs was used in calculating risk. There is no indication of an adverse cancer risk or hazard to the industrial worker. The hazard index for a construction worker and resident were slightly above NMED target levels, predominantly due to thallium. Based on a review of the site history, it is unlikely that thallium is present due to

historical activities; rather, the concentrations are likely representative of natural background variation (AQS, 2017c).

The source of polycyclic aromatic hydrocarbons (PAHs) (including the primary risk constituents benzo(a)pyrene and benzo(b)fluoranthene) was evaluated. The ratios for the geochemical analyses indicate that site PAHs are present from pyrogenic (asphalt and emission products) sources. While the PAHs are molecular components of JP-8 fuel and diesel fuel, they are also freed and released by the incomplete combustion of the fuel. PAHs are likely present in the soil at the Transient Alert Pad due to the exhaust from taxiing aircraft, helicopters, and automobile traffic rather than the 2006 JP-8 release. (AQS, 2017c).

The chemical composition of JP-8 includes trace metals and some PAHs. While the report indicates benzo(a)pyrene and benzo(b)fluoranthene are molecular components of JP-8, some studies indicate that most of the PAHs associated with JP-8 are naphthalenes, with benzo(a)pyrene and benzo(b)fluoranthene not detected. If the PAHs were related to the fuel spill, then it would be likely that higher naphthalene concentrations would also be detected in soils (AQS, 2017c).

Soil data indicate that the PAHs associated with this site are primarily located in surface soil. If the PAHs were associated with the fuel spill, contamination with depth would be present to some degree. Given the location of the site next to an air field, along with the contamination profile and chemical composition for JP-8, it seems likely that the PAHs are not related to the fuel spill (AQS, 2017c).

An ecological risk assessment was conducted using the deer mouse and the horned lark as receptors. The hazard index for both receptors were slightly above NMED target levels, predominantly due to the presence of thallium. Again, it is unlikely that thallium is present due to historical activities; rather, the concentrations are likely representative of natural background variation. Thus, the site does not pose an unacceptable ecological risk (AQS 2017d). (AQS, 2017c).

To evaluate the potential for site contaminants to impact groundwater, the data were compared to soil screening levels based on a dilution attenuation factor of 20. Iron was the only constituent detected at concentrations greater than the SSLs. Due to the depth-to-groundwater (the top of the regional aquifer is located approximately 500 feet below ground surface), the site history, the physical and chemical properties of iron, the lack of a continual source of iron, and the low concentration of other constituents, it is unlikely that contaminants at the site pose a threat to groundwater (AQS, 2017c).

Basis of Determination

SWMU SS-575 has been determined to be suitable for Corrective Action Complete with Controls. The SWMU has been characterized in accordance with the current applicable state and federal regulations. Risk screening evaluation indicates that, with controls, the contaminants present do not pose an unacceptable level of risk to human health under an industrial land use scenario. The control limits site use to industrial land use only.

J. Description of AOCs and SWMUs Proposed for Corrective Action Complete without Controls

1. SWMU CW-571, Zia Park

SWMU CW-571 is located northwest of the intersection of Pennsylvania Street and Hardin Drive. It consists of two mounds, an “L”-shaped mound approximately 150 by 300 feet and raised approximately one foot over the ground surface, and a small mound approximately 4 feet by 4 feet and raised approximately one foot over the ground surface located 320 feet east of the main mound (USAF, 2014a). The location of SWMU CW-571 is shown in Figure 3.

History/Current and Anticipated Future Land Use

The *Final SWMU Assessment Report Zia Park (CS-C571) and Asphalt Dump Area (OT-C573), Kirtland Air Force Base, March 2012* (2012 SS-C571 SAR) report states that KAFB personnel state that the Zia Park site was a construction area in the 1970s and 1980s. Debris, including small amounts of concrete and glass, is present on the surface. Vegetation on top of the raised mound appears to be more stressed and sparse than surrounding vegetation (Shaw 2012c). The 2012 SS-C571 SAR report stated that KAFB personnel suggested that electric power transformers could have been stored on site, because it was used as a staging area for construction. However, no historical documents are available that specifically discuss the on-site storage of transformers (USAF, 2014a).

