MITIGATED NEGATIVE DECLARATION AND INITIAL STUDY CHECKLIST

Ridgecrest Burn Dump #1 Remediation Project

Lead Agency

County of Kern

Public Health Services Department, Environmental Health Division

2700 M Street, Suite 300

Bakersfield, CA 93301

July 2020

NOTICE OF INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION FOR THE RIDGECREST BURN DUMP #1 REMEDIATION PROJECT

DATE: July 6, 2020

PROJECT TITLE: Ridgecrest Burn Dump #1 Remediation Project

TO: State Clearinghouse, Responsible Agencies, Trustee Agencies, Public Agencies, and Interested Parties

LEAD AGENCY:
Kern County Public Health Services Department
Environmental Health Division
2700 M Street, Suite 300
Bakersfield, CA 93301
(661) 862-8740

PROJECT LOCATION: The historic Ridgecrest Burn Dump #1 Remediation Project (Project) is within the eastern portion of Kern County, California, approximately two miles southwest of the City of Ridgecrest and 0.28 miles south of the Brown Road, China Lake Boulevard, and State Highway 395 convergence. The project site is an approximately 17-acre fenced portion of Kern County Assessor's Parcel Number (APN) 511-020-03, located in Section 31 of Township 27 South, Range 40 East of the Mount Diablo Base and Meridian. The property is owned by the United States Department of the Interior - Bureau of Land Management. The property is accessed by an unnamed, unpaved BLM managed trail off Highway 395. There are no existing wells or utilities located on the project site.

PROJECT DESCRIPTION: The objective of the Project is to reduce the potential for environmental and public health and safety risks associated with unstable slopes and exposed burn waste. The Project will include covering the disposal trenches with a minimum of two feet of soil as cover, including the areas in between the burn trenches. The cover system will be comprised of clean soil excavated from the adjacent on-site borrow area; approximately 23,500 cubic yards of soil will be placed in the burn dump area. Surficial scatter, vegetation, and other residual materials will be collected and incorporated into the trench area prior to the placement of cover. Once construction is complete, areas will be revegetated through drill and hydroseeding.

MITIGATED NEGATIVE DECLARATION: An electronic copy of the Ridgecrest Burn Dump #1 Remediation Project's Mitigated Negative Declaration is available for review on the Kern County Public Health Services Department (KCPHSD) website at www.kernpublichealth.com . Due to COVID-19 social distancing protocols, an appointment will be necessary to electronically view the document at the office located at 2700 'M' Street, Suite 300, Bakersfield, CA 93301. You may schedule an office appointment by visiting the KCPHSD website at www.kernpublichealth.com. Comments on the Mitigated Negative Declaration will be received from July 6, 2020 until 5:00 p.m. on August 6, 2020.

Written comments must be addressed via mail or e-mail to:

Karen Sanford, Environmental Health Specialist IV
Kern County Public Health Services Department
Environmental Health Division
2700 ‘M’ Street, Suite 300
Bakersfield, CA 93301
karens@kerncounty.com

PUBLIC HEARING: On Tuesday, August 25, 2020 at 9:00 a.m. the Kern County Board of Supervisors will conduct a public hearing to consider adoption of the Mitigated Negative Declaration pursuant to CEQA. The hearing will be held at 1115 Truxtun Ave, 1st Floor (Board of Supervisors Chambers), Bakersfield, CA 93301. Public hearing date subject to change.

HAZARDOUS WASTE SITES: The Project site is not located on listed toxic sites pursuant to Government Code Section 65962.5.

PROJECT APPLICANT
Kern County Public Works Department
2700 ‘M’ Street, Suite 450
Bakersfield, CA 93301
(661) 862-8900
Contact: Dave Lee

Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, P.O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH #

Project Title: Ridgecrest Burn Dump #1 Remediation Project

Lead Agency: Kern County Public Health Services Department/Environmental Health Division — Contact Person: Karen Sanford
Mailing Address: 2700 "M" Street, Suite 300 — Phone: (661) 862-8703
City: Bakersfield — Zip: 93301 — County: Kern

Project Location: County: Kern — City/Nearest Community: Ridgecrest
Cross Streets: Brown Road/State Hwy 395 — Zip Code: 93555
Longitude/Latitude (degrees, minutes and seconds): 35 ° 54 ′ 50 ″ N / 117 ° 71 ′ 63 ″ W — Total Acres: 17
Assessor's Parcel No.: 511-020-03 — Section: 31 — Twp.: 27S — Range: 40E — Base: MDBM
Within 2 Miles: State Hwy #: 395 — Waterways: N/A
Airports: N/A — Railways: N/A — Schools: N/A

Document Type:

CEQA: [ ] NOP [ ] Early Cons [ ] Neg Dec [x] Mit Neg Dec [ ] Draft EIR [ ] Supplement/Subsequent EIR (Prior SCH No.) ______ Other: ______
NEPA: [ ] NOI [ ] EA [ ] Draft EIS [ ] FONSI
Other: [ ] Joint Document [ ] Final Document [ ] Other: ______

Local Action Type:

[ ] General Plan Update [ ] General Plan Amendment [ ] General Plan Element [ ] Community Plan
[ ] Specific Plan [ ] Master Plan [ ] Planned Unit Development [ ] Site Plan
[ ] Rezone [ ] Prezone [ ] Use Permit [ ] Land Division (Subdivision, etc.)
[ ] Annexation [ ] Redevelopment [ ] Coastal Permit [ ] Other: ______

Development Type:

[ ] Residential: Units ______ Acres ______
[ ] Office: Sq.ft. ______ Acres ______ Employees ______
[ ] Commercial: Sq.ft. ______ Acres ______ Employees ______
[ ] Industrial: Sq.ft. ______ Acres ______ Employees ______
[ ] Educational: ______
[ ] Recreational: ______
[ ] Water Facilities: Type ______ MGD ______
[ ] Transportation: Type ______
[ ] Mining: Mineral ______
[ ] Power: Type ______ MW ______
[ ] Waste Treatment: Type ______ MGD ______
[ ] Hazardous Waste: Type ______
[x] Other: Burn dump remediation

Project Issues Discussed in Document:

[x] Aesthetic/Visual
[x] Agricultural Land
[x] Air Quality
[x] Archeological/Historical
[x] Biological Resources
[ ] Coastal Zone
[x] Drainage/Absorption
[ ] Economic/Jobs
[ ] Fiscal
[x] Flood Plain/Flooding
[x] Forest Land/Fire Hazard
[x] Geologic/Seismic
[x] Minerals
[x] Noise
[x] Population/Housing Balance
[x] Public Services/Facilities
[x] Recreation/Parks
[ ] Schools/Universities
[ ] Septic Systems
[ ] Sewer Capacity
[x] Soil Erosion/Compaction/Grading
[x] Solid Waste
[x] Toxic/Hazardous
[x] Traffic/Circulation
[x] Vegetation
[x] Water Quality
[x] Water Supply/Groundwater
[ ] Wetland/Riparian
[ ] Growth Inducement
[x] Land Use
[x] Cumulative Effects
[ ] Other: ______

Present Land Use/Zoning/General Plan Designation:

General Plan: 1.1 (State and Federal Land); Zoning: OS (Open Space)

Project Description: *(please use a separate page if necessary)*

The proposed Project is to reduce the potential for environmental and public health and safety risks associated with exposed areas of the Ridgecrest #1 burn dump. Steps to remediation include: (1) burn dump area and borrow site cleared and grubbed; (2) surficial scatter and vegetation incorporated into the trench area prior to the placement of cover; (3) disposal trenches covered with two feet of soil from adjacent on-site borrow area; (4) soil graded to a 3:1 slope, 3.8% grade similar to existing grades; (5) stormwater features such as v-ditch, rip rap protection, and geotextile to divert run-on water around closed burn dump; (6) areas revegetated by drill- or hydro-seeding.

Note: The State Clearinghouse will assign identification numbers for all new projects. If a SCH number already exists for a project (e.g. Notice of Preparation or previous draft document) please fill in.

Reviewing Agencies Checklist

Lead Agencies may recommend State Clearinghouse distribution by marking agencies below with and "**X**".
If you have already sent your document to the agency please denote that with an "**S**".

____	Air Resources Board	____	Office of Historic Preservation
____	Boating & Waterways, Department of	____	Office of Public School Construction
____	California Emergency Management Agency	____	Parks & Recreation, Department of
____	California Highway Patrol	____	Pesticide Regulation, Department of
S	Caltrans District # 6, 9	____	Public Utilities Commission
____	Caltrans Division of Aeronautics	S	Regional WQCB # Lahontan
____	Caltrans Planning	____	Resources Agency
____	Central Valley Flood Protection Board	S	Resources Recycling and Recovery, Department of
____	Coachella Valley Mtns. Conservancy	____	S.F. Bay Conservation & Development Comm.
____	Coastal Commission	____	San Gabriel & Lower L.A. Rivers & Mtns. Conservancy
____	Colorado River Board	____	San Joaquin River Conservancy
S	Conservation, Department of	____	Santa Monica Mtns. Conservancy
____	Corrections, Department of	____	State Lands Commission
____	Delta Protection Commission	____	SWRCB: Clean Water Grants
____	Education, Department of	____	SWRCB: Water Quality
____	Energy Commission	____	SWRCB: Water Rights
S	Fish & Game Region # Fresno	____	Tahoe Regional Planning Agency
____	Food & Agriculture, Department of	____	Toxic Substances Control, Department of
____	Forestry and Fire Protection, Department of	____	Water Resources, Department of
____	General Services, Department of		
____	Health Services, Department of	____	Other: ____
____	Housing & Community Development	____	Other: ____
S	Native American Heritage Commission		

Local Public Review Period (to be filled in by lead agency)

Starting Date July 6, 2020 Ending Date August 6, 2020

Lead Agency (Complete if applicable):

Consulting Firm: Kern County Public Health/Environmental Health Division
Address: 2700 'M' Street, Suite 300
City/State/Zip: Bakersfield, CA 93301
Contact: Karen Sanford
Phone: (661) 862-8703

Applicant: Kern County Public Works Department
Address: 2700 'M' Street, Suite 450
City/State/Zip: Bakersfield, CA 93301
Phone: (661) 862-8765

Signature of Lead Agency Representative: Karen Sanford **Date:** July 6, 2020

Authority cited: Section 21083, Public Resources Code. Reference: Section 21161, Public Resources Code.

Ridgecrest #1 Burn Dump Remediation
(Kern County Public Health
Lead Agency)

State Clearinghouse
1400 10th Street, Room 222
Sacramento, CA 95814

Department of Resources Recycling &
Recovery (CalRecycle)
P.O. Box 4025
Sacramento, CA 95812-4025

Mick Gleason
Supervisor District #1
1115 Truxtun Ave

U.S. Bureau of Land Management
Ridgecrest Field Office
300 South Richmond Road
Ridgecrest, CA 93555

China Lake Naval Weapons Center
Tim Fox, RLA - Comm Plans & Liaison
429 E Bowen, Building 981
Mail Stop 4001
China Lake, CA 93555

Jalpa K Anjaria
6362 English Ivy Way
Springfield, VA 22152

Glenda Arleen Hilburg-Rial Trust
34131 Amber Lantern Street
Dana Point, CA 92629

Southern California Edison
2244 Walnut Grove, Ave, GO-1 Quad 2C
Rosemead, CA 91770

Edwards AFB,
Mission Sustainability Liaison
412 TW, Bldg 2750, Ste 117-14
195 East Popson Avenue
Edwards AFB, CA 93524

U.S. Fish & Wildlife Service
777 East Tahquitz Canyon Way, Suite 208
Palm Springs, CA 92262

Environmental Protection Agency
Region IX Office
75 Hawthorn Street
San Francisco, CA 94105

U.S. Dept of Agriculture/NRCS
5080 California Avenue, Ste 150
Bakersfield, CA 93309-0711

U.S. Postal Service
Address Management Systems
28201 Franklin Parkway
Santa Clarita, CA 91383-9321

So. San Joaquin Valley Arch Info Ctr
California State University of Bkfd
9001 Stockdale Highway
Bakersfield, CA 93311

Caltrans, District 6
Planning/Land Bank Bldg.
P.O. Box 12616
Fresno, CA 93778

Caltrans, District 9
Planning Department
500 South Main Street
Bishop, CA 93514

State Dept of Conservation
Geologic Energy Management Division
4800 Stockdale Highway, Ste 108
Bakersfield, CA 93309

State Dept of Conservation
Geologic Energy Management Division
801 "K" Street, MS 20-20
Sacramento, CA 95814-3530

California Fish & Wildlife
1234 East Shaw Avenue
Fresno, CA 93710

California Regional Water Quality
Control Board/Lahontan Region
15095 Amargosa Road - Bld 2, Suite 210
Victorville, CA 92392

Kern County Public Works Department/
Building & Development/Floodplain

Kern County Public Works Department/
Building & Development/Survey

Kern County
Env Health Services Department

Kern County Fire Dept
David Witt, Interim Fire Chief

Kern County Fire Dept
Cary Wright, Fire Marshall

Kern County Library/Beale
Local History Room

Kern County Library/Beale
Andie Sullivan

Kern County Parks & Recreation

Kern County Sheriff's Dept
Administration

Kern County Public Works Department/
Building & Development/Development
Review

Kern County Public Works Department/
Building & Development/Code
Compliance

East Kern Air Pollution
Control District

Kim Family Trust
9563 Garden Grove Blvd
Garden Grove, CA 92844

Kern County Superintendent of Schools
Attention School District Facility Services
1300 - 17th Street
Bakersfield, CA 93301

Kern County Water Agency
P.O. Box 58
Bakersfield, CA 93302-0058

Sierra Sands Unified School Dist
113 Felspar
Ridgecrest, CA 93555

Adams, Broadwell, Joseph & Cardozo
Attention: Janet M. Laurain
601 Gateway Boulevard, Suite 1000
South San Francisco, CA 94080

Center on Race, Poverty
& the Environment
Attn: Marissa Alexander
1999 Harrison Street – Suite 650
San Francisco, CA 94612

Center on Race, Poverty
& the Environmental/
CA Rural Legal Assistance Foundation
1012 Jefferson Street
Delano, CA 93215

Defenders of Wildlife/
Kim Delfino, California Dir
980 - 9th Street, Suite 1730
Sacramento, CA 95814

Desert Tortoise Preserve Committee
4067 Mission Inn Avenue
Riverside, CA 92501

Native American Heritage Council
of Kern County
Attn: Gene Albitre
3401 Aslin Street
Bakersfield, CA 93312

Pacific Gas & Electric Co
Land Projects
650 "O" Street, First Floor
Fresno, CA 93760-0001

Sierra Club/Kern Kaweah Chapter
P.O. Box 3357
Bakersfield, CA 93385

Southern California Edison
Planning Dept.
510 S. China Lake Blvd.
Ridgecrest, CA 93555

Verizon California, Inc.
Attention Engineering Department
520 South China Lake Boulevard
Ridgecrest, CA 93555

David Laughing Horse Robinson
P.O. Box 20849
Bakersfield, CA 93390

Indian Wells Water
Management Committee
P.O. Box 1329
Ridgecrest, CA 93556

Joyce LoBasso
P.O. Box 6003
Bakersfield, CA 93386

Leadership Counsel for Justice &
Accountability
1527 - 19th Street, Suite 212
Bakersfield, CA 93301

LIUNA
Attn: Danny Zaragoza
2201 "H" Street
Bakersfield, CA 93301

Mojave Foundation
Attn: Todd Quelet
16922 Airport Boulevard
Mojave, CA 93501

National Public Lands News
941 E. Ridgecrest Blvd
Inyokern, CA 93555

Pleistocene Foundation
2362 Lumill Street
Ridgecrest, CA 93555

Raymond Kelso/
Pleistocene Foundation
2362 Lumill Street
Ridgecrest, CA 93555

Eastern Kern Resource Cons Dist
300 South Richmond Road
Ridgecrest, CA 93555-4436

U.S. Army
Attn: Tim Kilgannon, Region 9
Coordinator
Office of Strategic Integration
721 - 19th Street, Room 427
Denver, CO 80202

U.S. Air Force
Attn: David Bell/AFCEC CZPW
Western Regional/Leg Branch
510 Hickman Ave., Bld 250-A
Travis AFB, CA 94535-2729

U.S. Army
Attn: Philip Crosbie, Chief
Strategic Plans, S3, NTC
P.O. Box 10172
Fort Irwin, CA 92310

U.S. Marine Corps
Attn: Patrick Christman
Western Regional Environmental Officer
Building 1164/Box 555246
Camp Pendleton, CA 92055-5246

U.S. Navy
Attn: Steve Chung
Regional Community & Liaison Officer
1220 Pacific Highway
San Diego, CA 92132-5190

Union Pacific Railroad Company
1400 Douglas St, #160
Omaha, NE 68179-1610

Table of Contents

*Appendices included in attached CD

1.0 PROJECT SUMMARY

1.1 PROJECT LOCATION

The historic Ridgecrest Burn Dump #1 Remediation Project (proposed Project) is sited within the eastern portion of Kern County, California, approximately two miles southwest of the City of Ridgecrest and 0.28 miles south of the Brown Road, China Lake Boulevard, and State Highway 395 convergence (Figure 1). The project site is an approximately 17-acre fenced portion of Kern County Assessor's Parcel Number (APN) 511-020-03, located in Section 31 of Township 27 South, Range 40 East of the Mount Diablo Base and Meridian (Figure 2). The property is owned by the United States Department of the Interior - Bureau of Land Management (BLM). The property is accessed by an unnamed, unpaved BLM managed trail off of Highway 395. There are no existing wells or utilities located on the project site. Land uses on the project site and surrounding areas are described in Table 1 and shown on Figure 2.

Table 1: Project Site and Surrounding Land Uses

Direction from Project Site	Existing Land Use	Existing Map Code Designation	Existing Zoning Classifications
Project Site	Historic Burn Bump (approximately 17-acre portion of APN 511-020-03; which is 698.8 acres in total)	1.1; State and Federal Land	OS; Open Space
North	Undeveloped Open Space; Hwy 395, Brown Road, China Lake Blvd	1.1; State and Federal Land	OS; Open Space
East	Undeveloped Open Space, Union Pacific Rail Road, and Single Residence	1.1; State and Federal Land	OS; Open Space E(20); Estate 20 Acres
South	Undeveloped Open Space and Union Pacific Rail Road	1.1; State and Federal Land	OS; Open Space
West	Undeveloped Open Space and Undeveloped Residential	1.1; State and Federal Land 8.5; Resource Management (Min. 20 Acre Parcel Size)	OS; Open Space E(20) RS; Estate 20 Acres, Residential Suburban Combining

Source: Kern County General Plan; Kern County Zoning Ordinance via Kern County GIS

1.2 PROJECT BACKGROUND

The Ridgecrest Burn Dump #1 first opened in 1962 and was operated by the County of Kern and Kern County Public Works Department for a total of seven years, then closed in 1969. The site was leased from the BLM and open to the public for the disposal of non-hazardous household waste. During operations, the site was staffed by a County employee who maintained the site and ensured non-hazardous waste was accepted at the site.

The operational method of disposal at the proposed Project was trench and fill. Contractors were hired to excavate a trench approximately 10 feet below the natural ground surface. Household waste was then deposited in the pit and when a sufficient amount was accumulated, the waste was incinerated using an open burning method. Soil was placed intermittently between incinerated wastes for dust control. Once a trench reached capacity, a new trench was constructed and the soil from the excavation process was placed over the previous trench. The burn dump consists of a 3.7-acre footprint, containing an estimated 16,000 cubic yards of waste. A total of three parallel, northeast trending trenches were excavated and filled, approximately 60 feet wide and 630 feet long. When operations at the site ceased, additional soil was placed over the trenches. The thickness of the compacted soil cover ranges from three to four inches to four feet. Since closure, the site has not been used and remains inactive and structurally undeveloped.

The extent of the disposal area and waste characterization was discussed in the Solid Waste Assessment Questionnaire (SWAQ) prepared by Converse Environmental Waste (Converse, 1991, Appendix A). Ninyo & Moore prepared a Limited Site Investigation, in conjunction with Department of Resources Recycling and Recovery (CalRecycle), BLM, and County of Kern staff, to confirm the lateral extent of wastes, evaluate the presence and thickness of existing cover soil, and assess on-site soils for use as cover during the remediation process (Ninyo & Moore, 2017, Appendix B). Ninyo & Moore excavated ten exploratory test pit (potholes) at the central western area and nine test pits at the eastern area of the site. The western exploratory test pits confirmed the lateral extent of wastes at the site (as described above), and the eastern test pits provided information for the suitability of soils for use as final cover.

Geo-Logic Associates (GLA) prepared an evaluation of two conceptual closure alternatives for the burn dump: 1) covering the entire burn dump area (with at least two feet of clean soil), and 2) clean closure (removal of all waste and impacted soils) (GLA, 2017). The study recommended that the burn dump cover option be used at the site due to the lower cost, relatively low maintenance needs, and limited inhalation hazard and limited exposure of the burn dump ash during remediation. This option is used for most burn dump remediations throughout California.

The Kern County Public Health Services Department, Environmental Health Division, acting as the Local Enforcement Agency for CalRecycle, is responsible for conducting quarterly inspections of the proposed Project. The site is identified as #15-CR-0024 in the Solid Waste Information System. No existing Waste Discharge Requirements, Conditional Use Permit, or Permit to Operate applies to this project.

On January 26, 2016, a Notice of Intent was issued by the LEA citing the following on-going violations of Title 27, California Code of Regulations (CCR), Division 2 Chapter 3 Subchapter 5, Article 2:

- Site Security (Title 27 CCR Section 20530) – (abated October 24, 2016)
- Grading of Fill Surfaces (Title 27 CCR Section 20650)
- Site Maintenance (Title 27 CCR Section 20750)

In an effort to bring the site back into compliance, the BLM, CalRecycle, LEA, and County of Kern have worked collaboratively to assess, design, and develop a corrective action plan including complete burn dump remediation, cover construction, and postclosure maintenance for the Project site.

1.3 BURN DUMP WASTE CHARACTERIZATION

The burn dump is estimated to have a 3.7-acre footprint containing approximately 16,000 cubic yards of waste within three trenches. A subsurface investigation conducted as part of the 1991 SWAQ (Appendix A) determined the site did not contain hazardous substances, other than household hazardous wastes, and was characterized as follows:

- Household Waste – 39.8%

- Yard Rubbish – 30.9%
- Commercial – 10.4%
- Bottles/Cans/Metals – 13.6%
- Other – 5.3%

Laboratory analyses for inorganic persistent and bio-accumulative toxic substances by both Total Threshold Limit Concentration (TTLC) and Soluble Threshold Limit Concentration (STLC) was performed on samples collected from 10 separate borings drilled on site. All results evidenced concentrations below TTLC and STLC except for one sample which exceeded the TTLC for copper but was below the STLC. Metallic copper is a common household waste, and when in a pure metallic form (a copper penny) will exceed the TTLC test.

1.4 PROJECT DESCRIPTION

The objective of the proposed Project is to reduce the potential for environmental and public health and safety risks associated with unstable slopes and exposed waste by covering the burn dump area with a minimum two feet of compacted, clean soil that is graded to drain.

The proposed Project will include covering the disposal trenches with a minimum of two feet of soil as cover, including the areas in between the burn trenches. The cover system will be comprised of clean soil excavated from the adjacent on-site borrow area. Approximately 23,500 cubic yards of clean soil will be placed in the burn dump area. See Figure 3 for the proposed construction details, including the ash trench limits and borrow and staging areas.

At the start of construction, the burn dump area and borrow site will be cleared and grubbed. Surficial scatter, vegetation, and other residual materials will be collected and incorporated into the trench area prior to the placement of cover. The soil will be placed over the area and graded from the perimeter with a 3:1 slope until the thickness reaches the minimum two feet. The cover will be graded at an approximately 3.8% grade, which is similar to existing grades. A stormwater v-ditch will be graded on the east side of the cover to divert run-on water around the closed burn dump. Rip rap scour protection and geotextile will be included on the north side of the closure area to protect the existing drainage channel. Once construction is complete, the disturbed areas will be revegetated through drill seeding and hydroseeding.

The Kern County Public Health Services Department, acting as the Local Enforcement Agency, is the Lead Agency for the project. The United States Department of the Interior - Bureau of Land Management (BLM) jointly prepared a Categorical Exclusion Review and Approval to compliment the Project's MND. The document complies with BLM's National Environmental Policy Act requirements. The document is prepared to meet the NEPA / CEQA joint document requirement.

1.5 ENVIRONMENTAL SETTING

The Project is situated on the Indian Wells Valley Floor in the eastern desert of Kern County. The Project site ranges in elevation from about 2,795 to 2,745 feet above mean sea level and generally slopes east to west at roughly 3.2%. Surface water drainage currently sheet flows across the site and some stormwater locally collects in the existing ditch located near the north property line.

The immediate area surrounding the Project is non-irrigated open space and designated state and federal lands. The Project site is not in an area of agricultural importance and is outside the sphere of influence of the City of Ridgecrest's development. There are no airports or private airstrips in the immediate vicinity of the Project site. The Project is not designated for mineral or petroleum extraction. The Project area is in the northwestern portion of the Mojave Desert Air Basin (MDAB) for which the Eastern Kern Air Pollution Control District (EKAPCD) has jurisdiction to regulate air pollutant emissions. The MDAB is classified as non-attainment/marginal for the 8-hour O_3 National Ambient Air Quality Standards (NAAQS).

Eleven special status wildlife species and four special status plant species potentially occur within the Project area. Potential animal species consist of Mojave Desert tortoise, Mohave ground squirrel, Western burrowing owl, loggerhead shrike, golden eagle, prairie falcon, Le Conte's thrasher, American badger, and spotted bat. The potential plant species consist of Clokey's cryptantha, Red Rock Canyon monkeyflower, Red Rock poppy, and Charlotte's phacelia.

The Indian Wells Valley is a seismically active area. The principal geological structures responsible for shaping the geology of the Indian Wells Valley consist of several major and minor faults. The Sierra Nevada fault zone along the western margin of the valley, the Argus fault zone along the east side of the valley, and the Garlock fault located south of the El Paso Mountains. Minor faults have been mapped in the continental deposits and older and younger alluvium within the Indian Wells Valley (Geomatrix, 2008). No known faults cross the project site. These faults are mapped as offsetting Mesozoic-age bedrock in the project vicinity (CEW, 1991). The project is in an arid, dry, Mojave Desert environment with very little rainfall and a relatively deep-water table. Depth to groundwater in the Project vicinity is estimated to be 400-450 feet below ground surface (Kern County Public Works, 2019; Berenbrock and Martin, 1991). There is not a water supply well on-site.

The Project is not considered to be archeologically sensitive for cultural or tribal cultural resources. The Project area was most likely occupied in part by the Kawaiisu and the Western Shoshone. While the Kawaiisu's core territory was located further west, it is very likely that the seasonal range of the Kawaiisu extended as far east as the Amargosa River. Conversely, the core territory of the Western Shoshone was in central Nevada; however, seasonal trips extended as far west as Little Lake and potentially Indian Wells Valley.

1.6 MITIGATION MEASURES

To avoid potentially significant effects on the environment, the following mitigation measures have been included in the Project.

MM-1: A biologist must survey the site prior to the start of constructions for the presence of special status species.

MM-2: Site must be surveyed, and any potentially active special status burrows will be flagged and avoided since they can be used by Mohave ground squirrels, burrowing owls, tortoises, etc.

MM-3: Avoid all Cactus species. If avoidance is not possible, relocate said species.

MM-4: It is preferred the proposed action occurs outside of the general bird-nesting season (nesting is usually March 1 through August 31).

MM-5: Construction equipment and vehicles should be washed off offsite prior to ingress onto BLM lands to minimize spread of invasive seeds.

MM-6: If tortoise fence is not put up around the pit, then a biological monitor must be on onsite during construction to halt construction if a tortoise comes into the construction area. Only an Authorized Biologist may handle a tortoise.

MM-7: Prior to beginning work at this site project site, all workers engaged in activities will be educated about the desert tortoise, including awareness on its legal status, habitat requirements, activity patterns, and avoidance measures.

MM-8: When traveling on designated routes, a 15-mph speed limit will be enforced, and drivers will exercise care to observe and avoid desert tortoise.

MM-9: When outside of the tortoise fenced area, workers must check under their vehicles and equipment prior to moving/using them. If there is a desert tortoise under a vehicle or under/in equipment, the vehicle/equipment must not be moved/used until the desert tortoise leaves on its own accord.

MM-10: All trash and food items shall be promptly contained within closed, raven-proof containers or placed out of sight in vehicles with closed windows.

MM-11: Previously disturbed areas within the project site shall be utilized when possible for stockpiling of dirt, parking vehicles, and storing equipment.

MM-12: No holes/trenches should be left open overnight.

MM-13: In the event that undetected (i.e. buried) cultural or paleontological resources are encountered on the Project site at a future time during construction or soil excavation, work shall be halted, and a qualified archaeologist shall be contacted to evaluate the find in conformance with Section 15064.5.

MM-14:If human remains are uncovered during the course of construction or grading activities, the County shall immediately halt work, contact the Kern County Coroner to evaluate the remains, and follow the procedures and protocols set forth in Section 15064.4 (e)(1) of the California Environmental Quality Act Guidelines. If the County Coroner determines that the remains are Native American, the County shall contact the Native American heritage Commission, in accordance with Health and Safety Code 7050.5, subdivision (c), and Public Resources Code 5097.98 (as amended by Assembly Bill 2641).

MM-15: The SWPPP will include design and specifications that clearly detail the required temporary construction BMPs that shall be installed prior to and during construction to prevent any erosion that may occur during rain or wind events.

MM-16: The contractor shall include dust control measures to prevent visible dust plumes from leaving the project site. Temporary BMPs will be required to ensure that soils and/or hazardous waste are not transported from the site.

MM-17: In the event that tribal cultural resources are encountered during the course of grading or construction, the County shall cease any and all ground disturbing activities. A qualified archaeologist shall evaluate the significance of the resource(s). If the qualified archaeologist determines that the discovery represents a potentially significant cultural resource, additional investigations may be required to mitigate adverse impacts from project implementation.

2.0 KERN COUNTY ENVIRONMENTAL CHECKLIST FORM

2.1 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "potentially significant impact" as indicated by the Kern County Environmental Checklist on the following pages.

☐ Aesthetics	☐ Agricultural and Forestry Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Energy
☐ Geology / Soils	☐ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials
☐ Hydrology / Water Quality	☐ Land Use / Planning	☐ Mineral Resources
☐ Noise	☐ Population / Housing	☐ Public Services
☐ Recreation	☐ Transportation	☐ Tribal Cultural Resources
☐ Utilities / Service Systems	☐ Wildfire	☐ Mandatory Findings of Significance

2.2 DETERMINATION

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (a) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (b) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENT IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Amy Rutledge	July 6, 2020
Signature	Date
Amy Rutledge	Kern County Public Health/Environmental Health Division
Printed Name	For

3.0 EVALUATION OF ENVIRONMENTAL IMPACTS

(1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

(2) All answers must take account of the whole action involved, including offsite as well as onsite, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

(3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

(4) Negative Declaration: "Less than Significant with Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less-than-Significant Impact." The lead agency must describe the mitigation measure and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section XVII, "Earlier Analyses," may be cross-referenced).

(5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration, Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

(a) Earlier Analysis Used. Identify and state where they are available for review.

(b) Impacts Adequately Addressed. Identify which effects from the above checklist where within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

(c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Incorporated," describe the mitigation measures that were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

(6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

(7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

(8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

(9) The explanation of each issue should identify:

(a) The significance criteria or threshold, if any, used to evaluate each question; and

(b) The mitigation measure identified, if any, to reduce the impact to a less-than–significant level.

3.1 AESTHETICS

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☐	☒
d. Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

Discussion:

a. The California Department of Transportation (Caltrans) states “a highway may be designated scenic depending upon how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler’s enjoyment of the view.” Neither Caltrans nor the Kern County General Plan’s Circulation Element list designated scenic routes or highways in Kern County within the vicinity of the Project area. Therefore, the project site will not have a substantial adverse effect on a scenic vista, as there are none identified within the vicinity of the project site and will have no impact.

b. The Project site does not contain scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings. As stated above, there are no State Scenic Highways located within the project area or vicinity (Caltrans, 2018). Therefore, implementation of the proposed project would not result in impacts to scenic resources located within a State Scenic Highway and will have no impact.

c. The project site is in a rural area immediately surrounded by BLM managed lands. The exposed burn trenches and surface scatter currently at the site will be covered during the remediation activities, thus improving the visual aesthetic of the site after project implementation. As part of the proposed Project, the site will be re-graded to encapsulate and stabilize the burn ash then be re-planted with native vegetation. The visual character of the site will improve with Project implementation and therefore will have no impacts.

d. The proposed Project does not include the use of additional lighting sources as all remediation activities would occur during daylight hours. Therefore, the project would not introduce a new source of substantial light or glare that would adversely affect day or nighttime views in the area and will have no impact.

3.2 AGRICULTURE AND FOREST RESOURCES

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and the forest carbon measurement methodology provided in the Forest Protocols adopted by the California Air Resources Board. Would the project:				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use?	☐	☐	☐	☒
b. Conflict with existing zoning for agricultural use, or a Williamson Act Contract?	☐	☐	☐	☒
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒
f. Result in the cancellation of an open space contract made pursuant to the California Land Conservation Act of 1965 or Farmland Security Zone Contract for any parcel of 100 or more acres (Section 15205(b)(3) Public Resources Code)?	☐	☐	☐	☒

Discussion:

a. The project site is not identified as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance as designated by the California Department of Conservation, Farmland Mapping and Monitoring Program (FMMP, 2016). The entire project site is identified as Nonagricultural and Natural Vegetation on the Kern County Important Farmland 2016 Map; therefore, implementation of the proposed Project would not result in the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to a nonagricultural use and will have no impact.

b. The Project site is zoned OS (Open Space) and not currently under Williamson Act. No changes in land use are proposed for this Project. Whereas no postclosure uses are being proposed at this time and are unlikely in the future, as a remediated burn dump only non-irrigated uses would be allowed. Therefore, the Project would not result in a conflict with an existing Williamson Act contract or agriculture use and will have no impact.

c. The Project site and vicinity do not support forest land and are not zoned for forest land or timberlands. Therefore, implementation of the proposed Project will not result in impacts to forest lands or timber lands and will have no impact.

d. The Project site and vicinity do not support forest land and are not zoned for forest land or timberlands. Therefore, implementation of the proposed Project will not result in the conversion or loss of these lands and will have no impact.

e. Implementation of the proposed Project would not result in the conversion of land that is designated as Prime or Unique Farmland or forestland. Therefore, implementation of the proposed Project will not to result in the conversion of these lands and will have no impact.

f. As discussed above, the project site is not currently under Williamson Act contract and not located in an area of Prime or Unique Farmland. Implementation of the project would not result in the cancellation of an open space contract made pursuant to the California Land Conservation Act of 1965 or Farmland Security Zone Contract for any parcel of 100 or more acres (Public Resources Code Section 15206(b)(3) and will have no impact.

3.3 AIR QUALITY

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
Specifically, would implementation of the project exceed any of the following adopted thresholds:				
i. Eastern Kern Air Pollution Control District:	☐	☐	☒	☐
ii. Operational and Area Sources Reactive organic gases (ROG) a. 25 tons per year:	☐	☐	☒	☐
iii. Oxides of nitrogen (NO_X) a. 25 tons per year	☐	☐	☒	☐
iv. Particulate matter (PM_{10}) a. 15 tons per year:	☐	☐	☒	☐
v. Stationary Sources – as Determined by District Rules a. 25 tons per year:	☐	☐	☐	☒
c. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d. Result in other emissions (Such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☐	☒

Discussion:

a. The Federal Clean Air Act requires that the U.S. Environmental Protection Agency (EPA) establish National Ambient Air Quality Standards (NAAQS) to protect the health, safety, and welfare of the public. The National Ambient Air Quality Standards have been established for ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), PM_{10} and $PM_{2.5}$, and lead (Pb). California has also adopted ambient air quality standards (CAAQS) for these "criteria" air pollutants. CAAQS are more stringent than the corresponding NAAQS and include standards for hydrogen sulfide (H_2S), vinyl chloride (chloroethene) and visibility reducing particles. The U.S. Clean Air Act Amendments of

1977 required each state to identify areas that were in non-attainment of the NAAQS and to develop State Implementation Plans (SIP's) containing strategies to bring these non-attainment areas into compliance. The EPA has established the federal Prevention of Significant Deterioration (PSD) program to determine what comprises "significant impact levels" (SIL) to NAAQS attainment areas. A project's impacts are considered less than significant if emissions are below PSD SIL for a particular pollutant. When a SIL is exceeded, an additional "increment analysis" is required. As the Project would not include modification to the stationary source under New Source Review (NSR), it would not be subject to either PSD or NSR review. The PSD SIL thresholds are used with ambient air quality modeling for a CEQA project to address whether the project would "*violate any air quality standard or contribute substantially to an existing or projected air quality violation.*" Ambient air quality emissions estimates below the PSD SIL thresholds would result in less than significant ambient air quality impacts on both a project and cumulative CEQA impact analysis.

The Project area is located in the northwestern portion of the Mojave Desert Air Basin (MDAB) for which the Eastern Kern Air Pollution Control District (EKAPCD) has jurisdiction to regulate air pollutant emissions. The MDAB is classified as non-attainment/marginal for the 8-hour O_3 NAAQS and, as such, is subject to non-attainment NSR. Project emissions were estimated separately for each emission source. EMFAC model version 2014 and California Emissions Estimator Model (CalEEMod) were used to estimate emissions for both short-term, construction-related, sources as well as long-term, operations-related, sources. As calculated with CalEEMod, EMFAC2014, and AP-42 emission factors using the specified equipment listing (see Appendix C), the estimated short-term construction-related emissions would not exceed EKAPCD significance threshold levels during the construction year. Additionally, as the construction period is so short, daily Indirect Mobile Source emissions would be significantly less than the daily thresholds established by EKAPCD. Long-term operational emissions expected from this Project will only be from a maximum of one vehicle round trip per quarter to the site for inspections. Operational-related emissions, as estimated with EMFAC2014 (Appendix C), would be below the EKAPCD annual significance threshold levels. As operational emissions would be conducted over approximately four days per year, the Project will remain significantly less than the daily thresholds established by the EKAPCD. Therefore, the impacts on air quality are less than significant.

b. CEQA defines cumulative impacts as two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. The EKAPCD Guidelines for Implementation of CEQA also states that "Unless otherwise specified in published/adopted thresholds of significance and guidelines, a project's potential contribution to cumulative impacts shall be assessed utilizing the same significance criteria as those for project specific impacts." Based on the analysis conducted for this Project, the specific impacts are less than significant. The cumulative analysis quantifies operational and area impacts proposed by the Project as well as all identified projects within close proximity (six miles) of the project site. The analysis quantifies operational emissions from these other projects to determine the impacts to the air basin posed by these sources with the increases proposed by the project. Emissions are then compared to the proposed growth and anticipated emissions increases included in the various regional growth forecasts to determine: 1) if they were included in the forecast; 2) if their inclusion can be considered consistent with the attainment plan for air emissions within the air basin; and 3) if these emissions are in conformance with the State Implementation Plan emission budget or baseline emissions for ROG, NOx, CO and PM_{10}. The table below shows a comparative look at the impacts of the proposed Project to the MDAB Emissions Inventory. The proposed Project does not pose a significant increase to basin emissions.

Comparative Analysis Based on MDAB 2015 Inventory

Emissions Inventory Source	Pollutant (tons/year)					
	ROG	NOx	CO	SOx	PM10	PM2.5
Kern County – 2015	3,796	11,790	20,805	2,920	5,767	2,774
MDAB – 2015	22,046	56,356	85,739	4,015	49,531	13,578
Proposed Project	0.00012	0.0007	0.0008	0.0000	0.0001	0.0000
Proposed Project's % of Kern	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
Proposed Project's % of MDAB	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
Source: CARB 2017						

The Project's primary impacts are short-term and less than significant; therefore, the project impacts are less than significant on the air basin.

i-iv The Project would comply with applicable EKAPCD Rules and Regulations, the local zoning codes, and additional mitigation measures required in this analysis to reduce PM_{10} fugitive dust emissions even further to ensure that the project's emissions remain at a "*less than significant*" level. The Project's short-term emissions based on the various emission sources and anticipated construction period is presented in the table below.

Short-Term Project Emissions

Emissions Source	Pollutant (tons/year)					
	ROG	NOX	CO	SOx	PM10	PM2.5
2019 Unmitigated Construction Emissions	0.065	0.731	0.384	0.0001	0.150	0.081
2019 Mitigated Construction Emissions	0.065	0.731	0.384	0.0001	0.078	0.048
EKAPCD Threshold	25	25	NA	27	15	15
Is Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**
Source: Insight Environmental Consultants 2017						

As calculated with CalEEMod, EMFAC 2014, and AP-42 emission factors using the specified equipment listing, the estimated short-term construction-related emissions would not exceed EKAPCD significance threshold levels for ROG, NOx, CO, SOx, PM_{10} or $PM_{2.5}$. Additionally, as the construction period is so short, daily Indirect Mobile Source emissions would be significantly less than daily thresholds established by EKAPCD; therefore, the Project impact is less than significant.

v. Air pollutant emissions sources are typically grouped into two categories: stationary and mobile sources. Stationary sources are further divided into two major subcategories: point sources and area sources. Point sources consist of a single emission source with an identified location point at a facility. Point sources are usually associated with manufacturing and industrial processes, such as boilers, spray booths or degreasers. Area sources are small emission sources that are widely distributed but may have substantial cumulative emissions; examples include residential water heaters, small engines, and consumer products, such as barbecue lighter fluid and hair spray. The EKAPCD Rule 210.1 defines a stationary source as: any structure, building, or installation which emits or may emit any affected pollutant directly, or as a fugitive emission. The proposed Project plan does not involve a stationary source of air pollutant emissions, therefore to the propose Project will have no impact.

2020 Emissions Projections – Proposed Project, Kern County and MDAB

	ROG	NOx	PM_{10}
Proposed Project	0.00012	0.0007	0.0001
Kern County	3,577	11,315	5,913
MDAB	20,842	51,246	52,378
Proposed Project Percent of Kern County	0.000%	0.000%	0.000%
Proposed Project Percent of MDAB	0.000%	0.000%	0.000%
Kern County Percent of MDAB	17.16%	22.08%	11.29%

Source: CARB 2017
Note:
1) The emission estimates for Kern County and MDAB are based on 2020 projections. The proposed Project emission estimates are for the proposed emissions that are not already include in the MDAB Emissions Inventory. Project emissions are conservatively based on year 2019 (Project operations are anticipated to start in the Year 2020). The Project's emissions are expected to decline as cleaner, less polluting vehicles with higher emissions.
2) Percentages equaling 0.0000 could represent a percent <0.00005.