The *Final Resource Conservation and Recovery Act Facility Investigation Report, Zia Park (CW-571), March 2014* report states that according to KAFB personnel, an old hand-drawn map identified this area as a chemical warfare training area, but the map cannot be located. In addition, the report states that an email communication from Mr. Wayne Bitner (former Chief of the Environmental Restoration Branch at KAFB) indicated that the Zia Park site had been used for chemical weapons training. The same email stated that Mr. Harry Davidson (former Chief of the Environmental Restoration Branch at KAFB) indicated in a January 2007 interview that chemical weapons training had occurred at KAFB. To his knowledge, the only chemical used was Clorox®, to perform fit tests on personnel wearing gas masks. (USAF, 2014a).

Zia Park is currently a vacant field that is not being used for any purpose, and the site use is not anticipated to change for the foreseeable future. The current and anticipated future land use of SWMU CW-571 is classified as industrial.

Evaluation of Relevant Information

KAFB submitted a combined SWMU assessment report and work plan, titled *Final SWMU Assessment Report Zia Park (CS-C571) and Asphalt Dump Area (OT-C573), Kirtland Air Force Base, March 2012*, in June 2012. NMED approved the report on August 15, 2012. In September 2012, a total of 24 soil borings were hand-augered to depths of 3.5 feet below the ground surface (bgs) at Zia Park. Thirteen soil borings were located on the main mound, ten borings were located around the perimeter of the main mound, and one boring was located on the small mound.

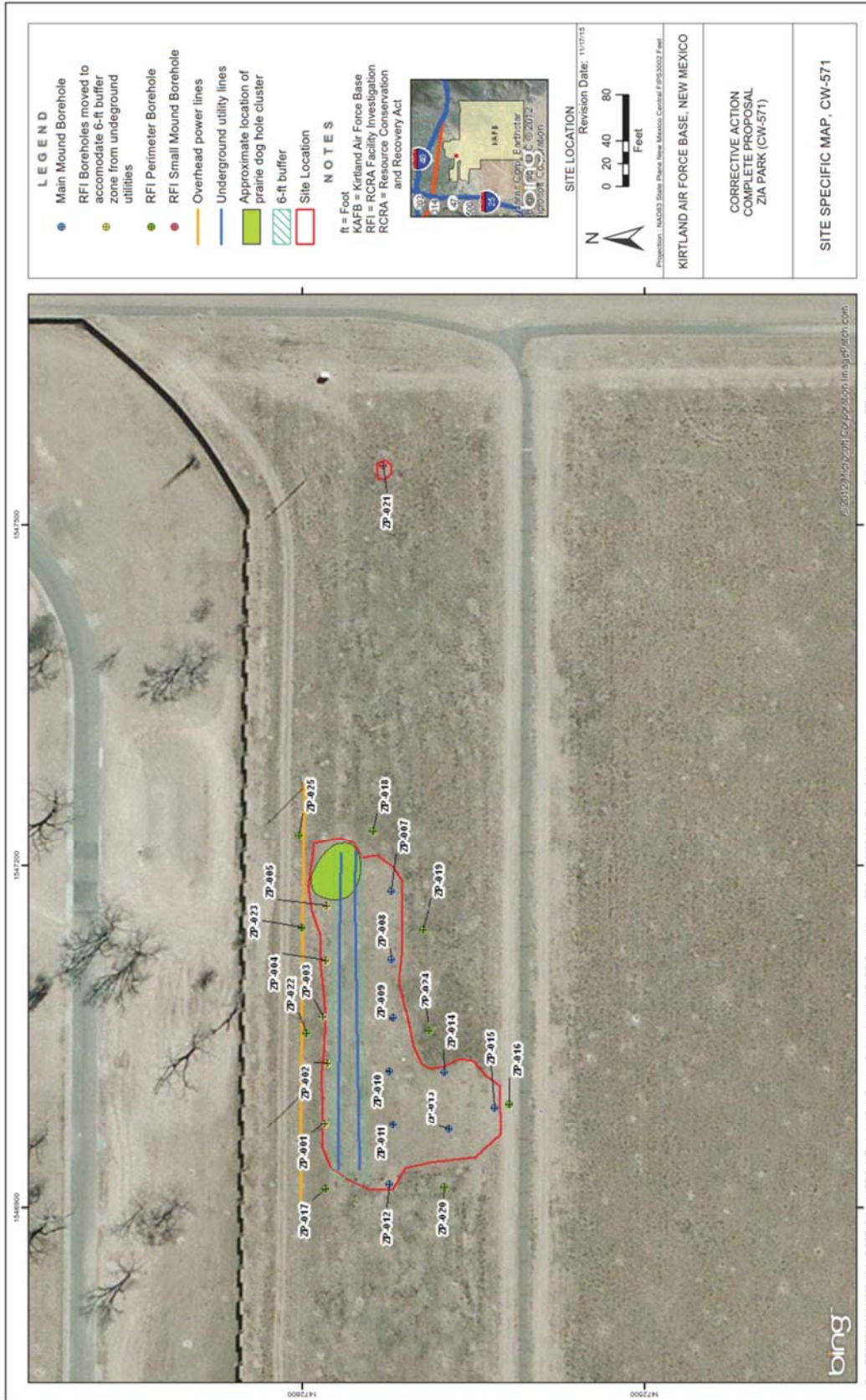


Figure 3. SWMU CW-571, Zia Park (USAF, 2014a).

Soil samples were collected at 0 - 1 foot, 1.5 - 2.5 foot, and 2.5 - 3.5 foot bgs depth intervals, and were analyzed for VOCs, SVOCs, polychlorinated biphenyls (PCBs), TPH-GRO, TPH-DRO, and TAL metals (USAF, 2014a). The sample results were compared to 2012 NMED SSLs and TPH screening guidelines.

VOCs, SVOCs, and PCBs were detected at concentrations below the NMED 2012 residential SSLs. TPH-GRO and TPH-DRO were detected at concentrations below the 2012 NMED TPH screening guidelines. All TAL metals except arsenic were detected at concentrations below their respective NMED 2012 residential SSLs. Arsenic was detected in soil samples at concentrations above the NMED 2012 residential SSL. One surface soil sample contained an arsenic concentration of 5.7 mg/kg, exceeding the NMED-approved SNL/KAFB background concentration of 5.6 mg/kg for surface samples. In the subsurface, one sample contained an arsenic concentration of 8.4 mg/kg, exceeding the approved background concentration of 7 mg/kg for subsurface samples (USAF, 2014a). NMED approved the *Final Resource Conservation and Recovery Act Facility Investigation Report, Zia Park (CW-571), Kirtland Air Force Base, March 2014* (2014 CW-571 RFI), on April 20, 2015.

NMED conducted a human health and ecological risk assessment for SWMU CW-571 in accordance with the methods provided in the 2017 *NMED Risk Assessment Guidance for Site Investigations and Remediation* using the data from the 2014 CW-571 RFI. The human health risk assessment compared site concentrations to NMED residential, industrial, and construction worker soil screening levels. Based on the RFI report, the SWMU was adequately characterized; therefore, the 95% UCL of the average concentrations of COCs was used in calculating risk. The screening assessment indicates that the risk to the resident, industrial worker, and construction worker is below the NMED target levels. Thus, the site does not pose significant risk to human health (AQS 2017d).

An ecological risk assessment was conducted using the deer mouse and the horned lark as receptors. The hazard index for both receptors were below NMED target levels. Thus, the site does not pose an unacceptable ecological risk (AQS 2017d).

To evaluate the potential for site contaminants to impact groundwater, the data were compared to soil screening levels based on a dilution attenuation factor of 20. There were no constituents with concentrations greater than the SSLs. Due to the depth-to-groundwater (the top of the regional aquifer is located approximately 500 feet below ground surface) and low concentrations of constituents, it is unlikely that contaminants at the site pose a threat to groundwater (AQS 2017d).

Basis of Determination

SWMU CW-571 is proposed for Corrective Action Complete without Controls. The SWMU has been characterized or remediated in accordance with current applicable state and/or federal regulations, and the available data indicate that contaminants present do not pose an unacceptable level of risk to human health or ecological receptors under the current or anticipated future land use.

2. SWMU OT-572, Building 57001

SWMU OT-572 consists of Building 57001 that has several components including an older, closed, unpermitted septic system and two locations that contained former shock tubes. According to available records, the unpermitted septic tank system was installed in 1949, and abandoned in-place in 1963. Building 57001, which has been abandoned for over eight years, is located in the south-central portion of KAFB (see Figure 1). Building 57001 is located adjacent to active septic system SWMU 10-21-T site, commonly referred to as ST-340 in the Permit, and in reports and other correspondence. SWMU 10-21-T is described as Septic System Civil Engineering Research Facility Buildings (USAF 2014b). The location of SWMU OT-572 is shown in Figure 4.