On a regional basis, the proposed Project represents less than 0.00005% of the ROG and NOx emissions of the 2012 inventory of the MDAB. The air basin emissions would essentially be unchanged with or without the Project; therefore, the projected emissions posed by the Project upon the air basin will be less than significant.

c. Sensitive receptors are defined as locations where young children, chronically ill individuals, the elderly or people who are more sensitive than the general population reside, such as schools, hospitals, nursing homes, and daycare centers. There are no known non-residential sensitive receptors within 2 miles of the Project site. Based on the criteria pollutant analysis above and the potential visibility, health, and odor impacts analyzed, the proposed Project is less than significant.

d. An evaluation is typically conducted for both of the following situations: 1) a potential source of objectionable odors is proposed for a location near existing sensitive receptors, and 2) sensitive receptors are proposed to be located near an existing source of objectionable odors. The criteria for this evaluation are based on the Lead Agency's determination of the proximity to one another of the proposed project and the sensitive receptors. Commercial and industrial sources are not considered sensitive receptors. No known sensitive receptors are in relatively close proximity (within a two mile radius) to the project area. The proposed Project is not considered a source of objectionable odors or odorous compounds. Furthermore, there does not appear to be any significant source of objectionable odors in close proximity that may adversely impact the project site when it is in operation. As such, the proposed project will not be a source of any odorous compounds nor will it likely be impacted by any odorous source. Therefore, no impacts will occur.

3.4 BIOLOGICAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or United States Fish and Wildlife Service?	☐	☒	☐	☐
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or United States Fish and Wildlife Service?	☐	☐	☐	☒
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f. Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Discussion:

a. Based on an initial review of applicable databases including the United States Fish and Wildlife Service's (USFWS) Information for Planning and Conservation (IPaC) database (USFWS 2018), the California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB; CDFW 2018), and the California Native Plant Society's (CNPS) Rare Plant Inventory (CNPS, 2018), a cumulative list of species with the potential to occur in the project vicinity has been generated. This list includes 4 plant and 11 wildlife species that are considered special-status species.

A biological resource assessment was conducted on the Project area in August 2018 by Dudek (Dudek, 2018, Appendix D). Habitat that may support special status species is located on site; therefore, there is a potential for special status species to occur on site and be impacted by construction. Special status species known to occur near the Project site include, but are not limited to, Mojave Desert Tortoise (*Gopherus agassizii*), Mohave Ground Squirrel (*Xerospermophilus mohavensis*), and migratory birds. A full list of special status wildlife and plant species known to occur near the site can be found in the Ridgecrest Burn Dump Habitat Assessment Survey (Appendix A). Although these species are known to occur in the vicinity of the project, no special status species were identified during the site survey. There is a potential for sensitive species to be present and impacted at the Project site absent of mitigation.

According to the habitat assessment survey, habitat present within the Project area is primarily a creosote bush habitat that can be found widely throughout the Mojave Desert. The western and southern sides of the Project site are mostly untouched natural areas of creosote bush scrub, covering approximately 40 percent of the area. The remainder of the project site consists of disturbed habitat and disturbed non-native grassland. The creosote bush scrub alliance is ranked as G5S5 (secure in state and globally). The creosote bush, disturbed non-native grassland, and disturbed habitats on site are not considered sensitive biological resources by CDFW under CEQA (Dudek, 2018). As identified in Figure 2 of Dudek's report, the burn material is within an area of disturbed habitat, adjacent to disturbed non-native grassland, and north of the established creosote bush scrub area.

The following will be implemented to reduce and mitigate potentially significant impacts on all sensitive species and their habitat to a less than significant level with mitigation incorporated. Mitigation measures presented below are consistent with the biological and tortoise stipulations as presented within the Bureau of Land Management's Categorical Exclusion Review and Approval.

MM-1: A biologist must survey the site prior to the start of constructions for the presence of special status species.

MM-2: Site must be surveyed, and any potentially active special status burrows will be flagged and avoided since they can be used by Mohave ground squirrels, burrowing owls, tortoises, etc.

MM-3: Avoid all Cactus species. If avoidance is not possible, relocate said species.

MM-4: It is preferred the proposed action occurs outside of the general bird-nesting season (nesting is usually March 1 through August 31).

MM-5: Construction equipment and vehicles should be washed off offsite prior to ingress onto BLM lands to minimize spread of invasive seeds.

MM-6: If tortoise fence is not put up around the pit, then a biological monitor must be on onsite during construction to halt construction if a tortoise comes into the construction area. Only an Authorized Biologist may handle a tortoise.

MM-7: Prior to beginning work at this site project site, all workers engaged in activities will be educated about the desert tortoise, including awareness on its legal status, habitat requirements, activity patterns, and avoidance measures.

MM-8: When traveling on designated routes, a 15-mph speed limit will be enforced, and drivers will exercise care to observe and avoid desert tortoise.

MM-9: When outside of the tortoise fenced area, workers must check under their vehicles and equipment prior to moving/using them. If there is a desert tortoise under a vehicle or under/in equipment, the vehicle/equipment must not be moved/used until the desert tortoise leaves on its own accord.

MM-10: All trash and food items shall be promptly contained within closed, raven-proof containers or placed out of sight in vehicles with closed windows.

MM-11: Previously disturbed areas within the project site shall be utilized when possible for stockpiling of dirt, parking vehicles, and storing equipment.

MM-12: No holes/trenches should be left open overnight

b. The USFWS National Wetlands Inventory Mapper query resulted in no known riparian habitats on the Project site. There are no wetlands or fish found on the project site. The Project would not have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or United States Fish and Wildlife Service. No impacts will occur.

c. The Project is not located in or near the vicinity of a state or federally protected wetlands. The USFWS National Wetlands Inventory Mapper query resulted in no known mapped jurisdictional drainages or wetlands within the Project site. Based on the survey, drainage features observed within the study area originate from flows from the dirt roadway to the east as water flows westward into the project site as road runoff and either flows off site and dissipate into the desert floor, evaporating or infiltrating into the groundwater basin. However, these features would not be considered jurisdictional waters of the United States/state (Dudek, 2018). The Inventory Mapper identifies a riverine one-half mile east and west of the site. The Project disturbance area will not impact the riverine and will not include direct removal, filling, or hydrological interruption of a marsh, vernal pool, or other protected wetlands. No impacts will occur.

d. The California Essential Habitat Connectivity Project was queried for Essential Habitat Connectivity, which are the best available data describing important areas for maintaining connectivity between large blocks of land for wildlife corridor purposes (CDFW 2018). These important areas are referred to as Essential Connectivity Areas (ECA). ECAs are only intended to be a broad scale representation of areas that provide essential connectivity. It is expected that additional linkages will be identified as new data becomes available for various species. According to the existing data, the project site is not located within or adjacent to a designated ECA. No impacts to the movement of any native resident or migratory fish or wildlife species or their corridors will occur.

e. The Project will not conflict with local policies or ordinances that protect biological resources. The project falls under the jurisdiction of the Kern County General Plan and Zoning Ordinance and is in compliance with requirements of these documents. The project site does not contain oak trees. The Project will not conflict with local policies or ordinances that protect biological resources.

f. The proposed project site is not located within an adopted Habitat Conservation Plan or Natural Community Conservation Plan Area. No impacts will occur.

3.5 CULTURAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines Section 15064.5?	☐	☒	☐	☐
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5?	☐	☒	☐	☐
c. Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐

Discussion:

(a-b) In general, CEQA considers a historical resource as any resource that: (1) is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage; (2) is associated with lives of persons important in our past; (3) embodies the distinctive characteristic of a type, period, region, or method of construction or represents the work of an important creative individual, or possesses high artistic value; or (4) has yielded, or may be likely to yield, information important in prehistory or history.

Additionally, CEQA considers an archaeological resource as any site that meets the definition of a historic resource or meets the definition of a unique archaeological resource. An archaeological resource will be unique if it: (1) is associated with an event or person of recognized significance in California or American history or recognized scientific important in prehistory; (2) can provide information of demonstrable public interest and is useful in addressing scientifically consequential and reasonable research questions; or (3) has a special or particular quality such as oldest, best example, largest, or last surviving example of its kind.

The Project does not involve the demolition, destruction, relocation, or alteration of historical resources as defined under CEQA. A cultural resources assessment, which included an archival records search and an intensive field pedestrian survey, was conducted for the Project site by Stantec Consulting Services, Inc. covering the 42.5-acre area of potential effect around the burn dump site (Stantec, 2018, Appendix E). Objects associated with the former operational use of the site as a disposal site, including household glass and metal, were observed in a deteriorated condition as a result of extensive burning. Based on archival research and data gathered in the field, the newly documented resource had lost most of its integrity and did not retain sufficient research potential to individually qualify for the inclusion to the National Historic Preservation Act (NHRP). It was determined that the cultural resources discovered at the site do not meet the eligibility criteria for inclusion in the National Register according to the CEQA definition above (Stantec, 2018). As part of AB 52 consultation, letters containing maps and project information were sent to multiple tribal contacts listed by the Native American Heritage Commission (Stantec, 2018) on September 16, 2019. One comment was received from the San Manuel Band of Missions Indians stating the project is located outside of ancestral lands. Secondary notifications were sent without further comment received.

Due to the excavation of the proposed borrow area, there is the potential that previously unidentified and undetected cultural or paleontological resources may be discovered on the Project site at a later date. In order to mitigate any potentially significant impacts to cultural resources from the Project to a less than significant level, MM-8 will be implemented.

MM-13: In the event that undetected (i.e. buried) cultural or paleontological resources are encountered on the Project site at a future time during construction or soil excavation, work shall be halted, and a qualified archaeologist shall be contacted to evaluate the find in conformance with Section 15064.5.

c. Due to the history of disturbance at the site, including disking activities and extensive burning of materials, discovery of human remains during earthmoving activities is not anticipated. Based on the cultural resources assessment prepared by Stantec Consulting Inc., it is not expected that human remains would be found within the Project area. However, if human remains are found as a result of earth moving activities during the project, work will be halted and the coroner immediately called, as dictated by Health and Safety Code 7050.5 and Public Resources Code 5097.98. The incorporation of MM-9 will reduce any potential impacts from the Project on human remains to a less than significant level.

MM-14: If human remains are uncovered during the course of construction or grading activities, the County shall immediately halt work, contact the Kern County Coroner to evaluate the remains, and follow the procedures and protocols set forth in Section 15064.4 (e)(1) of the California Environmental Quality Act Guidelines. If the County Coroner determines that the remains are Native American, the County shall contact the Native American heritage Commission, in accordance with Health and Safety Code 7050.5, subdivision (c), and Public Resources Code 5097.98 (as amended by Assembly Bill 2641).

3.6 ENERGY

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

Discussion:

a. The Project will not result in wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation. The construction of the proposed Project is anticipated to last approximately 30-45 days, and the site will remain as open space upon completion, with no stationary equipment or facilities. During construction, the consumption of energy resources will be limited to diesel fuel and gasoline necessary to operate the equipment for remediation activities. The only consumption of energy as a result of operational activities will be the consumption of fuel for travel, necessary to comply with annual inspection requirements. Equipment type and usage was analyzed in the Air Quality Impact Analysis (Insight, 2018). Use of energy resources will be temporary and limited. The Project impacts will be less than significant.

b. The Project does not involve energy consumption that would conflict with or obstruct a state or local plan for renewable energy or energy efficiency. The Kern County General Plan – Energy Element is the local comprehensive document defining critical energy related issues in Kern County and sets forth goals, policies, and implementation measures to protect the County's energy resources and protect the public's health, safety, and the environment. The implementation of the project does not conflict with any goals and policies as established in the Energy Element. The Project does not include the construction of a building or structure that is subject to California Building Code standards and therefore not applicable to energy efficiency standards. Project implementation will have no impacts.

3.7 GEOLOGY AND SOILS

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
Would the project:				
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii. Strong seismic ground shaking?	☐	☐	☒	☐
iii. Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv. Landslides?	☐	☐	☒	☐
b. Result in substantial soil erosion or the loss of topsoil?	☐	☒	☐	☐
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☐	☒
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☐	☒
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒

Discussion:

a. (i-iv) The Project site is located within an area that is susceptible to strong ground shaking associated with seismic events. The principal geological structures responsible for shaping the geology of the Indian Wells Valley consist of several major and minor faults. The Project site is located in a historically seismic area and is situated between the Little Lake Fault Zone, approximately five miles north, and the Garlock Fault Zone, located approximately 7 miles south (California Department of Conservation, Division of Mines and Geology, 2016). No known faults cross the project site. No permanent structures will be constructed within the project area. The closure cap will be in compliance with applicable construction standards and designed to accommodate the anticipated seismic loading of the maximum probable earthquake. If damage to the closure cap were to occur during an act of nature (such as an earthquake), repairs to the site to bring it back in compliance within regulatory standards will occur. Therefore, the proposed Project would not expose people or structures to potential substantive adverse effects related to seismic activity, strong seismic-ground shaking, and is not prone to liquefaction and potential impacts would be less than significant.

b. The Project will include the temporary movement and stockpile of soil materials on site. During grading activities, there is a potential for soil erosion. Once final construction is complete, no stockpiles will remain on site and the area will re-vegetated with a mixture of native seed and manure (provided by Ridgecrest Regional Wild Horse and Burro Corrals) to reduce erosion potential. Work will be conducted under a Construction Stormwater Pollution Prevention Plan (SWPPP) which includes Best Management Practices (BMPs) to minimize soil loss and erosion during construction. Impacts are less than significant with mitigation incorporated.

MM-15: The SWPPP will include design and specifications that clearly detail the required temporary construction BMPs that shall be installed prior to and during construction to prevent any erosion that may occur during rain or wind events.

c. Based on the Kern County Seismic Hazard Atlas, there are no mapped landslides at the site. The topography of the area, a relatively flat alluvial fan, makes it unlikely that the facility would become unstable as a result of the burn dump remediation and construction (KCSA 2012).

The Kern County Seismic Atlas does not indicate mapped faults at the site. This does not preclude the presence of an unmapped fault or a fault in the subsurface. Based on information reviewed, lateral spreading, subsidence, liquefaction, or collapse at the site are considered unlikely. Liquefaction and lateral spreading are typically associated with saturated sediments. The site is in a desert environment with little rainfall and a relatively deep-water table. These conditions are not conducive to lateral spreading or liquefaction. No impacts will occur.

d. Expansive soil is fine-grained clay which occurs naturally and is general found in areas that historically were a floodplain or lake area. The *Soil Survey of Kern County, Northeastern Part, and Southeastern Part of Tulare County*, *California* does not include maps for the site. However, based on soils typical in the area, it is unlikely that the site is underlain by expansive soils. It is anticipated that the material is granular sand and gravel with little clay. No permanent structures are proposed to be constructed on the Project site. There will be no impacts.

e. The Project area is not located on expansive soil and no septic tanks or wastewater disposal systems are proposed as a part of this project. No impacts will occur.

f. No unique paleontological resources or unique geological features are identified at the site. Therefore, the Project will not directly or indirectly destroy a unique paleontological feature. No impacts will occur.

3.8 GREENHOUSE GAS EMISSIONS

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b. Conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒

Discussion:

a. Assembly Bill 32 (AB32), the California Global Warming Solutions Act of 2006, defines greenhouse gas emissions (GHGs) as all of the following gases: carbon dioxide (CO_2) methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride. GHGs are generated by human activity. Since the pre-industrial times, there has been a build-up of levels of gases like CO_2 in the atmosphere. Fossil fuel combustion accounts for approximately 98 percent of CO_2 emissions from human activity. AB32 charges CARB with responsibility to monitor and regulate sources of GHG emissions in order to reduce those emissions.

The primary source of GHG emissions from the proposed project during construction would be mobile sources. Not all GHGs exhibit the same ability to induce climate change; therefore, GHG contributions are commonly quantified in carbon dioxide equivalencies. The carbon dioxide equivalent (CO_2e) portion of GHGs from the proposed project was independently studied by Insight Environmental Consultants in an Air Quality Impact Analysis (AQIA).

The Governor's Office of Planning and Research (OPR) released CEQA Guidelines amendments that guide public agencies regarding how to analyze the impacts of climate change gas emissions generated by new projects on the environment. These guidelines are consistent with Kern County's current approach to analyzing GHG emissions and impacts. The Eastern Kern Air Pollution Control District (EKAPCD) adopted Project-Specific CEQA significance thresholds for GHG emissions from the Addendum to CEQA Guidelines Addressing GHG Emission Impacts for Stationary Source Projects When Serving As Lead CEQA Agency. As outlined in the Addendum, a project is considered to have a less than significant impact or not have a cumulatively considerable impact on GHG emissions if it meets one of the following conditions:

1. Project-Specific GHG emissions are less than 25,000 tons per year (tpy);
2. Project demonstrates to EKAPCD that it is in compliance with state GHG reduction plan such as AB 32 or future federal GHG reduction plan if it is more stringent than state plan;

3. Project GHG emissions will be mitigated to a less than significant impact if GHGs can be reduced by at least 20% below Business-As-Usual (BAU) through implementation of one or more of the following strategies:

    i. Compliance with a Best Performance Standard (BPS) as set forth in Section VI of this Policy;

    ii. Compliance with GHG Offset as detailed in Section VI of this Policy;

    iii. Compliance with an Alternative GHG Reduction Strategy as discussed in Section VII of this Policy.

Criteria and GHG emissions were estimated using the California Emissions Estimator Model (CalEEMod) version 2016.3.1 (California Air Pollution Control Officers Association (CAPCOA) 2016), the California EPA's EMFAC 2014 Web database (California Air Resources Board (CARB) 2016) and the California Climate Action Registry General Reporting Protocol (Climate Action Registry 2009).

Estimated Annual GHG Emissions (Tons/Year)

Source	CO_2	CH_4	N_2O	CO_2e
Construction Emissions - 2019	88.297	0.027	0.000	88.970
Annualized Construction Emissions[1]	2.943	0.001	0.000	2.966
Total Project Operational Emissions	0.231	0.000	0.000	0.242
Total Project Emissions	3.174	0.001	0.000	3.208
EKACPD's Significance Threshold	**-**	**-**	**-**	**25,000**
Significance Threshold Exceeded?	**-**	**-**	**-**	**NO**

*Note: 0.000 could represent <0.0005
[1] Per South Coast AQMD's Methodology: Construction emissions are annualized over a 30 year period.
[2] California Climate Action Registry Reporting Protocol (Version 3.1).

The Project will not result in the emissions of hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), or sulfur hexafluoride (SF_6), the other gases identified as GHG in AB32. The proposed Project does not exceed EKAPCD's GHG Policy threshold of 25,000 MT of CO_2e per year (EKAPCD 2012), and therefore will have a less than significant GHG impact.

b. CEQA Guidelines and the Federal Clean Air Act (Sections 176 and 316) contain specific references on the need to evaluate consistency between a proposed project and the applicable Air Quality Attainment Plan (AQAP) for the Project site. Air quality impacts from proposed projects within the eastern Kern County are controlled through policies and provisions of the EKAPCD and the Kern County General Plan. In order to demonstrate that a proposed project would not cause further air quality degradation in either of the EKAPCD's plan to improve air quality within the air basin or federal requirements to meet certain air quality compliance goals, each project should also demonstrate consistency with the EKAPCD's adopted AQAP. CARB has developed a three-step approach to determine project conformity with the applicable AQAP:

1. *Determination that an AQAP is being implemented in the area where the Project is being proposed*. <u>The EKAPCD has implemented the current, modified, AQAP as approved by the CARB. The current AQAP is under review by the U.S. EPA.</u>

2. *The proposed Project must be consistent with the growth assumptions of the applicable AQAP.* The proposed Project is included within the population and employment increases projected in the Kern County General Plan.

3. *The Project must contain in its design all reasonably available and feasible air quality control measures.* The proposed Project incorporates various policy and rule-required implementation measures that will reduce related emissions.

The Kern Council of Governments (Kern COG) Regional Conformity Analysis Determination demonstrates that the regional transportation expenditure plans (Destination 2030 Regional Transportation Plan and Federal Transportation Improvement Program) in the Kern County portion of the Mojave Desert air quality attainment areas would not hinder the efforts set out in the CARB's SIP for each area's non-attainment pollutants (CO, O_3, and PM_{10}). The analysis uses an adopted regional growth forecast, governed by both the adopted Kern COG Policy and Procedure Manual and a Memorandum of Understanding between the County of Kern and Kern COG (representing itself and outlying municipal member agencies). Under current Kern County Zoning, the Project site is designated as "OS" for Open Space and would be included in the regional growth forecast. Given there is already enough population and employment to account for the proposed Project, the Project is consistent with the regional growth forecast. Based on the information presented above and consistency with plans, policies, or regulations adopted for the purpose of reducing the emissions of greenhouse gases, the Project appears to be consistent with the AQAP. Therefore, there is no impact.

3.9 HAZARDS AND HAZARDOUS MATERIALS

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	☒
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☒	☐	☐
c. Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e. For a project located within the adopted Kern County Airport Land Use Compatibility Plan, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f. Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
h. Would implementation of the project generate vectors (flies, mosquitoes, rodents, etc.) or have a component that includes agricultural waste? Specifically, would the project exceed the following qualitative threshold: The presence of domestic flies, mosquitoes, cockroaches, rodents, and/or any other vectors associated with the project is significant when the applicable enforcement agency determines that any of the vectors:				
i. Occur as immature stages and adults in numbers considerably in excess of those found in the surrounding environment; and	☐	☐	☐	☒
ii. Are associated with design, layout, and management of project operations; and	☐	☐	☐	☒
iii. Disseminate widely from the property; and	☐	☐	☐	☒
iv. Cause detrimental effects on the public health or well-being of the majority of the surrounding population.	☐	☐	☐	☒

Discussion:

a. Solid and hazardous waste will not be transported, used, or disposed of from the Project area. The burn ash will be capped in place at the Project site. Because there will be no transportation, use, or disposal of hazardous waste, no impacts will occur.

b. A Solid Waste Assessment Questionnaire (Appendix A) was completed for the proposed Project in January 1991. The site's waste characterization includes household waste (39.8%), yard rubbish (30.9%), commercial (10.4%), bottle/can/metal (13.6%), and other (5.3%). The analytical results of the 1991 SWAQ indicated the following:

- Exposed burn ash and residual burn waste was identified at the site; and
- One sample collected 6 feet below grade exceeded the Total Threshold Limit Concentration for copper but tested below the Soluble Threshold Limit Concentration.

The exposed burn ash and residual waste has the potential to have impacts on human and environmental health, particularly in an airborne capacity and is the reason for the proposed remediation project. The laboratory analysis of samples collected confirm the absence of hazardous materials in fill material at the project site. The highest potential of hazardous waste contamination or accident conditions would be through airborne transportation of contaminated soils. Remediation plans call for capping the burn ash in place with 2 feet of soil, hence minimizing the potential risks of exposure. To reduce that risk, the following mitigation will be implemented.

MM-16: The contractor shall include dust control measures to prevent visible dust plumes from leaving the project site. Temporary BMPs will be required to ensure that soils and/or hazardous waste are not transported from the site.

Therefore, a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment are less than significant with mitigation incorporated.

c. The Project site is not located within ¼ mile of an existing or proposed school. The nearest public school is Faller Elementary and is located over 4 miles from the Project site. (Kern County Online Mapping system, 2018). No impacts will occur.

d. The Ridgecrest Burn Dump is not on the State list of hazardous sites per California Government Code 65962.5 (California Department of Toxic Substances and Control, 2018). Therefore, the Project does not create a significant hazard to the public or the environment and no impact will occur.

e. The Project is not located in any area regulated by the Kern County Airport Land Use Compatibility Plan (Kern County Planning and Community Development Department, 2012). The proposed project site is located approximately 7 miles southeast of the Kern County – Inyokern Airport. No impact will occur.

f. The Project will not impair implementation of an emergency response or evacuation plan. During construction, all evacuation routes will be maintained. No impact will occur.

g. There are no wildfire hazard conditions in the Project area. The site is not identified as being in an urban wild land fire interface area on the August 5, 2009 Fire Hazards map (Kern County Online Mapping System, 2018). No impacts will occur.

h. The Ridgecrest burn dump is a historic burn dump site that has been out of operation since 1969. No organic waste remains at the site as a result of the burn process and extensive length of time that waste have remained undisturbed on site. The Project will result in the movement of soil to cover exposed burn ash areas. The final site cover will consist of compacted earthen cover as required by *LEA Advisory #56 – Process for Evaluating and Remediating Burn Dump Sites*. The final cover design of the Project site and absence of organic materials at the Project site will not create conditions favorable to the generation of vectors. No impacts will occur.

3.10 HYDROLOGY AND WATER QUALITY

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☐	☒
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i. Result in substantial erosion or siltation on or off site	☐	☐	☒	☐
ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site;	☐	☐	☒	☐
iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;	☐	☐	☐	☒
iv. Impede or redirect flood flows?	☐	☐	☐	☒
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

Discussion:

a. Implementation of the proposed Project would require the preparation of a Stormwater Pollution Prevention Plan (SWPPP) to determine the project's potential impacts on water quality caused by stormwater runoff. Since project construction would encompass an area greater than one acre, the project would be subject to a General Construction Permit under the National Pollution Discharge Elimination System (NPDES) permit program of the federal Clean Water Act. As required under the General Construction Permit, the project proponent (or contractor) would prepare and implement a SWPPP. The SWPPP would require submittal of a Notice of Intent to the Central Valley Regional Water Quality Control Board (RWQCB) prior to commencement of construction activities. Implementation of the SWPPP would begin with the commencement of construction and continue through the completion of the project. The objectives of a SWPPP are to identify pollution sources that may affect the quality of stormwater discharge and to implement BMPs to reduce pollutants in stormwater.

   During construction, ground disturbance and capping of the existing waste trenches could increase the potential for erosion on the site. Erosion control BMPs will be put in place to prevent the mobilization of exposed sediment. Soils testing was completed by Ninyo and Moore and confirmed the area of proposed borrow to be adequate for use as cover (Ninyo & Moore 2017). Following construction, the site will be revegetated with native plants. Therefore, impacts are less than significant

b. The Project is in the Indian Wells Valley Groundwater Basin. The basin is not on the list of adjudicated groundwater basins and sub-basins according to the California Water Plan (updated in 2013) and listed in the California Statewide Groundwater Elevation Monitoring Program as a medium priority. The proposed Project will not have an impact on groundwater supply or interfere with groundwater recharge efforts. Whereas no direct groundwater pumping will occur on the project site, water trucks will be brought in for construction related functions as part of the project. Water use will be limited to the 30-45 day construction period (for dust control and construction activities) with no ongoing operational water needs. The volume of water proposed will not impede sustainable groundwater management in the area. No impacts will occur.

c. The proposed Project includes the placement of two feet of soil, grading from the perimeter with a 3:1 slope, revegetation, rip rap protection, and geotextile improvements. The cover will be graded at an approximately 3.8% grade, which is similar to existing grades. No substantial alteration to existing drainage is anticipated. A hydrology study (Kern County Public Works, 2018) was prepared for the Project demonstrating all surface flows from watershed "A" drain north westerly and will not affect the grading design of the burn dump. Run-off from the watershed draining in the direction of the burn dump will be stored so the grading design is not altered. All other flow will flow off-site to match existing conditions. Run-off volume produced by the watershed conveying flow into the site will be approximately 7.57 ac-ft, and the on-site sump with be designed to adequately store approximately 8.05 ac-ft. Soil loss is approximately 0.05 in/year. There are no streams or rivers located within the project site or immediate vicinity; therefore, the proposed project would not alter the course of a stream or river. No impervious surfaces are proposed. Therefore, impacts associated with the existing drainage pattern are less than significant for sections (i) and (ii) and no impacts for sections (iii) and (iv).

d. The Project is located in an arid region of the Mojave Desert. Site conditions at the Ridgecrest burn dump are not conducive to inundation by seiche, tsunami, or mudflow. No impacts will occur.

e. The Project is in the Indian Wells Valley Groundwater Basin. The basin is not on the list of adjudicated groundwater basins and sub-basins according to the California Water Plan but is subject to SB 1938 which guides groundwater management in the area. The proposed Project will not conflict with or obstruct implementation of a management plan. Water use will be limited to the construction period of 30-45 days for dust control and construction activities with no ongoing operational water demands. The volume of water proposed will not impede sustainable groundwater management in the area. The proposed Project will not have an impact on groundwater supply. No impacts will occur.

3.11 LAND USE AND PLANNING

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Physically divide an established community?	☐	☐	☐	☒
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

Discussion:

a. The proposed project is in an undeveloped portion of Kern County, approximately 2 miles southwest of the developed area of the City of Ridgecrest. There is no established community at the project site. Therefore, the proposed project would not physically divide an established community and no impacts will occur.

b. The proposed Project is owned by the federal Bureau of Land Management and subject to the Kern County General Plan and the Kern County Zoning Ordinance. The Project site is designated Map Code 1.1 (State and Federal Land) in the Kern County General Plan and is Zone District OS (Open Space) (Kern County Online Mapping, 2018). The project does not include or propose any land use changes and does not lie within the boundaries of any specific regional land use plans. No impacts will occur.

3.12 MINERAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

Discussion:

a. Based on online spatial data provided by the United States Geologic Service (USGS), there are no known mineral resources located on the Project site (USGS 2018). The Project site is not designated Map Code 8.4 (Mineral and Petroleum) in the Land Use, Open Space and Conservation Element of the Kern County General Plan. No impact will occur.

b. As stated previously, the nearest known mineral resources recovery site is located approximately 7.5 miles west of the project site. The proposed Project is not designated Map Code 8.4 (Mineral and Petroleum) in the Land Use, Open Space and Conservation Element of the Kern County General Plan, and therefore, the Project would not result in the loss of known mineral resources of value to the region or State of California. No impact will occur.

3.13 NOISE

Would the project result in:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?	☐	☐	☒	☐
b. Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☒
c. For a project located within the vicinity of a private airstrip or the Kern County Airport Land Use Compatibility Plan, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Discussion:

a. Heavy equipment used during construction has the potential to generate a substantial temporary, short-term increase in ambient noise levels in the project vicinity above levels existing without the project. Construction activities associated with the proposed Project shall comply with the Kern County Noise Element. There are no known sensitive receptors within a 2-mile radius of the project site. The nearest known sensitive receptors are located approximately 2.5-mile northeast of the project site and are separated from the project site by Highway 395, a significant source of noise in the project area. Project impacts are less than significant.

b. Construction activities will result in intermittent and temporary exposure of ground borne vibration to the surrounding areas due to heavy equipment and remediation activities. Exposure to ground borne vibration will be limited to construction workers, contractors, and County staff as no residential or commercial entities are in the general vicinity of the Project. No impacts will occur.

c. The proposed project site is not located within the sphere of influence of an airport, as identified in the Kern County Airport Land Use Compatibility Plan (ALUCP) and would not expose people residing or working in the project area to excessive noise levels. The nearest airport, Inyokern Airport, is approximately 7 miles southeast of the Project. No impact will occur.

3.14 POPULATION AND HOUSING

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Discussion:

a. No structures are proposed to be constructed on site as part of this Project. The Project will not induce substantial population growth either directly or indirectly. The Project consists of remediation of a historic burn dump site. *LEA Advisory #56 – Process for Evaluating and Remediating Burn Dump Sites* includes recommendations for burn dump sites to be used as non-irrigated open space following remediation activities. No impacts will occur.

b. The Project site does not support any housing or residential structures and implementation of the project would not displace any housing units or necessitate the construction of replacement housing elsewhere. No impacts related to displacement of housing will occur.

3.15 PUBLIC SERVICES

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or to other performance objectives for any of the public services:				
i. Fire protection?	☐	☐	☐	☒
ii. Police protection?	☐	☐	☐	☒
iii. Schools?	☐	☐	☐	☒
iv. Parks?	☐	☐	☐	☒
v. Other public facilities?	☐	☐	☐	☒

Discussion:

a. (i-v) The proposed Project is a remediation project. The proposed project does not require additional public facilities beyond those that already exist. The Project will not result in a need for new or altered government services. Existing services are adequate to serve the proposed Project. No impacts to public services from Project implementation will occur.

3.16 RECREATION

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b. Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☒

Discussion:

a. The Project is a remediation project of an unoccupied fenced area of open space. The Kern County General Plan does not identify any existing or proposed recreational facilities (Map Code 3.1, Parks and Recreation Area) near the Project. The Project will not generate users of park facilities. No impacts to regional parks, recreational facilities, or off-highway vehicle recreation will occur.

b. The Project will not require the construction of new, or the expansion of existing recreational facilities. The long-term use of the remediated burn dump is non-irrigated open space. No impacts will occur.

3.17 TRANSPORTATION

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Conflict with an a program, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities	☐	☐	☐	☒
b. Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☐	☒
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
d. Result in inadequate emergency access?	☐	☐	☐	☒

Discussion:

a. The Project is in an undeveloped area and surrounded by undeveloped, unincorporated areas. Access to the Project site is achieved via unpaved single-track roads off Brown Road and Highway 395. The nearest arterial route identified by the Kern County Circulation Element (Kern Online Mapping, 2018) is Brown Road. No changes will occur to roadways adjacent to the property site and no changes to traffic circulation or congestion following the remediation Project are anticipated to occur. During the Project, circulation and congestion caused by construction vehicle access and hauling will be mitigated by implementing traffic control at site access areas. The Project does not conflict with any adopted plans or policies. There are no bike lanes, sidewalks, bus stops, or other public transportation facilities located in the vicinity of the site and no alternative transportation plans applicable to the project site. No impacts will occur.

b. The Project site is in a rural area with limited public access and does not propose development that would constitute an increase in vehicle miles travelled. A temporary increase in construction related traffic will occur but will not extend beyond the short-term remediation project. No permanent structures or road changes are proposed that would permanently change the number of vehicle miles travelled by persons wishing to access the site. No impacts will occur.

c. The Project does not have a roadway design component and therefore will not increase any hazards related to roadway design. No impacts will occur.

d. The Project would not alter any existing emergency access routes, nor change existing patterns of emergency access. Traffic control measures will be in place during construction to control congestion and maintain circulation, which will prevent inadequate emergency access. No impact to emergency access will occur.

3.18 TRIBAL CULTURAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☒	☐	☐
ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

Discussion:

a. Public Resources Code (PRC) 21074 defines a “tribal cultural resource” as: 1) site, features, places, and objects included in the California Register of Historical Resources, included in a local register of historical resources, or deemed significant pursuant to PRC Section 5024; 2) sacred place, including but not limited to, Native American sanctified cemeteries, places of worship, religious or ceremonial sites, or sacred shrines; 3) and other landscapes or resources that meet the guidelines established in PRC 21074.

A records search was completed by Stantec Consulting Services, Inc. in August 2018 and a Class III archaeological survey was conducted at the Project site by Stantec in September 2018. Subsequently, a final report was prepared in October 2018. The archaeological survey included a pedestrian survey of the site and records search for any previously identified resources in the Area of Potential Effect. No tribal cultural resources were identified on site that would be adversely affected by the Project. Based on the analysis of this study, a determination of "No Historic Properties Affected" for the proposed undertaking was made. Letters containing maps and project information were sent to multiple tribal contacts listed by the Native American Heritage Commission (Stantec, 2018). No comments were received.

Due to the excavation of the proposed borrow area, there is the potential that previously unidentified tribal cultural resources may be discovered on the Project site at a later date. In order to mitigate any potentially significant impacts to cultural resources from the Project to a less than significant level, MM-13 will be implemented.

MM-17: In the event that tribal cultural resources are encountered during the course of grading or construction, the County shall cease any and all ground disturbing activities. A qualified archaeologist shall evaluate the significance of the resource(s). If the qualified archaeologist determines that the discovery represents a potentially significant cultural resource, additional investigations may be required to mitigate adverse impacts from project implementation.

Per CEQA Guidelines §15126.4(b)(3), project redesign and preservation in place shall be the preferred means to avoid impacts to significant historical resources. Consistent with CEQA Guidelines §15126.4(b)(3)(C), if resources cannot be avoided, additional treatment measures shall be developed in consultation with the County and may include testing and evaluation or data recovery excavation. The County shall consult with appropriate Native American representatives in determining appropriate treatment for unearthed cultural resources if the resources are prehistoric or Native American in nature. The qualified archaeologist shall prepare a report documenting evaluation and/or additional treatment of the resource. A copy of the report shall be provided to the Southern San Joaquin Valley Information Center.

3.19 UTILITIES AND SERVICE SYSTEMS

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☐	☒
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years	☐	☐	☐	☒
c. Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☐	☒
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☒

Discussion:

a. No utilities systems currently exist on the Project site and no new utilities systems are proposed or needed for completion of the Project. No new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities are proposed to be constructed or relocated. No impacts will occur.

b. Minimal amounts of water will be used during the construction phase of the Project for dust control. Following remediation, the site will be used as non-irrigated open space. Sufficient water supplies are available for the remediation construction. No impacts will occur.

c. The remediation project does not require wastewater treatment facilities. No impacts will occur.

d. The Project involves the placement of a compacted earthen cover over a historic burn dump site. Water will be used on site for dust suppression measures during active periods of construction only. No new water supplies or entitlements will be needed, and no impacts will occur.

e. The Project will result in a remediated burn dump site consistent with the surrounding open space of the area. No additional wastewater facilities will be required, and no impacts are expected to occur. The proposed Project is a remediation project designed to install an earthen cover over a historical burn dump. None of the historic burn ash or residual waste will be removed from the site. The Project is being implemented following the guidance of *LEA Advisory #56 – Process for Evaluating and Remediating Burn Dump Sites* and will be consistent with all applicable federal, state, and regional solid waste regulations. The Project will not generate waste that would require additional landfill facilities. No impacts will occur.

3.20 WILDFIRE

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☒
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒
d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

Discussion:

a-d. The Project is in an area of "Federal Responsibility" and does not include very high fire hazard severity zones (CalFire Fire Hazard Severity Zones, 2007). The proposed Project is a remediation project that will install an earthen cover over a historic burn dump. Following Project completion, the site will remain consistent with surrounding open space lands. There will be no impacts to adopted emergency response or evacuation plans. No infrastructure is proposed to be constructed that would exacerbate fire risk or expose people or structures to significant fire risks. The project will not expose people or structures to downslope or downstream flooding or landslides. No impacts in wildfire conditions will occur.

3.21 MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☐	☒	☐
c. Does the project have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

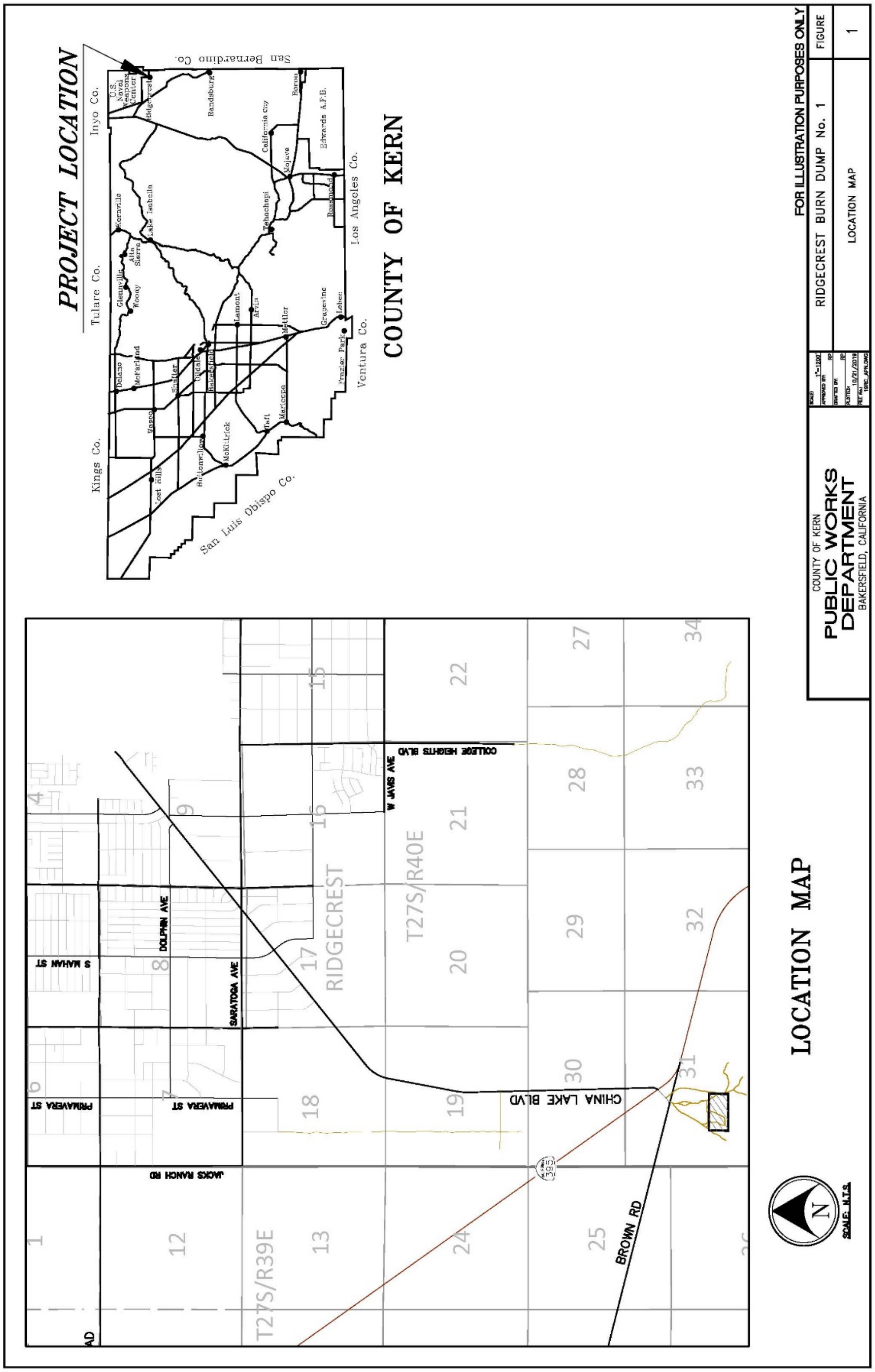
Discussion:

a. No. Based on the aforementioned evaluation, the proposed project is not expected to significantly degrade the quality of the environment or have a significant impact related to biological; cultural; geology and soils; hazards and hazardous materials; and tribal cultural in a manner which cannot be reduced to a less than significant level through the implementations of existing regulatory requirement, adopted ordinances, and proposed mitigation measures as listed in their individual resource sections above.

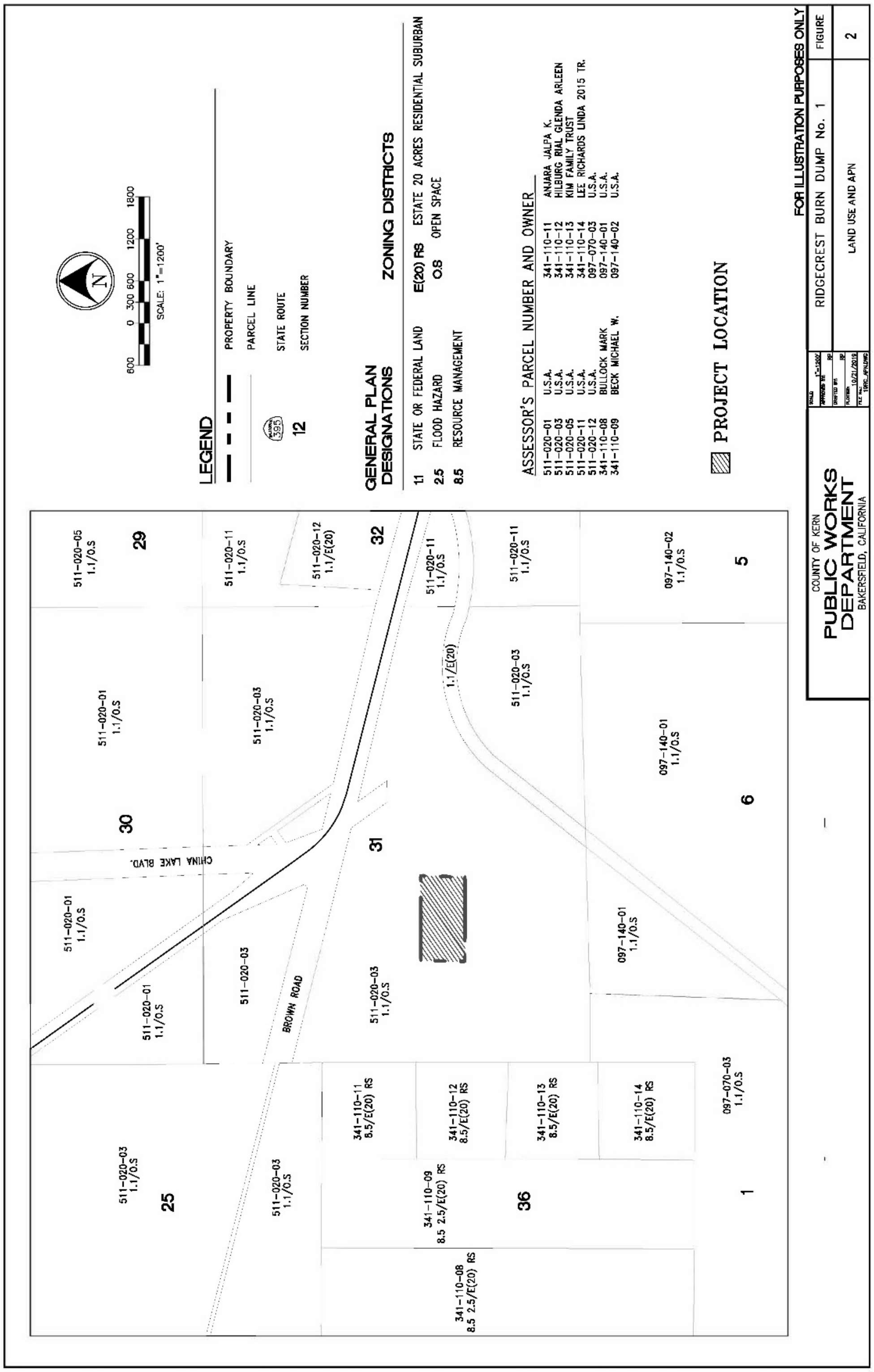
b. No. Potential cumulative impacts are limited to air quality and greenhouse gas emissions. Based on the evaluation, there is no evidence that these impacts are cumulatively significant or cannot be reduced to a less than significant level through implementation of existing regulatory requirements, adopted ordinances, development standards, or proposed mitigation measures.

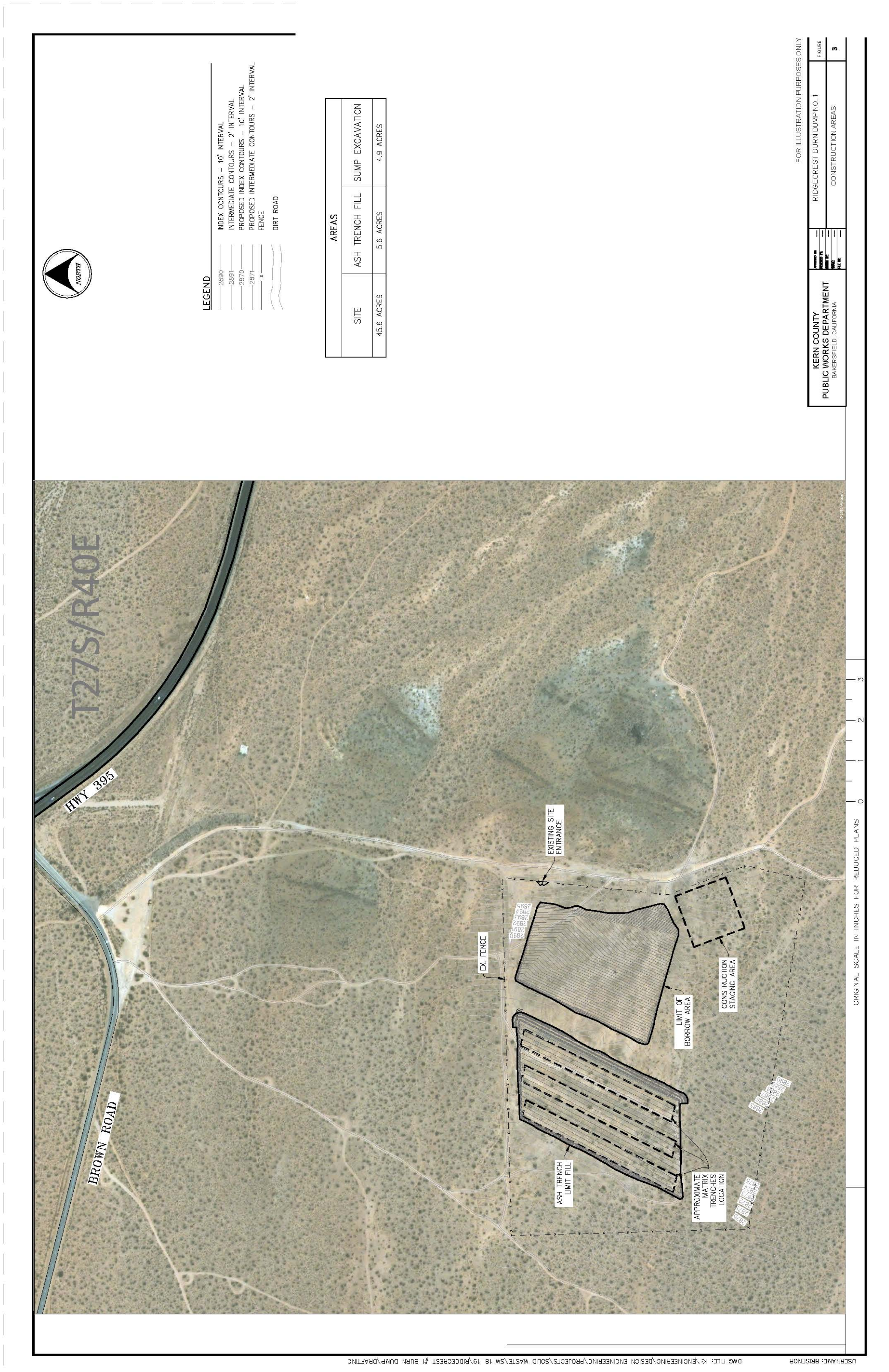
c. No. Based on the evaluation, the proposed Project is not expected to cause substantial adverse effects on human beings, either directly or indirectly. Project impacts on human health, safety, and welfare can be reduced to a less than significant level through compliance with existing regulatory requirements, adopted ordinances and policies, development standards, or proposed mitigation measures.

4.0 FIGURES



PROJECT LOCATION
COUNTY OF KERN
Inyo Co.
Tulare Co.
Kings Co.
San Luis Obispo Co.
Ventura Co.
Los Angeles Co.
San Bernardino Co.
LOCATION MAP
CHINA LAKE BLVD
COLLEGE HEIGHTS BLVD
W JAVIS AVE
DOLPHIN AVE
SARATOGA AVE
S MAHAN ST
PRIMAVERA ST
JACKS RANCH RD
BROWN RD
RIDGECREST
T27S/R40E
T27S/R39E
395
SCALE: N.T.S.
FOR ILLUSTRATION PURPOSES ONLY
COUNTY OF KERN
PUBLIC WORKS DEPARTMENT
BAKERSFIELD, CALIFORNIA
RIDGECREST BURN DUMP No. 1
LOCATION MAP
FIGURE
1


LEGEND
PROPERTY BOUNDARY
PARCEL LINE
STATE ROUTE
SECTION NUMBER
SCALE: 1"=1200'
GENERAL PLAN DESIGNATIONS
1.1 STATE OR FEDERAL LAND
2.5 FLOOD HAZARD
8.5 RESOURCE MANAGEMENT
ZONING DISTRICTS
E(20) RS ESTATE 20 ACRES RESIDENTIAL SUBURBAN
OS OPEN SPACE
ASSESSOR'S PARCEL NUMBER AND OWNER
511-020-01 U.S.A.
511-020-03 U.S.A.
511-020-05 U.S.A.
511-020-11 U.S.A.
511-020-12 U.S.A.
341-110-08 BULLOCK MARK
341-110-09 BECK MICHAEL W.
341-110-11 ANJARA JALPA K.
341-110-12 HILBURG RIAL GLENDA ARLEEN
341-110-13 KIM FAMILY TRUST
341-110-14 LEE RICHARDS LINDA 2015 TR.
097-070-03 U.S.A.
097-140-01 U.S.A.
097-140-02 U.S.A.
PROJECT LOCATION
CHINA LAKE BLVD.
BROWN ROAD
FOR ILLUSTRATION PURPOSES ONLY
COUNTY OF KERN
PUBLIC WORKS DEPARTMENT
BAKERSFIELD, CALIFORNIA
RIDGECREST BURN DUMP No. 1
LAND USE AND APN
FIGURE
2



T27S/R40E
HWY 395
BROWN ROAD
EXISTING SITE ENTRANCE
EX. FENCE
LIMIT OF BORROW AREA
CONSTRUCTION STAGING AREA
ASH TRENCH LIMIT FILL
APPROXIMATE MATRIX TRENCHES LOCATION
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS
NORTH
LEGEND
INDEX CONTOURS – 10' INTERVAL
INTERMEDIATE CONTOURS – 2' INTERVAL
PROPOSED INDEX CONTOURS – 10' INTERVAL
PROPOSED INTERMEDIATE CONTOURS – 2' INTERVAL
FENCE
DIRT ROAD
AREAS
SITE 45.6 ACRES
ASH TRENCH FILL 5.6 ACRES
SUMP EXCAVATION 4.9 ACRES
FOR ILLUSTRATION PURPOSES ONLY
KERN COUNTY
PUBLIC WORKS DEPARTMENT
BAKERSFIELD, CALIFORNIA
RIDGECREST BURN DUMP NO. 1
CONSTRUCTION AREAS
FIGURE
3

5.0 SITE PHOTOS

View looking north from the Ridgecrest Burn Dump.

View looking west from the Ridgecrest Burn Dump.

View looking south from the Ridgecrest Burn Dump.

View looking east from the Ridgecrest Burn Dump.

View of exposed trench and surface scatter of the Ridgecrest Burn Dump.

View of exposed trench and surface scatter of the Ridgecrest Burn Dump.

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APPENDIX A

Solid Waste Assessment Questionnaire

CONVERSE ENVIRONMENTAL WEST

3393 East Foothill Boulevard, Suite B
Pasadena, California 91107-3112

Telephone (818) 796-8200
FAX (818) 351-1060

1/91

SOLID WASTE ASSESSMENT QUESTIONNAIRE

RIDGECREST BURNING DUMP

A Portion of Section 31, T27S.,
R40E. MDB&M
Kern County, California

PREPARED FOR

County of Kern
Department of Public Works
2700 "M" Street, Suite #500
Bakersfield, CA 93301

CEW Project No. 91-41-324-01

January 8, 1991

COPY

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LIST OF ILLUSTRATIONS

PROFESSIONAL CERTIFICATION

REPORT PREPARED BY:

Laura Albert-White
Staff Geologist

UNDER THE PROFESSIONAL SUPERVISION OF:

REGISTERED GEOLOGIST
BENJAMIN M. SWANN
No. 5095
Lic. Exp. 5-92
STATE OF CALIFORNIA

Benjamin M. Swann, R.G.
Senior Environmental Manager

This report has been prepared for the exclusive use of the County of Kern, Department of Public Works as it pertains to the former Ridgecrest Burning Dump, located in a portion of Section 31, T27S., R40E., MDB&M. in Kern County, California. Our services have been performed in accordance with applicable State ordinances and generally accepted practices in the geosciences. No other warranty, either express or implied, is made. Converse Environmental West (CEW) is not responsible or liable for any claims or damages associated with interpretation of available information. This report should not be regarded as a guarantee that no further contamination, beyond that which was detected in our investigation, is present beneath the property. In the event that changes in the nature of the property occur or additional, relevant information about the property is brought to our attention, the conclusions and recommendations contained in this report may not be valid unless these changes and additional relevant information are reviewed and the conclusions of this report are modified or verified in writing.

INTRODUCTION

The following questionnaire is completed in outline form with each of the questions numbered and stated in the same format as the Solid Waste Assessment Questionnaire & Guidelines (California Water Code Section 13273.1). All sources used to answer the following questions are referenced in a list at the end of the questionnaire. All questions have been answered as completely as possible using existing maps, records, literature, personal communication, and field exploration.

I. GENERAL SITE INFORMATION

A. ***Site Name:*** Ridgecrest Burning Dump
also called, Ridgecrest Disposal Area

B. ***Owner:*** Bureau of Land Management
Ridgecrest Resource Area
300 South Richmond Rd.
Ridgecrest, CA 93555
Contact person: Walter C. Jakubowski or Mike Hogan
(619) 375-7125

The site has no previous owners.

C. ***Operator:*** County of Kern, Department of Public Works
2700 "M" Street, Suite #500
Bakersfield, CA 93301
Contact person: Kenneth R. Alvis
Phone: (805) 861-2481
Fax: (805) 324-1715

D. ***Site Location:***

A portion of Section 31 T.27S., R.40E. MDB&M. Located on the Randsburg-Inyokern Road (Highway 395) 0.1 miles west of China Lake Boulevard. Ridgecrest South Quadrangle, California - Kern County, 7.5 minute series (topographic), 1973. See attached Location Map (Figure 1) and Site Plan (Drawing 1). Appendix C includes an aerial photograph taken in 1975 and photographs taken on-site during this investigation.

II MINIMUM REQUIREMENTS

A. ***Is there greater than 50,000 cubic yards of waste landfilled at the site?***

<u>No.</u> Based on geologic logging of cuttings from 19 exploratory borings drilled on site, the size of the Ridgecrest Burning Dump is no greater than 15,912 cubic yards.

B. ***Are there any known or suspected hazardous substances contained in the site, other than household hazardous waste?***

<u>No.</u> Records of types of rubbish disposed of in the dump indicate no hazardous substances, other than household hazardous waste, were disposed of at the site. Laboratory analyses for inorganic persistent and bioaccumulative toxic substances by both TTLC and STLC was performed on samples collected from 10 separate borings drilled on site (see Drawing 1). All results evidenced concentrations below TTLC and STLC except for one sample collected from boring B-18 at 6 feet below grade which contained 2,900 mg/kg copper, which exceeds the TTLC of 2,500 mg/kg. However, the sample was also tested for STLC and contained 13 mg/L copper which does not exceed the STLC of 25 mg/kg. Metallic copper is a common household waste and when in a pure metallic form (a copper penny) will exceed the TTLC test.

III PREPARER CERTIFICATION AND EXPERIENCE

A. List name(s) and credentials.

Benjamin M. Swann
Bachelor's Degree in Hydrogeology, SDSU
Registered Geologist in California

B. What is preparer's experience with this site?

No former experience with the specific site.

C. What is preparer's background with solid waste site assessment?

Have prepared numerous Solid Waste Assessment Test (SWAT) proposals, work plans, and reports and have participated in and directed SWAT field work.

D. Who is preparer's employer?

Converse Environmental West
3393 East Foothill Boulevard
Pasadena, California 91107

15,000 cy

< TTLC (1) sample copper

> STLC

note - copper penny

1962-1969

IV SITE HISTORY

A. Is the site currently open or closed?

The site is currently closed. The Ridgecrest Burning Dump first opened in 1962, operated for seven years, and closed in 1969. A total of three trenches were excavated, filled with rubbish, and closed on the dump site. Rubbish, which was periodically incinerated and interlayered with soil, was covered with native soil and subsequently compacted by either a loader or bulldozer that drove over the former pit repeatedly. Thickness of cover soil at the site, based on exploratory borings, varies from 3 to 4 inches (compacted) to 4 feet (compacted).

B. Is or was the site open to the public, or for private use only?

The site was open to the public for disposal of non-hazardous household waste. A 6-foot high hog wire fence surrounded the burning dump area. According to the *Kern County Solid Waste Master Plan (1968)*, completed by Robert Stone and Company, Inc., the Ridgecrest Burning Dump was supervised and maintained by an individual who was hired by the County. It was the responsibility of this caretaker to make sure no hazardous waste was disposed of in the dump. In addition, Mr. Stanton Charlson, who was employed by Kern County as maintenance supervisor throughout the life of the landfill, visited the site at least once a month during the lifetime of the dump and it was his general observation that all waste disposed of appeared to be strictly non-hazardous residential-type waste. All hazardous wastes were reportedly disposed of at the Kern County McFarland Dump site. Ridgecrest Burning Dump was open to the public 8 to 16 hours every day of the week throughout its entire period of operation.

C. Describe the current and past use of the site and neighboring lands which could be affected.

Neighboring lands are currently and have always been vacant. The town of Ridgecrest, six miles north of the site, is a residential community existing adjacent to the U.S. Naval Weapons Center. Industries existing in Ridgecrest are essentially confined to commercial and retail type industries with minor agricultural activity. The community is supported by the adjacent military base which operates a weapons research facility. Currently, the City of Ridgecrest has a population of about 30,000 people. In 1960, the population was 5,467 and in 1970 the population was

7,629. Examination of aerial photographs which were taken at various times throughout the history of the landfill show the structures in Ridgecrest and the surrounding vicinity to be primarily residential-type structures. The closest structure to the site appears to be a residence approximately 2,450 feet west of the dump site.

D. Identify types of users over the lifetime of the site and give approximate percentage of use.

Throughout the lifetime of the burning dump, the only type of users were residents that lived in the vicinity and small commercial users. One disposal service used the dump to dispose of their rubbish. A summary of rubbish disposed of in the dump was compiled in a load count which was performed by Ralph Stone and Company, Inc., Engineers in December 1967 and March 1968. Their data indicated that 90% of rubbish was delivered by automobiles and pickups with or without trailers, 7.4% of rubbish was delivered by load packers (garbage trucks), and 2.6% was delivered by trucks with or without trailers. The types of users disposing of waste in the dump consisted of residential (90%) and commercial (10%).

V VOLUME OF WASTE

A. What is the estimated in-place volume of landfilled wastes at the site in cubic yards?

In order to determine the location, size, and thickness of landfill materials at the Ridgecrest Burning Dump, nineteen exploratory soil borings were drilled on site and cuttings were logged by a field geologist. Borings were located in the center, along the perimeter, and in between the disposal pits. Based on the findings of this field work, the volume of waste materials is no greater than 15,912 cubic yards. An attached site plan (Drawing 1) shows approximate locations of the borings drilled on-site and the location of the disposal pits. Figure 2 and Drawing 2 show calculations performed to derive the estimated volume of rubbish existing at the site.

B. What is the design capacity of the site in cubic yards?

Research of existing records and documents indicates that no design capacity of the burning dump was ever determined. A total of 20 acres of land was leased by Kern County, though only 3.7 acres was fenced off and designated as the dumping area.

VI WASTE CHARACTERIZATION

A. ***What wastes were disposed of at the site? List type and quantity (in cubic yards, gallons, or tons, and whether quantity is actual or estimated).***

The load count conducted by Ralph Stone and Company (1968) evidenced the following types of refuse disposed of at the site and the relative percentage of each type of refuse material.

Household -	39.8%
Yard Rubbish -	30.9%
Commercial -	10.4%
Bottle/Can/Metal -	13.6%
Others -	5.3%

The study indicated that paper comprised approximately 50% by weight of the solid waste; metals, rags, dirt, glass, food waste, plastic, wood, and brush comprised the remaining 50%.

B. ***What records of waste disposal have been kept? Provide dates for periods when records were kept.***

The only documentation of waste disposal existing for the site are included in the Kern County Solid Waste Master Plan's Final Report prepared by Ralph Stone and Company, Inc., Engineers. Relevant data from this report are presented in this questionnaire.

C. ***Has the waste been physically characterized via trenching or drilling?***

Yes. In order to determine that hazardous wastes do not exist at the dump site, the waste was physically characterized by drilling and sampling on September 23-24, 1991. A total of nineteen borings were drilled on the site and samples were collected from landfill materials and native soils underlying the refuse. Two soil-gas samples were also collected from each of the three trenches on-site. Landfill materials observed during drilling included abundant glass with lesser amounts of porcelain, plastic, wood fragments, metal, charcoal and ash. All excavated and surface materials observed on-site were dry. No odor was detected coming from the borings, cuttings, or samples. Landfill material was characterized for inorganic persistent and bioaccumulative toxic substances by laboratory analysis. In addition, the dry density and moisture content was determined for several samples of landfill material, and permeability tests were run on native soils underlying the landfill material at two separate locations. Results of the laboratory analyses are included in Appendix D and E.

VII SITE AND OPERATIONAL CHARACTERISTICS

A. ***What methods of fill operations were utilized for waste disposal at the site?***

Trench and fill.

B. ***Provide a full description for each operation method.***

The operation method for the Ridgecrest Burning Dump was discussed in a telephone conversation with Mr. Stanton Charlson, maintenance supervisor for the landfill, on August 7, 1991. Mr. Stanton occupied this position throughout the life of the landfill. He retired in June, 1974.

Contractors were hired to excavate a pit with either a bulldozer or loader at the subject facility. Depth of each trench was approximately 10 feet below the natural ground surface. A 3 to 4 foot high berm was built up along the edge of the trench so that the entire filling depth was approximately 14 feet. The bottom 4 feet of the pit had vertical sidewalls, and the remaining upper portion of the pit was angled back approximately 60° or however steep the natural soil would allow. Rubbish was disposed of in the pit and when a significant amount accumulated, the rubbish was incinerated. The frequency that the rubbish was incinerated was a qualitative decision made by an individual that the County hired in the local community to make sure that the rubbish was incinerated as needed. Periodically, a layer of native soil would be spread over the existing rubbish. This may have been done to control dust. When the pit was filled to the top, a contractor was hired to excavate a new pit next to the previous pit. Soils from the new pit were placed on top of the rubbish in the old pit and both rubbish and the overlying soil was compacted by heavy machinery. This method of operation was used throughout the life of the burning dumps. Final cover was received in 1969 at which time the burning dump was closed. A laboratory analysis of the soil cover was performed on a sample collected from boring B-15 at 3 feet below grade. These results are included in Appendix D.

C. ***Is there any history or indication of fluids (e.g., lakes, seeps, springs, etc.) coming from any of the waste disposal area?***

<u>No.</u> There is no history or evidence of fluids coming from the waste disposal area. The site is characteristically very dry in its native state and no fluids were supposedly placed into the pits during operation of the dump.

D. ***Describe all present and past manmade drainage systems on, through, and adjacent to the site.***

No manmade drainage systems exist on, through, or adjacent to the site.

VIII REGIONAL GEOLOGY

A. ***Give a brief synopsis of the regional geology, including major rock units, structural trends, and special features.***

The site lies at the south end of Indian Wells Valley adjacent to the El Paso Mountains (see Figure 3 and Drawing 3). This valley and mountain range form the southwestern tip of the Basin Ranges Province which is a major north-northwest trending geologic province that is undergoing extentional tectonism. This province includes several hundred thousand square miles in eastern California, southeastern Oregon, Nevada, and western Utah. The province is bounded on the west by the Sierra Nevada Fault and on the south by the east-northeast trending Garlock fault. The Garlock fault lies on the southern flank of the El Paso Mountains.

Sediments occupying the floor of Indian Wells Valley consist of Quaternary-age (1.6 million years to present) sediments derived from erosion of the surrounding highlands. Holocene (11,000 years to present) fanglomerates, stream gravels, alluvium, and playa-lake sediments overlie much of the valley and are locally interbedded with basalt flows.

Major rock units in the nearby El Paso Mountains include metamorphic, sedimentary, plutonic, and volcanic rocks ranging in age from PreCambrian to Quaternary. The PreCambrian (before 570 million years) Mesquite Schist was mapped by Dibblee in 1952 and is recognized as the thickest section of Precambrian rocks in Kern County. The Paleozoic (245 million years to 570 million years) Garlock Series consists of a mica schist or phyllite with interlayered quartzite, limestone, dolomite, calc-silicate hornfels, and metavolcanic rocks. The Mesozoic-age (66.4 million years to 245 million years) plutonic rocks are the closest bedrock existing to the site. These rocks consist of quartz diorite and are probably part of the Sierra Nevada batholith; the largest Mesozoic batholith in the United States. Tertiary-age (1.6 million years to 66.4 million years) formations include the Paleocene (57.8 million years to 66.4 million years) Goler formation consisting of continental sedimentary rocks, and the Pliocene (1.6 million years to 5.3 million years) Ricardo formation also consisting of continental facies, interbedded with basalt and andesite flows. Quaternary basalt flows exist in the northern El Paso Mountains surrounding southernmost Indian Wells Valley.

Minerals mined in the valley and surrounding mountains include clay, stone, sand & gravel, pumice, wollastinite, gold, copper, silver, and tungsten.

B. Has there been any significant Holocene fault movement in the vicinity?

The Garlock fault is the closest fault to the site with known movement within the Holocene Epoch. The Garlock fault is approximately seven miles south of the site.

IX SITE GEOLOGY

A. Describe the geology of the site and within one mile of site.

The site lies in an alluvium filled basin with a very gentle surface gradient that slopes to the west. The entire site is underlain by Quaternary-age alluvium to an undetermined depth (Drawing 2, cross-section A-A'). The closest bedrock outcrop exists directly east of the site within a few hundred feet of the property border (Drawing 3, Site Vicinity Geologic Map). This outcrop consists of quartz diorite and erosion resistant northeast trending diabase dikes which extend out from the quartz diorite exposure for several hundred yards. These dikes reflect the northwest-southeast extentional tectonism which dominate the Basin Ranges Province. All significant bedrock units within one mile of the site consists of quartz diorite as shown on Drawing 2. The closest outcrop composed of bedrock other than quartz diorite or diabase dikes exists in an isolated outcrop just over one mile south of the site. This outcrop consists of Quaternary-age basalt and Pliocene-age Ricardo Formation. Two northwest trending faults have been mapped within a mile of the site and are shown on the accompanying site vicinity geologic map. These faults cut the Mesozoic-age quartz diorite in nearby outcrops and the adjacent mountains but are concealed under an unknown depth of Quaternary-age alluvium in the valley.

Soils underlying the site are described in detail for each boring location in the attached logs (Appendix F). In general, native soils consist of moderately to well consolidated sandy silts to silty sands with pebbles present in minor quantities. Sands are fine- to medium-grained. Native soils are typically cemented with calcium carbonate and caliche pods and stringers are abundant. Soils are very dry and are light to medium brown in color. Two in-situ soil samples were tested for permeability and six samples (from the fill and in-situ soils) were tested for dry density and moisture content. Permeability measurements are 4.9×10^{-3} centimeter per second (cm/sec) and 1.1×10^{-5} cm/sec and dry density and moisture content range from 101.4 $lb.ft^3$ to 119.6 lb/ft^3 and 3.9% to 13.6%, respectively. The laboratory data are presented in Appendix E.

B. ***Describe the nature of all faults, fractures, folds, bedding contacts, and formation characteristics in terms of their ability to retard fluid movement or to act as pathways of fluid movement.***

Due to the lack of data on faults, fractures, folds, bedding contacts and formation characteristics in the site vicinity, the effect these features have on fluid movement is unknown. In addition, very little data on flow and movement of groundwater exists within the immediate vicinity of the site.

Depth to groundwater in the site vicinity is estimated to be approximately 660 feet below ground surface based on projection of known contours in surrounding areas (see Figure 4). Since the site is located close to the edge of the basin, it is likely that the bedrock/alluvium interface is shallower than the groundwater surface. Therefore, groundwater movement under the site is probably controlled by the structure and characteristics of the bedrock.

Two buried faults are mapped within one mile of the site (see Drawing 3). One of these faults is 1/8 mile east of the property border. These faults are mapped as offsetting Mesozoic-age bedrock in the site vicinity. It is unknown if these faults offset the Quaternary-age sediments at depth. The affect the faults may have on groundwater is also unknown.

Formation characteristics of the upper 20 feet of the underlying sediments are provided in the boring logs in Appendix F. In general, the sandy silt and silty sand that were encountered in the borings are fairly permeable.

C. ***Are there landslides or other potential geologic hazards on or near the site?***

No landslides exist on or near the site and there does not appear to be any other potential geologic hazards nearby.

D. ***Has there been any Holocene fault movement on or adjacent to the site?***

No Holocene-age fault movement is known to have occurred on or adjacent to the site. As stated on page 12B, the Garlock fault, approxiamtely seven miles south of the site, is the closest fault to the site with known movement within the Holocene Epoch.

X HYDROLOGY

A. Describe precipitation characteristics at the site.

Precipitation occurs as infrequent showers throughout the year. The average annual precipitation in the site vicinity according to the National Weather Service is 2.9 inches per year. Average precipitation for each month is as follows:

	July:	0.02	
	August:	0.07	
	September:	0.13	
	October:	0.17	
	November:	0.32	
	December:	0.37	
*	January:	0.73	Month with highest average precipitation
	February:	0.61	
	March:	0.31	
	April:	0.12	
	May:	0.05	
	June:	trace	

Note that most of the precipitation occurs between November and March.

B. Describe all surface waters at the site.

No springs, seeps, lakes, or other perennial surface waters exist on or within one mile of the site. Four westward to northwestward flowing intermittent streams/drainages are mapped by the U.S. Geological Survey within one mile of the site. One of these streams exists adjacent to Highway 395 and the Randsburg-Inyokern Road, and the other three streams exist west and southwest of the site (see Drawing 3). These intermittent streams act as drainage channels for ground surface runoff in the site vicinity. During periods of heavy precipitation, water is absorbed into the ground as well as drained by sheet flow which collects in minor ravines which flow into the intermittent streams/drawings.

The site is not within a flood plain according to Flood Insurance Rate Maps (FIRM) (September 29, 1986) supplied by Kern County Public Works. Since surface water exists only during periods of heavy precipitation, surface water quality samples have not been collected in this area.

C. *Subsurface - Characterize vadose and ground water zones*

No data exists regarding groundwater conditions directly underlying the site and within one mile of the site. However, in other portions of the Indian Wells Valley basin, there is both a "shallow" aquifer and a "deep" aquifer. The boundary of the shallow aquifer exists eight miles north of the site, and knowledge regarding the extent and depth of the deep aquifer, ends three miles north of the site and six miles northwest of the site (see Figure 4, Groundwater Contour Map). Both these aquifers exist within the Quaternary-age alluvium that fills the basin. If known groundwater contours are projected to the site, depth to groundwater would be approximately 660 feet below the ground surface. At this depth groundwater under the site is probably within bedrock.

The type of bedrock underlying the site is expected to be igneous rock since this is the type of rock prevalent in the site vicinity (see Section IX.A). Water in igneous rock is generally confined to secondary interstices such as joints, fractures, faults, and solution openings. These secondary interstices are generally not very continuous and therefore igneous rocks typically serve as poor aquifers. It is not known if any barriers or conduits to groundwater flow exist that would inhibit fluid movement in the aquifer of act as a conduit through which fluid could reach the aquifer.

Recharge to groundwater in the site vicinity is minimal to non-existent. As stated previously, precipitation is approximately 2.9 inches per year. Groundwater recharge will only occur during periods of abnormally high rainfall when infiltration rates exceed evapotransportation. Furthermore, since precipitation in the El Paso Mountains is not significantly greater than that of the Indian Wells Valley, runoff from these mountains only occurs during periods of very high rainfall. No artificial recharge occurs within the site vicinity.

The vadose zone, or the zone of aeration, generally extends from the ground surface to the water table or bedrock surface, which ever is closer. Since groundwater probably exists below the bedrock surface under the site, all soils underlying the site would be within the zone of aeration.

Under the site, movement of water through the zone of aeration occurs in soils of primary porosity and would only occur during periods of heavy precipitation when gravitational water develops and moves vertically downward. However, since soils underlying the site are moisture deficient, the soil moisture content must be increased at least up to specific retention in order for any substantial amount of water movement to occur. Considering the vast thickness of moisture deficit soils above the water table in the site vicinity, flow within the zone of aeration is probably very minor to nonexistent.

Geotechnical tests for permeability, moisture content, and dry density were performed on several samples collected from the site. Permeability measurements were indicative of fine-grained sand and silt to silty clay. Moisture content tests evidenced very dry soils. The laboratory data are presented in Appendix C.

D. Are there any existing wells on or near (within one mile of) the site? If yes, describe each.

No existing or abandoned wells are known to exist on or near (within one mile of) the site. The closest well to the site is between 3/4 mile and 1-3/4 miles east of the site (Well No. 13, Indian Wells Valley Water District). This well is located somewhere in Section 32, T27S, R40E. Groundwater quality data, supplied by Kern County Water Agency was collected from Well No. 13 between January 1983 and June 1983 with the following results:

Total Dissolved Solids	250 - 1,263 ppm
Fluorides	64 - 4 ppm
Bicarbonates	50 - 728 ppm
Sulfates	11 - 95 ppm

CONCLUSIONS

The work conducted for completion of the Solid Waste Assessment Questionnaire indicate that:

- the site contains less than 50,000 cubic yards of waste, <u>and</u>

- the site does not contain hazardous substances, other than household hazardous wastes, <u>and</u>

- depth to groundwater is approximately 600 feet below grade in the site vicinity and the nearest groundwater well, located at least 3/4 of a mile from the site, contains nonpottable water.

Analysis of samples collected in the field **confirm the absence of hazardous materials** in fill material at the subject site. Therefore, based on this work, the Ridgecrest Burning Dump meets the minimum requirements for submittal of a Solid Waste Assessment Questionnaire and should be considered for exemption from the Solid Waste Water Quality Assessment Test (SWAT) program requirements.

APPENDIX B

Limited Site Investigation, Ridgecrest Burn Dump

Limited Site Investigation

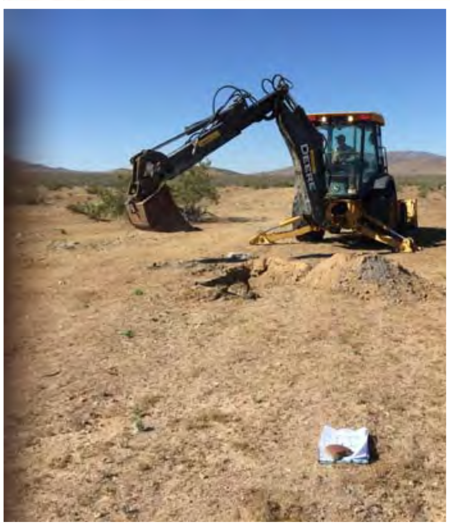
Ridgecrest Burn Dump
South of the Intersection of Highway 395 and Brown Road
Ridgecrest, Kern County, California
SWIS No. 15-CR-0024

Prepared for:

California Department of Resources Recycling and Recovery (CalRecycle)

1001 I Street | Sacramento, California 95812

July 12, 2017 | Project No. 104690092



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Geophysics | Engineering Geology | Laboratory Testing | Industrial Hygiene | Occupational Safety | Air Quality | GIS

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

Limited Site Investigation

Ridgecrest Burn Dump
South of the Intersection of Highway 395 and Brown Road
Ridgecrest, Kern County, California
SWIS No. 15-CR-0024

July 12, 2017 | Project No. 104690092

Prepared for:
California Department of Resources Recycling and Recovery (CalRecycle)
1001 I Street | Sacramento, California 95812

Prepared by:
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5710 Ruffin Road | San Diego, California 92123

Beth Abramson-Beck, PG 4580
Principal Geologist

BAB/gg

Distribution: (1) Addressee (via e-mail)

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APPENDICES

1 INTRODUCTION

Ninyo & Moore was retained by the California Department of Resources Recycling and Recovery (CalRecycle) (the client) to perform a Limited Site Investigation (SI) at the Ridgecrest Burn Dump in Ridgecrest, Kern County, California. The CalRecycle Closed, Illegal and Abandoned Site (CIA) program investigates solid waste disposal sites and provides data and documentation to assist the Local Enforcement Agency (LEA) with both potential enforcement and cleanup activities. The Solid Waste Disposal and Codisposal Site Cleanup Program (SWCP) provides funds and/or services to clean up closed or abandoned solid waste disposal sites where the responsible party either cannot be identified or is unable or unwilling to pay for timely remediation and where cleanup is needed to protect public health and safety and/or the environment. Both programs are assisting Kern County Environmental Health Department, acting as the LEA, at their request, to assist the Bureau of Land Management (BLM) with developing potential options to bring the Ridgecrest Burn Dump into regulatory compliance with state minimum standards for cover, drainage, and erosion control as defined in California Code of Regulations Title 27 for the protection of public health, safety, and the environment.

1.1 Purpose

The purpose of this SI was to generally confirm the lateral extent of wastes; evaluate the presence, condition, and thickness of existing cover soil, if any, overlying the waste disposal areas; and evaluate whether onsite soils to the east of the waste disposal area are *clean* and can be used to cover the wastes. CalRecycle will provide this report to the BLM to assist with their developing a plan to comply with state minimum standards for final cover, drainage, and erosion control.

1.2 Scope of Services

The scope of work for the Ridgecrest Burn Dump SI was defined by CalRecycle in their *Limited Site Investigation Work Plan,* dated January 2017. As stated in the work plan, the limited SI focused on:

- Generally confirming the lateral extents of the waste disposal trenches and the thickness of cover soils, if present, in the waste disposal area (referred to in the work plan as *Disturbed, Trenches* [CalRecycle, 2017a]).
- Evaluating the suitability of onsite soil to the east of the waste disposal area for use as final cover (referred to in the work plan as *Disturbed, No Trenches* [CalRecycle, 2017a]).

2 SITE LOCATION AND DESCRIPTION

The Ridgecrest Burn Dump is located southwest of the town of Ridgecrest and approximately one-quarter mile south of the intersection of Highway 395 and Brown Road (Figure 1). The burn dump is on Bureau of Land Management (BLM) owned land, in a portion of T27S, R40E, Section 31, in Kern County. Background information indicates that 20 acres of land was leased by County of Kern Department of Public Works (KCDPW) for a waste disposal site; however, only 3.7 acres was fenced and designated for waste disposal. The west central area of the site is the waste disposal area consisting of parallel, northeast trending waste disposal trenches that are generally identified in the field based on topography and the presence of surface wastes (Figure 2). The surface wastes primarily consist of broken and melted fused glass and other waste debris exposed along the waste disposal trenches, partially as a result of recent unauthorized digging for bottles and other debris. The eastern, approximately half of the site (eastern site area) is not the location of waste disposal based on background information, historical aerial photographs, and results of this limited SI. The eastern site area is the location of some surface wastes/minor dumping that appear unrelated to the waste disposal trenches to the west.

3 BACKGROUND

Based on the *Solid Waste Assessment Questionnaire* (SWAQ), prepared by Converse Environmental West (CEW) for the (KCDPW) dated January 8, 1991, the Ridgecrest Burn Dump operated from 1962 to 1969 and was open to the public for disposal of nonhazardous household waste. Wastes were disposed of using the trench and fill method and reportedly the waste trenches were approximately 10 feet below the ground surface and the wastes were periodically burned to reduce the volume. The SWAQ identified the KCDPW as the operator of the burn dump. Based on a subsurface investigation conducted at that time and KCDPW background information related to the waste disposal trenches, CEW estimated that the burn dump consisted of a 3.7-acre footprint, containing an estimated maximum 15,912 cubic yards of waste within three, parallel northeast trending waste disposal trenches, approximately 60 feet wide and 630 feet long. CEW stated that at the time of their investigation in 1991, *thickness of cover soil at the site based on exploratory borings varied from 3 to 4 inches (compacted) to 4 feet (compacted).*

4 LIMITED SITE INVESTIGATION

4.1 Permits and Notifications

Permits were not required for this Project. CalRecycle staff obtained a Property Access Authorization for Investigation of Disposal Site from the BLM to conduct the planned scope of work (CalRecycle, 2017c, Appendix A). CalRecycle staff also coordinated the planned field work with Kern County Environmental Health (LEA); the BLM, who provided a backhoe and operator; and Ninyo & Moore staff; and provided notification to the parties involved of the planned dates of field work.

4.2 Site Health and Safety Plan

CalRecycle prepared a Site Health and Safety Plan (SHSP) for their employees (CalRecycle, 2017b). The SHSP was provided to the LEA, BLM, and Ninyo & Moore prior to conducting the SI. The plan addressed potential health hazards to onsite workers that may be encountered during the SI. Personnel working on this Project were familiar with the contents of the plan. The implemented plan documented that onsite workers were protected from potential health and environmental hazards and that exposure to adverse conditions did not occur during the SI activities. No emergencies arose during fieldwork.

4.3 Subsurface Utilities

Subsurface utilities were not expected to be present based on the location of the burn dump and background information. However, as required by law, prior to commencing excavation activities, Ninyo & Moore staff contacted Underground Service Alert (USA) approximately one week in advance of fieldwork to identify the locations of utilities that may enter the site. Utilities were not identified coming onto the site.

4.4 Test Pit (Pothole) Locations/Rationale and Excavation

The locations of the exploratory test pits (aka potholes) were collaboratively decided by CalRecycle and Ninyo & Moore staff based on the Project objectives. On May 16, 2017, 10 exploratory test pit (potholes), T-1 through T-10, were excavated at the central western area of the site to verify the lateral extent of wastes and nine test pits (potholes), CS-1 through CS-9, were excavated at the eastern area of the site, outlying waste disposal, to evaluate whether several feet of onsite *clean* soil is present that can be used to cover the exposed wastes located to the west (Figure 2).

The locations of test pits T-1 through T-10 were to generally verify the suspected lateral extent of wastes based on background information and field observations. The locations of CS-1 through CS-9 were selected to obtain adequate coverage of the eastern site area proposed to be the source of the onsite cover soils. CalRecycle staff arranged for the BLM to provide a California OSHA 40-hour trained operator to excavate wastes and/or soils at each location. Test pit excavating was accomplished using a backhoe.

Test pits T-1 through T-10 were excavated to depths of approximately 2.5 to 3 feet below ground surface (bgs), adequate to evaluate the presence or absence of wastes; therefore, the vertical extent of wastes, if present, was not determined as it was not within the scope of this Project. Cover soil test pits CS-1 through CS-9 were excavated to depths of approximately 1 to 2 feet bgs, to evaluate whether several feet of clean soil is present; to confirm that surface wastes, if present, did not extend into the subsurface, and to collect soil samples for analytical testing. One soil sample was collected from each test pit excavated at the eastern site area for analytical testing. Per the work plan, samples were not collected from test pits T-1 through T-10 related to the waste disposal area.