History/Current and Anticipated Future Land Use

Building 57001 (OT-572) has a complex operational history. Research for this site included review of as-built diagrams, aerial photographs, and reports. Information on the use of Building 57001 prior to 1960 could not be located. According to an as-built drawing dated September 2, 1960, Building 57001 contained a dark room and hydraulic tanks. A dated modification to a 1963 as-built drawing indicates that a soil laboratory and a model and testing laboratory were added to the facility in 1965 (USAF 2014b).

Construction of the original, unpermitted septic system servicing Building 57001, which includes a septic tank, leach field, and septic sewer lines, was completed in 1949. According to the closure notification, the septic tank was abandoned and left-in-place in 1963 (Shaw 2012a). As-built diagrams dating back to the 1960's indicate that the shock tubes were constructed prior to 1985. According to the Military Munitions Range Management Action Plan (MAP), up to a dozen shock tubes, ranging in size from 2 inches in diameter to 20 feet in diameter operated at the site, including at Building 57001, throughout its operational history (USAF 2014b).

The New Mexico Engineering Research Institute (NMERI), an Air Force Weapons Laboratory contractor, took over shock tube operations in 1987 and operated the shock tubes from 1987 to 1991. It is unclear whether NMERI assumed operational control of Building 57001 in addition to the shock tubes. NMERI Defense Threat Reduction Agency acquired ownership of all shock tubes at KAFB in 1993. Building 57001 was slated for demolition in 2005, but demolition was not initiated because KAFB determined that the building was occupied by a KAFB civil engineer tenant for an indeterminate period of time. Operational use of Building 57001 during the period of occupation by the unknown tenant could not be located in the records search. The shock tubes were never listed in the Environmental Compliance Program as an AOC or SWMU, or listed as an IRP site (Shaw 2012a).

The current and anticipated future land use of SWMU OT-572 is classified as industrial.

Evaluation of Relevant Information

In 2009, five subsurface soil samples were collected at Building 57001 using direct push technology; four were located near the east and west ends of the shock tubes, and one was located southwest of Building 57001. The samples near Building 57001 were collected from 0 to 2 feet bgs, and samples at the shock tubes were collected from 0 to 0.5 foot bgs. Soil samples were analyzed for VOCs, SVOCs, RCRA metals, and explosive compounds. Concentrations of



Figure 4. SWMU OT-572, Building 57001 (USAF 2014b).

two PAHs (benzo[a]pyrene and benzo[b]fluoranthene), arsenic, and chromium were detected above the 2012 NMED residential SSLs. Sampling results also indicated the presence of barium, cadmium, lead, and silver above SNL/KAFB background levels but below the NMED residential SSLs. Because the analytical results indicated the presence of two PAH compounds, two metals at concentrations exceeding the NMED residential SSLs, and four metals at concentrations above their respective SNL/KAFB background levels, further investigation was conducted to determine whether a release had occurred (Shaw 2012a).

KAFB submitted a combined SWMU assessment report and investigative work plan titled *Final SWMU Assessment Report Building 57001 (OT-C572), Kirtland Air Force Base, March 2012*, in June 2012 that was approved by NMED on April 24, 2014. In August 2012, a total of 12 soil borings were advanced. Soil samples were collected from depths of approximately 0 to 2, 4 to 6, 8 to 10, and 13 to 15 feet bgs and analyzed for VOCs, SVOCs, PCBs, TAL metals, explosives, TPH-GRO, TPH-DRO, and TPH-oil range organics (ORO) (USAF 2014b).

VOCs, SVOCs, and PCBs were detected at concentrations below the NMED 2012 residential SSLs. TPH-GRO, TPH-DRO, and TPH-ORO were detected at concentrations below NMED TPH screening guidelines. Explosive compounds were not detected. All TAL metals except arsenic were detected at concentrations below the NMED 2012 residential SSLs. Arsenic was detected in surface samples at concentrations above SSLs but below the approved SNL/KAFB surface soil background concentration, with one exception. A duplicate sample detected arsenic at 5.7 mg/kg, which exceeded the NMED 2012 residential SSL and SNL/KAFB surface soil background concentration of 5.6 mg/kg. Based on the RFI Report, the site was adequately characterized; therefore, the upper confidence limit (UCL) of the mean concentration was compared to the SSL and approved background concentration. The UCL of the mean concentration for arsenic is 5.117 mg/kg and is therefore less than the SNL/KAFB surface soil background concentration of 5.6 mg/kg. Arsenic was detected in subsurface samples at concentrations above SSLs but below the approved SNL/KAFB subsurface soil background concentration of 7 mg/kg (USAF 2014b). NMED approved the *Final Resource Conservation and Recovery Act Facility Investigation Report Building 57001 (OT-572), Kirtland Air Force Base, March 2014*, on April 20, 2015.

NMED conducted a human health and ecological risk assessment for SWMU OT-572 in accordance with the 2017 *NMED Risk Assessment Guidance for Site Investigations and Remediation*, using the data from the *Final Resource Conservation and Recovery Act Facility Investigation Report Building 57001 (OT-572), Kirtland Air Force Base, March 2014*. The human health risk assessment compared site concentrations to NMED residential, industrial, and construction worker soil screening levels. The screening assessment indicates that the risk to the resident, industrial worker, and construction worker are below the NMED target risk levels. Thus, the site does not pose an unacceptable risk to human health (AQS, 2017b).

An ecological risk assessment was conducted using the deer mouse and the horned lark as receptors. The hazard index for the deer mouse was below NMED target levels; the hazard index for the horned lark was slightly above NMED target levels, predominantly due to the presence of vanadium. It is unlikely that vanadium is present due to historical activities; rather, the concentrations are likely representative of natural background variation. Thus, the site does not pose an unacceptable ecological risk (AQS, 2017b).

To evaluate the potential for site contaminants to impact groundwater, the data were compared to soil screening levels based on a dilution attenuation factor of 20. There were no constituents with concentrations greater than the SSLs. Due to the depth-to-groundwater (the top of the regional aquifer is located approximately 80-150 feet below ground surface) and low concentrations of constituents, it is unlikely that contaminants at the site pose a threat to groundwater (AQS, 2017b).

Basis of Determination

SWMU OT-572 is proposed for Corrective Action Complete without Controls. The SWMU has been characterized or remediated in accordance with current applicable state and/or federal regulations, and the available data indicate that the contaminants present do not pose an unacceptable level of risk to human health or ecological receptors under the current or anticipated future land use.

3. SWMU OT-573, Asphalt Dump Area

Location

SWMU OT-573 consists of an area approximately 450 by 600 feet in dimension that is raised vertically two feet above the ground surface throughout. It is located southwest of the intersection of Wyoming Boulevard and Hardin Drive. The Asphalt Dump Area was previously used as a staging area for aircraft, with a former runway bounding the southern edge of the site. Because the runway pavement was overtaken by native plant material, it was pushed into one large shallow mound. The mound is generally covered with native vegetation and has scattered debris piles, including asphalt, tar, and porcelain, in various locations on the surface of the mound (Shaw, 2012c). The location of SWMU OT-573 is shown in Figure 5.

History

The Asphalt Dump site is located directly adjacent to the first aircraft runway established in Albuquerque (Figure 1). In 1928, two Santa Fe Railroad employees established Albuquerque's first airport, later to be known as Oxnard Field. Two runways were constructed on 140 acres of homestead land; a 4,300 foot east/west runway and a 2,500 foot northeast/southwest runway. The runways were compacted and applied with a heavy road oil to stabilize the ground and control dust (USAF, 2014c).

In 1939, the City of Albuquerque opened a new municipal airfield to the east of Oxnard Field, which eventually became the Albuquerque International Sunport. After the opening of the new municipal airfield, Oxnard Field began to service Army and Navy pilots for refueling and maintenance purposes. In 1942, the airfield was sold to the Army Air Force and used as a depot training station for aircraft mechanics. During the latter part of World War II, it passed into the jurisdiction of the Army Air Corps. During this time, it housed training schools and supported the Los Alamos atomic program (USAF, 2014c).

In the mid-1940s, the airfield became a storage ground for damaged and surplus aircraft. The Oxnard site consisted of temporary tow roads and parking spaces for the aircraft. In the late 1940s, the airfield was closed permanently. The exact date of asphalt excavation associated with the Oxnard airfield and subsequent piling of debris at the Asphalt Dump site is unknown; however, it is believed to have occurred during the early 1950s (USAF, 2014c).

The current and anticipated future land use of SWMU OT-573 is classified as industrial.

Evaluation of Relevant Information

In 2009, three soil borings were advanced at the Asphalt Dump Site. Soil samples were collected at approximately 2 feet and 15 feet bgs and were analyzed for VOCs, SVOCs, TPH-GRO, TPH-DRO, and PCBs. Sample results identified the presence of benz(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene in concentrations that did not exceed the 2009 NMED residential SSLs. Aroclor-1254 and TPH-DRO were detected but did not exceed NMED residential SSLs (Shaw, 2012c).