The excavated materials were temporarily placed a sufficient distance from the excavation, to prevent them from falling back into the excavated trench. During excavation, if wastes were encountered, they were segregated from excavated cover fill soil (if present) and the underlying alluvium (if encountered), by separately stockpiling the excavated materials. Excavations remained open long enough to log the test pit, collect samples, as applicable, and document the test pit and excavated materials on individual test pit logs and with photographs. Because only one test pit was excavated at a time, each was immediately backfilled. Specific information pertaining to test pit locations and depths, sample depths, and presence of wastes are provided on the individual logs and corresponding photographs (Appendix B).

CalRecycle staff collected three background soil samples (BG-1 through BG-3) at locations outlying wastes to evaluate background metal concentrations in soils (Figure 2).

4.5 Sampling Methodologies and Documentation

The nine soil samples, one from each test pit excavation located in the potential onsite cover soil source area (eastern site area) were collected by Ninyo & Moore and CalRecycle staff at depths of 0.5 to 1 foot bgs and the background samples were collected from the surface/shallow subsurface. Samples were collected by directly coring the laboratory-supplied jar into the test pit excavation surface, floor or sidewall. Only discrete samples were collected. Sample locations were recorded on individual test pit logs (Appendix B).

Field staff immediately labeled each sample jar to ensure proper identification for tracking by the analytical testing laboratory. Each sample jar was labeled with test pit identification number, sample depth, date, and time the sample was collected, and project location and number. Each labeled sample jar was placed into a separate zip-lock plastic bag. Samples were placed into coolers containing ice and padded with cushioned materials and sent to the CalRecycle contracted analytical testing laboratory, Oilfield Environmental & Compliance (OEC), a State of California certified, fixed-base analytical testing laboratory. The chain-of-custody (COC) forms were completed for each sample at the time of collection and were maintained through sample delivery to the analytical testing laboratory. COC documentation recorded the description, possession, condition, and transfer of samples.

4.6 Analytical Testing

Analytical testing of wastes was not required and therefore not included in the scope of work for this Project. The analytical testing program was determined by CalRecycle staff and consisted of analyzing the potential onsite cover soil samples CS-1 through CS-9 and background samples BG-1 through BG-3, for Title 22 metals, since elevated metal concentrations are the primary Constituents of Concern (COC) at disposal sites where wastes were burned. Analytical results are summarized on Table 1 and the laboratory analytical report is included as Appendix C.

4.7 Field Documentation

The information recorded on the test pit logs generally included the following:

- Project name, number, and test pit identification number.
- Test pit location information and length.
- Schematic diagram of the test pit excavation indicating length and total depth excavated; estimated depths to strata changes, approximate locations and depths of wastes as applicable; and sample locations, as applicable.
- Unique sample identifier (e.g., CS-1) denoting the sample was collected from exploratory test pit CS-1.
- Type of excavating equipment.
- Date test pit was excavated/backfilled.
- Name of person(s) logging the test pit.
- Descriptions/interpretations and visual classification of subsurface materials encountered were recorded on individual test pit logs, and included:

- o General descriptions of wastes, including an estimate based solely on visual observations of the approximate estimated percentage of solid wastes relative to fill soils and primary constituents comprising the wastes (e.g., glass, metal debris, concrete, etc.).
- o General lithologic descriptions of native materials/geologic formations (alluvium) based solely on visual observations.
- o At the completion of each exploratory test pit, Ninyo & Moore staff identified on the site map, the test pit identification number and location. Locations of test pits were recorded on field maps and GPS data was obtained using a cellular phone with a pdf maps application. Test pit excavations were temporarily re-staked for future reference.

Photographs were taken to document test pit excavation, sample locations, and backfilling activities and included the test pit excavation and stockpiled materials. The photographs document and supplement information recorded on the individual test pit logs (Appendix B).

4.8 Cover Soil Geotechnical Testing

Although not included in the planned scope of work, it was decided that it would be beneficial to obtain soil classification information for the onsite soil planned to be used to cover the wastes. The soils at the eastern site area, as observed in test pits CS-1 through CS-9, appeared generally similar; therefore, one sample, CS-8, was submitted for gradation testing to classify the soil (Figure 3).

5 SUMMARY OF FINDINGS

The following summarizes the results of this limited SI.

Waste Disposal Area – Western Central Site Area

- Test pits T-1 through T-10 were excavated at the western central area of the site in the area of waste disposal. The test pits generally confirmed the suspected lateral extent of the waste disposal area which based on field observations and background information, appear to be located within generally parallel, northeast trending waste disposal trenches. Background information indicated three northeast trending waste disposal trenches, each approximately 60 feet wide and approximately 630 feet in length (CEW, 1991). The lateral extent of the individual waste disposal trenches is partially apparent on the recent aerial photograph (Figure 2) and in the field. While this limited SI generally confirmed the presence of parallel, northeast-trending waste disposal trenches at the western central area of the site, it did not entirely confirm the lateral extent of each individual waste disposal trench. However, because the entire waste disposal area (footprint) is planned to be covered, it was not necessary to further confirm the waste disposal trenches.

- Exposed wastes in the disposal area were observed at the surface and near surface. At numerous locations, evidence of recent *digging* by unauthorized persons likely to collect bottles and other possible materials was observed, likely contributing to the presence of exposed, surface wastes. Typically, wastes were not covered; however, at test pit T-3, wastes were covered by approximately 1 foot of fill soils, at T-5 wastes were covered with approximately 3 to 6 inches of soil and at T-9, a relatively thin zone of wastes (likely at the southwest terminus of the waste disposal trench) was observed to be covered with 6 to 10 inches of soil.

- Based on site reconnaissance and test pit excavations, wastes were observed to generally consist of broken and melted glass, broken and whole glass bottles, metal debris, concrete and asphalt debris, drywall, wood, ash, and other miscellaneous materials.

Potential Cover Soil Source Area – Eastern Site Area

- Cover soil test pits CS-1 through CS-9 were excavated at the eastern area of the site, outlying locations of waste disposal for the purpose of evaluating the suitability of the soils for use as final cover. In general, test pits were located to obtain adequate coverage of the area and a few were located in areas of observed surface waste to confirm that the wastes were limited to the surface/near surface.

- One soil sample was collected from each cover soil test pit and analyzed for Title 22 metals since metals are the primary COC at former disposal sites where wastes were burned/partially burned. Analytical results indicate that with the exception of arsenic, in most soil samples and thallium in one soil sample, metal concentrations are less than their respective Regulatory Screening Levels for both industrial and residential use and are less than their respective Hazardous Waste Criteria (Table 1). Although arsenic concentrations in both the background and proposed soil cover samples exceed the residential and industrial RSLs, the concentrations are similar, relatively low, and are considered to be representative of background concentrations. The arsenic concentrations are significantly less than the Department of Toxic Substances Control (DTSC) concentration of 12 mg/kg for school sites. One background soil sample contains thallium at a concentration exceeding the residential RSL and thallium was not detected at concentrations exceeding the laboratory reporting limit in the nine cover soil samples. Metal concentrations in samples proposed to be used as cover soil were similar to metal concentrations in the background samples.

- Although surface wastes were observed at some locations at the eastern site area, based on site reconnaissance and at locations where test pits were excavated, it appears these wastes are not related to the waste disposal to the west and that they are locations of minor waste debris restricted to the surface/near surface only.

- Although not included in the initial scope of work, for purposes of designing the planned cover, one soil sample from test pit CS-8 was submitted for gradation testing to classify the soil. Test results indicate the soil is classified as silty sand. Based solely on field observations, soils encountered in CS-1 through CS-9 appeared relatively similar; therefore, this soil classification may be representative of soil at the eastern site area, planned to be used for final cover.

6 REFERENCES

California Code of Regulations, Title 27.

California Code of Regulations, Title 22.

CalRecycle, 2017a, Limited Site Investigation Work Plan, Ridgecrest Burn Dump, Kern County, California: dated January.

CalRecycle, 2017b, Site Health and Safety Plan, Ridgecrest Burn Dump, Kern County, California: dated January.

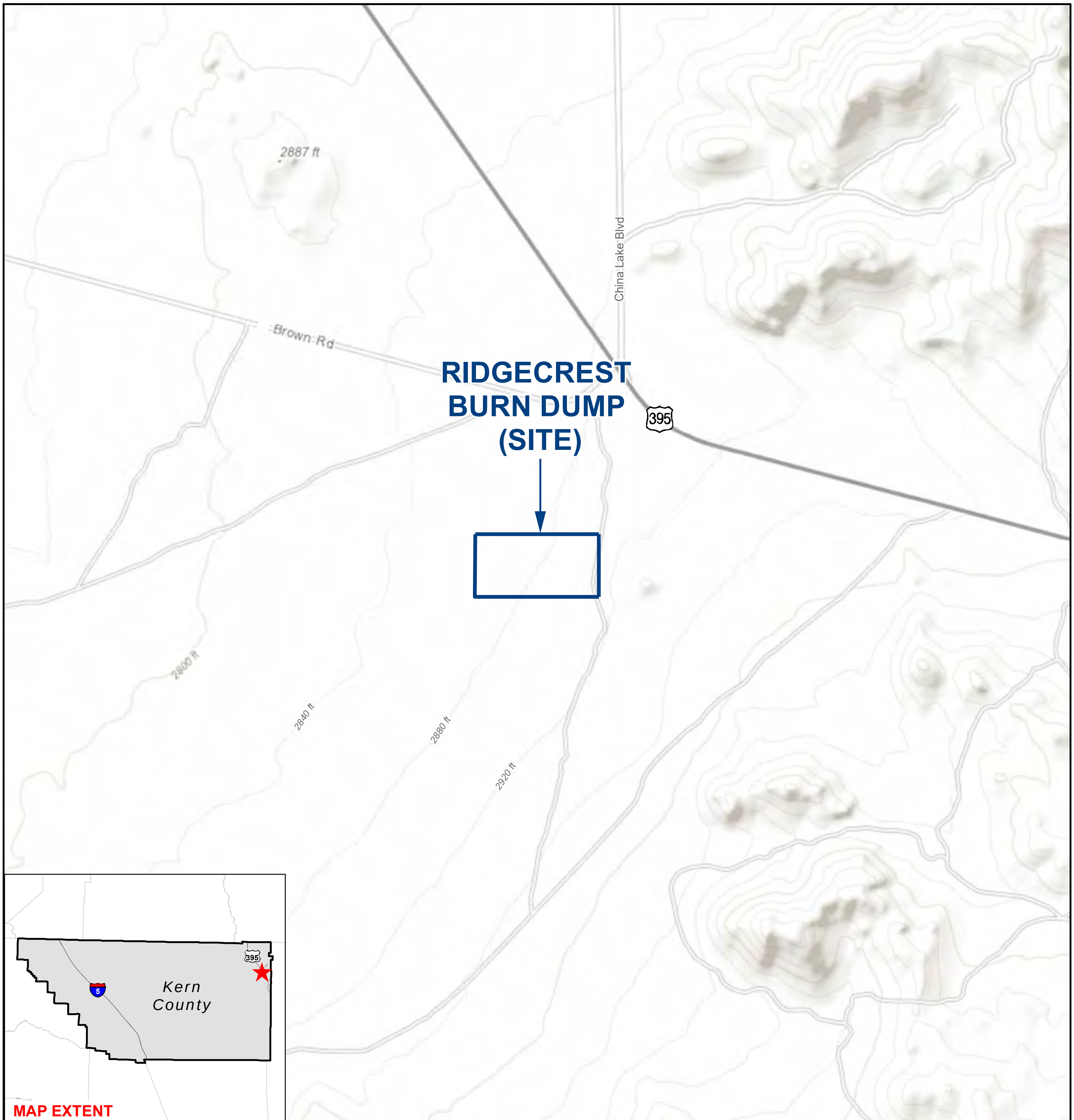
CalRecycle, 2017c, Property Access Authorization for Investigation of Disposal Site, Ridgecrest #1 Burn Dump (SWIS 15-CR-0024) and Randsburg Burn Dump (SWIS 15-CR-0023): dated March 21.

Converse Environmental West, 1991, Solid Waste Assessment Questionnaire, Ridgecrest Burning Dump, A portion of Section 31, T27S, R40E, MDB&M, Kern County: dated January 8.

County of Kern, Public Works Department, 1966, Ridgecrest Disposal Area, Ridgecrest, California: revised January 26.

United States Environmental Protection Agency, 2016, Regional Screening Levels (RLSs): dated May.

FIGURES



1_104690092_SL.mxd 7/6/2017 JDL

NOTE: DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE. | SOURCE: GOOGLE EARTH, 2017

N

FEET

0 1,500 3,000

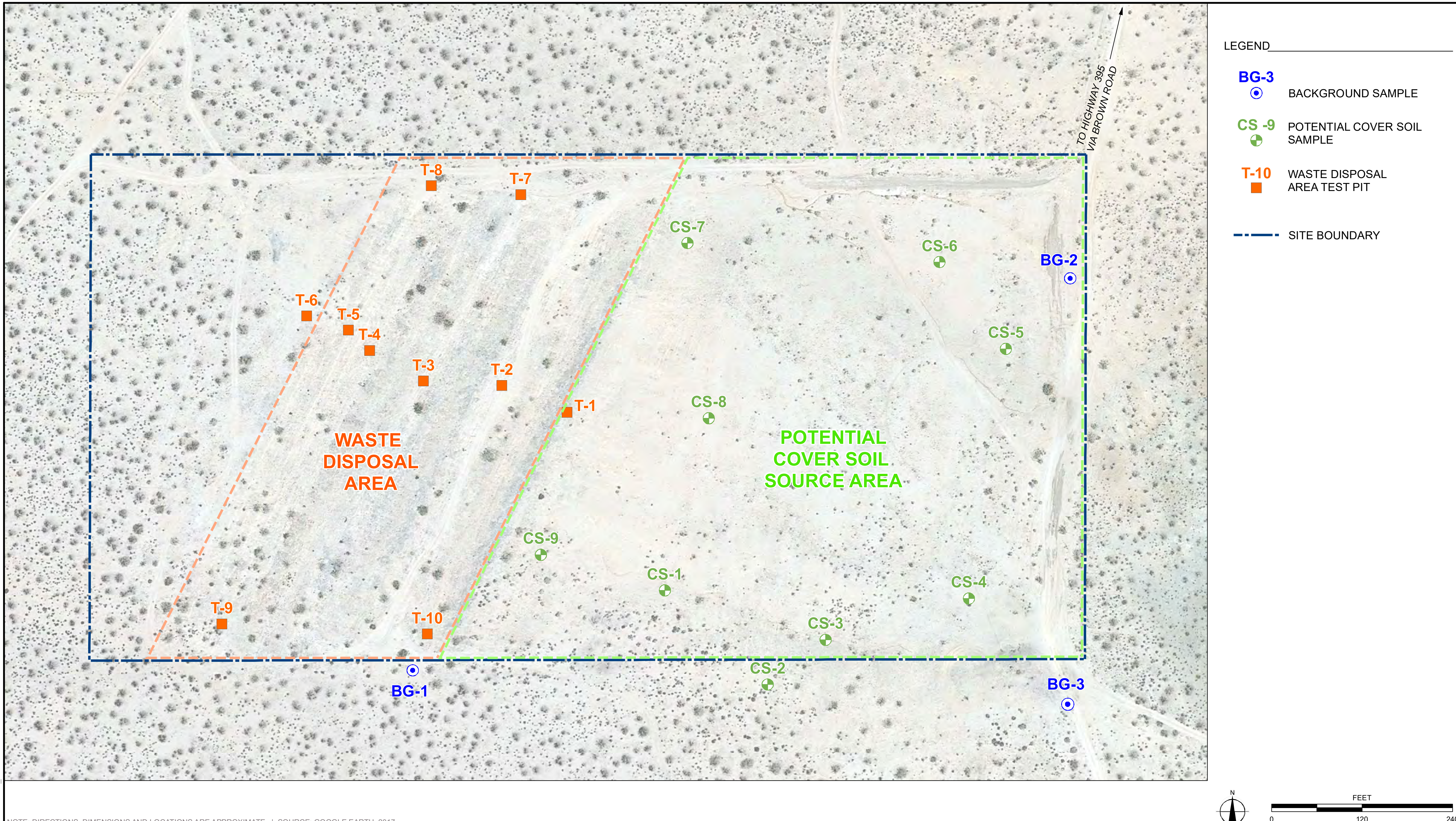
FIGURE 1

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

SITE LOCATION

RIDGECREST BURN DUMP
KERN COUNTY, CALIFORNIA

104690092 | 7/17



2_104690092_SP.mxd 7/11/2017 JDL

NOTE: DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE. | SOURCE: GOOGLE EARTH, 2017

FIGURE 2

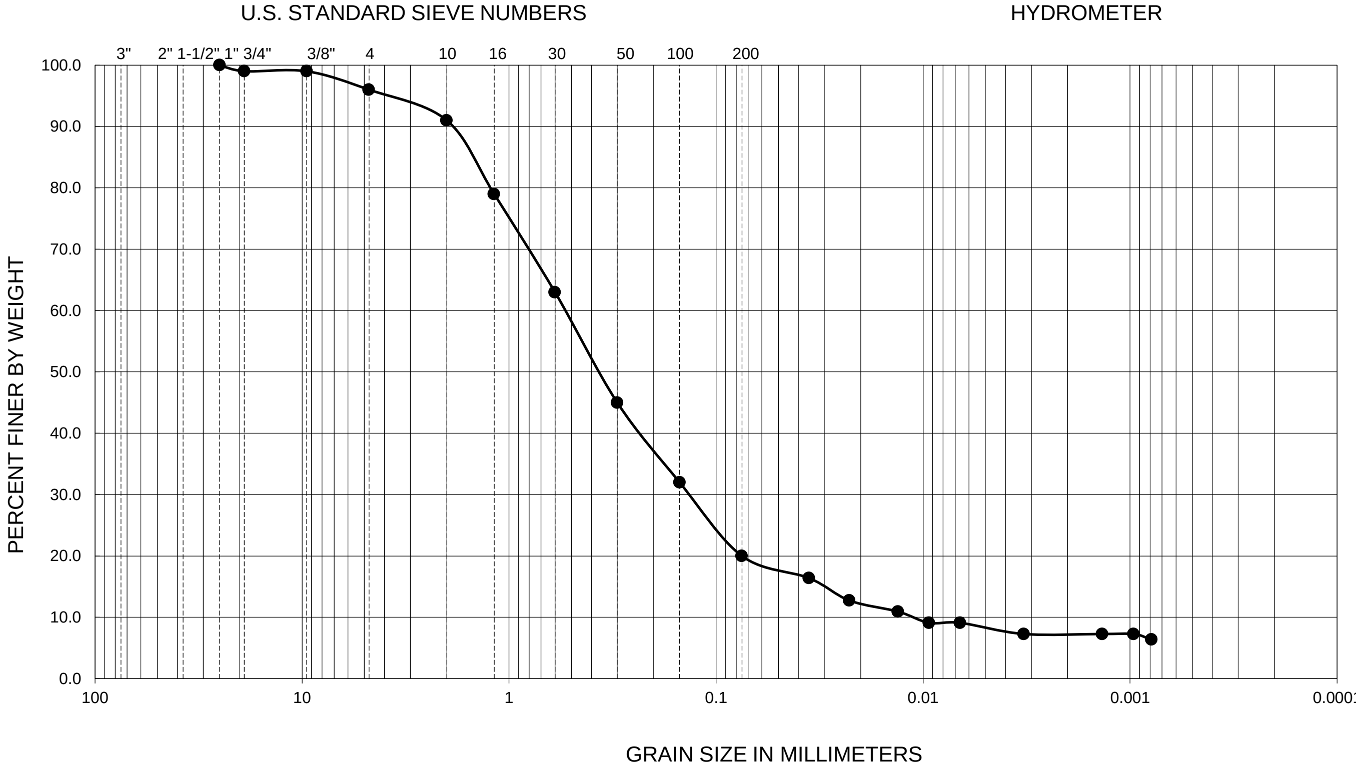
SITE PLAN AND TEST PIT LOCATIONS

RIDGECREST BURN DUMP
KERN COUNTY, CALIFORNIA

104690092 | 7/17

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	SILT	CLAY



Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (%)	USCS
●	CS-8	0	--	--	--	--	--	--	--	--	20	Silty SAND

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

FIGURE 3

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

GRADATION TEST RESULTS

RIDGECREST BURN DUMP
RIDGECREST, KERN COUNTY, CALIFORNIA

104690092 6/17

TABLE

Table 1 – Soil Sample Analytical Results - Metal Concentrations (mg/kg)

Sample ID	Date Collected	Antimony	Arsenic [1]	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium [1]	Vanadium	Zinc
POTENTIAL COVER SOIL SAMPLE																		
CS-1	05/16/17	<2.4	***3.2***	60	<0.48	<0.24	1.5	5.2	13	14	<0.094	<0.48	6.4	<1.9	<0.48	<0.97	26	62
CS-2		<2.3	**2.2**	38	<0.46	<0.23	3.0	4.6	9.2	2.2	<0.098	<0.46	5.9	<1.9	<0.46	<0.93	20	19
CS-3		<2.3	**2.1**	51	<0.46	<0.23	1.0	5.2	11	6.9	<0.096	<0.46	5.4	<1.8	<0.46	<0.91	24	77
CS-4		<2.4	<1.9	40	<0.47	<0.24	1.2	4.6	8.7	8.1	<0.099	<0.47	4.9	<1.9	<0.47	<0.95	18	33
CS-5		<2.5	***3.3***	52	<0.49	<0.25	1.6	6.7	14	4.5	<0.098	0.51	6.6	<2.0	<0.49	<0.98	27	27
CS-6		<2.4	**2.0**	46	<0.47	<0.24	1.4	7.2	11	3.9	<0.087	<0.47	5.6	<1.9	<0.47	<0.95	30	19
CS-7		<2.3	<1.9	57	<0.47	<0.23	0.63	5.9	12	2.0	<0.094	<0.47	5.8	<1.9	<0.47	<0.94	22	20
CS-8		<2.5	**2.0**	44	<0.50	<0.25	1.2	6.0	9.8	3.2	<0.093	<0.50	6.3	<2.0	<0.50	<0.99	33	18
CS-9		<2.4	**2.8**	23	0.49	<0.24	1.3	5.4	8.3	3.2	<0.095	<0.48	4.9	<1.9	<0.48	<0.96	29	17
BACKGROUND SOIL SAMPLE																		
BG-1	05/16/17	<2.3	***3.1***	79	<0.47	<0.23	13	6.5	17	25	<0.097	<0.47	7.4	<1.9	<0.47	**1.5**	33	210
BG-2		<2.3	**2.5**	41	<0.47	<0.23	3.9	4.6	9.6	9.4	<0.094	<0.47	4.9	<1.9	<0.47	<0.94	25	32
BG-3		<2.4	<1.9	29	<0.48	<0.24	3.1	5.3	33	6.7	<0.098	<0.48	3.4	<1.9	<0.48	<0.96	22	14
Regulatory Screening Levels																		
EPA RSL Residential (mg/kg)		31	0.68	15,000	160	71	NL	23	3,100	400	11	390	1,500	390	390	0.78	390	23,000
EPA RSL Industrial (mg/kg)		470	3	220,000	2,300	980	NL	350	47,000	800	46	5,800	22,000	5,800	5,800	12	5,800	350,000
Hazardous Waste Criteria																		
TTLC (mg/kg)		500	500	10,000	75	100	2,500	8,000	2,500	1,000	20	3,500	2,000	100	500	700	2,400	5,000
STLC (mg/l)		15	5	100	0.75	1	5	80	25	5	0.20	350	20	1	5	7	24	250

Notes:
mg/kg – milligrams per kilogram
mg/l - milligrams per liter
bgs – below ground surface
< - below laboratory reporting limit
RSL - Regional Screening Levels, United States Environmental Protection Agency, Summary Table, May 2016
TTLC - Total threshold limit concentration - maximum allowable concentration for California Hazardous Waste (California Code of Regulations [CCR] Title 22, Section 66261.24)
STLC = Soluble threshold limit concentration - maximum soluble limit concentration for California Hazardous Waste (California Code of Regulations [CCR] Title 22, Section 66261.24)
Bold - concentration exceeds the residential RSL
Italics - concentration exceeds the industrial RSL
[1] Arsenic and thallium laboratory reporting limits are above their respective residential RSLs

APPENDIX A

Background Information

Exclusion Zone

Level D is required for all personnel in the exclusion zone:

Protective Clothing: Visible protective clothing
Head: Hardhat if overhead hazards exist
Hand: Not required
Foot: Safety-toe boot
Hearing: Earplugs, if necessary
Eye: Safety glasses

Support Zone

Personnel working in the support zone will use the following personal protective equipment:

Foot: Safety-toe boot
Head: Not required

RESPIRATORY PROTECTIVE EQUIPMENT

All CalRecycle personnel using respiratory protective equipment shall follow CalRecycle policy and procedures. The following issues covered below should be followed when using respiratory protection for this site:

Cartridge Changes
All cartridges will be changed a minimum of once daily. However, water saturation of the HEPA filter or dusty conditions may necessitate more frequent changes. Changes will occur when personnel begin to experience increased inhalation resistance, or breakthrough of a chemical with warning properties.

Inspection and Cleaning
Respirators will be checked periodically by the SSHO and inspected before each use by the wearer. All respirators and associated equipment will be decontaminated and hygienically cleaned after use.

Facial Hair
No personnel who have facial hair that interferes with the respirator’s sealing surface will be permitted to wear a respirator or to perform functions that require the use of a respirator.

Corrective Lenses
Normal eyeglasses cannot be worn under full-face respirators because the temple bars interfere with the respirator’s sealing surfaces. For workers requiring corrective lenses, special spectacles designed for use with respirators will be used. Contact lenses can be worn with any type of respirator, but their use is not recommended in dusty atmospheres while wearing a half-

mask face piece.

Medical Certification
Only workers who have been certified by a physician as being physically capable of respirator usage will be issued a respirator.

Voluntary Respirator Use
The use of disposable dust masks provided by CalRecycle falls under the “voluntary respirator use” requirements of 8 CCR 5144 (c)(2). CalRecycle will provide all respirator users with information related to voluntary respirator use as needed.

Note: The Health and Safety Officer encourages all field staff to use disposable dust masks voluntarily for level D activities.

11. Decontamination Procedures

All personnel and equipment must be free from contamination when they leave the work site.

PERSONNEL DECONTAMINATION

Decontamination of personnel shall be accomplished to ensure that any material that personnel may come into contact with in the exclusion zone is removed in the contamination-reduction zone. If personal decontamination is required, CalRecycle staff shall consult with the SSHO.

EQUIPMENT DECONTAMINATION

Any equipment and vehicles that are exposed to contaminated soil will undergo decontamination. Each party will be responsible for final decontamination of their equipment.

WASTE HANDLING

Contaminated clothing will be bagged and disposed of at the end of the waste characterization project. Wastewater generated onsite will be disposed of onsite. Solid wastes will be disposed of in temporary waste storage areas set up within the exclusion zone. Non-hazardous wastes will be removed from the site at the end of the day and disposed of in municipal waste dumpsters.

12. Site Monitoring

AIR MONITORING

Air monitoring shall be performed to identify and quantify airborne contaminants to assist with worker protection. Air monitoring will be performed onsite with the use of direct reading instrument(s) or by integrated sampling. The SSHO shall be available to assist the Project Manager/Onsite Project Lead when taking air monitoring readings.

The SSHO or their designee shall perform regular ongoing air monitoring. Reading frequency shall be based on the level of site contamination and work tasks with a recommended minimum reading frequency of four times per day. Reading location shall include at a minimum the following areas: the breathing zone, above the open trench, and above the sample spoils. All instruments used for air monitoring shall be calibrated prior to use, with the calibration log and sampling results properly maintained. An air monitoring log can be found in Appendix B.

The SSHO shall determine if an industrial hygiene evaluation or additional sampling is needed to assess and document worker exposure at the site. The SSHO will assist the Project Manager/Onsite Project Lead on questions related to monitoring. The decision to monitor shall be at the discretion of the Project Manager/Onsite Project Lead. It is recommended that all solid waste sites be prescreened for airborne contaminants, especially at illegal dumps. At a minimum, it is recommended that the sampling plan follow this procedure, especially during the initial evaluation:

1. Don appropriate PPE. If surveying for radiation, don a personal radiation monitoring device (radiation dosimeter).
2. Perform a general survey of the waste area(s) using an instrument.
3. Spot survey the environmental sampling locations.
4. Survey each sample in the field.

The following airborne contaminants may be monitored:

Explosive Gas and/or Oxygen Deficiency: Air monitoring to determine the presence of combustible gas (monitoring shall be ongoing) or oxygen deficiency shall be performed with appropriate monitoring instrumentation, such as a GEM 5000 and/or RKI Eagle. If a reading of 10% of the lower explosive limit (LEL) is met, all work shall cease, and all personnel in the exclusion zone will be moved to the upwind side of the CRZ, where the LEL is less than 10%. The SSHO or their designee will then commence assessment to determine the potential risk of explosion.

Volatile Organic Compounds: The “mini RAE”/photoionization detector (PID) detects if volatile organic compounds are present. The PID real-time results are not selective and can only detect compounds if the probe has a lower energy level than the compound’s ionization potential. The PID will not detect methane. The PID should not be used to detect semi-volatile compounds, including but not limited to PCB's and PAH's. The instrument's performance may be affected by rain and/or high humidity that causes lamp fogging and decreased sensitivity. High concentrations of methane can hinder performance. Because of the unknown contaminants present at a site when the PID reading is 5 ppm above background level in the breathing zone, all work shall be stopped and evaluated by the SSHO to determine if work should commence.

RADIATION

Radiation surveying will be conducted using approved and calibrated survey equipment capable of measuring gamma radiation emissions of at least 1 mR. Approved radiation survey equipment includes the Digital Ratemeter manufactured by Ludlum Instruments and the MHV Surveyor 2000 manufactured by Bicron/Saint Gobain. Other equipment may be approved after a consultation with the CalRecycle project engineer. The manufacturer or a designated service center must calibrate these instruments at least once each year to ensure field accuracy.

At the beginning of each survey, background radiation will be measured using each instrument that will be used to conduct subsequent surveys. Background radiation will be measured on relatively flat, open areas exposed to native soils or bedrock. The background radiation reading will be recorded for each instrument and used during waste/burn ash surveys for comparison.

The sampling team will be responsible for conducting radiation surveys. Each survey will be performed by slowly walking back and forth over the proposed or exposed work area with an approved radiation survey instrument. If elevated radiation is detected prior to or during the course of the work, the "hot" area will be flagged in the field and excluded from the work zone.

13. Emergency Response

Prior to field activities, all personnel shall review emergency egress routes for the site. All personnel shall follow direction of the Project Manager/Onsite Project Lead and/or SSHO when an emergency arises.

EMERGENCY ASSISTANCE INFORMATION

Emergency Contact	Telephone Number
Fire/Police/Ambulance	9-1-1
Ridgecrest Regional Hospital 1081 N. China Lake Blvd. Ridgecrest, CA 93555	(760) 446-3551
Cal/OSHA (field office) **Region 4** Bakersfield District Office Efren Gomez, District Manager 7718 Meany Ave. Bakersfield, CA 93308 DOSHBAK@dir.ca.gov	(661) 588-6400 (661) 588-6428 (Fax)

EMERGENCY SERVICES

All personnel shall be provided concise and clear directions and accessible transportation to local emergency services. Emergency equipment will be kept in the contamination-reduction zone when field activities are performed. A map showing directions to the nearest hospital will be posted on site. Fire extinguishers and an industrial first aid kit shall be present on the site at all times.

MEDICAL EMERGENCY PROCEDURES

The following procedures should be observed if an accident occurs:

Minor Injury

- Notify the SSHO.
- Have qualified first aid personnel treat the injury.

- Record the injury and include name of injured person, nature of injury and treatment given.

Serious or Major Injury

In the event of a medical emergency when actual or suspected serious injury occurs, the following procedures shall be implemented:

- Survey the scene and evaluate whether the area is safe for entry.
- Remove the exposed or injured person(s) from immediate danger.
- Render first aid if necessary. Decontaminate affected personnel after critical first aid is given.
- Obtain paramedic services or ambulance transport to local hospital. This procedure shall be followed even if there is no visible injury.
    - Call 9-1-1.
    - Identify location, request medical assistance, provide name and telephone number.
    - Request assistance from emergency medical service and/or additional assistance.
- Other personnel in the work area shall be evacuated to a safe distance until the SSHO determines that it is safe for work to resume. If there is any doubt regarding the condition of the work area, work shall not commence until all hazard control issues are resolved.
- Fill out accident reporting forms and associated documents.

If a fatal injury occurs, the following additional steps will be followed:

- Notify immediate supervisor.
- Notify Project Health and Safety Manager.
- CalRecycle will initiate contact with Cal/OSHA and other appropriate agencies.
- All work activities on the project must be stopped on the project for 24 hours.
- Assist Cal/OSHA as directed.

FIRST AID

Only qualified personnel shall give first aid and stabilize an individual needing assistance. Top priority will be given to life support techniques (e.g., CPR) and life-threatening problems (e.g., airway obstruction, shock, etc.). Professional medical assistance shall be obtained at the earliest possible opportunity.

SPILL RESPONSE PROCEDURES

CalRecycle does not expect a risk of leaks or spills of contaminated liquids or hazardous liquids.

In the case of a spill of such contaminated or hazardous materials, the following procedures shall be followed:

- Determine a spill has occurred.
- Notify the SSHO.
- Identify protective clothing or equipment required to respond.
- Contain the spill.
- Document incident.
- Initiate appropriate cleanup.

EARTHQUAKE RESPONSE

If an earthquake should occur during the course of site activities, the following steps should be taken:

- Stop working.
- Remain calm and do not panic.
- If indoors, stay indoors away from windows and take cover under heavy furniture if possible.
- Do not use or do anything that might be a source of ignition, e.g., smoking, cutting, or welding.
- If outdoors, stay away from power lines, power poles, and windows.

SITE EVACUATION PLAN

In the general case of a large fire, explosion, or toxic vapor release, the site must be evacuated. Personnel must evaluate the situation and assess the upwind direction. Personnel must evacuate to an upwind location following these steps:

- Assemble in an upwind area when the situation permits; a head count will be taken.
- Determine the extent of the problem. Dispatch a response team in appropriate protective clothing to evacuate any missing personnel or to correct the problem.

The above procedures apply to all team members and will be discussed with them prior to the commencement of work.

The hand signal of “both hands on the waist” will be used to notify all personnel to leave the area immediately if all other means to communicate to staff on site fails.

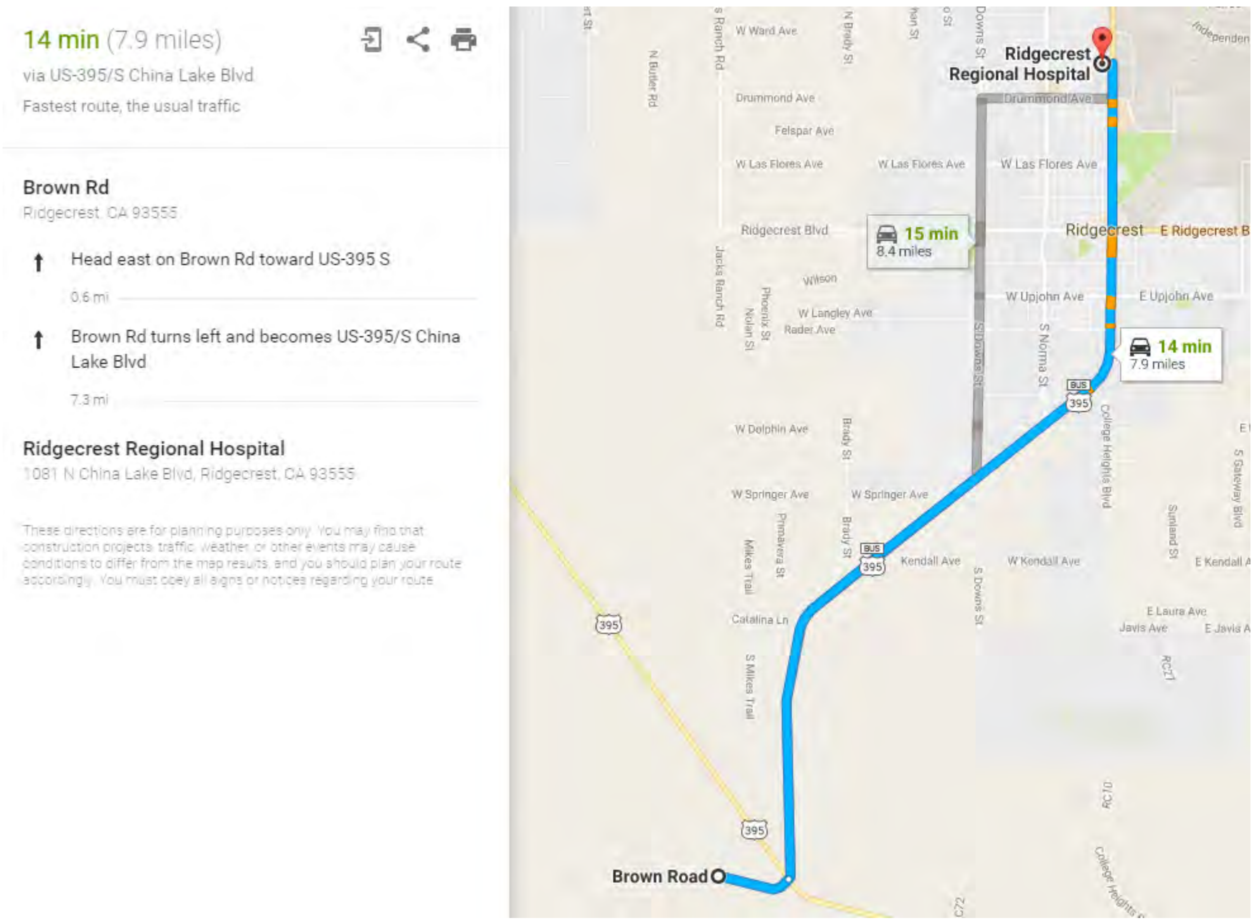
EMERGENCY WARNING SIGNAL

In the event of an emergency, a “warning” horn will be sounded which will be the indicator to stop work or evacuate the job site. After three loud blasts from the “warning” horn, staff will assemble at a pre-determined location. This location will be pre-determined at the tailgate meeting before work commences on site.

14. Emergency & Hospital Information

The nearest hospital to the job site is:

Ridgecrest Regional Hospital
1081 N China Lake Blvd
Ridgecrest, CA 93555
(760) 446-3551



15. Training and Medical Surveillance Requirements

TRAINING

All CalRecycle staff at this job site shall comply with the CalRecycle's Health and Safety Field Policy training requirements.

All personnel are required to have current training in the following areas:

- 40-hour hazardous waste operations and emergency response (or equivalent)
- 8-hour health and safety refresher training, if applicable
- First Aid/Cardiopulmonary Resuscitation (CPR)

MEDICAL SURVEILLANCE

All CalRecycle staff at this job site shall comply with CalRecycle's Health and Safety Field Policy – Medical Surveillance Program requirements. CalRecycle staff may view the Health and Safety policy at http://www.CalRecycle.ca.gov/Safety/Manual/.

16. Site Specific Pre-Job Safety Orientation

All personnel entering the exclusion zone will be trained in the provisions of this SSHP and shall meet the requirements for CalRecycle's Health and Safety Policies, be required to sign the sign-in sheet, and attend a site safety orientation meeting where the following topics will be covered:

- Key personnel and their responsibilities for site
- CPR and first aid trained personnel
- Site hazards
- Personal protective equipment/required levels of protection
- Location of safety equipment, such as fire extinguishers
- Site standard operating procedures and safe work practices
- Work zones and site control measures
- Emergency and spill response and contingency plans

APPENDIX A

Daily Tailgate Meeting Format

Date: ____
Location: ____
Presented by: ____

Topics Covered:
- Health and Safety Plan
- On-site organization and coordination
- Emergency medical care and procedures including evacuation
- Contingency plan
- Additional controls for complex and/or hazardous jobs

Specific Precautions for Day's Activities

Other: ____

Attendee List

Print Name	Signature
______________________________	______________________________
______________________________	______________________________
______________________________	______________________________
______________________________	______________________________

Start on time.

No. 1 – Make a clear announcement to the group for the meeting to start.
No. 2 – Explain why the meeting is being held.
No. 3 – Keep the meeting from going off on a tangent. If an employee brings up a topic with merit, agree to talk about that topic later. **Keep the tailgate meeting moving, but keep the promise to discuss later!**
No. 4 – Ask questions about accident causes and corrective actions from previous jobs. Allow time for discussion and questions.
No. 5 – Discuss job hazards at the site, along with safety controls that will prevent accidents.
No. 6 – Point out things that are being done right, as well as problem areas.
No. 7 – Discuss seasonal safety information.
No. 8 – Use a real accident or safety concerns case to emphasize a point. The more recent and the more close (geographically) to your location, the more effective the example will be (e.g., no scavenging for bottles). Personal experiences are usually the best example.

To hold the attention of the group, the tailgate meeting should be no more than 15 minutes. A copy of the daily tailgate meeting notes will be placed with this Site Safety and Health Plan.

APPENDIX B

Monitoring Log

Site/Location:

DATE	TIME	LOCATION	READING	INSTRUMENT	FIELD CONDITIONS/ COMMENTS	STAFF

Location examples: Near a trench, spoil pile, trench depth, etc.

Field Conditions/Comments (Examples: Weather (wind, rain, heat); proximity to water or homes)

APPENDIX C
On-Site Safety Inspection

Completed by______________________________________ Date________________________________

Site and Location____

Project Lead______________________________________ SSHO________________________________

EQUIPMENT	YES	NO	N/A	COMMENTS/DATE CORRECTED
PPE assessment performed-PPE requirements in place	☐	☐	☐	
Employees trained in the use & maintenance of PPE	☐	☐	☐	
Hard hat areas designated and enforced	☐	☐	☐	
Hearing protection utilized in required areas	☐	☐	☐	
Eye protection in place where needed	☐	☐	☐	
Safety foot protection required where appropriate	☐	☐	☐	
Approved respiratory protection equipment available	☐	☐	☐	
Respirators are in working condition and no breakthrough is occurring	☐	☐	☐	
Air monitoring instrumentation calibrated & working properly	☐	☐	☐	
Tools in good condition (sampling) *Defective tools shall be removed from service*	☐	☐	☐	
Employees are properly trained in equipment	☐	☐	☐	
Air monitoring is being conducted	☐	☐	☐	
Fire extinguisher onsite	☐	☐	☐	
No smoking and/or eating in the work area in effect	☐	☐	☐	
Evacuation procedures posted	☐	☐	☐	
Emergency telephone numbers posted	☐	☐	☐	
First aid kit and fire extinguisher available	☐	☐	☐	
Daily tailgate safety meeting performed	☐	☐	☐	

ENVIRONMENT	YES	NO	N/A	COMMENTS/DATE CORRECTED
Work area adequately illuminated	☐	☐	☐	
Temperature within normal limits	☐	☐	☐	
Heat and cold stress discussed	☐	☐	☐	
Noise levels within normal limits	☐	☐	☐	
Slip and trip hazards mitigated	☐	☐	☐	
Operators qualified/trained	☐	☐	☐	
Back up alarms working	☐	☐	☐	
Operators working at safe speeds	☐	☐	☐	
Safe loading and unloading of material observed	☐	☐	☐	

It is important to record all the information asked for on this form.

Comments ____

____

____

____

____

Approvals

Prepared by:

Laura Tembreull, Environmental Scientist

Peer reviewed by:

Marc Arico, Associate Industrial Hygienist

Michael Chen, Associate Industrial Hygienist

Joanna Johnson, CIH, CSP, Associate Industrial Hygienist

The undersigned personnel certify that this health and safety plan will be utilized for the protection of the health and safety of workers during the field investigation of the Site.

Diane Kihara, CIH, CSP	1/30/2017 Date
Stephanie Young, PE	1/31/2017 Date
Angela Gomez, Environmental Scientist	1/31/2017 Date
Glenn Young, PE	1/31/2017 Date
Wes Mindermann, PE	2/2/17 Date

The undersigned personnel have been briefed about the contents of this health and safety plan, and intend to comply with its provisions:

Signature	Name	Date

Property Access Authorization for Investigation of Disposal Site

I hereby authorize the California Department of Resources Recycling and Recovery (CalRecycle) staff, their designated contractors and representatives, and other affected State and local authorities access to:

Ridgecrest #1 Burn Dump (SWIS 15-CR-0024)
APN: 511-020-03
S of Brown Rd, HWY 395, China Lake Blvd, Kern County, California

Randsburg Burn Dump (SWIS 15-CR-0023)
APN: 154-200-03
38155 Goler Road, Kern County, California

The purpose for access is to conduct site investigations of the above two properties, each to include the following tasks:

> Provide a professional geologist and/or CalRecycle Staff to oversee all site investigation activities.
>
> Conduct intrusive activities including: trenching, potholing, sampling and any other necessary work as described in an approved work plan.
>
> Upon completion of the investigation the site will be restored by CalRecycle to its original condition.
>
> The site investigation at the Randsburg Burn Dump will be limited to the old, closed disposal site and will not include the adjacent transfer station at the site.

CalRecycle shall cause the CalRecycle Contractor to include the property owners as additional named insureds by endorsement to the Contractor's commercial general liability insurance policy to insure the property owners against claims, losses and damages including, without limitation, personal injury, workers compensation, and real property damage provisions per insurance requirements in State of California Standard Specifications to the extent permitted by law. These investigations are authorized by Public Resources Code (PRC) Sections 44100 and 45013, and 14 California Code of Regulations (CCR) Sections 18083-18084, which requires local enforcement agencies to investigate, inspect and enforce state minimum standards at closed, illegal and abandoned disposal sites.

This authorization shall begin on **February 1, 2017** and shall expire on **December 31, 2017** unless extended in writing. I have been advised that since I am the property owner, if based on the investigation the County of Kern Environmental Health Division, acting in its capacity as the Solid Waste Local Enforcement Agency, determines that measures need to be taken to bring either or both of these sites into compliance with state minimum standards, the Local Enforcement Agency may consider me responsible for implementing such remediation measures at the properties. Nevertheless, I understand that signing this authorization is not an admission of any liability or responsibility for cleanup or other remediation of the properties.

I certify that I am the legal owner or authorized agent of the legal owner of the above property and have authority to grant such access.

United States Department of the Interior
Bureau of Land Management
Ridgecrest Field Office

By: Carl B Sy 3/21/2017
(Signature) (Date)

CARL B SYMONS
(Typed or Printed Name)

Its: Field Manager
(Title of Person Authorized to Provide Access)

CR-24

7106

CONVERSE ENVIRONMENTAL WEST

3393 East Foothill Boulevard, Suite B
Pasadena, California 91107-3112

Telephone (818) 796-8200
FAX (818) 351-1060

SOLID WASTE ASSESSMENT QUESTIONNAIRE

RIDGECREST BURNING DUMP

A Portion of Section 31, T27S.,
R40E. MDB&M
Kern County, California

PREPARED FOR

County of Kern
Department of Public Works
2700 "M" Street, Suite #500
Bakersfield, CA 93301

CEW Project No. 91-41-324-01

January 8, 1991

CONVERSE ENVIRONMENTAL WEST

3393 East Foothill Boulevard, Suite B
Pasadena, California 91107-3112

Telephone (818) 796-8200
FAX (818) 351-1060

January 8, 1991

County of Kern
Department of Public Works
Solid Waste Management Division
2700 "M" Street, Suite #500
Bakersfield, California 93301

Attention: Mr. Ken Alvis

Subject: **SOLID WASTE ASSESSMENT REPORT**
Ridgecrest Burning Dump
A Portion of Section 31, T27S., R40E. MDB&M
Kern County, California
CEW Project No. 91-41-324-01

Dear Mr. Alvis:

This letter transmits our report presenting details and procedures of the solid waste assessment investigation conducted at the former Ridgecrest Burning Dump, located in a portion of Section 31, T27S., R40E., MDB&M. in Kern County, California.

Converse Environmental West (CEW) performed this work to complete a Solid Waste Assessment Questionnaire for submittal to the California Regional Water Quality Control Board. The purpose of completing the questionnaire was to eliminate all or a portion of the Solid Waste Assessment Testing (SWAT) requirements, including the monitoring of groundwater quality beneath the disposal site. Work completed by CEW includes a technical data search and review, drilling and sampling of nineteen soil borings, collection of six soil gas samples, analytical testing of landfill materials, soil and soil-gas samples, and completion of a Solid Waste Assessment Questionnaire and accompanying documentation.

The results of this work show that the minimum requirements for performing a Solid Waste Assessment Questionnaire have been met (i.e. waste is less that 50,000 cubic yards and no hazardous waste other than household waste exists on site). Given the depth to groundwater beneath the site (> 600 feet) and the landfills remote location with reference to potable sources of groundwater, CEW concludes that a full Solid Waste Assessment Test is unwarranted for the Ridgecrest Burning Dump.

Should you have any questions regarding this assessment or report, we are available to discuss them with you.

Sincerely,

CONVERSE ENVIRONMENTAL WEST

Benjamin M. Swann

Benjamin M. Swann, R.G.
Senior Environmental Manager

TABLE OF CONTENTS

LIST OF ILLUSTRATIONS

PROFESSIONAL CERTIFICATION

REPORT PREPARED BY:

Laura Albert-White
Staff Geologist

UNDER THE PROFESSIONAL SUPERVISION OF:

REGISTERED GEOLOGIST
BENJAMIN M. SWANN
No. 5095
Lic. Exp. 5-92
STATE OF CALIFORNIA

Benjamin M. Swann, R.G.
Senior Environmental Manager

This report has been prepared for the exclusive use of the County of Kern, Department of Public Works as it pertains to the former Ridgecrest Burning Dump, located in a portion of Section 31, T27S., R40E., MDB&M. in Kern County, California. Our services have been performed in accordance with applicable State ordinances and generally accepted practices in the geosciences. No other warranty, either express or implied, is made. Converse Environmental West (CEW) is not responsible or liable for any claims or damages associated with interpretation of available information. This report should not be regarded as a guarantee that no further contamination, beyond that which was detected in our investigation, is present beneath the property. In the event that changes in the nature of the property occur or additional, relevant information about the property is brought to our attention, the conclusions and recommendations contained in this report may not be valid unless these changes and additional relevant information are reviewed and the conclusions of this report are modified or verified in writing.

INTRODUCTION

The following questionnaire is completed in outline form with each of the questions numbered and stated in the same format as the Solid Waste Assessment Questionnaire & Guidelines (California Water Code Section 13273.1). All sources used to answer the following questions are referenced in a list at the end of the questionnaire. All questions have been answered as completely as possible using existing maps, records, literature, personal communication, and field exploration.

I. GENERAL SITE INFORMATION

A. ***Site Name:*** Ridgecrest Burning Dump
also called, Ridgecrest Disposal Area

B. ***Owner:*** Bureau of Land Management
Ridgecrest Resource Area
300 South Richmond Rd.
Ridgecrest, CA 93555
Contact person: Walter C. Jakubowski or Mike Hogan
(619) 375-7125

The site has no previous owners.

C. ***Operator:*** County of Kern, Department of Public Works
2700 "M" Street, Suite #500
Bakersfield, CA 93301
Contact person: Kenneth R. Alvis
Phone: (805) 861-2481
Fax: (805) 324-1715

D. ***Site Location:***

A portion of Section 31 T.27S., R.40E. MDB&M. Located on the Randsburg-Inyokern Road (Highway 395) 0.1 miles west of China Lake Boulevard. Ridgecrest South Quadrangle, California - Kern County, 7.5 minute series (topographic), 1973. See attached Location Map (Figure 1) and Site Plan (Drawing 1). Appendix C includes an aerial photograph taken in 1975 and photographs taken on-site during this investigation.

II MINIMUM REQUIREMENTS

A. ***Is there greater than 50,000 cubic yards of waste landfilled at the site?***

No. Based on geologic logging of cuttings from 19 exploratory borings drilled on site, the size of the Ridgecrest Burning Dump is no greater than 15,912 cubic yards.

B. ***Are there any known or suspected hazardous substances contained in the site, other than household hazardous waste?***

No. Records of types of rubbish disposed of in the dump indicate no hazardous substances, other than household hazardous waste, were disposed of at the site. Laboratory analyses for inorganic persistent and bioaccumulative toxic substances by both TTLC and STLC was performed on samples collected from 10 separate borings drilled on site (see Drawing 1). All results evidenced concentrations below TTLC and STLC except for one sample collected from boring B-18 at 6 feet below grade which contained 2,900 mg/kg copper, which exceeds the TTLC of 2,500 mg/kg. However, the sample was also tested for STLC and contained 13 mg/L copper which does not exceed the STLC of 25 mg/kg. Metallic copper is a common household waste and when in a pure metallic form (a copper penny) will exceed the TTLC test.

III PREPARER CERTIFICATION AND EXPERIENCE

A. List name(s) and credentials.

Benjamin M. Swann
Bachelor's Degree in Hydrogeology, SDSU
Registered Geologist in California

B. What is preparer's experience with this site?

No former experience with the specific site.

C. What is preparer's background with solid waste site assessment?

Have prepared numerous Solid Waste Assessment Test (SWAT) proposals, work plans, and reports and have participated in and directed SWAT field work.

D. Who is preparer's employer?

Converse Environmental West
3393 East Foothill Boulevard
Pasadena, California 91107

IV SITE HISTORY

A. Is the site currently open or closed?

The site is currently closed. The Ridgecrest Burning Dump first opened in 1962, operated for seven years, and closed in 1969. A total of three trenches were excavated, filled with rubbish, and closed on the dump site. Rubbish, which was periodically incinerated and interlayered with soil, was covered with native soil and subsequently compacted by either a loader or bulldozer that drove over the former pit repeatedly. Thickness of cover soil at the site, based on exploratory borings, varies from 3 to 4 inches (compacted) to 4 feet (compacted).

B. Is or was the site open to the public, or for private use only?

The site was open to the public for disposal of non-hazardous household waste. A 6-foot high hog wire fence surrounded the burning dump area. According to the *Kern County Solid Waste Master Plan (1968)*, completed by Robert Stone and Company, Inc., the Ridgecrest Burning Dump was supervised and maintained by an individual who was hired by the County. It was the responsibility of this caretaker to make sure no hazardous waste was disposed of in the dump. In addition, Mr. Stanton Charlson, who was employed by Kern County as maintenance supervisor throughout the life of the landfill, visited the site at least once a month during the lifetime of the dump and it was his general observation that all waste disposed of appeared to be strictly non-hazardous residential-type waste. All hazardous wastes were reportedly disposed of at the Kern County McFarland Dump site. Ridgecrest Burning Dump was open to the public 8 to 16 hours every day of the week throughout its entire period of operation.

C. Describe the current and past use of the site and neighboring lands which could be affected.

Neighboring lands are currently and have always been vacant. The town of Ridgecrest, six miles north of the site, is a residential community existing adjacent to the U.S. Naval Weapons Center. Industries existing in Ridgecrest are essentially confined to commercial and retail type industries with minor agricultural activity. The community is supported by the adjacent military base which operates a weapons research facility. Currently, the City of Ridgecrest has a population of about 30,000 people. In 1960, the population was 5,467 and in 1970 the population was

7,629. Examination of aerial photographs which were taken at various times throughout the history of the landfill show the structures in Ridgecrest and the surrounding vicinity to be primarily residential-type structures. The closest structure to the site appears to be a residence approximately 2,450 feet west of the dump site.

D. Identify types of users over the lifetime of the site and give approximate percentage of use.

Throughout the lifetime of the burning dump, the only type of users were residents that lived in the vicinity and small commercial users. One disposal service used the dump to dispose of their rubbish. A summary of rubbish disposed of in the dump was compiled in a load count which was performed by Ralph Stone and Company, Inc., Engineers in December 1967 and March 1968. Their data indicated that 90% of rubbish was delivered by automobiles and pickups with or without trailers, 7.4% of rubbish was delivered by load packers (garbage trucks), and 2.6% was delivered by trucks with or without trailers. The types of users disposing of waste in the dump consisted of residential (90%) and commercial (10%).

V VOLUME OF WASTE

A. What is the estimated in-place volume of landfilled wastes at the site in cubic yards?

In order to determine the location, size, and thickness of landfill materials at the Ridgecrest Burning Dump, nineteen exploratory soil borings were drilled on site and cuttings were logged by a field geologist. Borings were located in the center, along the perimeter, and in between the disposal pits. Based on the findings of this field work, the volume of waste materials is no greater than 15,912 cubic yards. An attached site plan (Drawing 1) shows approximate locations of the borings drilled on-site and the location of the disposal pits. Figure 2 and Drawing 2 show calculations performed to derive the estimated volume of rubbish existing at the site.

B. What is the design capacity of the site in cubic yards?

Research of existing records and documents indicates that no design capacity of the burning dump was ever determined. A total of 20 acres of land was leased by Kern County, though only 3.7 acres was fenced off and designated as the dumping area.

VI WASTE CHARACTERIZATION

A. ***What wastes were disposed of at the site? List type and quantity (in cubic yards, gallons, or tons, and whether quantity is actual or estimated).***

The load count conducted by Ralph Stone and Company (1968) evidenced the following types of refuse disposed of at the site and the relative percentage of each type of refuse material.

Household -	39.8%
Yard Rubbish -	30.9%
Commercial -	10.4%
Bottle/Can/Metal -	13.6%
Others -	5.3%

The study indicated that paper comprised approximately 50% by weight of the solid waste; metals, rags, dirt, glass, food waste, plastic, wood, and brush comprised the remaining 50%.

B. ***What records of waste disposal have been kept? Provide dates for periods when records were kept.***

The only documentation of waste disposal existing for the site are included in the Kern County Solid Waste Master Plan's Final Report prepared by Ralph Stone and Company, Inc., Engineers. Relevant data from this report are presented in this questionnaire.

C. ***Has the waste been physically characterized via trenching or drilling?***

Yes. In order to determine that hazardous wastes do not exist at the dump site, the waste was physically characterized by drilling and sampling on September 23-24, 1991. A total of nineteen borings were drilled on the site and samples were collected from landfill materials and native soils underlying the refuse. Two soil-gas samples were also collected from each of the three trenches on-site. Landfill materials observed during drilling included abundant glass with lesser amounts of porcelain, plastic, wood fragments, metal, charcoal and ash. All excavated and surface materials observed on-site were dry. No odor was detected coming from the borings, cuttings, or samples. Landfill material was characterized for inorganic persistent and bioaccumulative toxic substances by laboratory analysis. In addition, the dry density and moisture content was determined for several samples of landfill material, and permeability tests were run on native soils underlying the landfill material at two separate locations. Results of the laboratory analyses are included in Appendix D and E.

VII SITE AND OPERATIONAL CHARACTERISTICS

A. What methods of fill operations were utilized for waste disposal at the site?

Trench and fill.

B. Provide a full description for each operation method.

The operation method for the Ridgecrest Burning Dump was discussed in a telephone conversation with Mr. Stanton Charlson, maintenance supervisor for the landfill, on August 7, 1991. Mr. Stanton occupied this position throughout the life of the landfill. He retired in June, 1974.

Contractors were hired to excavate a pit with either a bulldozer or loader at the subject facility. Depth of each trench was approximately 10 feet below the natural ground surface. A 3 to 4 foot high berm was built up along the edge of the trench so that the entire filling depth was approximately 14 feet. The bottom 4 feet of the pit had vertical sidewalls, and the remaining upper portion of the pit was angled back approximately 60° or however steep the natural soil would allow. Rubbish was disposed of in the pit and when a significant amount accumulated, the rubbish was incinerated. The frequency that the rubbish was incinerated was a qualitative decision made by an individual that the County hired in the local community to make sure that the rubbish was incinerated as needed. Periodically, a layer of native soil would be spread over the existing rubbish. This may have been done to control dust. When the pit was filled to the top, a contractor was hired to excavate a new pit next to the previous pit. Soils from the new pit were placed on top of the rubbish in the old pit and both rubbish and the overlying soil was compacted by heavy machinery. This method of operation was used throughout the life of the burning dumps. Final cover was received in 1969 at which time the burning dump was closed. A laboratory analysis of the soil cover was performed on a sample collected from boring B-15 at 3 feet below grade. These results are included in Appendix D.

C. ***Is there any history or indication of fluids (e.g., lakes, seeps, springs, etc.) coming from any of the waste disposal area?***

No. There is no history or evidence of fluids coming from the waste disposal area. The site is characteristically very dry in its native state and no fluids were supposedly placed into the pits during operation of the dump.

D. ***Describe all present and past manmade drainage systems on, through, and adjacent to the site.***

No manmade drainage systems exist on, through, or adjacent to the site.

VIII REGIONAL GEOLOGY

A. ***Give a brief synopsis of the regional geology, including major rock units, structural trends, and special features.***

The site lies at the south end of Indian Wells Valley adjacent to the El Paso Mountains (see Figure 3 and Drawing 3). This valley and mountain range form the southwestern tip of the Basin Ranges Province which is a major north-northwest trending geologic province that is undergoing extentional tectonism. This province includes several hundred thousand square miles in eastern California, southeastern Oregon, Nevada, and western Utah. The province is bounded on the west by the Sierra Nevada Fault and on the south by the east-northeast trending Garlock fault. The Garlock fault lies on the southern flank of the El Paso Mountains.

Sediments occupying the floor of Indian Wells Valley consist of Quaternary-age (1.6 million years to present) sediments derived from erosion of the surrounding highlands. Holocene (11,000 years to present) fanglomerates, stream gravels, alluvium, and playa-lake sediments overlie much of the valley and are locally interbedded with basalt flows.

Major rock units in the nearby El Paso Mountains include metamorphic, sedimentary, plutonic, and volcanic rocks ranging in age from PreCambrian to Quaternary. The PreCambrian (before 570 million years) Mesquite Schist was mapped by Dibblee in 1952 and is recognized as the thickest section of Precambrian rocks in Kern County. The Paleozoic (245 million years to 570 million years) Garlock Series consists of a mica schist or phyllite with interlayered quartzite, limestone, dolomite, calc-silicate hornfels, and metavolcanic rocks. The Mesozoic-age (66.4 million years to 245 million years) plutonic rocks are the closest bedrock existing to the site. These rocks consist of quartz diorite and are probably part of the Sierra Nevada batholith; the largest Mesozoic batholith in the United States. Tertiary-age (1.6 million years to 66.4 million years) formations include the Paleocene (57.8 million years to 66.4 million years) Goler formation consisting of continental sedimentary rocks, and the Pliocene (1.6 million years to 5.3 million years) Ricardo formation also consisting of continental facies, interbedded with basalt and andesite flows. Quaternary basalt flows exist in the northern El Paso Mountains surrounding southernmost Indian Wells Valley.

Minerals mined in the valley and surrounding mountains include clay, stone, sand & gravel, pumice, wollastinite, gold, copper, silver, and tungsten.

B. Has there been any significant Holocene fault movement in the vicinity?

The Garlock fault is the closest fault to the site with known movement within the Holocene Epoch. The Garlock fault is approximately seven miles south of the site.

IX SITE GEOLOGY

A. Describe the geology of the site and within one mile of site.

The site lies in an alluvium filled basin with a very gentle surface gradient that slopes to the west. The entire site is underlain by Quaternary-age alluvium to an undetermined depth (Drawing 2, cross-section A-A'). The closest bedrock outcrop exists directly east of the site within a few hundred feet of the property border (Drawing 3, Site Vicinity Geologic Map). This outcrop consists of quartz diorite and erosion resistant northeast trending diabase dikes which extend out from the quartz diorite exposure for several hundred yards. These dikes reflect the northwest-southeast extentional tectonism which dominate the Basin Ranges Province. All significant bedrock units within one mile of the site consists of quartz diorite as shown on Drawing 2. The closest outcrop composed of bedrock other than quartz diorite or diabase dikes exists in an isolated outcrop just over one mile south of the site. This outcrop consists of Quaternary-age basalt and Pliocene-age Ricardo Formation. Two northwest trending faults have been mapped within a mile of the site and are shown on the accompanying site vicinity geologic map. These faults cut the Mesozoic-age quartz diorite in nearby outcrops and the adjacent mountains but are concealed under an unknown depth of Quaternary-age alluvium in the valley.

Soils underlying the site are described in detail for each boring location in the attached logs (Appendix F). In general, native soils consist of moderately to well consolidated sandy silts to silty sands with pebbles present in minor quantities. Sands are fine- to medium-grained. Native soils are typically cemented with calcium carbonate and caliche pods and stringers are abundant. Soils are very dry and are light to medium brown in color. Two in-situ soil samples were tested for permeability and six samples (from the fill and in-situ soils) were tested for dry density and moisture content. Permeability measurements are 4.9×10^{-3} centimeter per second (cm/sec) and 1.1×10^{-5} cm/sec and dry density and moisture content range from 101.4 lb.ft^3 to 119.6 lb/ft^3 and 3.9% to 13.6%, respectively. The laboratory data are presented in Appendix E.

B. ***Describe the nature of all faults, fractures, folds, bedding contacts, and formation characteristics in terms of their ability to retard fluid movement or to act as pathways of fluid movement.***

Due to the lack of data on faults, fractures, folds, bedding contacts and formation characteristics in the site vicinity, the effect these features have on fluid movement is unknown. In addition, very little data on flow and movement of groundwater exists within the immediate vicinity of the site.

Depth to groundwater in the site vicinity is estimated to be approximately 660 feet below ground surface based on projection of known contours in surrounding areas (see Figure 4). Since the site is located close to the edge of the basin, it is likely that the bedrock/alluvium interface is shallower than the groundwater surface. Therefore, groundwater movement under the site is probably controlled by the structure and characteristics of the bedrock.

Two buried faults are mapped within one mile of the site (see Drawing 3). One of these faults is 1/8 mile east of the property border. These faults are mapped as offsetting Mesozoic-age bedrock in the site vicinity. It is unknown if these faults offset the Quaternary-age sediments at depth. The affect the faults may have on groundwater is also unknown.

Formation characteristics of the upper 20 feet of the underlying sediments are provided in the boring logs in Appendix F. In general, the sandy silt and silty sand that were encountered in the borings are fairly permeable.

C. ***Are there landslides or other potential geologic hazards on or near the site?***

No landslides exist on or near the site and there does not appear to be any other potential geologic hazards nearby.

D. ***Has there been any Holocene fault movement on or adjacent to the site?***

No Holocene-age fault movement is known to have occurred on or adjacent to the site. As stated on page 12B, the Garlock fault, approxiamtely seven miles south of the site, is the closest fault to the site with known movement within the Holocene Epoch.

X HYDROLOGY

A. Describe precipitation characteristics at the site.

Precipitation occurs as infrequent showers throughout the year. The average annual precipitation in the site vicinity according to the National Weather Service is 2.9 inches per year. Average precipitation for each month is as follows:

	July:	0.02	
	August:	0.07	
	September:	0.13	
	October:	0.17	
	November:	0.32	
	December:	0.37	
*	January:	0.73	Month with highest average precipitation
	February:	0.61	
	March:	0.31	
	April:	0.12	
	May:	0.05	
	June:	trace	

Note that most of the precipitation occurs between November and March.

B. Describe all surface waters at the site.

No springs, seeps, lakes, or other perennial surface waters exist on or within one mile of the site. Four westward to northwestward flowing intermittent streams/drainages are mapped by the U.S. Geological Survey within one mile of the site. One of these streams exists adjacent to Highway 395 and the Randsburg-Inyokern Road, and the other three streams exist west and southwest of the site (see Drawing 3). These intermittent streams act as drainage channels for ground surface runoff in the site vicinity. During periods of heavy precipitation, water is absorbed into the ground as well as drained by sheet flow which collects in minor ravines which flow into the intermittent streams/drawings.

The site is not within a flood plain according to Flood Insurance Rate Maps (FIRM) (September 29, 1986) supplied by Kern County Public Works. Since surface water exists only during periods of heavy precipitation, surface water quality samples have not been collected in this area.

C. *Subsurface - Characterize vadose and ground water zones*

No data exists regarding groundwater conditions directly underlying the site and within one mile of the site. However, in other portions of the Indian Wells Valley basin, there is both a "shallow" aquifer and a "deep" aquifer. The boundary of the shallow aquifer exists eight miles north of the site, and knowledge regarding the extent and depth of the deep aquifer, ends three miles north of the site and six miles northwest of the site (see Figure 4, Groundwater Contour Map). Both these aquifers exist within the Quaternary-age alluvium that fills the basin. If known groundwater contours are projected to the site, depth to groundwater would be approximately 660 feet below the ground surface. At this depth groundwater under the site is probably within bedrock.

The type of bedrock underlying the site is expected to be igneous rock since this is the type of rock prevalent in the site vicinity (see Section IX.A). Water in igneous rock is generally confined to secondary interstices such as joints, fractures, faults, and solution openings. These secondary interstices are generally not very continuous and therefore igneous rocks typically serve as poor aquifers. It is not known if any barriers or conduits to groundwater flow exist that would inhibit fluid movement in the aquifer of act as a conduit through which fluid could reach the aquifer.

Recharge to groundwater in the site vicinity is minimal to non-existent. As stated previously, precipitation is approximately 2.9 inches per year. Groundwater recharge will only occur during periods of abnormally high rainfall when infiltration rates exceed evapotransportation. Furthermore, since precipitation in the El Paso Mountains is not significantly greater than that of the Indian Wells Valley, runoff from these mountains only occurs during periods of very high rainfall. No artificial recharge occurs within the site vicinity.

The vadose zone, or the zone of aeration, generally extends from the ground surface to the water table or bedrock surface, which ever is closer. Since groundwater probably exists below the bedrock surface under the site, all soils underlying the site would be within the zone of aeration.

Under the site, movement of water through the zone of aeration occurs in soils of primary porosity and would only occur during periods of heavy precipitation when gravitational water develops and moves vertically downward. However, since soils underlying the site are moisture deficient, the soil moisture content must be increased at least up to specific retention in order for any substantial amount of water movement to occur. Considering the vast thickness of moisture deficit soils above the water table in the site vicinity, flow within the zone of aeration is probably very minor to nonexistent.

Geotechnical tests for permeability, moisture content, and dry density were performed on several samples collected from the site. Permeability measurements were indicative of fine-grained sand and silt to silty clay. Moisture content tests evidenced very dry soils. The laboratory data are presented in Appendix C.

D. ***Are there any existing wells on or near (within one mile of) the site? If yes, describe each.***

No existing or abandoned wells are known to exist on or near (within one mile of) the site. The closest well to the site is between 3/4 mile and 1-3/4 miles east of the site (Well No. 13, Indian Wells Valley Water District). This well is located somewhere in Section 32, T27S, R40E. Groundwater quality data, supplied by Kern County Water Agency was collected from Well No. 13 between January 1983 and June 1983 with the following results:

Total Dissolved Solids	250 - 1,263 ppm
Fluorides	64 - 4 ppm
Bicarbonates	50 - 728 ppm
Sulfates	11 - 95 ppm

CONCLUSIONS

The work conducted for completion of the Solid Waste Assessment Questionnaire indicate that:

- the site contains less than 50,000 cubic yards of waste, <u>and</u>

- the site does not contain hazardous substances, other than household hazardous wastes, <u>and</u>

- depth to groundwater is approximately 600 feet below grade in the site vicinity and the nearest groundwater well, located at least 3/4 of a mile from the site, contains nonpottable water.

Analysis of samples collected in the field **confirm the absence of hazardous materials** in fill material at the subject site. Therefore, based on this work, the Ridgecrest Burning Dump meets the minimum requirements for submittal of a Solid Waste Assessment Questionnaire and should be considered for exemption from the Solid Waste Water Quality Assessment Test (SWAT) program requirements.

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91-41-324-01

REFERENCES

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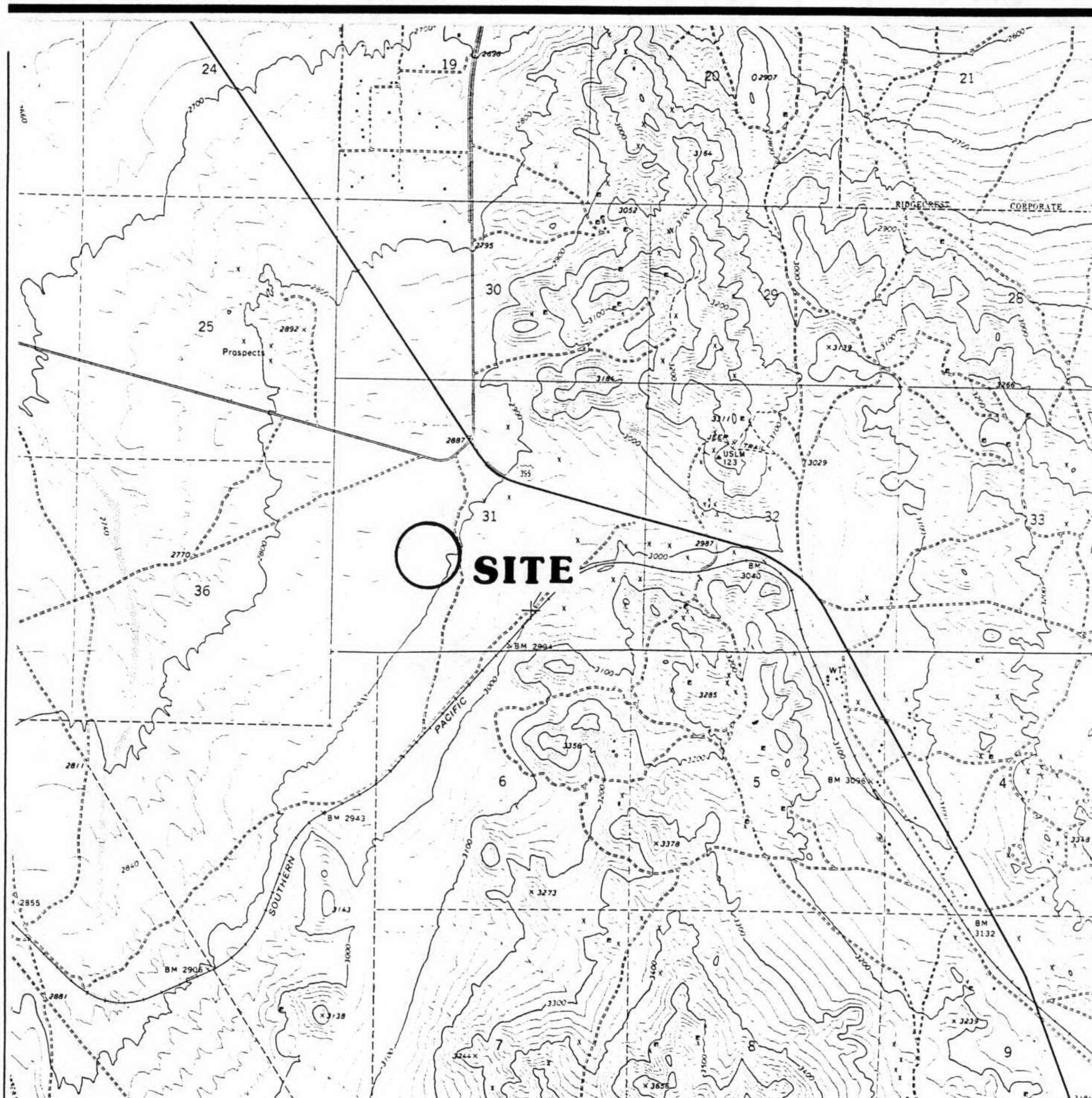
FIGURES



REFERENCE:

Ridgecrest South Quadrangle, California
7.5 Minute Series, U.S. Geological Survey

N

0 1/2 1

SCALE IN MILES

SITE LOCATION MAP

RIDGECREST BURNING DUMP
A portion of section 31, T27S., R4OE, MDB & M
for: Kern County Public Works

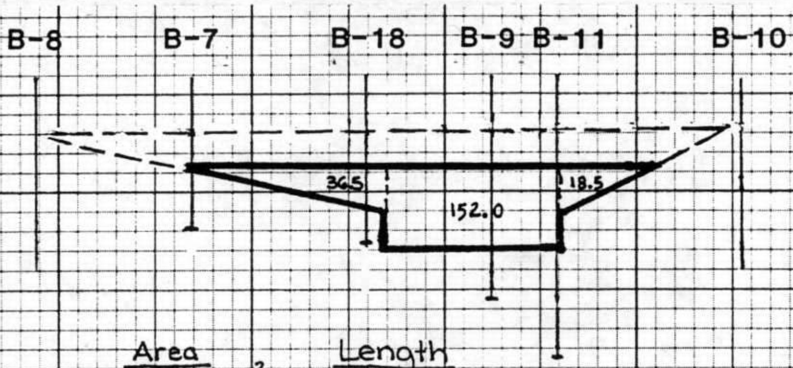
Project No.
91-41-324-01

CONVERSE ENVIRONMENTAL WEST

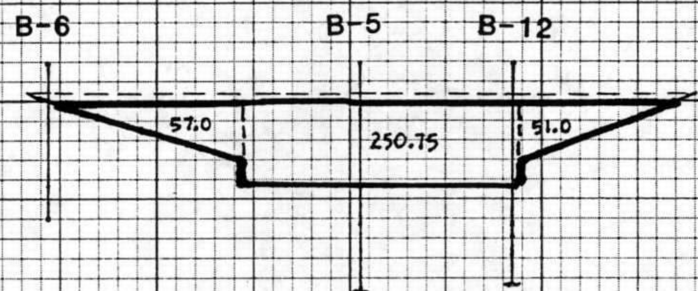
Figure No.
1

Approved for publication by

SCALE: 1"=20'



Area	Length	
$(36.5')^2 \times$	$500'$	$= 18,250\ ft^3$
$(18.5')^2 \times$	$500'$	$= 9,250\ ft^3$
$(152.0')^2 \times$	$500'$	$= 76,000\ ft^3$
		$103,500\ ft^3$ or $3,833.3\ yd^3$

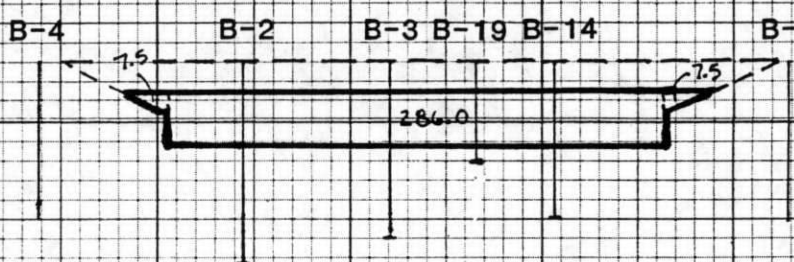


$(57.0')^2 \times 500' = 28,500\ ft^3$

$(51.0')^2 \times 500' = 25,500\ ft^3$

$(250.75')^2 \times 500' = 125,375\ ft^3$

$179,375\ ft^3$ or $6,643.5\ yd^3$



$(7.5')^2 \times 500' = 3,750'$

$(286.0')^2 \times 500' = 143,000'$

$146,750\ ft^3$ or $5,435\ yd^3$

TOTAL VOLUME: 15,912 YD^3

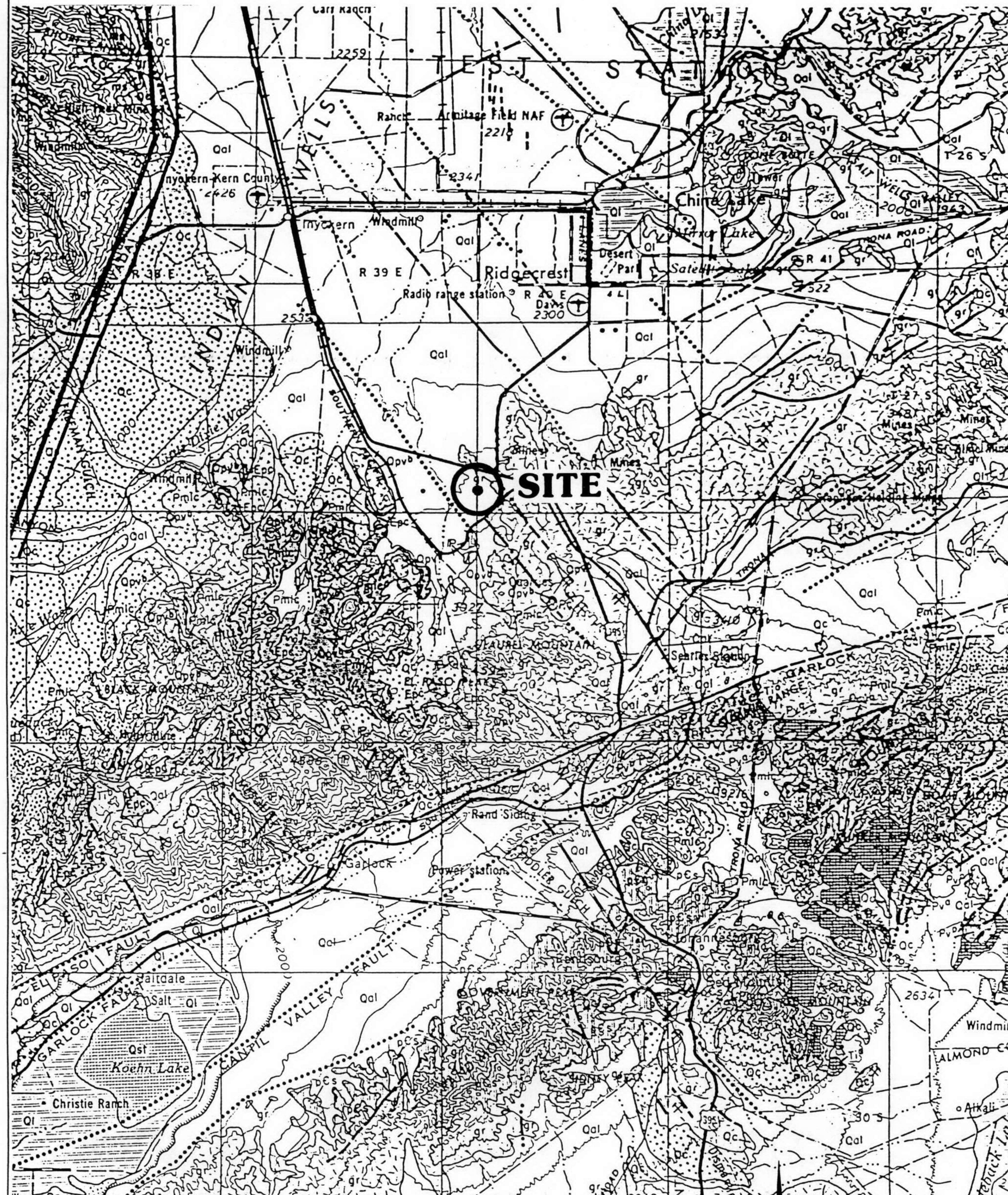
CALCULATIONS FOR TOTAL VOLUME OF WASTE MATERIAL

RIDGECREST BURNING DUMP
for: Kern County Public Works

Project No.
91-41-324-01

Figure No.
2

CONVERSE ENVIRONMENTAL WEST



REFERENCE:

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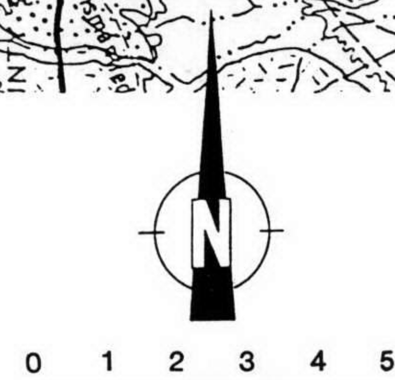
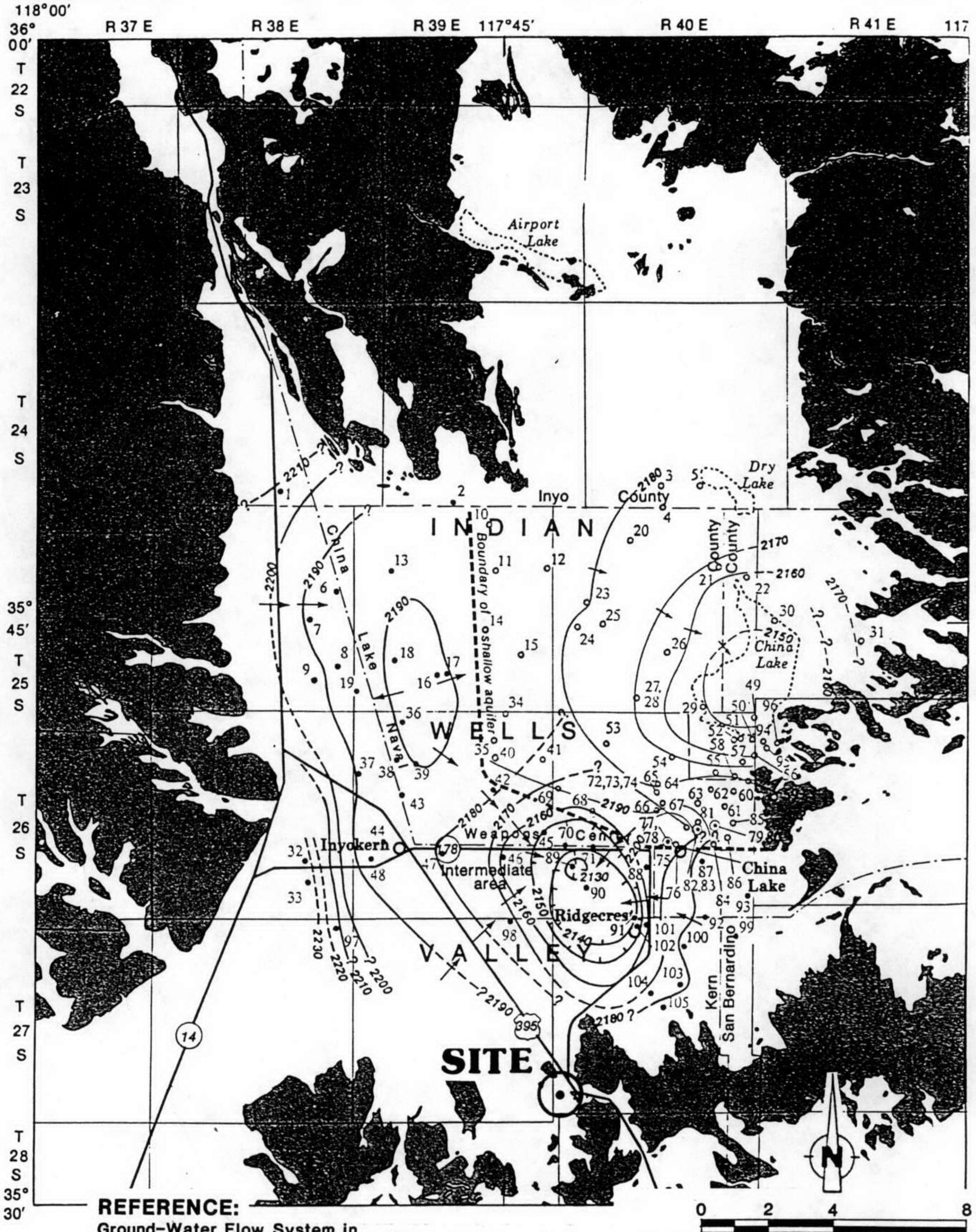


REGIONAL GEOLOGIC MAP

RIDGECREST BURNING DUMP
Portion of Section 31, T27S., R40E. MDB and M
for: Kern County Public Works

Scale as shown	Project No. 91-41-324-01
Date 11-19-91	
Prepared By AHW	Figure No.
Checked By LJA	3
Approved By	

Converse Environmental West



REFERENCE:
Ground-Water Flow System in Indian Wells Valley, California, 1991, U.S.G.S.