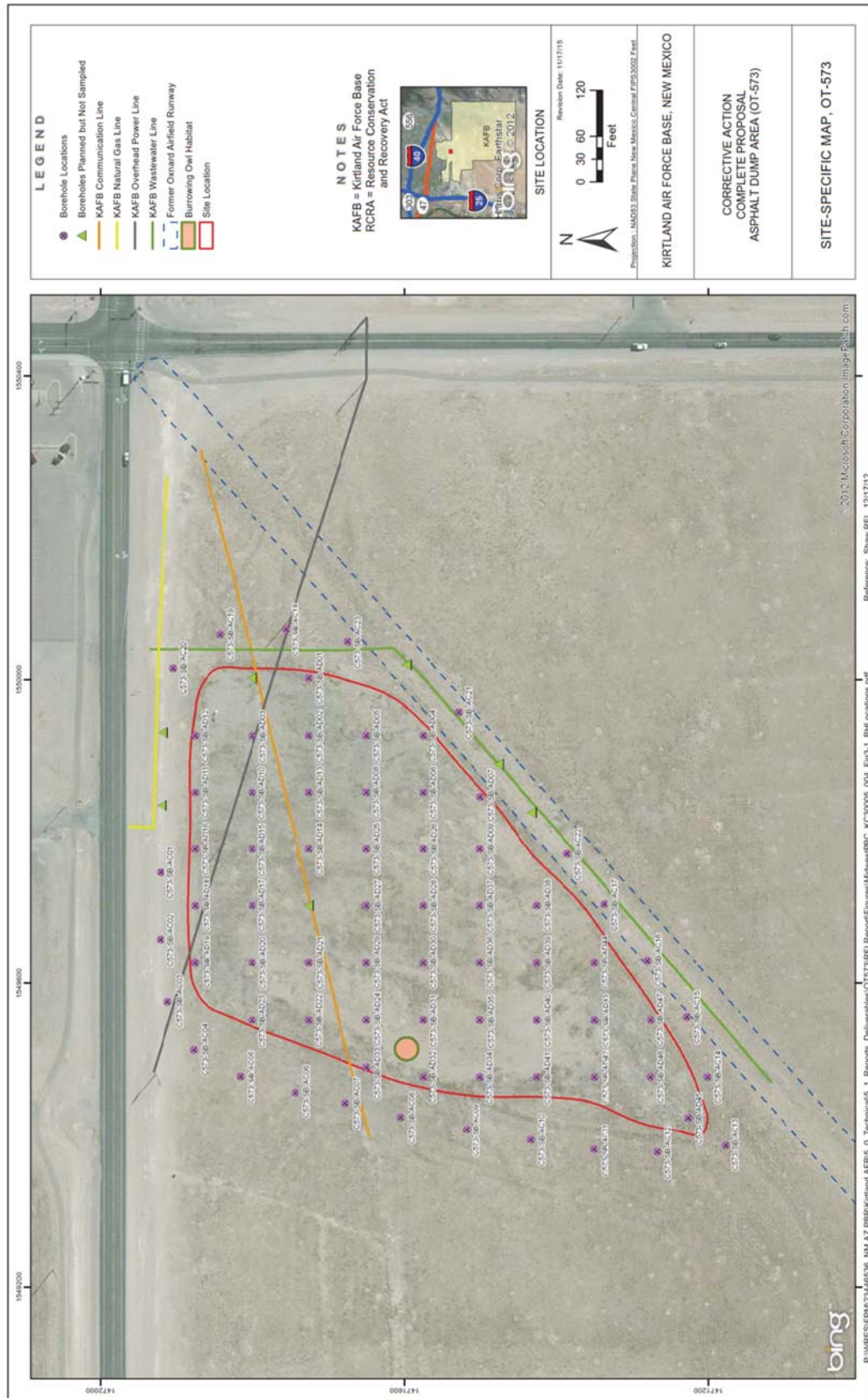


Figure 5. SWMU OT-573, Asphalt Dump Area (USAF, 2014c)

KAFB submitted a combined SWMU assessment report and work plan, titled *Final SWMU Assessment Report Zia Park (CS-C571) and Asphalt Dump Area (OT-C573), Kirtland Air Force Base, March 2012*, in June 2012 that was approved by NMED on April 24, 2014. NMED also approved the *Final Accelerated Corrective Measures Work Plan Asphalt Dump Area (OT-C573), Kirtland Air Force Base, March 2012*, that proposed to remove up to 40 cubic yards of contaminated soil on April 25, 2014. In August and September 2012, a total of 47 soil borings were advanced. Soil samples were collected from approximately 0.5 - 1.5, 1.5 - 2.5, and 3.5 - 4.5 feet bgs and analyzed for VOCs, SVOCs, TAL metals, TPH-GRO, and TPH-DRO (USAF, 2014c).

VOCs were detected at concentrations below the NMED 2012 residential SSLs. TPH-GRO and TPH-DRO were detected at concentrations below the NMED 2012 TPH screening guidelines. SVOCs were detected at concentrations below the NMED 2012 residential SSLs with one exception. One soil sample, collected between 0.5 and 1.5 feet bgs at location C573-SB-AD40, exceeded the 2012 NMED residential SSL for benzo(a)pyrene. At this location, approximately 40 cubic yards of soil was removed to a depth of approximately three feet below ground surface. Five confirmation soil samples were collected from the excavated area base and side walls to determine if the benzo(a)pyrene contamination had been removed. Laboratory analysis of the samples confirmed the removal of benzo(a)pyrene (USAF, 2014c).

All TAL metals except arsenic were detected at concentrations below their respective NMED 2012 residential SSLs. Arsenic was detected in surface samples at concentrations above the NMED 2012 residential SSLs but below the approved SNL/KAFB surface soil background concentration, with one exception. One sample had arsenic detected at 8.6 mg/kg, which exceeds both the NMED residential SSL and the SNL/KAFB surface soil background concentration of 5.6 mg/kg. Based on the RFI Report, the site was adequately characterized; therefore, the 95% UCL of the average concentrations of arsenic was compared to the SSL and approved background concentration. The UCL of the mean concentration for arsenic in surface soil samples is 4.16 mg/kg and is therefore less than the SNL/KAFB surface soil background concentration of 5.6 mg/kg. Arsenic was detected in 18 of 47 subsurface samples at concentrations above the approved SNL/KAFB subsurface soil background concentration. The UCL of the mean concentration for arsenic in subsurface samples is 6.148 mg/kg, which is less than the SNL/KAFB subsurface soil background concentration of 7 mg/kg (USAF, 2014c). NMED approved the *Final Resource Conservation and Recovery Act Facility Investigation Report Asphalt Dump Area (OT-573), Kirtland Air Force Base, March 2014*, on April 20, 2015.

NMED conducted a human health and ecological risk assessment for SWMU OT-573 in accordance with the 2017 *NMED Risk Assessment Guidance for Site Investigations and Remediation* using the data from the *Final Resource Conservation and Recovery Act Facility Investigation Report Asphalt Dump Area (OT-573), Kirtland Air Force Base, March 2014*. The human health risk assessment compared site concentrations to NMED residential, industrial, and construction worker soil screening levels. The screening assessment indicates that the risk to residents, industrial workers, and construction workers are below the NMED target levels. Thus, the site does not pose an unacceptable risk to human health (AQS, 2017a).

An ecological risk assessment was conducted using the deer mouse and the horned lark as receptors. The hazard index for the deer mouse was below NMED target levels; the hazard index for the horned lark was slightly above NMED target levels, predominantly due to vanadium. It is

unlikely that vanadium is present due to historical activities; rather, the concentrations are likely representative of natural background variation. Thus, the site does not pose an unacceptable ecological risk (AQS, 2017a).

To evaluate the potential for site contaminants to impact groundwater, the data were compared to soil screening levels based on a dilution attenuation factor of 20. Iron was the only constituent with concentrations greater than the SSLs. Due to the depth-to-groundwater (the top of the regional aquifer is located approximately 500 feet below ground surface), the site history, the physical and chemical properties of iron, the lack of a continual source of iron, and the low concentration of other constituents, it is unlikely that contaminants at the site pose a threat to groundwater (AQS, 2017a).

Basis of Determination

SWMU OT-573 is proposed for Corrective Action Complete without Controls. The SWMU has been characterized or remediated in accordance with current applicable state and/or federal regulations, and the available data indicate that the contaminants present do not pose an unacceptable level of risk to human health or ecological receptors under the current or anticipated future land use.

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