GROUND WATER CONTOUR MAP

RIDGECREST BURNING DUMP
for: Kern County Public Works

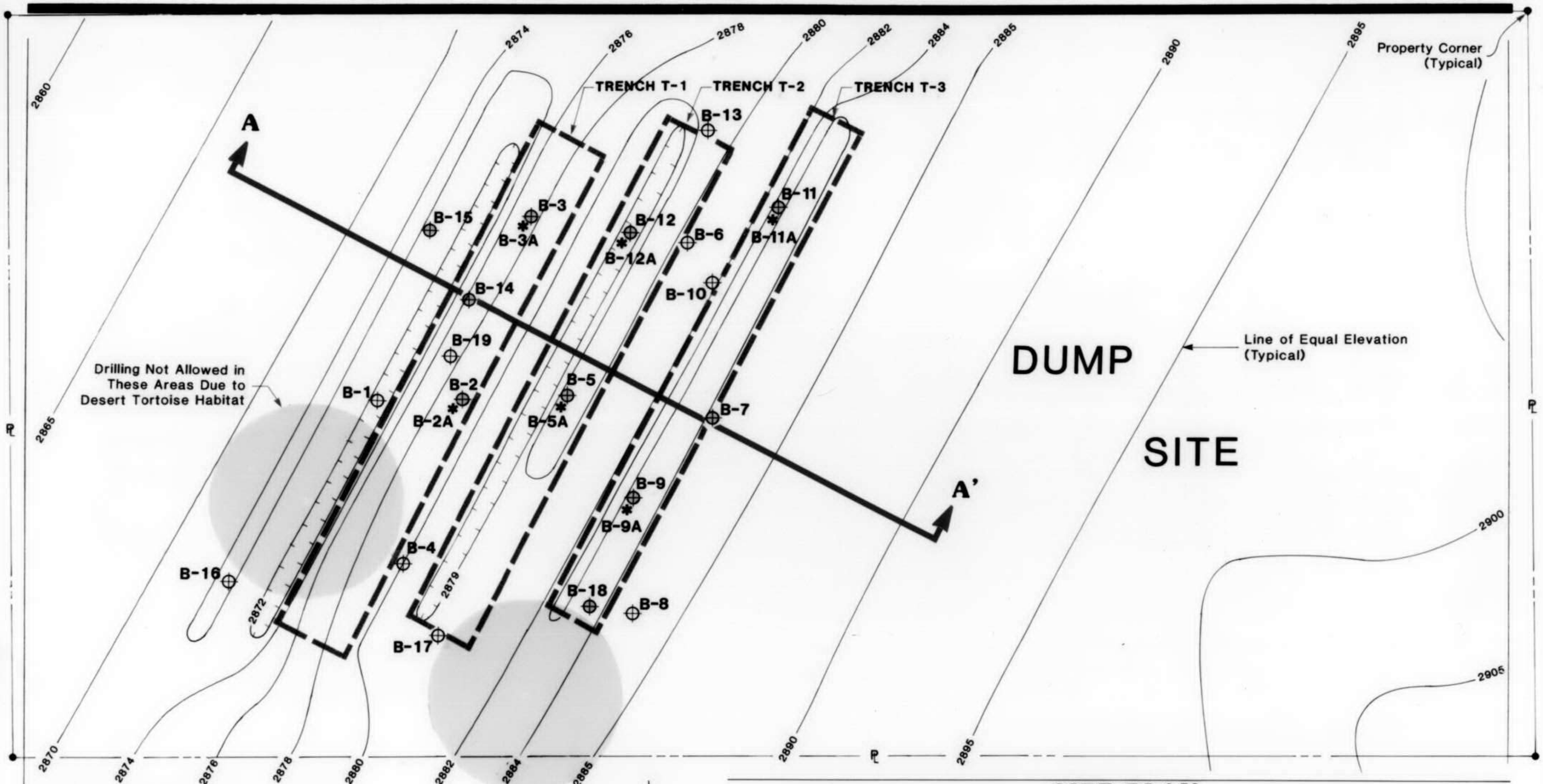
Project No.
91-41-324-01

CONVERSE ENVIRONMENTAL WEST

Figure No.
4

DRAWINGS

91-41-324-01



EXPLANATION

- LOCATION OF BURIED DISPOSAL PIT
- ⊕ BORING LOCATION (Colored blue where sample analyses were performed)
- * SOIL GAS SAMPLE LOCATION
- GEOLOGIC CROSS SECTION

N

0 50 100 200
SCALE IN FEET
(Approximate)

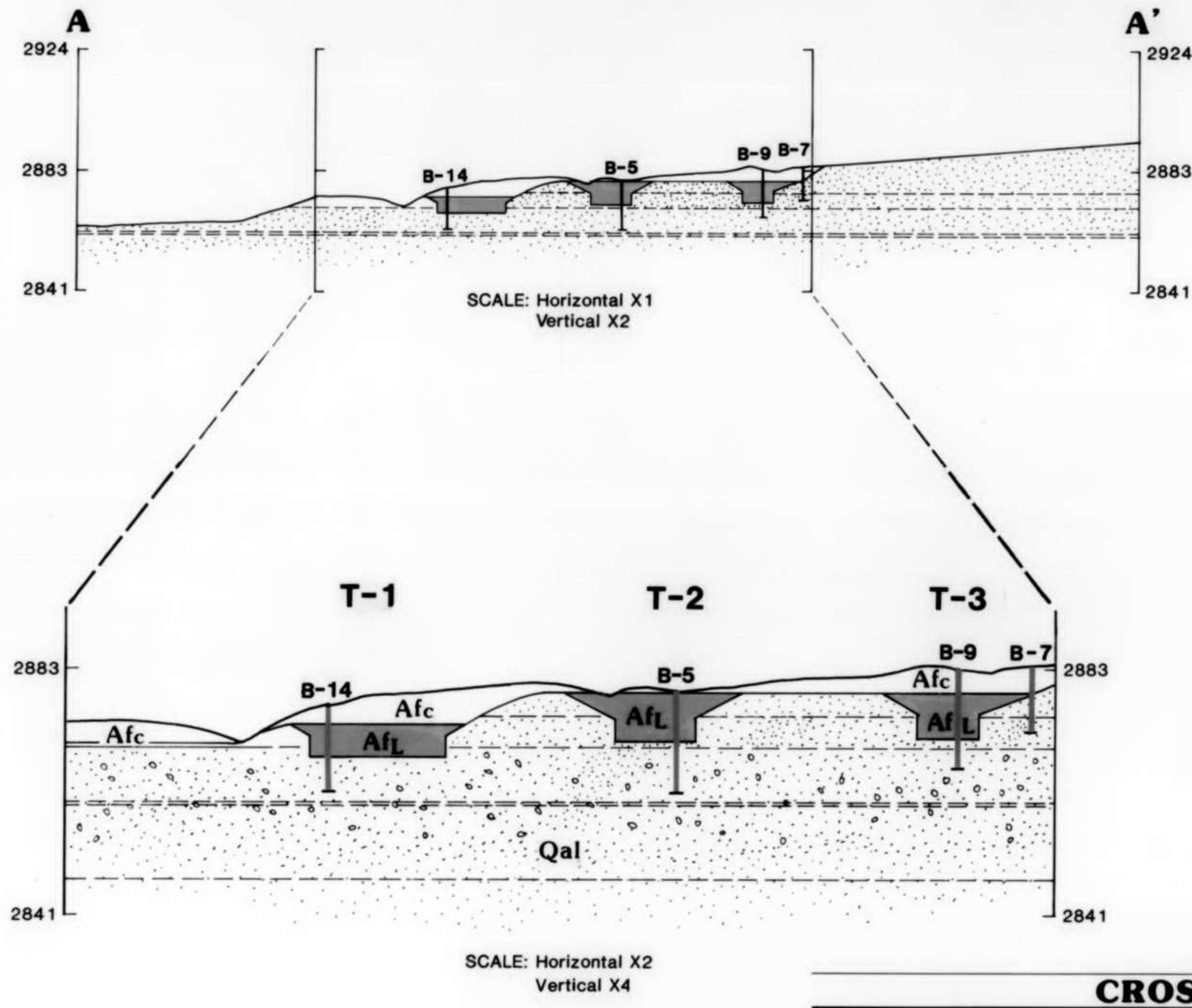
SITE PLAN

RIDGECREST BURNING DUMP
for: Kern County Public Works

Converse Environmental West

Scale	1" = 82.5'	Project No.	91-41-324-01
Date	11-19-91	Drawing No.	1
Prepared By	DSS		
Checked By	LJA		
Approved By	BMS		

MODERN PASADENA BLUEPRINT / 99934



EXPLANATION

- Af_c FILL: COVER SOIL
- Af_L FILL: LANDFILL MATERIAL
- Qal ALLUVIUM: Interbedded gravels, sands, silts and clays

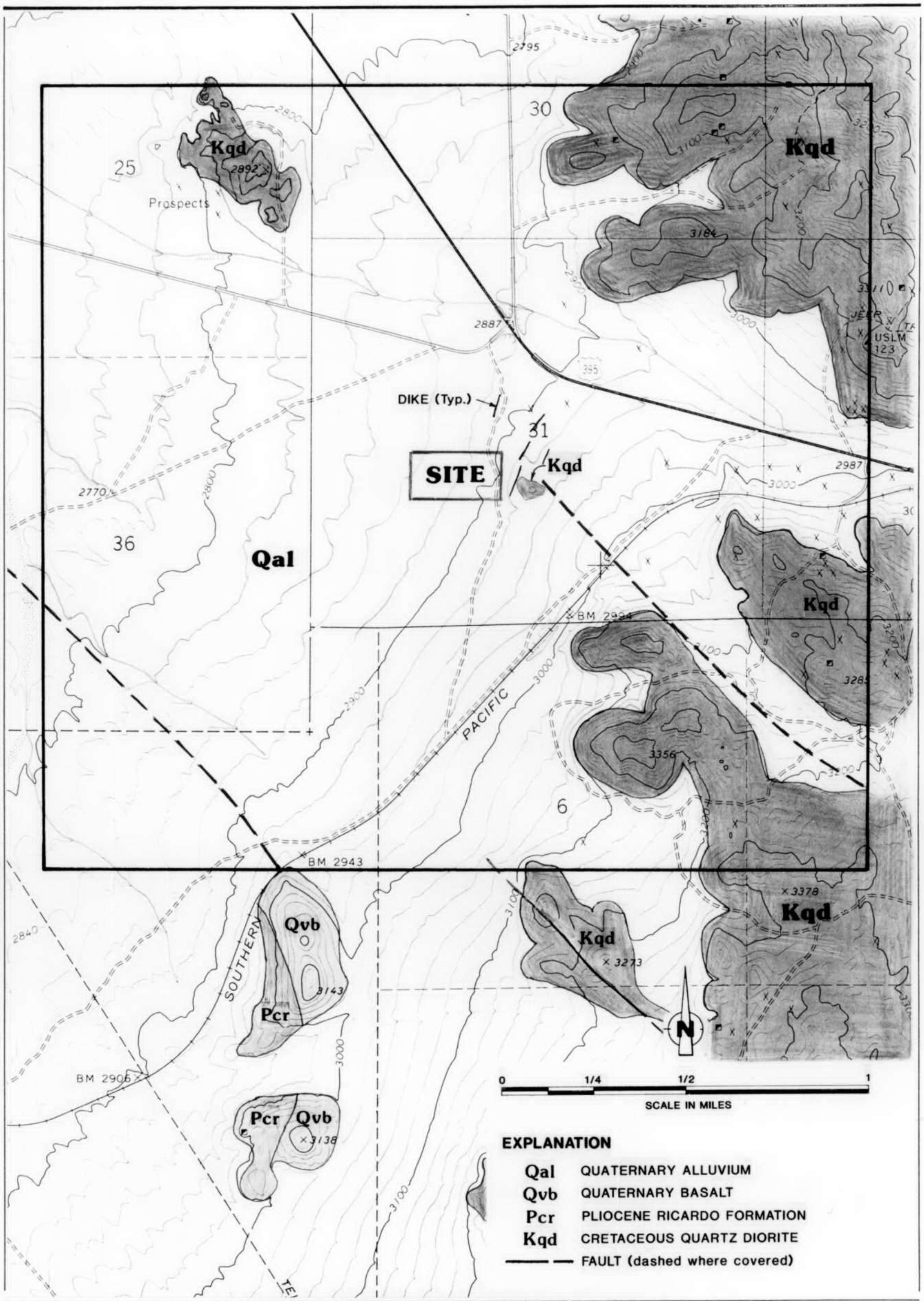
CROSS SECTION A-A'

RIDGECREST BURNING DUMP
for: Kern County Public Works

Converse Environmental West

Scale: as shown	Project No. 91-41-324-01	
Date: 11-19-91		
Prepared By: DSS	Drawing No. 2	
Checked By: LJA		
Approved By: BMS		

MODERN PASADENA BLUEPRINT / 99934



SITE VICINITY GEOLOGIC MAP

RIDGECREST BURNING DUMP
Kern County, California
for: Kern County Public Works Department

Converse Consultants West

Scale as shown	Project No. 91-41-324-01
Date	Drawing No. 3
Prepared By DSS	
Checked By LJA	
Approved By	

APPENDIX A

ASSESSMENT PROCEDURES & FINDINGS

91-41-324-01

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Appendix A details the research, field, and laboratory procedures performed by Converse Environmental West at former Ridgecrest Burning Dump, located in a portion of Section 31, T27S., R40E., MDB&M. in Kern County, California. This portion of the investigation was performed to define the extent of the landfill materials in the dump site and to characterize the landfill materials to determine that no hazardous substances are contained in the site. During operation of the landfill (1962 to 1969), a total of three refuse trenches were excavated, periodically burned, filled with rubbish, and closed at the site.

Following review of existing site plans which showed the approximate location of the former trenches, a drilling program was performed to define the dimensions of each of the pits and to sample the landfill materials and underlying soils. A total of nineteen borings were drilled in and around the trenches and six soil gas samples were collected from the former trench sites. Due to a variety of factors that may have altered the original trench dimensions (i.e., slumping of the sidewalls, compaction and relocation of rubbish during pit closure, settlement of fill within the pits, etc.), depth to fill and fill thickness varied significantly between borings within the same pit. Therefore, the boring from each trench which evidenced the thickest amount of rubbish was selected to represent the entire trench. Using this "worst case" situation, the maximum amount of waste material within the Ridgecrest Burning Dump is estimated to be 15,912 cubic yards.

Eleven of the eighteen borings drilled on site penetrated landfill materials. Samples were collected from each of these borings from both the landfill materials and underlying soils. Samples chosen for analyses were selected from the borings which penetrated the most concentrated areas of landfill material and would therefore be most likely to contain hazardous substances if they are present. Laboratory analyses were performed on samples collected from two to three borings from each pit.

Laboratory analyses of fill and soil samples evidenced that all samples, except one, contained either non detectable levels of CAM metals or levels below the TTLC (Total Threshold Limit Concentration) and STLC (Soluble Threshold Limit Concentration) concentration. A sample collected from boring B-18 at 6 feet below grade contained copper metal (2,900 mg/kg) which exceeded the TTLC (2,500 mg/kg), but did not exceed the STLC.

1.0 INTRODUCTION

This section presents details of research, field, and laboratory procedures conducted by Converse Environmental West (CEW) in order to adequately complete a Solid Waste Assessment Questionnaire (SWAQ) at former Ridgecrest Burning Dump, located in a portion of Section 31, T27S., R40E., MDB&M in Kern County, California (Figure 1). This investigation was performed to characterize the landfill materials in the burning dump and to define the size of the dump area. The scope of the assessment work was formulated after discussions and input from Curt Shifrer of the Lahontan Regional Water Quality Control Board. The completed scope of work for this assessment includes:

- Review of existing maps, documents, and reports and historical research of the site
- Drilling of nineteen exploratory borings and collection of samples of landfill materials and underlying soils
- Collection of six soil gas samples
- Analytical laboratory testing of landfill material, soil, and soil gas samples
- Interpretation of results and questionnaire/report preparation

A scaled site plan included with the SWAQ shows approximate topography, former pit locations and locations of exploratory borings and soil-gas sample points. Supporting data, including boring logs, chain-of-custody documentation, geotechnical testing data and analytical laboratory reports, are included with the SWAQ and its appendices.

2.0 TECHNICAL DATA REVIEW

Prior to initiation of field work, available information for the general region and specific site were reviewed. This included examination of aerial photographs, geologic maps, topographic maps, and all published and unpublished environmental, geologic, hydrologic, geophysical, and geochemical reports. The site was visited by a geologist and a visual reconnaissance was performed. Agencies and information sources which were contacted during the investigation include Kern County Public Works (Survey, Drainage and Flood Control, Sanitary Waste Disposal), Kern County Resource Management (Air Pollution Control District, Environmental Health Services, Planning), Kern County Fire Department, Kern County Agricultural Commissioner, Kern County Water Agency, City of Ridgecrest Public Works, Whittier College Areal Photograph Collection, State of California Division of Oil and Gas, State of California Department of Conservation, State of California Department of Health Services Toxic Substances Control Division, California Waste Management Board, California Regional Water Quality Control Board (Lahontan Region), Bureau of Land Management, Southern Pacific, United States Geological Survey, United States Department of Agriculture, National Weather Service, China Lake Naval Weapons Center, and retired personnel of Kern County Public Works.

Information collected during the technical data review was used to help determine the age of the dump, the size of the dump, and the types of materials that may have been disposed of in the dump. Kern County records contained a significant amount of site specific data that helped determine the location and size of the disposal pits. Though some contradiction existed between these documents, they provided a framework from which to base the field work on. Kern County records are provided as Appendix B of the SWAQ documents. Other dump site characteristics of concern include past and present geologic, soil, groundwater, and precipitation conditions which would collectively determine the potential for groundwater contamination from hazardous substances which may exist in the dump site.

The only other consultant who has completed an assessment on the subject property is Ralph Stone and Company, Inc., Engineers. Their assessment was completed as part of a solid waste master plan for Kern County and results are presented in their final report dated August 1968. Robert Stone and Co. studied existing conditions throughout Kern County and recommended a master plan for efficient sanitary disposal of solid waste quantities generated in the County through the year 2000. Results of the Robert Stone work are presented in the SWAQ.

3.0 LANDFILL ASSESSMENT

3.1 Field Drilling and Soil Sample Collection Procedures

Prior to drilling, Underground Service Alert was notified of work to be performed. On September 23 and 24, 1991, nineteen borings were drilled and sampled using a Mobil B-53, 8-inch diameter hollow-stem auger drill rig. Exploratory borings, as shown on the site plan, were located in order to define the vertical and lateral extent of landfill waste materials and to obtain representative samples of landfill waste materials and underlying soils. Location of borings was determined in the field by the geologist based on data collected from previously drilled borings. All borings were logged by a field geologist under the professional supervision of a registered geologist. Environmental and geotechnical soil samples were collected at selected depths as determined by the field geologist. Borings were backfilled with cuttings and a wooden stake was driven into the former boring site to identify its location. The elevations of all boring locations were measured by the field geologist using a measuring rod and transit.

An attempt was made to collect one to two environmental and geotechnical samples of landfill material from each boring that penetrated a former pit. Whether a boring penetrated a former pit was determined by a geologist based on visual examination of drill cuttings and undisturbed soil samples. Physical characteristics of the excavated soils which identified if they were native or fill materials included the following:

- the presence of ash and/or rubbish (i.e. glass, porcelain, metal, plastic, rubber, wood, etc.)
- color of soil
- relative compaction/consolidation of soil
- presence of features indicative of native soils (i.e. well developed caliche pods and stringers, bedding, etc.)

Since the depths to the top of landfill materials and to the base of landfill materials was different for each boring, sampling depths were determined for each boring on an individual basis. Native soils underlying the landfill material were also sampled. Typically, one to two samples were collected from directly beneath the base of the landfill materials to 10 feet below the base of the landfill materials. Selection of which landfill samples should be analyzed was based on the content of the sample. Several fill samples consisted of native soils with little or no obvious fill material (i.e. glass, metal, plastic, porcelain, wood, ash, etc.) whereas other fill samples were concentrated with fill-type materials. Samples containing the greatest concentrations of fill-type materials were selected for analysis since these samples would be most likely to contain substances at a concentration which may be classified as hazardous waste.

3.1.1 Environmental Sampling

Environmental sampling was performed in accordance with Title 22, Article 11 of the California Code of Regulations. Environmental soil samples were obtained in brass sleeves using a split spoon sampler. Samples of landfill materials were passed through a No. 10 sieve, put in glass jars and refrigerated. Samples of native soils were capped immediately with teflon film and plastic caps and refrigerated. Environmental samples were screened with an organic vapor analyzer (OVA) to estimate the presence of hydrocarbon concentrations. OVA readings are shown on the boring logs. Environmental sampling equipment was cleaned with Alconox (tri-sodium phosphate cleanser) prior to sampling, between sample intervals and between borings to minimize the potential for cross-contamination. Samples were handled and transported according to Environmental Protection Agency (EPA) protocol following chain-of-custody procedures. The samples were delivered to Sequoia Analytical Laboratories, Inc,. which is certified by the California Department of Health Services.

3.1.2 Geotechnical Sampling

Geotechnical samples were obtained in brass rings using a split spoon sampler. Samples were placed in plastic tubes, capped with plastic caps and sealed using masking tape. Samples were transported to our laboratory and tests were performed for permeability, dry density, and moisture content.

3.1.3 Soil-Gas Sampling

Six soil-gas samples were collected in total from the site; two from each former pit. Soil gas samples were collected using a sledge hammer, or jack-hammer where soils were hard, to create a 1" pilot hole by inserting a drive rod to approximately 4 feet below the ground surface. The drive rod was then extracted using a hand operated jack, and a stainless steel soil-gas sampling probe was inserted into the pilot hole created by the drive rod. After sealing the surface of the hole with an O-ring, a soil gas sample was collected in a clean tedlar bag by applying with a vacuum to the probe with a hand pump.

3.1.4 Desert Tortoise Habitat

The desert tortoise lives in the area of the Ridgecrest Burning Dump. The desert tortoise is fully protected by State and Federal laws and stipulations to insure the preservation of this endangered species were included in our permit to drill on this property. These stipulations included areas where drilling was not allowed because tortoise burrows were identified in the vicinity. These restricted areas are shown on Drawing 1.

3.2 Environmental Laboratory Analysis

Selected landfill material and soil samples were discretely analyzed for inorganic persistent and bioaccumulative toxic substances by both TTLC and STLC using EPA method 6010/7000/200 per Title 22, Article 11 of the California Code of Regulations. In order to determine the amount of extractable substance in the sample, an extraction solution consisting of sodium citrate is used at pH 5.0 +/- 0.1. Tests were performed for the following (20) metals:

Antimony	Chromium (VI)	Mercury	Thallium
Arsenic	Chromium (III)	Molybdenum	Vanadium
Barium	Cobalt	Nickel	Zinc
Beryllium	Copper	Selenium	Asbestos
Cadmium	Lead	Silver	Fluoride

The analyses detection limits and TTLC/STLC maximum limits for CAM metals are reported in milligrams per kilogram (mg/kg) and are indicated for each substance in the analytical report for each substance.

Soil gas samples were analyzed for halogenated volatile organics using EPA method 8010 and aromatic volatile organics using EPA method 8020. Detection limits for 8010 range from 0.10 ug/L to 0.40 ug/L depending on the analyte. Detection limits for BTEX are 0.10 ug/kg for all analytes.

3.3 Geotechnical Laboratory Analysis

Selected landfill material and soil samples were analyzed for permeability, dry density and moisture content. A total of two in-situ soil samples were selected from the site for permeability testing; one on each side of the landfill (B-3 @ 13' & B-9 @ 12'). Permeability tests were conducted in the laboratory using a constant-head permeability test. A total of four in-situ soil samples (from B-3, B-5, B-9, & B-11) and two landfill material samples (from B-5 & B-11) were tested for dry density and moisture content. Samples were selected from borings drilled in all three buried trenches (Drawing 1).

4.0 FINDINGS

4.1 Environmental Findings

One sample collected from boring B-18 at 6 feet below grade contained 2,900 mg/kg copper, which exceeds the TTLC of 2,500 mg/kg. However, the sample was also tested for STLC and contained 13 mg/L copper which does not exceed the STLC of 25 mg/kg. In native soils beneath the landfill materials, TTLC analyses for copper evidenced concentrations between 8.9 mg/kg to 27 mg/kg. All other soil samples exhibited concentrations of metals below the TTLC and STLC levels.

Analytical results of soil gas samples indicated non detectable concentrations of halogenated volatile organics and aromatic volatile organics except for low concentrations of tetrachloroethene (0.25 ug/L), xylene (0.85 ug/L), ethylbenzene (0.15 ug/L), and toluene (0.10 ug/L).

All samples (landfill material, soil, and soil-gas) collected in the field were screened using an organic vapor analyzer (OVA). For all samples, concentrations of hydrocarbon vapors either did not exceed background levels or had extremely low readings. OVA measurements are included on the boring logs.

4.2 Geotechnical Findings

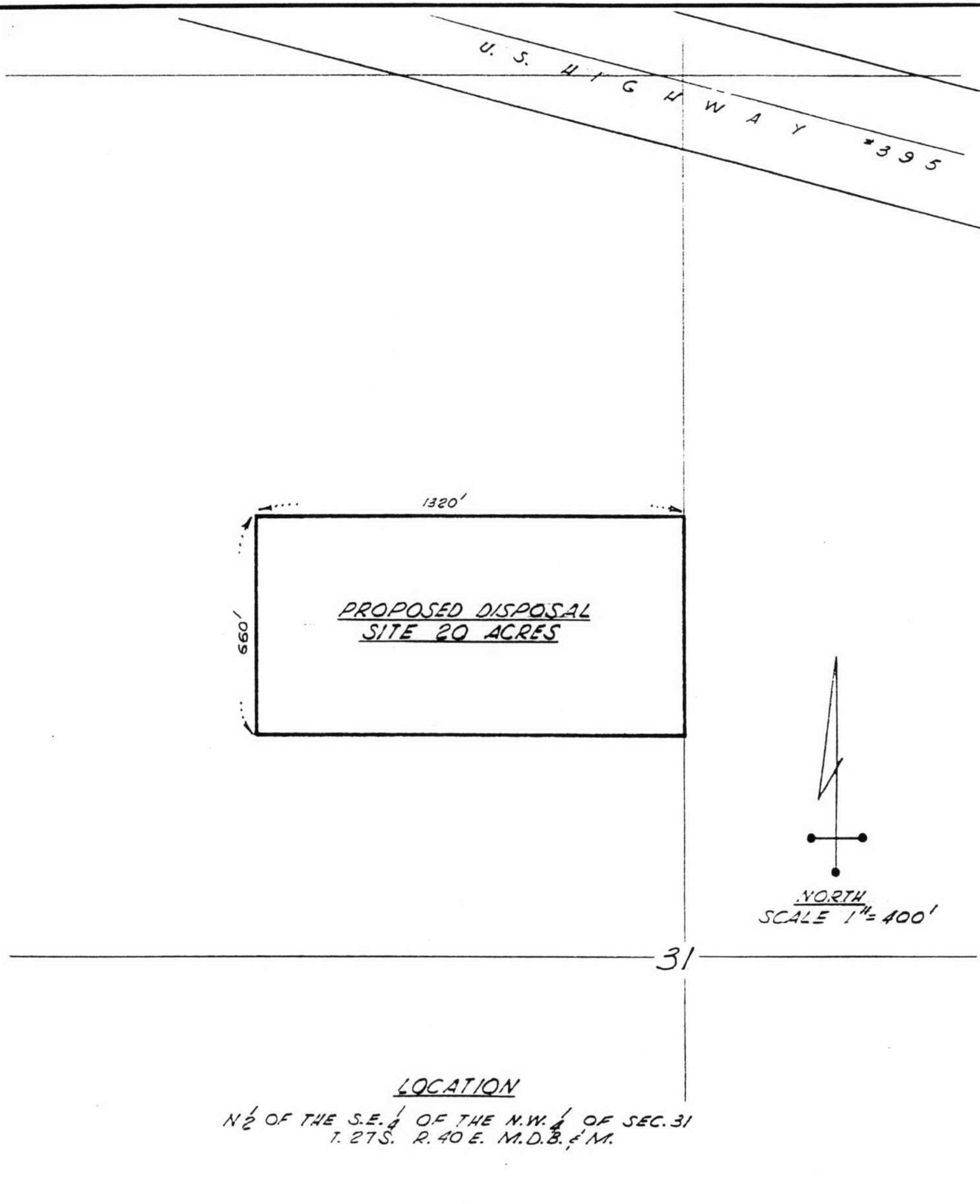
Geotechnical analyses for moisture content, dry density, and permeability were performed on selected samples collected from the burning dump. Moisture content and dry density tests were conducted on samples collected from four borings on the site. Moisture content of fill materials ranged from 8.3% to 13.0% (two samples tested), moisture content of underlying native soils ranged from 3.9% to 13.6% (six samples tested). Dry density of native soils (six samples tested) ranges from 101.4 pounds per cubic feet (pcf) to 119.6 pcf. Dry density for fill materials is not representative since the very soft and loose nature of these materials required that the fill be physically compacted in the sampler in order to retain a sample. Permeability tests were run on native soils underlying the landfill material at two separate locations. Permeability measurements are 4.9×10^{-3} and 1.1×10^{-5}; these are indicative of fine-grained sands and silts to silty clays.

4.3 Landfill Characteristics

The maximum volume of landfill materials existing at the dump site is estimated to be 15,912 cubic yards. This volume is derived using the boring from each trench that contains the thickest amount of fill material to represent the thickness of fill within the entire trench. This approach was adopted since the depth to fill and fill thickness varied between borings within the same pit. Reasons for this variation between borings include slumping of the sidewalls, compaction and relocation of rubbish during pit closure, settlement of fill within the pits, original non-uniform excavation of the pit, and non-uniform placement of cover soil. The number and lateral extent of the individual trenches was determined from geologic logging of nineteen characterization borings drilled on site.

APPENDIX B

KERN COUNTY PUBLIC WORKS RECORDS



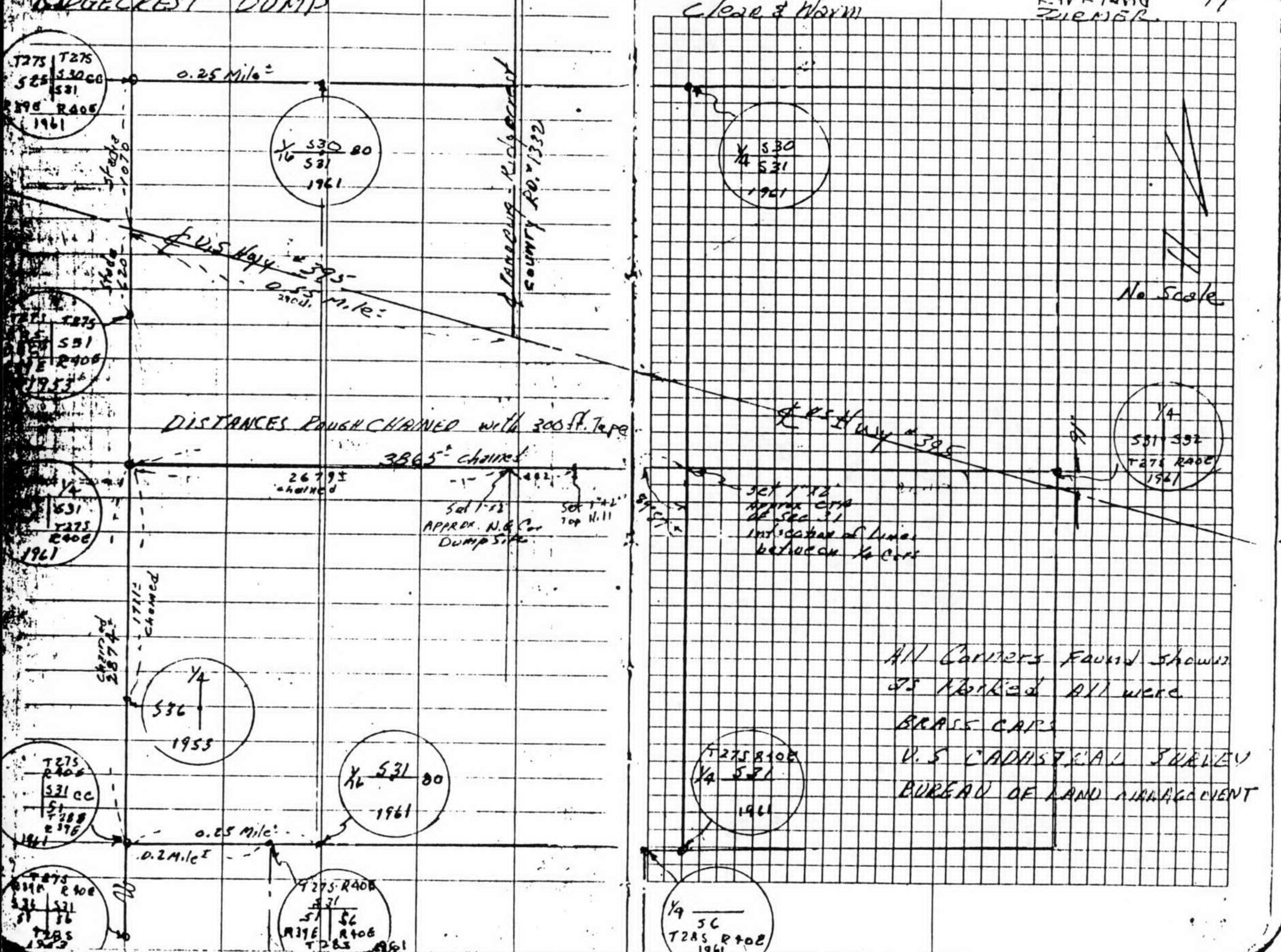
APPROVED BY	COUNTY OF KERN PUBLIC WORKS DEPARTMENT BAKERSFIELD CALIFORNIA	DRAWN BY Tim	SHEET 1
BOARD OF SUPERVISORS - CHR.		TRACED BY 2-5-62	OF ONE SHEETS
PUBLIC WORKS DEPT.	PROPOSED DISPOSAL SITE for RIDGECREST CALIF.	CHECKED BY	
DEPARTMENT HEAD			

RIDGECREST DUMP

3-[illegible]-[illegible]2 Clear & Warm

[illegible] Kirkland Ziemer 17

FB 4



All Corners Found shown as Marked. All were BRASS CAPS U.S. CADASTRAL SURVEY BUREAU OF LAND MANAGEMENT

LOCATION & TRENCH LAYOUT

RIDGECREST DUMP

7-19-62

Clear & Hot

Williams
Kirkland
Ziemer
Finn

31

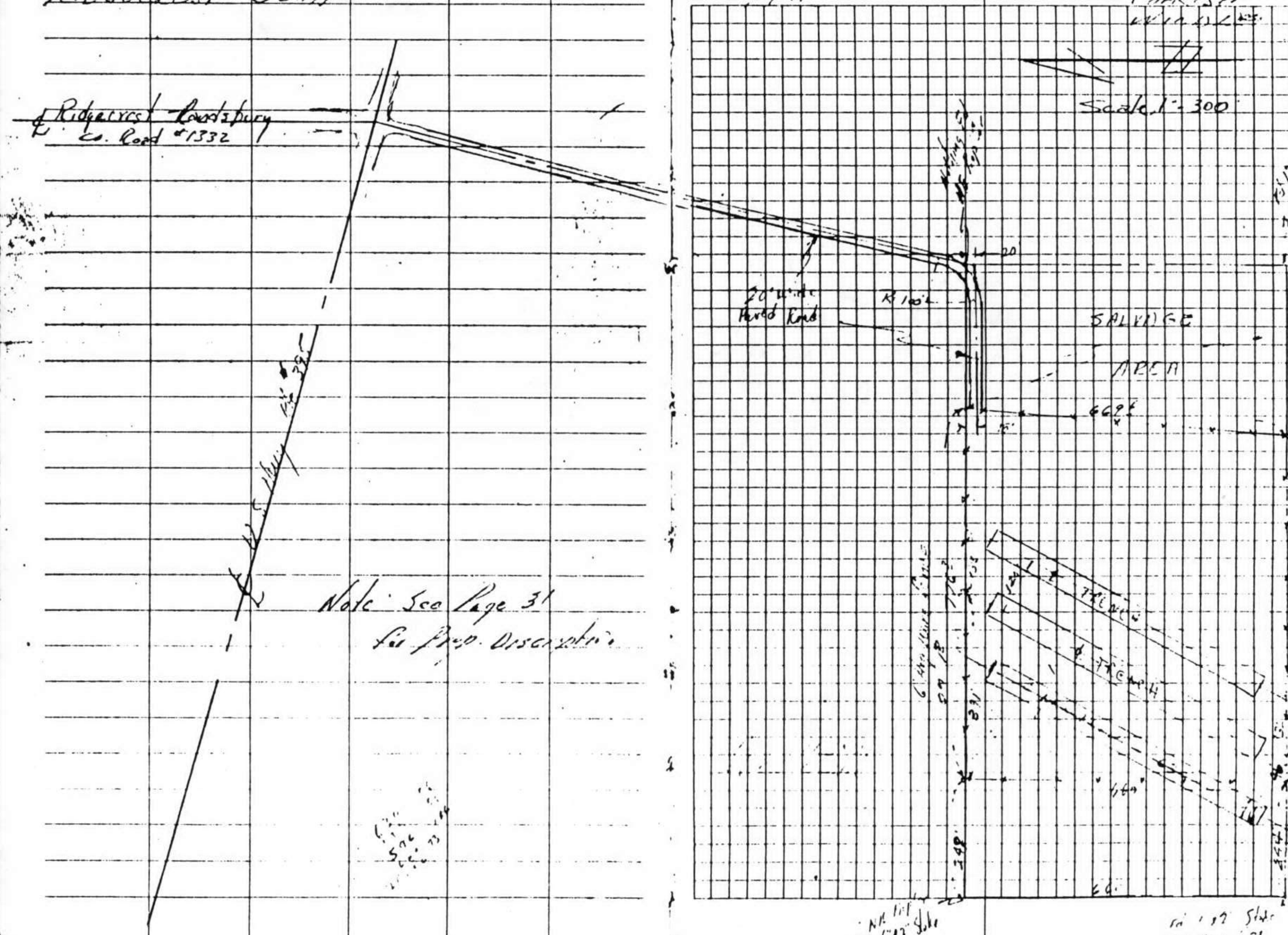
FB 54

Fence – As Built

RIDGECREST DUMP

8-17-65

Cloudy

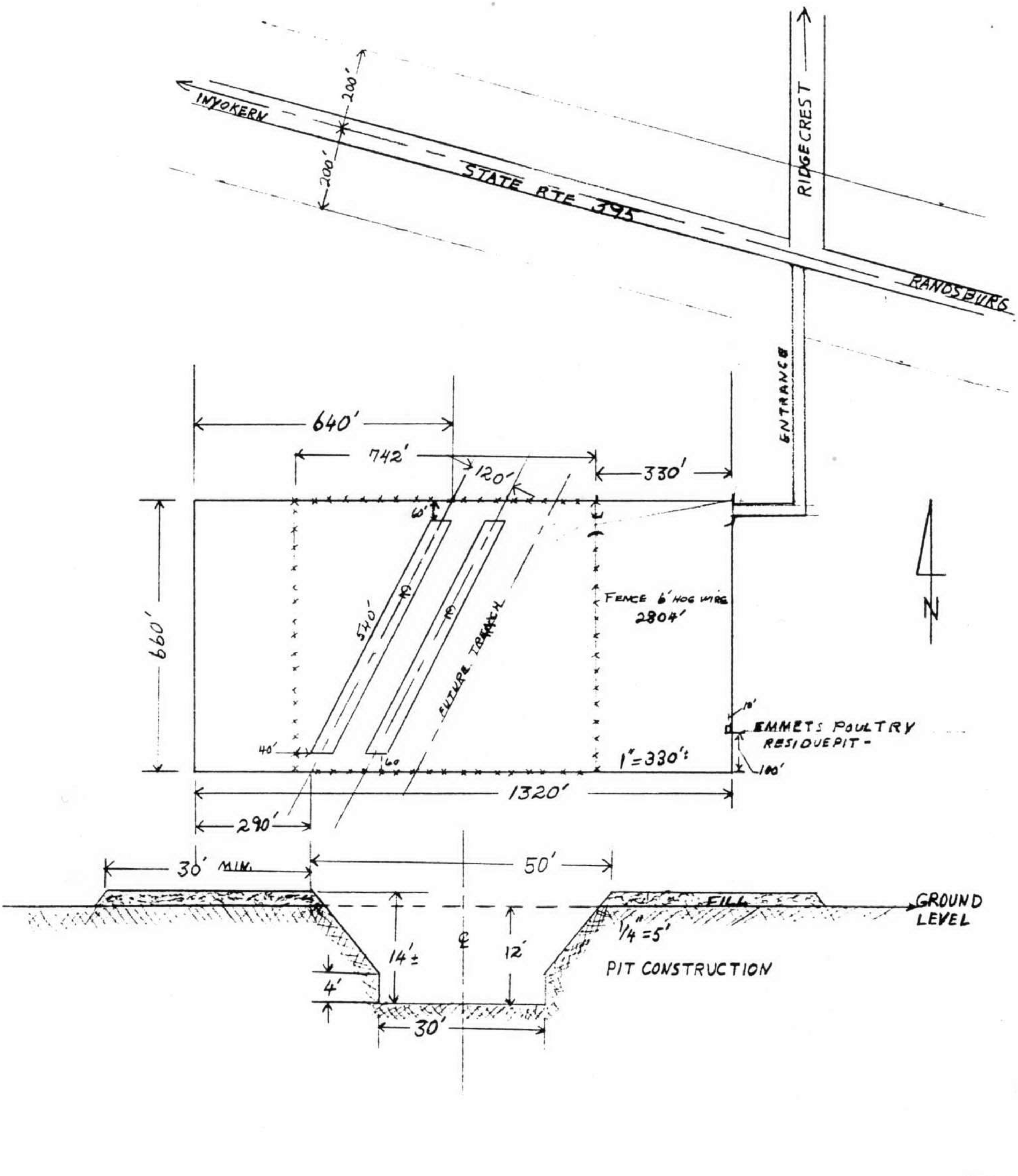


NEW

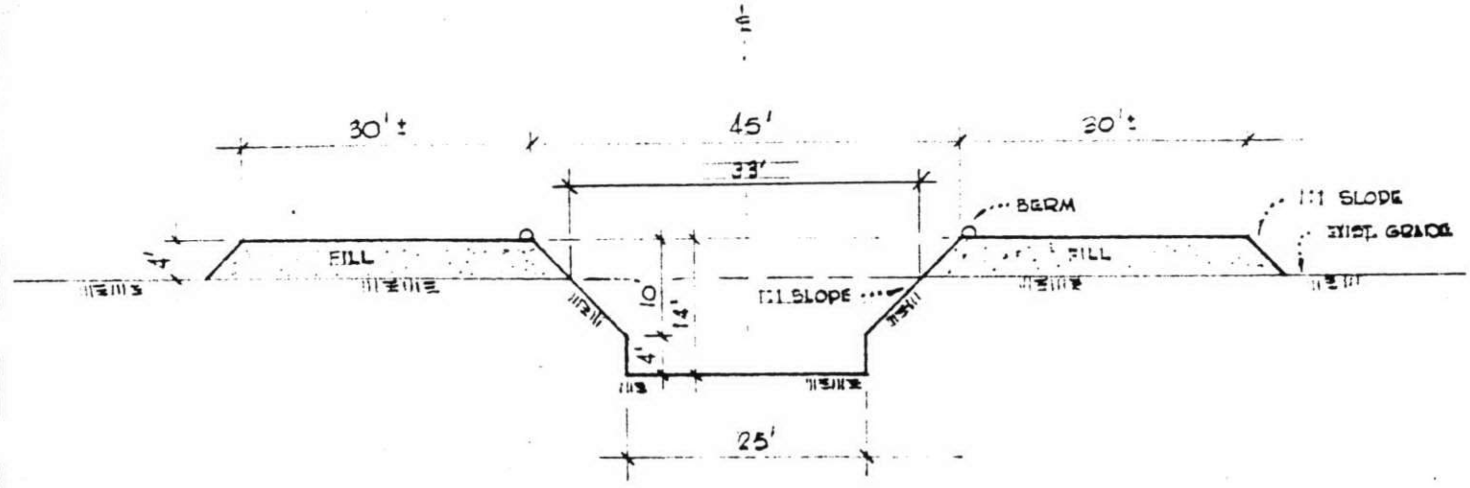
BY STAN DATE 8-14-62 SUBJECT RIDGECREST DISPOSAL SITE SHEET NO. OF

CHKD. BY DATE JOB NO.

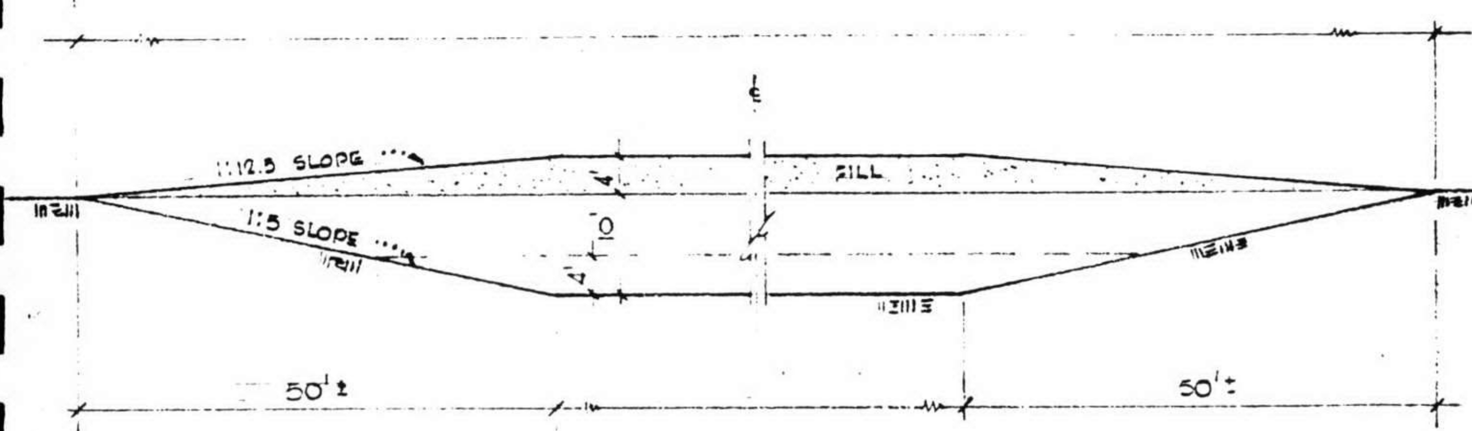
SEC. 31 T27S R39E MDB&M



RIDGECREST



CROSS SECTION



CENTER LINE CROSS SECTION

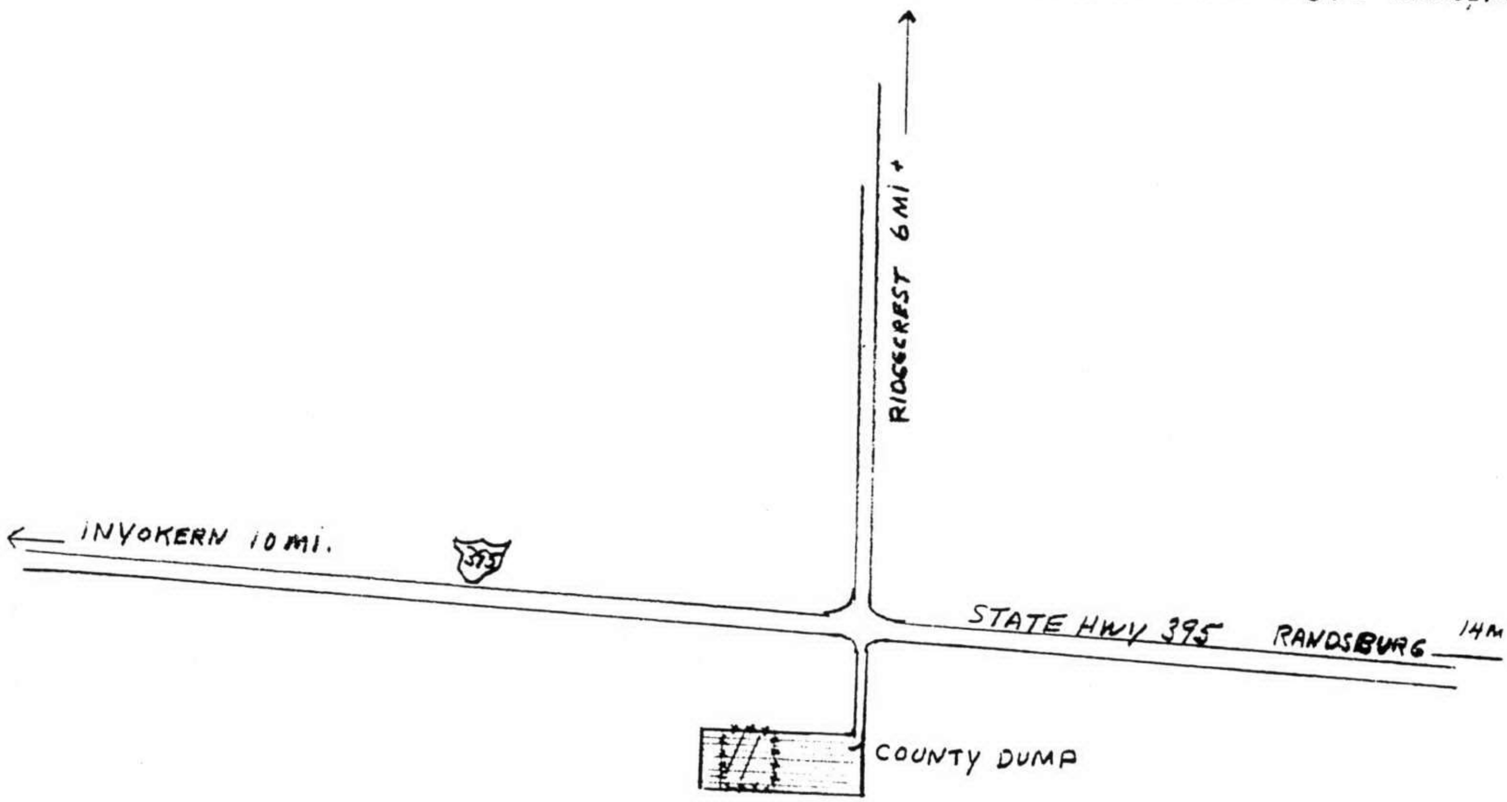
SCALE 1" = 20'

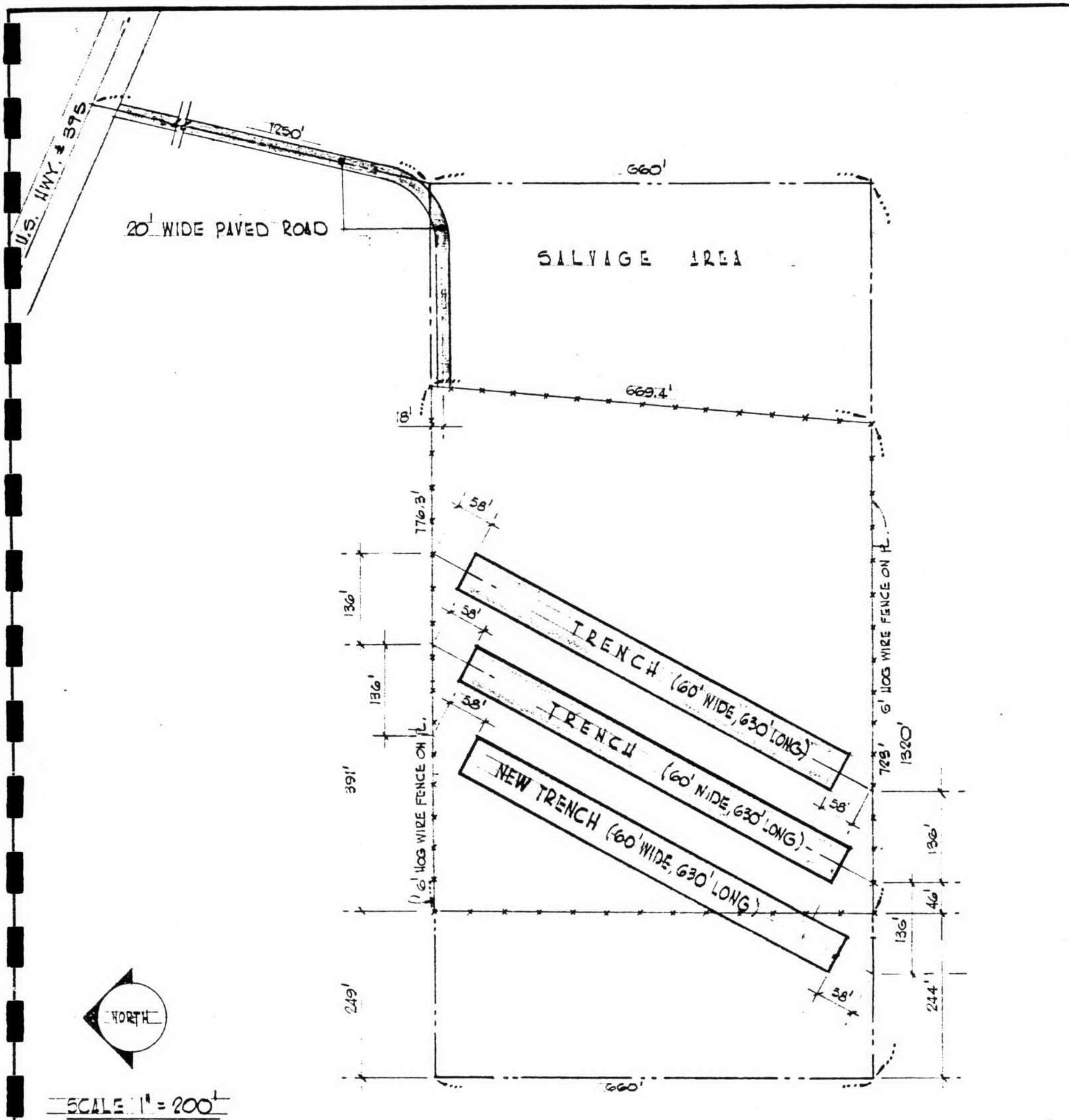
APPROVED BY	COUNTY OF KERN PUBLIC WORKS DEPARTMENT BAKERSFIELD CALIFORNIA	DRAWN BY G. BUCKLEY	SHEET 1
BOARD OF SUPERVISORS - CHR.	NEW PIT FOR RIDGECREST DISPOSAL AREA	TRACED BY	OF ONE SHEETS
PUBLIC WORKS DEPT.	1965	CHECKED BY	

CHARLSON 8-18-64 RIDGECREST DISPOSAL SITE

LESSOR - U.S. BLM. 10. PER YR → 50.5 YR.
OPERATOR - L. HAMPTON - 600. YR

SEC 31 T27S R39E MDB&M





REVISED : 1·26·66 - G.B.

APPROVED BY	COUNTY OF KERN PUBLIC WORKS DEPARTMENT BAKERSFIELD CALIFORNIA	DRAWN BY G. BUCKLEY	SHEET 1
BOARD OF SUPERVISORS - CHR.		TRACED BY	OF ONE SHEETS
PUBLIC WORKS DEPT.	RIDGECREST DISPOSAL AREA RIDGECREST, CALIF.	CHECKED BY	11/8/65 F.B. # 54
DEPARTMENT HEAD			

APPENDIX C

PHOTOGRAPHS

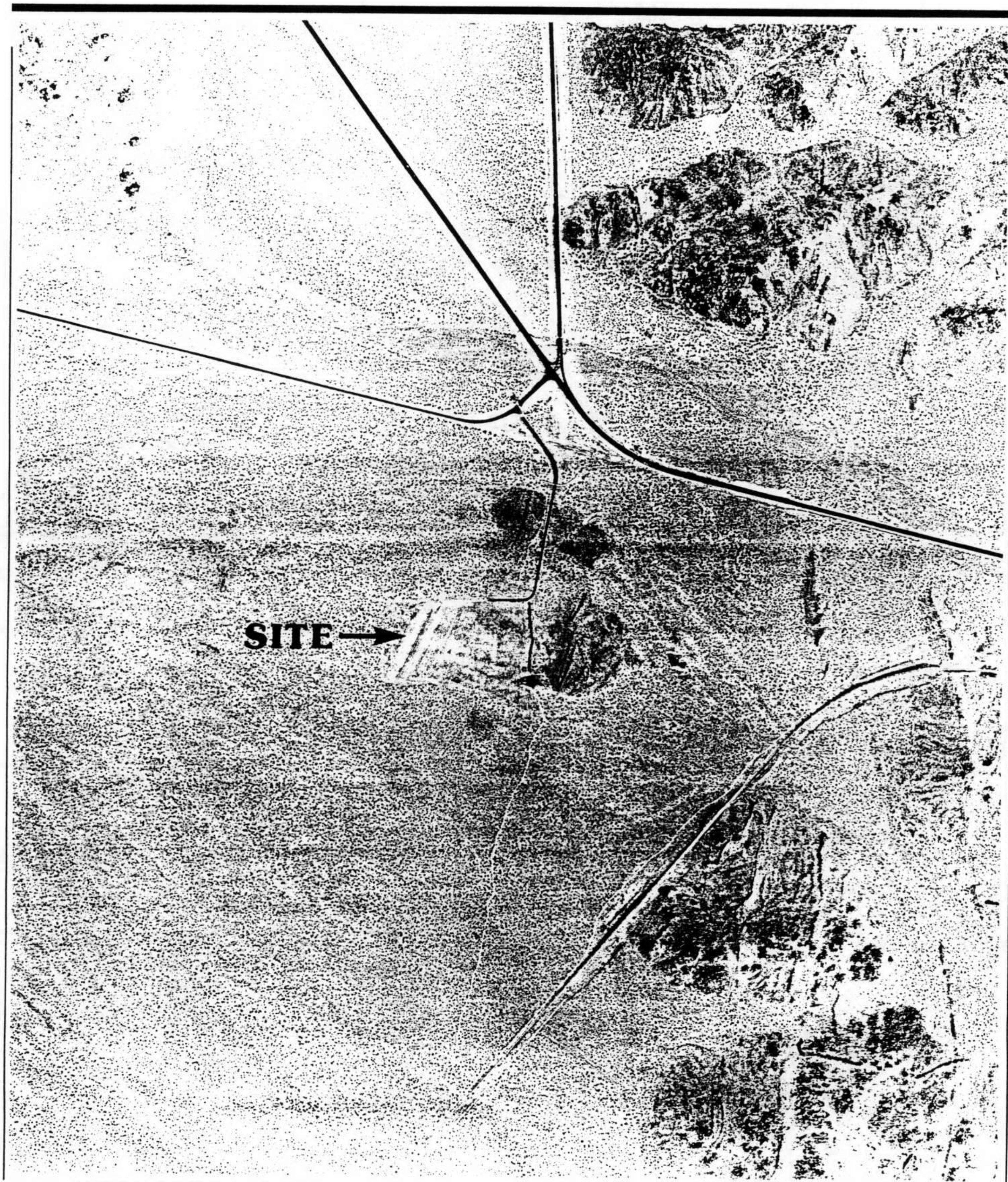


PHOTO TAKEN: 8-31-75

SCALE: 1" = 1000'

RIDGECREST BURNING DUMP
Kern County, California
for: Kern County Public Works Department

Project No.
91-41-324-01

Figure No.

CONVERSE ENVIRONMENTAL WEST

Approved for publication __________ by __________

Looking south from between former trench T-1 and former trench T-2

Looking south on west side of former trench T-1

RIDGECREST BURNING DUMP

AUGUST, 1991

Looking south from north end of former trench T-3

Looking south from north end of former trench T-2

Looking west from east side of former trench T-3

Looking southwest from northeast corner of former trench T-3

RIDGECREST BURNING DUMP

AUGUST, 1991

APPENDIX D

LABORATORY ANALYTICAL RESULTS
AND
CHAIN-OF-CUSTODY DOCUMENTS

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

County of Kern, Public Works Dept.	Client Project ID:	Ridgecrest Burning Dump		Sampled:	Sep 23, 1991
2700 "M" Street, Suite 500	Sample Descript:	Soil, B-3 7'		Received:	Sep 26, 1991
Bakersfield, CA 93301				Extracted:	Sep 30, 1991
Attention: Allen Van Nest	Lab Number:	109-5033		Reported:	Oct 11, 1991

INORGANIC PERSISTENT AND BIOACCUMULATIVE TOXIC SUBSTANCES

Analyte	Soluble Threshold Limit Concentration Waste Extraction Test			Total Threshold Limit Concentration		
	STLC Max. Limit (mg/L)	Detection Limit (mg/L)	Analysis Result (mg/L)	TTLC Max. Limit (mg/kg)	Detection Limit (mg/kg)	Analysis Result (mg/kg)
Antimony	15	0.050	-	500	1.0	0.28
Arsenic	5	0.010	-	500	0.10	3.8
Barium	100	0.10	-	10,000	0.20	47
Beryllium	0.75	0.010	-	75	0.10	0.61
Cadmium	1	0.010	-	100	0.10	N.D.
Chromium (VI)	5	0.0050	-	500	0.050	-
Chromium (III)	560	0.010	-	2,500	0.50	8.9
Cobalt	80	0.050	-	8,000	0.50	6.1
Copper	25	0.010	-	2,500	0.10	21
Lead	5	0.0050	0.014	1,000	0.050	5.2
Mercury	0.2	0.00020	-	20	0.010	0.018
Molybdenum	350	0.050	-	3,500	0.50	N.D.
Nickel	20	0.050	-	2,000	0.50	6.2
Selenium	1	0.010	-	100	1.0	N.D.
Silver	5	0.010	-	500	0.10	N.D.
Thallium	7	0.50	-	700	5.0	N.D.
Vanadium	24	0.050	0.074	2,400	0.50	25
Zinc	250	0.010	-	5,000	0.10	31
Asbestos	-	10	-	10,000	100	-
Fluoride	180	0.10	-	18,000	1.0	-

TTLC results are reported as mg/kg of wet weight. Asbestos results are reported as fibers/g.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Elizabeth W. Hackl
Elizabeth W. Hackl
Project Manager

Please Note:
cc: Laura White, Converse Environmental West, 3393 East Foothill Blvd., Pasadena, CA 91107.

SEQUOIA ANALYTICAL
680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

County of Kern, Public Works Dept.	Client Project ID:	Ridgecrest Burning Dump		Sampled:	Sep 23, 1991
2700 "M" Street, Suite 500	Sample Descript:	Soil, B-3 12'		Received:	Sep 26, 1991
Bakersfield, CA 93301				Extracted:	Sep 30, 1991
Attention: Allen Van Nest	Lab Number:	109-5034		Reported:	Oct 11, 1991

INORGANIC PERSISTENT AND BIOACCUMULATIVE TOXIC SUBSTANCES

	Soluble Threshold Limit Concentration Waste Extraction Test			Total Threshold Limit Concentration		
Analyte	**STLC Max. Limit** (mg/L)	**Detection Limit** (mg/L)	**Analysis Result** (mg/L)	**TTLC Max. Limit** (mg/kg)	**Detection Limit** (mg/kg)	**Analysis Result** (mg/kg)
Antimony	15	0.050	-	500	1.0	N.D.
Arsenic	5	0.010	0.035	500	0.10	6.5
Barium	100	0.10	1.1	10,000	0.20	120
Beryllium	0.75	0.010	N.D.	75	0.10	0.87
Cadmium	1	0.010	-	100	0.10	N.D.
Chromium (VI)	5	0.0050	-	500	0.050	-
Chromium (III)	560	0.010	-	2,500	0.50	14
Cobalt	80	0.050	-	8,000	0.50	8.2
Copper	25	0.010	0.37	2,500	0.10	27
Lead	5	0.0050	N.D.	1,000	0.050	5.9
Mercury	0.2	0.00020	-	20	0.010	0.024
Molybdenum	350	0.050	-	3,500	0.50	N.D.
Nickel	20	0.050	-	2,000	0.50	9.2
Selenium	1	0.010	-	100	1.0	N.D.
Silver	5	0.010	-	500	0.10	N.D.
Thallium	7	0.50	-	700	5.0	N.D.
Vanadium	24	0.050	0.081	2,400	0.50	35
Zinc	250	0.010	-	5,000	0.10	44
Asbestos	-	10	-	10,000	100	-
Fluoride	180	0.10	-	18,000	1.0	-

TTLC results are reported as mg/kg of wet weight. Asbestos results are reported as fibers/g.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Elizabeth W. Hackl
Project Manager

SEQUOIA ANALYTICAL
680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

County of Kern, Public Works Dept.	Client Project ID:	Ridgecrest Burning Dump		Sampled:	Sep 23, 1991
2700 "M" Street, Suite 500	Sample Descript:	Soil, B-3 18'		Received:	Sep 26, 1991
Bakersfield, CA 93301				Extracted:	Sep 30, 1991
Attention: Allen Van Nest	Lab Number:	109-5035		Reported:	Oct 11, 1991

INORGANIC PERSISTENT AND BIOACCUMULATIVE TOXIC SUBSTANCES

	Soluble Threshold Limit Concentration Waste Extraction Test			Total Threshold Limit Concentration		
Analyte	**STLC Max. Limit** (mg/L)	**Detection Limit** (mg/L)	**Analysis Result** (mg/L)	**TTLC Max. Limit** (mg/kg)	**Detection Limit** (mg/kg)	**Analysis Result** (mg/kg)
Antimony	15	0.050	-	500	1.0	N.D.
Arsenic	5	0.010	-	500	0.10	3.2
Barium	100	0.10	-	10,000	0.20	51
Beryllium	0.75	0.010	-	75	0.10	N.D.
Cadmium	1	0.010	-	100	0.10	N.D.
Chromium (VI)	5	0.0050	-	500	0.050	[illegible]
Chromium (III)	560	0.010	-	2,500	0.50	5.2
Cobalt	80	0.050	-	8,000	0.50	5.0
Copper	25	0.010	-	2,500	0.10	14
Lead	5	0.0050	-	1,000	0.050	3.4
Mercury	0.2	0.00020	-	20	0.010	0.034
Molybdenum	350	0.050	-	3,500	0.50	N.D.
Nickel	20	0.050	-	2,000	0.50	5.5
Selenium	1	0.010	-	100	1.0	N.D.
Silver	5	0.010	-	500	0.10	N.D.
Thallium	7	0.50	-	700	5.0	N.D.
Vanadium	24	0.050	-	2,400	0.50	15
Zinc	250	0.010	-	5,000	0.10	21
Asbestos	-	10	-	10,000	100	-
Fluoride	180	0.10	-	18,000	1.0	-

TTLC results are reported as mg/kg of wet weight. Asbestos results are reported as fibers/g.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Elizabeth W. Hackl
Project Manager

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

County of Kern, Public Works Dept.	Client Project ID: Ridgecrest Burning Dump	Sampled:	Sep 23, 1991
2700 "M" Street, Suite 500	Sample Descript: Soil, B-5 3'	Received:	Sep 26, 1991
Bakersfield, CA 93301		Extracted:	Sep 30, 1991
Attention: Allen Van Nest	Lab Number: 109-5036	Reported:	Oct 11, 1991

INORGANIC PERSISTENT AND BIOACCUMULATIVE TOXIC SUBSTANCES

Soluble Threshold Limit Concentration — Waste Extraction Test | **Total Threshold Limit Concentration**

Analyte	STLC Max. Limit (mg/L)	Detection Limit (mg/L)	Analysis Result (mg/L)	TTLC Max. Limit (mg/kg)	Detection Limit (mg/kg)	Analysis Result (mg/kg)
Antimony	15	0.050	-	500	1.0	0.26
Arsenic	5	0.010	-	500	0.10	2.6
Barium	100	0.10	-	10,000	0.20	73
Beryllium	0.75	0.010	-	75	0.10	N.D.
Cadmium	1	0.010	-	100	0.10	N.D.
Chromium (VI)	5	0.0050	-	500	0.050	-
Chromium (III)	560	0.010	-	2,500	0.50	6.3
Cobalt	80	0.050	-	8,000	0.50	4.5
Copper	25	0.010	-	2,500	0.10	17
Lead	5	0.0050	0.074	1,000	0.050	19
Mercury	0.2	0.00020	-	20	0.010	0.021
Molybdenum	350	0.050	-	3,500	0.50	N.D.
Nickel	20	0.050	-	2,000	0.50	6.2
Selenium	1	0.010	-	100	1.0	N.D.
Silver	5	0.010	-	500	0.10	N.D.
Thallium	7	0.50	-	700	5.0	N.D.
Vanadium	24	0.050	-	2,400	0.50	14
Zinc	250	0.010	-	5,000	0.10	73
Asbestos	-	10	-	10,000	100	-
Fluoride	180	0.10	-	18,000	1.0	-

TTLC results are reported as mg/kg of wet weight. Asbestos results are reported as fibers/g.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Elizabeth W. Hackl
Project Manager

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680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

County of Kern, Public Works Dept.	Client Project ID: Ridgecrest Burning Dump	Sampled:	Sep 23, 1991
2700 "M" Street, Suite 500	Sample Descript: Soil, B-5 8'	Received:	Sep 26, 1991
Bakersfield, CA 93301		Extracted:	Sep 30, 1991
Attention: Allen Van Nest	Lab Number: 109-5037	Reported:	Oct 11, 1991

INORGANIC PERSISTENT AND BIOACCUMULATIVE TOXIC SUBSTANCES

Analyte	Soluble Threshold Limit Concentration (Waste Extraction Test)			Total Threshold Limit Concentration		
	STLC Max. Limit (mg/L)	Detection Limit (mg/L)	Analysis Result (mg/L)	TTLC Max. Limit (mg/kg)	Detection Limit (mg/kg)	Analysis Result (mg/kg)
Antimony	15	0.050	-	500	1.0	N.D.
Arsenic	5	0.010	-	500	0.10	3.5
Barium	100	0.10	-	10,000	0.20	39
Beryllium	0.75	0.010	-	75	0.10	0.55
Cadmium	1	0.010	-	100	0.10	N.D.
Chromium (VI)	5	0.0050	-	500	0.050	
Chromium (III)	560	0.010	-	2,500	0.50	7.0
Cobalt	80	0.050	-	8,000	0.50	5.3
Copper	25	0.010	-	2,500	0.10	13
Lead	5	0.0050	-	1,000	0.050	4.1
Mercury	0.2	0.00020	-	20	0.010	0.026
Molybdenum	350	0.050	-	3,500	0.50	N.D.
Nickel	20	0.050	-	2,000	0.50	5.1
Selenium	1	0.010	-	100	1.0	N.D.
Silver	5	0.010	-	500	0.10	N.D.
Thallium	7	0.50	-	700	5.0	N.D.
Vanadium	24	0.050	-	2,400	0.50	19
Zinc	250	0.010	-	5,000	0.10	28
Asbestos	-	10	-	10,000	100	-
Fluoride	180	0.10	-	18,000	1.0	-

TTLC results are reported as mg/kg of wet weight. Asbestos results are reported as fibers/g.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Elizabeth W. Hackl
Project Manager

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

County of Kern, Public Works Dept.	Client Project ID:	Ridgecrest Burning Dump		Sampled:	Sep 23, 1991
2700 "M" Street, Suite 500	Sample Descript:	Soil, B-5 13'		Received:	Sep 26, 1991
Bakersfield, CA 93301				Extracted:	Sep 30, 1991
Attention: Allen Van Nest	Lab Number:	109-5038		Reported:	Oct 11, 1991

INORGANIC PERSISTENT AND BIOACCUMULATIVE TOXIC SUBSTANCES

	Soluble Threshold Limit Concentration Waste Extraction Test			Total Threshold Limit Concentration		
Analyte	STLC Max. Limit (mg/L)	Detection Limit (mg/L)	Analysis Result (mg/L)	TTLC Max. Limit (mg/kg)	Detection Limit (mg/kg)	Analysis Result (mg/kg)
Antimony	15	0.050	-	500	1.0	N.D.
Arsenic	5	0.010	-	500	0.10	4.7
Barium	100	0.10	-	10,000	0.20	73
Beryllium	0.75	0.010	-	75	0.10	0.71
Cadmium	1	0.010	-	100	0.10	N.D.
Chromium (VI)	5	0.0050		500	0.050	-
Chromium (III)	560	0.010	-	2,500	0.50	11
Cobalt	80	0.050	-	8,000	0.50	7.9
Copper	25	0.010	-	2,500	0.10	19
Lead	5	0.0050	-	1,000	0.050	4.9
Mercury	0.2	0.00020	-	20	0.010	0.019
Molybdenum	350	0.050	-	3,500	0.50	N.D.
Nickel	20	0.050	-	2,000	0.50	8.2
Selenium	1	0.010	-	100	1.0	N.D.
Silver	5	0.010	-	500	0.10	N.D.
Thallium	7	0.50	-	700	5.0	N.D.
Vanadium	24	0.050	0.083	2,400	0.50	25
Zinc	250	0.010	-	5,000	0.10	35
Asbestos	-	10	-	10,000	100	-
Fluoride	180	0.10	-	18,000	1.0	-

TTLC results are reported as mg/kg of wet weight. Asbestos results are reported as fibers/g.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Elizabeth W. Hackl
Project Manager

SEQUOIA ANALYTICAL
680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

County of Kern, Public Works Dept.	Client Project ID:	Ridgecrest Burning Dump		Sampled:	Sep 23, 1991
2700 "M" Street, Suite 500	Sample Descript:	Soil, B-9 10'		Received:	Sep 26, 1991
Bakersfield, CA 93301				Extracted:	Sep 30, 1991
Attention: Allen Van Nest	Lab Number:	109-5039		Reported:	Oct 11, 1991

INORGANIC PERSISTENT AND BIOACCUMULATIVE TOXIC SUBSTANCES

	Soluble Threshold Limit Concentration Waste Extraction Test			Total Threshold Limit Concentration		
Analyte	**STLC Max. Limit** (mg/L)	**Detection Limit** (mg/L)	**Analysis Result** (mg/L)	**TTLC Max. Limit** (mg/kg)	**Detection Limit** (mg/kg)	**Analysis Result** (mg/kg)
Antimony	15	0.050	-	500	1.0	0.26
Arsenic	5	0.010	-	500	0.10	3.5
Barium	100	0.10	-	10,000	0.20	84
Beryllium	0.75	0.010	-	75	0.10	N.D.
Cadmium	1	0.010	-	100	0.10	N.D.
Chromium (VI)	5	0.0050	-	500	0.050	-
Chromium (III)	560	0.010	-	2,500	0.50	5.5
Cobalt	80	0.050	-	8,000	0.50	5.2
Copper	25	0.010	-	2,500	0.10	31
Lead	5	0.0050	0.19	1,000	0.050	21
Mercury	0.2	0.00020	-	20	0.010	0.024
Molybdenum	350	0.050	-	3,500	0.50	N.D.
Nickel	20	0.050	-	2,000	0.50	41
Selenium	1	0.010	-	100	1.0	N.D.
Silver	5	0.010	-	500	0.10	N.D.
Thallium	7	0.50	-	700	5.0	N.D.
Vanadium	24	0.050	-	2,400	0.50	14
Zinc	250	0.010	-	5,000	0.10	200
Asbestos	-	10	-	10,000	100	-
Fluoride	180	0.10	-	18,000	1.0	-

TTLC results are reported as mg/kg of wet weight. Asbestos results are reported as fibers/g.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

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County of Kern, Public Works Dept.	Client Project ID:	Ridgecrest Burning Dump		Sampled:	Sep 23, 1991
2700 "M" Street, Suite 500	Sample Descript:	Soil, B-9 15'		Received:	Sep 26, 1991
Bakersfield, CA 93301				Extracted:	Sep 30, 1991
Attention: Allen Van Nest	Lab Number:	109-5040		Reported:	Oct 11, 1991

INORGANIC PERSISTENT AND BIOACCUMULATIVE TOXIC SUBSTANCES

Soluble Threshold Limit Concentration (Waste Extraction Test) | **Total Threshold Limit Concentration**

Analyte	STLC Max. Limit (mg/L)	Detection Limit (mg/L)	Analysis Result (mg/L)	TTLC Max. Limit (mg/kg)	Detection Limit (mg/kg)	Analysis Result (mg/kg)
Antimony	15	0.050	-	500	1.0	N.D.
Arsenic	5	0.010	-	500	0.10	3.9
Barium	100	0.10	-	10,000	0.20	58
Beryllium	0.75	0.010	-	75	0.10	N.D.
Cadmium	1	0.010	-	100	0.10	N.D.
Chromium (VI)	5	0.0050	-	500	0.050	-
Chromium (III)	560	0.010	-	2,500	0.50	6.5
Cobalt	80	0.050	-	8,000	0.50	5.5
Copper	25	0.010	-	2,500	0.10	14
Lead	5	0.0050	-	1,000	0.050	3.7
Mercury	0.2	0.00020	-	20	0.010	0.015
Molybdenum	350	0.050	-	3,500	0.50	N.D.
Nickel	20	0.050	-	2,000	0.50	5.3
Selenium	1	0.010	-	100	1.0	N.D.
Silver	5	0.010	-	500	0.10	N.D.
Thallium	7	0.50	-	700	5.0	N.D.
Vanadium	24	0.050	-	2,400	0.50	20
Zinc	250	0.010	-	5,000	0.10	27
Asbestos	-	10	-	10,000	100	-
Fluoride	180	0.10	-	18,000	1.0	-

TTLC results are reported as mg/kg of wet weight. Asbestos results are reported as fibers/g.
Analytes reported as N.D. were not present above the stated limit of detection.

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County of Kern, Public Works Dept.	Client Project ID:	Ridgecrest Burning Dump		Sampled:	Sep 24, 1991
2700 "M" Street, Suite 500	Sample Descript:	Soil, B-12 4'		Received:	Sep 26, 1991
Bakersfield, CA 93301				Extracted:	Sep 30, 1991
Attention: Allen Van Nest	Lab Number:	109-5041		Reported:	Oct 11, 1991

INORGANIC PERSISTENT AND BIOACCUMULATIVE TOXIC SUBSTANCES

Soluble Threshold Limit Concentration
Waste Extraction Test

Total Threshold Limit Concentration

Analyte	STLC Max. Limit (mg/L)	Detection Limit (mg/L)	Analysis Result (mg/L)	TTLC Max. Limit (mg/kg)	Detection Limit (mg/kg)	Analysis Result (mg/kg)
Antimony	15	0.050	-	500	1.0	0.54
Arsenic	5	0.010	0.046	500	0.10	5.3
Barium	100	0.10	1.5	10,000	0.20	130
Beryllium	0.75	0.010	-	75	0.10	N.D.
Cadmium	1	0.010	0.023	100	0.10	1.6
Chromium (VI)	5	0.0050	-	500	0.050	-
Chromium (III)	560	0.010	-	2,500	0.50	21
Cobalt	80	0.050	-	8,000	0.50	7.6
Copper	25	0.010	0.52	2,500	0.10	63
Lead	5	0.0050	1.7	1,000	0.050	230
Mercury	0.2	0.00020	-	20	0.010	0.070
Molybdenum	350	0.050	-	3,500	0.50	N.D.
Nickel	20	0.050	-	2,000	0.50	16
Selenium	1	0.010	-	100	1.0	N.D.
Silver	5	0.010	-	500	0.10	0.92
Thallium	7	0.50	-	700	5.0	N.D.
Vanadium	24	0.050	9.1	2,400	0.50	19
Zinc	250	0.010	-	5,000	0.10	630
Asbestos	-	10	-	10,000	100	-
Fluoride	180	0.10	-	18,000	1.0	-

TTLC results are reported as mg/kg of wet weight. Asbestos results are reported as fibers/g.
Analytes reported as N.D. were not present above the stated limit of detection.

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County of Kern, Public Works Dept.	Client Project ID: Ridgecrest Burning Dump	Sampled:	Sep 24, 1991
2700 "M" Street, Suite 500	Sample Descript: Soil, B-12 9½'	Received:	Sep 26, 1991
Bakersfield, CA 93301		Extracted:	Sep 30, 1991
Attention: Allen Van Nest	Lab Number: 109-5042	Reported:	Oct 11, 1991

INORGANIC PERSISTENT AND BIOACCUMULATIVE TOXIC SUBSTANCES

	Soluble Threshold Limit Concentration Waste Extraction Test			Total Threshold Limit Concentration		
Analyte	STLC Max. Limit (mg/L)	Detection Limit (mg/L)	Analysis Result (mg/L)	TTLC Max. Limit (mg/kg)	Detection Limit (mg/kg)	Analysis Result (mg/kg)
Antimony	15	0.050	-	500	1.0	N.D.
Arsenic	5	0.010	-	500	0.10	2.8
Barium	100	0.10	-	10,000	0.20	43
Beryllium	0.75	0.010	-	75	0.10	N.D.
Cadmium	1	0.010	-	100	0.10	N.D.
Chromium (VI)	5	0.0050	-	500	0.050	-
Chromium (III)	560	0.010	-	2,500	0.50	4.6
Cobalt	80	0.050	-	8,000	0.50	4.3
Copper	25	0.010	-	2,500	0.10	8.9
Lead	5	0.0050	-	1,000	0.050	3.3
Mercury	0.2	0.00020	-	20	0.010	0.026
Molybdenum	350	0.050	-	3,500	0.50	N.D.
Nickel	20	0.050	-	2,000	0.50	5.0
Selenium	1	0.010	-	100	1.0	N.D.
Silver	5	0.010	-	500	0.10	N.D.
Thallium	7	0.50	-	700	5.0	N.D.
Vanadium	24	0.050	-	2,400	0.50	14
Zinc	250	0.010	-	5,000	0.10	27
Asbestos	-	10	-	10,000	100	-
Fluoride	180	0.10	-	18,000	1.0	-

TTLC results are reported as mg/kg of wet weight. Asbestos results are reported as fibers/g.
Analytes reported as N.D. were not present above the stated limit of detection.

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County of Kern, Public Works Dept.	Client Project ID: Ridgecrest Burning Dump	Sampled:	Sep 24, 1991
2700 "M" Street, Suite 500	Sample Descript: Soil, B-12 15'	Received:	Sep 26, 1991
Bakersfield, CA 93301		Extracted:	Sep 30, 1991
Attention: Allen Van Nest	Lab Number: 109-5043	Reported:	Oct 11, 1991

INORGANIC PERSISTENT AND BIOACCUMULATIVE TOXIC SUBSTANCES

	Soluble Threshold Limit Concentration (Waste Extraction Test)			Total Threshold Limit Concentration		
Analyte	STLC Max. Limit (mg/L)	Detection Limit (mg/L)	Analysis Result (mg/L)	TTLC Max. Limit (mg/kg)	Detection Limit (mg/kg)	Analysis Result (mg/kg)
Antimony	15	0.050	-	500	1.0	N.D.
Arsenic	5	0.010	-	500	0.10	3.4
Barium	100	0.10	-	10,000	0.20	68
Beryllium	0.75	0.010	-	75	0.10	0.55
Cadmium	1	0.010	-	100	0.10	N.D.
Chromium (VI)	5	0.0050	-	500	0.050	-
Chromium (III)	560	0.010	-	2,500	0.50	7.0
Cobalt	80	0.050	-	8,000	0.50	6.0
Copper	25	0.010	-	2,500	0.10	14
Lead	5	0.0050	-	1,000	0.050	4.1
Mercury	0.2	0.00020	-	20	0.010	0.019
Molybdenum	350	0.050	-	3,500	0.50	N.D.
Nickel	20	0.050	-	2,000	0.50	6.8
Selenium	1	0.010	-	100	1.0	N.D.
Silver	5	0.010	-	500	0.10	N.D.
Thallium	7	0.50	-	700	5.0	N.D.
Vanadium	24	0.050	-	2,400	0.50	20
Zinc	250	0.010	-	5,000	0.10	29
Asbestos	-	10	-	10,000	100	-
Fluoride	180	0.10	-	18,000	1.0	-

TTLC results are reported as mg/kg of wet weight. Asbestos results are reported as fibers/g.
Analytes reported as N.D. were not present above the stated limit of detection.

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County of Kern, Public Works Dept.	Client Project ID: Ridgecrest Burning Dump	Sampled:	Sep 24, 1991
2700 "M" Street, Suite 500	Sample Descript: Soil, B-14 6'	Received:	Sep 26, 1991
Bakersfield, CA 93301		Extracted:	Sep 30, 1991
Attention: Allen Van Nest	Lab Number: 109-5044	Reported:	Oct 11, 1991

INORGANIC PERSISTENT AND BIOACCUMULATIVE TOXIC SUBSTANCES

Soluble Threshold Limit Concentration
Waste Extraction Test

Total Threshold Limit Concentration

Analyte	STLC Max. Limit (mg/L)	Detection Limit (mg/L)	Analysis Result (mg/L)	TTLC Max. Limit (mg/kg)	Detection Limit (mg/kg)	Analysis Result (mg/kg)
Antimony	15	0.050	-	500	1.0	0.31
Arsenic	5	0.010	-	500	0.10	4.0
Barium	100	0.10	-	10,000	0.20	64
Beryllium	0.75	0.010	-	75	0.10	0.58
Cadmium	1	0.010	-	100	0.10	N.D.
Chromium (VI)	5	0.0050	-	500	0.050	-
Chromium (III)	560	0.010	-	2,500	0.50	9.3
Cobalt	80	0.050	-	8,000	0.50	5.8
Copper	25	0.010	0.98	2,500	0.10	90
Lead	5	0.0050	0.53	1,000	0.050	31
Mercury	0.2	0.00020	-	20	0.010	0.015
Molybdenum	350	0.050	-	3,500	0.50	N.D.
Nickel	20	0.050	-	2,000	0.50	7.3
Selenium	1	0.010	-	100	1.0	N.D.
Silver	5	0.010	-	500	0.10	N.D.
Thallium	7	0.50	-	700	5.0	N.D.
Vanadium	24	0.050	-	2,400	0.50	21
Zinc	250	0.010	8.3	5,000	0.10	500
Asbestos	-	10	-	10,000	100	-
Fluoride	180	0.10	-	18,000	1.0	-

TTLC results are reported as mg/kg of wet weight. Asbestos results are reported as fibers/g.
Analytes reported as N.D. were not present above the stated limit of detection.

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County of Kern, Public Works Dept.	Client Project ID: Ridgecrest Burning Dump	Sampled:	Sep 24, 1991
2700 "M" Street, Suite 500	Sample Descript: Soil, B-14 10'	Received:	Sep 26, 1991
Bakersfield, CA 93301		Extracted:	Sep 30, 1991
Attention: Allen Van Nest	Lab Number: 109-5045	Reported:	Oct 11, 1991

INORGANIC PERSISTENT AND BIOACCUMULATIVE TOXIC SUBSTANCES

	Soluble Threshold Limit Concentration Waste Extraction Test			Total Threshold Limit Concentration		
Analyte	**STLC Max. Limit** (mg/L)	**Detection Limit** (mg/L)	**Analysis Result** (mg/L)	**TTLC Max. Limit** (mg/kg)	**Detection Limit** (mg/kg)	**Analysis Result** (mg/kg)
Antimony	15	0.050	-	500	1.0	N.D.
Arsenic	5	0.010	-	500	0.10	3.7
Barium	100	0.10	-	10,000	0.20	52
Beryllium	0.75	0.010	-	75	0.10	0.51
Cadmium	1	0.010	-	100	0.10	N.D.
Chromium (VI)	5	0.0050		500	0.050	-
Chromium (III)	560	0.010	-	2,500	0.50	6.0
Cobalt	80	0.050	-	8,000	0.50	5.3
Copper	25	0.010	-	2,500	0.10	19
Lead	5	0.0050	0.0092	1,000	0.050	5.1
Mercury	0.2	0.00020	-	20	0.010	N.D.
Molybdenum	350	0.050	-	3,500	0.50	N.D.
Nickel	20	0.050	-	2,000	0.50	5.6
Selenium	1	0.010	-	100	1.0	N.D.
Silver	5	0.010	-	500	0.10	N.D.
Thallium	7	0.50	-	700	5.0	N.D.
Vanadium	24	0.050	-	2,400	0.50	18
Zinc	250	0.010	-	5,000	0.10	32
Asbestos	-	10	-	10,000	100	-
Fluoride	180	0.10	-	18,000	1.0	-

TTLC results are reported as mg/kg of wet weight. Asbestos results are reported as fibers/g.
Analytes reported as N.D. were not present above the stated limit of detection.

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County of Kern, Public Works Dept.	Client Project ID:	Ridgecrest Burning Dump		Sampled:	Sep 24, 1991
2700 "M" Street, Suite 500	Sample Descript:	Soil, B-14 15'		Received:	Sep 26, 1991
Bakersfield, CA 93301				Extracted:	Sep 30, 1991
Attention: Allen Van Nest	Lab Number:	109-5046		Reported:	Oct 11, 1991

INORGANIC PERSISTENT AND BIOACCUMULATIVE TOXIC SUBSTANCES

	Soluble Threshold Limit Concentration (Waste Extraction Test)			Total Threshold Limit Concentration		
Analyte	**STLC Max. Limit** (mg/L)	**Detection Limit** (mg/L)	**Analysis Result** (mg/L)	**TTLC Max. Limit** (mg/kg)	**Detection Limit** (mg/kg)	**Analysis Result** (mg/kg)
Antimony	15	0.050	-	500	1.0	N.D.
Arsenic	5	0.010	-	500	0.10	5.3
Barium	100	0.10	-	10,000	0.20	76
Beryllium	0.75	0.010	-	75	0.10	0.73
Cadmium	1	0.010	-	100	0.10	N.D.
Chromium (VI)	5	0.0050	-	500	0.050	-
Chromium (III)	560	0.010	-	2,500	0.50	10
Cobalt	80	0.050	-	8,000	0.50	7.5
Copper	25	0.010	-	2,500	0.10	18
Lead	5	0.0050	-	1,000	0.050	4.9
Mercury	0.2	0.00020	-	20	0.010	0.015
Molybdenum	350	0.050	-	3,500	0.50	N.D.
Nickel	20	0.050	-	2,000	0.50	6.8
Selenium	1	0.010	-	100	1.0	N.D.
Silver	5	0.010	-	500	0.10	N.D.
Thallium	7	0.50	-	700	5.0	N.D.
Vanadium	24	0.050	N.D.	2,400	0.50	25
Zinc	250	0.010	-	5,000	0.10	35
Asbestos	-	10	-	10,000	100	-
Fluoride	180	0.10	-	18,000	1.0	-

TTLC results are reported as mg/kg of wet weight. Asbestos results are reported as fibers/g.
Analytes reported as N.D. were not present above the stated limit of detection.

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County of Kern, Public Works Dept.	Client Project ID: Ridgecrest Burning Dump	Sampled:	Sep 24, 1991
2700 "M" Street, Suite 500	Sample Descript: Soil, B-15 3'	Received:	Sep 26, 1991
Bakersfield, CA 93301		Extracted:	Sep 30, 1991
Attention: Allen Van Nest	Lab Number: 109-5047	Reported:	Oct 11, 1991

INORGANIC PERSISTENT AND BIOACCUMULATIVE TOXIC SUBSTANCES

	Soluble Threshold Limit Concentration Waste Extraction Test			Total Threshold Limit Concentration		
Analyte	**STLC Max. Limit** (mg/L)	**Detection Limit** (mg/L)	**Analysis Result** (mg/L)	**TTLC Max. Limit** (mg/kg)	**Detection Limit** (mg/kg)	**Analysis Result** (mg/kg)
Antimony	15	0.050	-	500	1.0	0.27
Arsenic	5	0.010	-	500	0.10	4.6
Barium	100	0.10	1.5	10,000	0.20	140
Beryllium	0.75	0.010	-	75	0.10	0.57
Cadmium	1	0.010	-	100	0.10	0.80
Chromium (VI)	5	0.0050	-	500	0.050	-
Chromium (III)	560	0.010	-	2,500	0.50	9.4
Cobalt	80	0.050	-	8,000	0.50	6.8
Copper	25	0.010	0.42	2,500	0.10	830
Lead	5	0.0050	0.55	1,000	0.050	50
Mercury	0.2	0.00020	-	20	0.010	N.D.
Molybdenum	350	0.050	-	3,500	0.50	N.D.
Nickel	20	0.050	-	2,000	0.50	7.9
Selenium	1	0.010	-	100	1.0	N.D.
Silver	5	0.010	-	500	0.10	1.6
Thallium	7	0.50	-	700	5.0	N.D.
Vanadium	24	0.050	-	2,400	0.50	22
Zinc	250	0.010	4.9	5,000	0.10	510
Asbestos	-	10	-	10,000	100	-
Fluoride	180	0.10	-	18,000	1.0	-

TTLC results are reported as mg/kg of wet weight. Asbestos results are reported as fibers/g.
Analytes reported as N.D. were not present above the stated limit of detection.

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County of Kern, Public Works Dept.   Client Project ID: Ridgecrest Burning Dump
2700 "M" Street, Suite 500
Bakersfield, CA 93301
Attention: Allen Van Nest   QC Sample Group: 1095033-47   Reported: Oct 11, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	TTLC-Barium	TTLC-Beryllium	TTLC-Cadmium	TTLC-Chromium	TTLC-Cobalt	TTLC-Copper
Method:	EPA 6010	EPA 6010	EPA 6010	EPA 6010	EPA 6010	EPA 6010
Analyst:	C. Medefesser	C. Medefesser	C. Medefesser	C. Medefesser	C. Medefesser	C. Medefesser
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Oct 3, 1991	Oct 3, 1991	Oct 3, 1991	Oct 3, 1991	Oct 3, 1991	Oct 3, 1991
QC Sample #:	109-5042	109-5042	109-5042	109-5042	109-5042	109-5042
Sample Conc.:	43	N.D.	N.D.	4.6	4.3	8.9
Spike Conc. Added:	50	50	50	50	50	50
Conc. Matrix Spike:	92	49	51	54	54	60
Matrix Spike % Recovery:	98	98	100	98	100	100
Conc. Matrix Spike Dup.:	94	50	53	55	54	61
Matrix Spike Duplicate % Recovery:	100	100	110	100	100	100
Relative % Difference:	2.2	2.0	3.8	1.8	0.0	1.7

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Project Manager

% Recovery:	$\frac{\text{Conc. of M.S. - Conc. of Sample}}{\text{Spike Conc. Added}}$	x 100
Relative % Difference:	$\frac{\text{Conc. of M.S. - Conc. of M.S.D.}}{\text{(Conc. of M.S. + Conc. of M.S.D.) / 2}}$	x 100

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County of Kern, Public Works Dept. Client Project ID: Ridgecrest Burning Dump
2700 "M" Street, Suite 500
Bakersfield, CA 93301
Attention: Allen Van Nest QC Sample Group: 1095033-47 Reported: Oct 11, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	TTLC-Molybdenum	TTLC-Nickel	TTLC-Silver	TTLC-Vanadium	TTLC-Zinc	TTLC-Lead	TTLC-Lead
Method:	EPA 6010	EPA 6010	EPA 6010	EPA 6010	EPA 6010	EPA 6010	EPA 7421
Analyst:	C. Medefesser	C. Medefesser	C. Medefesser	C. Medefesser	C. Medefesser	C. Medefesser	V. Patel
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Oct 3, 1991	Oct 3, 1991	Oct 3, 1991	Oct 3, 1991	Oct 3, 1991	Oct 3, 1991	Oct 3, 1991
QC Sample #:	109-5042	109-5042	109-5042	109-5042	109-5042	109-5042	109-4417
Sample Conc.:	N.D.	5.0	N.D.	14	27	N.D.	12
Spike Conc. Added:	50	50	50	50	50	50	50
Conc. Matrix Spike:	51	53	51	64	78	54	54
Matrix Spike % Recovery:	100	110	100	100	100	110	84
Conc. Matrix Spike Dup.:	52	54	52	64	80	54	56
Matrix Spike Duplicate % Recovery:	100	110	100	100	110	110	88
Relative % Difference:	1.9	1.9	1.9	0.0	2.5	0.0	3.6

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Elizabeth W. Hackl
Project Manager

% Recovery:	$\dfrac{\text{Conc. of M.S. - Conc. of Sample}}{\text{Spike Conc. Added}}$	x 100
Relative % Difference:	$\dfrac{\text{Conc. of M.S. - Conc. of M.S.D.}}{\text{(Conc. of M.S. + Conc. of M.S.D.) / 2}}$	x 100

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County of Kern, Public Works Dept. Client Project ID: Ridgecrest Burning Dump
2700 "M" Street, Suite 500
Bakersfield, CA 93301
Attention: Allen Van Nest QC Sample Group: 1095033-47 Reported: Oct 11, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	TTLC-Mercury	STLC-Lead	STLC-Vanadium	STLC-Zinc	STLC-Arsenic
Method:	EPA 7471	EPA 239.2	EPA 200.7	EPA 200.7	EPA 206.2
Analyst:	Y. Arteaga	V. Patel	N. Herrera	N. Herrera	F. Contreras
Reporting Units:	mg/kg	mg/L	mg/L	mg/L	mg/L
Date Analyzed:	Oct 7, 1991	Oct 10, 1991	Oct 10, 1991	Oct 10, 1991	Oct 10, 1991
QC Sample #:	109-5033	109-5041	109-5033	109-5033	109-3867
Sample Conc.:	0.018	1.7	0.074	0.17	N.D.
Spike Conc. Added:	0.10	10	10	10	2.0
Conc. Matrix Spike:	0.13	11	8.2	8.4	2.2
Matrix Spike % Recovery:	110	93	82	82	110
Conc. Matrix Spike Dup.:	0.13	11	8.3	8.4	2.1
Matrix Spike Duplicate % Recovery:	110	93	83	82	105
Relative % Difference:	0.0	0.0	1.2	0.0	4.6

SEQUOIA ANALYTICAL

Elizabeth W. Hackl
Elizabeth W. Hackl
Project Manager

% Recovery: $\frac{\text{Conc. of M.S. - Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$

Relative % Difference: $\frac{\text{Conc. of M.S. - Conc. of M.S.D.}}{\text{(Conc. of M.S. + Conc. of M.S.D.) / 2}} \times 100$

SEQUOIA ANALYTICAL
680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

County of Kern, Public Works Dept. Client Project ID: Ridgecrest Burning Dump
2700 "M" Street, Suite 500
Bakersfield, CA 93301
Attention: Allen Van Nest QC Sample Group: 1095033-47 Reported: Oct 11, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	STLC-Barium	STLC-Beryllium	STLC-Cadmium	STLC-Copper
Method:	EPA 200.7	EPA 200.7	EPA 200.7	EPA 200.7
Analyst:	N. Herrera	N. Herrera	N. Herrera	N. Herrera
Reporting Units:	mg/L	mg/L	mg/L	mg/L
Date Analyzed:	Oct 10, 1991	Oct 10, 1991	Oct 10, 1991	Oct 10, 1991
QC Sample #:	109-5033	109-5033	109-5033	109-5033
Sample Conc.:	1.4	N.D.	N.D.	0.21
Spike Conc. Added:	10	10	8.4	10
Conc. Matrix Spike:	9.1	7.7	84	9.2
Matrix Spike % Recovery:	77	77	8.5	90
Conc. Matrix Spike Dup.:	9.3	7.8	85	9.3
Matrix Spike Duplicate % Recovery:	79	78	1.2	91
Relative % Difference:	2.2	1.3	2.2	1.1

SEQUOIA ANALYTICAL

Elizabeth W. Hackl
Project Manager

% Recovery:	$\frac{\text{Conc. of M.S. - Conc. of Sample}}{\text{Spike Conc. Added}}$	x 100
Relative % Difference:	$\frac{\text{Conc. of M.S. - Conc. of M.S.D.}}{\text{(Conc. of M.S. + Conc. of M.S.D.) / 2}}$	x 100

SEQUOIA ANALYTICAL
State-Certified Laboratory for Analysis of Water, Soil, and Hazardous Materials

CHAIN OF CUSTODY REPORT

CLIENT: Kern County Public Works
ADDRESS: 2700 "M" street, Suite 500
Bakersfield, CA 93301
PHONE: (805) 861-2481

REPORT TO: Converse Environmental c/o Laura White (818) 796-8200

BILLING TO: Kern County Public Works

TURNAROUND TIME: 24 HR. | 48 HR. | 8 HR. | 72 HR. | 5 DAY [X] | 10 DAY | 15 DAY

PROJECT NAME/SITE: Ridgecrest Burning Dump

PO#/BILLING REFERENCE:

SAMPLER: Laura White
DATE:

ANALYSIS REQUESTED: 6010/7000, ~~8010~~

SAMPLE ID#/ STATION	SAMPLE DESCRIPTION	NUMBER OF CONT.	TYPE CONT.	SAMPLING TIME/DATE	6010/7000	~~8010~~	REMARKS	SAMPLE NUMBER
B-14 6'	soil	1	glass	9/24/91 11:15	'		Hold all	
10'	↓	1	↓	11:35			samples until	
↓ 15'		1		11:55			Friday morning	
B-15 3'		1		1:00			call Laura	
B-15 5'	↓	1	↓	↓ 1:10	↓		White (818) 796-8200	
							for directions	

RELINQUISHED BY	DATE	TIME	RECEIVED BY	
Laura White	9/24/91	1:30	Allen Van West	TRAVEL TIME: / ON SITE TIME:
Stephen Schneider KCPW	Sept 25, 1991	0730		OTHER:
			RECEIVED IN LAB BY: E. Walters 9/26	WERE SAMPLES: PRESERVED ? / IN GOOD CONDITION? YES / NO

SOS

B

SEQUOIA ANALYTICAL
State-Certified Laboratory for Analysis of Water, Soil, and Hazardous Materials

CHAIN OF CUSTODY REPORT

CLIENT: Kern County Public Works
ADDRESS: 2700 "M" Street, Suite 500
Bakersfield, CA 93301
PHONE: (805) 861-2481
PROJECT NAME/SITE: Ridgecrest Burning Dump
SAMPLER: Laura White
DATE:

REPORT TO: Converse Environmental (818) 796-8200 c/o Laura White
BILLING TO: Kern County Public Works
PO#/BILLING REFERENCE:

TURNAROUND TIME: 8 HR. / 24 HR. / 48 HR. / 72 HR. / 5 DAY / X 10 DAY / 15 DAY

ANALYSIS REQUESTED: 8010/8020

SAMPLE ID#/ STATION	SAMPLE DESCRIPTION	NUMBER OF CONT.	TYPE CONT.	SAMPLING TIME/DATE	REMARKS	SAMPLE NUMBER
B-1 15'	soil	1	glass	9/23/91 10:15	HOLD ALL	
B-1 20'		1	"	10:25	SAMPLES UNTIL	
B-2 7'		1	"	10:55	FRIDAY MORNING,	
B-2 12'		1	"	11:20	CALL LAURA White	
B-3 7'		1		12:10	at (818) 796-8200	
12'		1		12:40	for directions	
18'		1		12:55		
B-5 3'		1		2:40		
8'		1		2:50		
13'		1		3:05		

RELINQUISHED BY: Laura White DATE: 9/24/91 TIME: 1:30
RECEIVED BY: Arlen Van Nest

RELINQUISHED BY: Stephen Schneider KCPW DATE: Sept 25, 1991 TIME: 0700
RECEIVED BY:

RELINQUISHED BY: DATE: TIME:
RECEIVED IN LAB BY: K. Wolford 9/25

TRAVEL TIME:
ON SITE TIME:
OTHER:
WERE SAMPLES: YES NO
PRESERVED ?
IN GOOD CONDITION?

505

SEQUOIA ANALYTICAL
680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

County of Kern, Public Works Dept.	Client Project ID:	Ridgecrest Burning Dump	Sampled:	Sep 24, 1991
2700 "M" Street, Suite 500	Sample Descript:	Air, B-3-A	Received:	Sep 26, 1991
Bakersfield, CA 93301	Analysis Method:	EPA 5030/8010	Analyzed:	Sep 27, 1991
Attention: Allen Van Nest	Lab Number:	109-4408	Reported:	Oct 1, 1991

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit μg/L	Sample Results μg/L
Bromodichloromethane	0.10	N.D.
Bromoform	0.20	N.D.
Bromomethane	0.20	N.D.
Carbon tetrachloride	0.10	N.D.
Chlorobenzene	0.10	N.D.
Chloroethane	0.20	N.D.
2-Chloroethylvinyl ether	0.20	N.D.
Chloroform	0.10	N.D.
Chloromethane	0.20	N.D.
Dibromochloromethane	0.10	N.D.
1,2-Dichlorobenzene	0.10	N.D.
1,3-Dichlorobenzene	0.10	N.D.
1,4-Dichlorobenzene	0.10	N.D.
1,1-Dichloroethane	0.10	N.D.
1,2-Dichloroethane	0.10	N.D.
1,1-Dichloroethene	0.10	N.D.
cis-1,2-Dichloroethene	0.10	N.D.
trans-1,2-Dichloroethene	0.10	N.D.
1,2-Dichloropropane	0.10	N.D.
cis-1,3-Dichloropropene	0.20	N.D.
trans-1,3-Dichloropropene	0.20	N.D.
Methylene chloride	0.40	N.D.
1,1,2,2-Tetrachloroethane	0.10	N.D.
Tetrachloroethene	0.10	N.D.
1,1,1-Trichloroethane	0.10	N.D.
1,1,2-Trichloroethane	0.10	N.D.
Trichloroethene	0.10	N.D.
Trichlorofluoromethane	0.20	N.D.
Vinyl chloride	0.20	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Elizabeth W. Hackl
Elizabeth W. Hackl
Project Manager

Please Note:
cc: Laura White, Converse Environmental, 3393 East Foothill Blvd., Pasadena, CA 91107

SEQUOIA ANALYTICAL
680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

County of Kern, Public Works Dept.	Client Project ID:	Ridgecrest Burning Dump		Sampled:	Sep 24, 1991
2700 "M" Street, Suite 500	Sample Descript:	Air, B-2-A		Received:	Sep 26, 1991
Bakersfield, CA 93301	Analysis Method:	EPA 5030/8010		Analyzed:	Sep 27, 1991
Attention: Allen Van Nest	Lab Number:	109-4409		Reported:	Oct 1, 1991

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit μg/L	Sample Results μg/L
Bromodichloromethane	0.10	N.D.
Bromoform	0.20	N.D.
Bromomethane	0.20	N.D.
Carbon tetrachloride	0.10	N.D.
Chlorobenzene	0.10	N.D.
Chloroethane	0.20	N.D.
2-Chloroethylvinyl ether	0.20	N.D.
Chloroform	0.10	N.D.
Chloromethane	0.20	N.D.
Dibromochloromethane	0.10	N.D.
1,2-Dichlorobenzene	0.10	N.D.
1,3-Dichlorobenzene	0.10	N.D.
1,4-Dichlorobenzene	0.10	N.D.
1,1-Dichloroethane	0.10	N.D.
1,2-Dichloroethane	0.10	N.D.
1,1-Dichloroethene	0.10	N.D.
cis-1,2-Dichloroethene	0.10	N.D.
trans-1,2-Dichloroethene	0.10	N.D.
1,2-Dichloropropane	0.10	N.D.
cis-1,3-Dichloropropene	0.20	N.D.
trans-1,3-Dichloropropene	0.20	N.D.
Methylene chloride	0.40	N.D.
1,1,2,2-Tetrachloroethane	0.10	N.D.
Tetrachloroethene	0.10	N.D.
1,1,1-Trichloroethane	0.10	N.D.
1,1,2-Trichloroethane	0.10	N.D.
Trichloroethene	0.10	N.D.
Trichlorofluoromethane	0.20	N.D.
Vinyl chloride	0.20	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

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Elizabeth W. Hackl
Project Manager

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680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

County of Kern, Public Works Dept.	Client Project ID:	Ridgecrest Burning Dump		Sampled:	Sep 24, 1991
2700 "M" Street, Suite 500	Sample Descript:	Air, B-11-A		Received:	Sep 26, 1991
Bakersfield, CA 93301	Analysis Method:	EPA 5030/8010		Analyzed:	Sep 27, 1991
Attention: Allen Van Nest	Lab Number:	109-4410		Reported:	Oct 1, 1991

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit μg/L	Sample Results μg/L
Bromodichloromethane	0.10	N.D.
Bromoform	0.20	N.D.
Bromomethane	0.20	N.D.
Carbon tetrachloride	0.10	N.D.
Chlorobenzene	0.10	N.D.
Chloroethane	0.20	N.D.
2-Chloroethylvinyl ether	0.20	N.D.
Chloroform	0.10	N.D.
Chloromethane	0.20	N.D.
Dibromochloromethane	0.10	N.D.
1,2-Dichlorobenzene	0.10	N.D.
1,3-Dichlorobenzene	0.10	N.D.
1,4-Dichlorobenzene	0.10	N.D.
1,1-Dichloroethane	0.10	N.D.
1,2-Dichloroethane	0.10	N.D.
1,1-Dichloroethene	0.10	N.D.
cis-1,2-Dichloroethene	0.10	N.D.
trans-1,2-Dichloroethene	0.10	N.D.
1,2-Dichloropropane	0.10	N.D.
cis-1,3-Dichloropropene	0.20	N.D.
trans-1,3-Dichloropropene	0.20	N.D.
Methylene chloride	0.40	N.D.
1,1,2,2-Tetrachloroethane	0.10	N.D.
Tetrachloroethene	0.10	N.D.
1,1,1-Trichloroethane	0.10	N.D.
1,1,2-Trichloroethane	0.10	N.D.
Trichloroethene	0.10	N.D.
Trichlorofluoromethane	0.20	N.D.
Vinyl chloride	0.20	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

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Elizabeth W. Hackl
Project Manager

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680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

County of Kern, Public Works Dept.	Client Project ID:	Ridgecrest Burning Dump		Sampled:	Sep 24, 1991
2700 "M" Street, Suite 500	Sample Descript:	Air, B-5-A		Received:	Sep 26, 1991
Bakersfield, CA 93301	Analysis Method:	EPA 5030/8010		Analyzed:	Sep 27, 1991
Attention: Allen Van Nest	Lab Number:	109-4411		Reported:	Oct 1, 1991

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/L	Sample Results µg/L
Bromodichloromethane	0.10	N.D.
Bromoform	0.20	N.D.
Bromomethane	0.20	N.D.
Carbon tetrachloride	0.10	N.D.
Chlorobenzene	0.10	N.D.
Chloroethane	0.20	N.D.
2-Chloroethylvinyl ether	0.20	N.D.
Chloroform	0.10	N.D.
Chloromethane	0.20	N.D.
Dibromochloromethane	0.10	N.D.
1,2-Dichlorobenzene	0.10	N.D.
1,3-Dichlorobenzene	0.10	N.D.
1,4-Dichlorobenzene	0.10	N.D.
1,1-Dichloroethane	0.10	N.D.
1,2-Dichloroethane	0.10	N.D.
1,1-Dichloroethene	0.10	N.D.
cis-1,2-Dichloroethene	0.10	N.D.
trans-1,2-Dichloroethene	0.10	N.D.
1,2-Dichloropropane	0.10	N.D.
cis-1,3-Dichloropropene	0.20	N.D.
trans-1,3-Dichloropropene	0.20	N.D.
Methylene chloride	0.40	N.D.
1,1,2,2-Tetrachloroethane	0.10	N.D.
Tetrachloroethene	0.10	N.D.
1,1,1-Trichloroethane	0.10	N.D.
1,1,2-Trichloroethane	0.10	N.D.
Trichloroethene	0.10	N.D.
Trichlorofluoromethane	0.20	N.D.
Vinyl chloride	0.20	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

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Elizabeth W. Hackl
Project Manager

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680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

County of Kern, Public Works Dept.	Client Project ID:	Ridgecrest Burning Dump		Sampled:	Sep 24, 1991
2700 "M" Street, Suite 500	Sample Descript:	Air, B-9-A		Received:	Sep 26, 1991
Bakersfield, CA 93301	Analysis Method:	EPA 5030/8010		Analyzed:	Sep 27, 1991
Attention: Allen Van Nest	Lab Number:	109-4412		Reported:	Oct 1, 1991

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/L	Sample Results µg/L
Bromodichloromethane	0.10	N.D.
Bromoform	0.20	N.D.
Bromomethane	0.20	N.D.
Carbon tetrachloride	0.10	N.D.
Chlorobenzene	0.10	N.D.
Chloroethane	0.20	N.D.
2-Chloroethylvinyl ether	0.20	N.D.
Chloroform	0.10	N.D.
Chloromethane	0.20	N.D.
Dibromochloromethane	0.10	N.D.
1,2-Dichlorobenzene	0.10	N.D.
1,3-Dichlorobenzene	0.10	N.D.
1,4-Dichlorobenzene	0.10	N.D.
1,1-Dichloroethane	0.10	N.D.
1,2-Dichloroethane	0.10	N.D.
1,1-Dichloroethene	0.10	N.D.
cis-1,2-Dichloroethene	0.10	N.D.
trans-1,2-Dichloroethene	0.10	N.D.
1,2-Dichloropropane	0.10	N.D.
cis-1,3-Dichloropropene	0.20	N.D.
trans-1,3-Dichloropropene	0.20	N.D.
Methylene chloride	0.40	N.D.
1,1,2,2-Tetrachloroethane	0.10	N.D.
Tetrachloroethene	**0.10**	**0.25**
1,1,1-Trichloroethane	0.10	N.D.
1,1,2-Trichloroethane	0.10	N.D.
Trichloroethene	0.10	N.D.
Trichlorofluoromethane	0.20	N.D.
Vinyl chloride	0.20	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Elizabeth W. Hackl
Project Manager

SEQUOIA ANALYTICAL
680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

County of Kern, Public Works Dept.	Client Project ID:	Ridgecrest Burning Dump	Sampled:	Sep 24, 1991
2700 "M" Street, Suite 500	Sample Descript:	Air, B-12-A	Received:	Sep 26, 1991
Bakersfield, CA 93301	Analysis Method:	EPA 5030/8010	Analyzed:	Sep 27, 1991
Attention: Allen Van Nest	Lab Number:	109-4413	Reported:	Oct 1, 1991

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit μg/L	Sample Results μg/L
Bromodichloromethane	0.10	N.D.
Bromoform	0.20	N.D.
Bromomethane	0.20	N.D.
Carbon tetrachloride	0.10	N.D.
Chlorobenzene	0.10	N.D.
Chloroethane	0.20	N.D.
2-Chloroethylvinyl ether	0.20	N.D.
Chloroform	0.10	N.D.
Chloromethane	0.20	N.D.
Dibromochloromethane	0.10	N.D.
1,2-Dichlorobenzene	0.10	N.D.
1,3-Dichlorobenzene	0.10	N.D.
1,4-Dichlorobenzene	0.10	N.D.
1,1-Dichloroethane	0.10	N.D.
1,2-Dichloroethane	0.10	N.D.
1,1-Dichloroethene	0.10	N.D.
cis-1,2-Dichloroethene	0.10	N.D.
trans-1,2-Dichloroethene	0.10	N.D.
1,2-Dichloropropane	0.10	N.D.
cis-1,3-Dichloropropene	0.20	N.D.
trans-1,3-Dichloropropene	0.20	N.D.
Methylene chloride	0.40	N.D.
1,1,2,2-Tetrachloroethane	0.10	N.D.
Tetrachloroethene	**0.10**	**0.10**
1,1,1-Trichloroethane	0.10	N.D.
1,1,2-Trichloroethane	0.10	N.D.
Trichloroethene	0.10	N.D.
Trichlorofluoromethane	0.20	N.D.
Vinyl chloride	0.20	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Elizabeth W. Hackl
Project Manager

SEQUOIA ANALYTICAL
680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

County of Kern, Public Works Dept. Client Project ID: Ridgecrest Burning Dump
2700 "M" Street, Suite 500
Bakersfield, CA 93301
Attention: Allen Van Nest QC Sample Group: 1094408 - 13 Reported: Oct 1, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	1,1-Dichloro-ethene	Trichloro-ethene	Chloro-benzene
Method:	EPA 8010	EPA 8010	EPA 8010
Analyst:	A.Fulcher	A.Fulcher	A.Fulcher
Reporting Units:	µg/L	µg/L	µg/L
Date Analyzed:	Sep 27, 1991	Sep 27, 1991	Sep 27, 1991
QC Sample #:	Blank	Blank	Blank
Sample Conc.:	N.D.	N.D.	N.D.
Spike Conc. Added:	5.0	5.0	5.0
Conc. Matrix Spike:	5.0	5.0	4.8
Matrix Spike % Recovery:	100	100	96
Conc. Matrix Spike Dup.:	5.1	4.3	4.6
Matrix Spike Duplicate % Recovery:	100	86	92
Relative % Difference:	2.0	15	4.2

SEQUOIA ANALYTICAL

Elizabeth W. Hackl
Project Manager

% Recovery: $\frac{\text{Conc. of M.S. - Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$

Relative % Difference: $\frac{\text{Conc. of M.S. - Conc. of M.S.D.}}{\text{(Conc. of M.S. + Conc. of M.S.D.) / 2}} \times 100$

SEQUOIA ANALYTICAL
680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

County of Kern, Public Works Dept. Client Project ID: Ridgecrest Burning Dump
2700 "M" Street, Suite 500
Bakersfield, CA 93301
Attention: Allen Van Nest QC Sample Group: 1094408 - 13 Reported: Oct 1, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	1,1-Dichloro-ethene	Trichloro-ethene	Chloro-benzene
Method:	EPA 8010	EPA 8010	EPA 8010
Analyst:	A.Fulcher	A.Fulcher	A.Fulcher
Reporting Units:	µg/L	µg/L	µg/L
Date Analyzed:	Sep 27, 1991	Sep 27, 1991	Sep 27, 1991
QC Sample #:	Blank	Blank	Blank
Sample Conc.:	N.D.	N.D.	N.D.
Spike Conc. Added:	5.0	5.0	5.0
Conc. Matrix Spike:	3.3	5.3	4.6
Matrix Spike % Recovery:	66	110	92
Conc. Matrix Spike Dup.:	4.7	6.0	4.6
Matrix Spike Duplicate % Recovery:	94	120	92
Relative % Difference:	35	12	0.0

SEQUOIA ANALYTICAL

Elizabeth W. Hackl

Elizabeth W. Hackl
Project Manager

% Recovery: $\dfrac{\text{Conc. of M.S. - Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$

Relative % Difference: $\dfrac{\text{Conc. of M.S. - Conc. of M.S.D.}}{\text{(Conc. of M.S. + Conc. of M.S.D.) / 2}} \times 100$

SEQUOIA ANALYTICAL
680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

County of Kern, Public Works Dept.	Client Project ID:	Ridgecrest Burning Dump	Sampled:	Sep 24, 1991
2700 "M" Street, Suite 500	Sample Descript:	Air, B-3-A	Received:	Sep 26, 1991
Bakersfield, CA 93301	Analysis Method:	EPA 5030/8020	Analyzed:	Sep 27, 1991
Attention: Allen Van Nest	Lab Number:	109-4408	Reported:	Oct 1, 1991

AROMATIC VOLATILE ORGANICS (EPA 8020)

Analyte	Detection Limit µg/L	Sample Results µg/L
Benzene	0.10	N.D.
Chlorobenzene	0.10	N.D.
1,4-Dichlorobenzene	0.10	N.D.
1,3-Dichlorobenzene	0.10	N.D.
1,2-Dichlorobenzene	0.10	N.D.
Ethyl Benzene	0.10	N.D.
Toluene	0.10	N.D.
Xylene	0.10	0.36

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Elizabeth W. Hackl
Project Manager

SEQUOIA ANALYTICAL
680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

County of Kern, Public Works Dept.	Client Project ID:	Ridgecrest Burning Dump		Sampled:	Sep 24, 1991
2700 "M" Street, Suite 500	Sample Descript:	Air, B-2-A		Received:	Sep 26, 1991
Bakersfield, CA 93301	Analysis Method:	EPA 5030/8020		Analyzed:	Sep 27, 1991
Attention: Allen Van Nest	Lab Number:	109-4409		Reported:	Oct 1, 1991

AROMATIC VOLATILE ORGANICS (EPA 8020)

Analyte	Detection Limit µg/L	Sample Results µg/L
Benzene	0.10	N.D.
Chlorobenzene	0.10	N.D.
1,4-Dichlorobenzene	0.10	N.D.
1,3-Dichlorobenzene	0.10	N.D.
1,2-Dichlorobenzene	0.10	N.D.
Ethyl Benzene	0.10	N.D.
Toluene	0.10	N.D.
Xylene	0.10	0.40

Analytes reported as N.D. were not present above the stated limit of detection.

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County of Kern, Public Works Dept.	Client Project ID:	Ridgecrest Burning Dump		Sampled:	Sep 24, 1991
2700 "M" Street, Suite 500	Sample Descript:	Air, B-11-A		Received:	Sep 26, 1991
Bakersfield, CA 93301	Analysis Method:	EPA 5030/8020		Analyzed:	Sep 27, 1991
Attention: Allen Van Nest	Lab Number:	109-4410		Reported:	Oct 1, 1991

AROMATIC VOLATILE ORGANICS (EPA 8020)

Analyte	Detection Limit μg/L	Sample Results μg/L
Benzene	0.10	N.D.
Chlorobenzene	0.10	N.D.
1,4-Dichlorobenzene	0.10	N.D.
1,3-Dichlorobenzene	0.10	N.D.
1,2-Dichlorobenzene	0.10	N.D.
Ethyl Benzene	0.10	N.D.
Toluene	**0.10**	**0.10**
Xylene	0.10	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

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County of Kern, Public Works Dept.	Client Project ID: Ridgecrest Burning Dump	Sampled:	Sep 24, 1991
2700 "M" Street, Suite 500	Sample Descript: Air, B-5-A	Received:	Sep 26, 1991
Bakersfield, CA 93301	Analysis Method: EPA 5030/8020	Analyzed:	Sep 27, 1991
Attention: Allen Van Nest	Lab Number: 109-4411	Reported:	Oct 1, 1991

AROMATIC VOLATILE ORGANICS (EPA 8020)

Analyte	Detection Limit µg/L	Sample Results µg/L
Benzene	0.10	N.D.
Chlorobenzene	0.10	N.D.
1,4-Dichlorobenzene	0.10	N.D.
1,3-Dichlorobenzene	0.10	N.D.
1,2-Dichlorobenzene	0.10	N.D.
Ethyl Benzene	0.10	N.D.
Toluene	0.10	N.D.
Xylene	0.10	0.28

Analytes reported as N.D. were not present above the stated limit of detection.

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County of Kern, Public Works Dept.	Client Project ID:	Ridgecrest Burning Dump		Sampled:	Sep 24, 1991
2700 "M" Street, Suite 500	Sample Descript:	Air, B-9-A		Received:	Sep 26, 1991
Bakersfield, CA 93301	Analysis Method:	EPA 5030/8020		Analyzed:	Sep 27, 1991
Attention: Allen Van Nest	Lab Number:	109-4412		Reported:	Oct 1, 1991

AROMATIC VOLATILE ORGANICS (EPA 8020)

Analyte	Detection Limit μg/L	Sample Results μg/L
Benzene	0.10	N.D.
Chlorobenzene	0.10	N.D.
1,4-Dichlorobenzene	0.10	N.D.
1,3-Dichlorobenzene	0.10	N.D.
1,2-Dichlorobenzene	0.10	N.D.
Ethyl Benzene	0.10	0.10
Toluene	0.10	N.D.
Xylene	0.10	0.59

Analytes reported as N.D. were not present above the stated limit of detection.

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(415) 364-9600 • FAX (415) 364-9233

County of Kern, Public Works Dept.	Client Project ID:	Ridgecrest Burning Dump	Sampled:	Sep 24, 1991
2700 "M" Street, Suite 500	Sample Descript:	Air, B-12-A	Received:	Sep 26, 1991
Bakersfield, CA 93301	Analysis Method:	EPA 5030/8020	Analyzed:	Sep 27, 1991
Attention: Allen Van Nest	Lab Number:	109-4413	Reported:	Oct 1, 1991

AROMATIC VOLATILE ORGANICS (EPA 8020)

Analyte	Detection Limit µg/L	Sample Results µg/L
Benzene	0.10	N.D.
Chlorobenzene	0.10	N.D.
1,4-Dichlorobenzene	0.10	N.D.
1,3-Dichlorobenzene	0.10	N.D.
1,2-Dichlorobenzene	0.10	N.D.
Ethyl Benzene	0.10	0.15
Toluene	0.10	N.D.
Xylene	0.10	0.85

Analytes reported as N.D. were not present above the stated limit of detection.

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County of Kern, Public Works Dept. Client Project ID: Ridgecrest Burning Dump
2700 "M" Street, Suite 500
Bakersfield, CA 93301
Attention: Allen Van Nest QC Sample Group: 1094408-13 Reported: Oct 1, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Chloro-benzene
Method:	EPA 8020	EPA 8020	EPA 8020
Analyst:	A. Fulcher	A. Fulcher	A. Fulcher
Reporting Units:	µg/L	µg/L	µg/L
Date Analyzed:	Sep 27, 1991	Sep 27, 1991	Sep 27, 1991
QC Sample #:	Matrix	Matrix	Matrix
Sample Conc.:	N.D.	N.D.	N.D.
Spike Conc. Added:	5.0	5.0	5.0
Conc. Matrix Spike:	4.2	4.6	4.8
Matrix Spike % Recovery:	84	92	96
Conc. Matrix Spike Dup.:	4.1	4.5	4.9
Matrix Spike Duplicate % Recovery:	82	90	98
Relative % Difference:	2.4	8.8	2.1

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Project Manager

% Recovery: $\frac{\text{Conc. of M.S. - Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$

Relative % Difference: $\frac{\text{Conc. of M.S. - Conc. of M.S.D.}}{\text{(Conc. of M.S. + Conc. of M.S.D.) / 2}} \times 100$

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County of Kern, Public Works Dept. Client Project ID: Ridgecrest Burning Dump
2700 "M" Street, Suite 500
Bakersfield, CA 93301
Attention: Allen Van Nest QC Sample Group: 1094408-13 Reported: Oct 1, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Chloro-benzene
Method:	EPA 8020	EPA 8020	EPA 8020
Analyst:	J. Villar	A. Fulcher	A. Fulcher
Reporting Units:	μg/L	μg/L	μg/L
Date Analyzed:	Sep 27, 1991	Sep 27, 1991	Sep 27, 1991
QC Sample #:	Matrix	Matrix	Matrix
Sample Conc.:	N.D.	N.D.	N.D.
Spike Conc. Added:	5.0	5.0	5.0
Conc. Matrix Spike:	5.0	5.2	5.7
Matrix Spike % Recovery:	100	100	110
Conc. Matrix Spike Dup.:	5.1	5.3	5.8
Matrix Spike Duplicate % Recovery:	100	110	120
Relative % Difference:	1.9	1.9	1.7

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Project Manager

% Recovery: $\frac{\text{Conc. of M.S. - Conc. of Sample}}{\text{Spike Conc. Added}}$ x 100

Relative % Difference: $\frac{\text{Conc. of M.S. - Conc. of M.S.D.}}{\text{(Conc. of M.S. + Conc. of M.S.D.) / 2}}$ x 100

SEQUOIA ANALYTICAL
State-Certified Laboratory for Analysis of Water, Soil, and Hazardous Materials

CHAIN OF CUSTODY REPORT

CLIENT: KERN COUNTY PUBLIC WORKS
ADDRESS: 2700 "M" Street, Suite 500
Bakersfield, CA 93301
PHONE: (805) 861-2481
PROJECT NAME/SITE: RIDGECREST BURNING DUMP
SAMPLER: Laura White
DATE: 9-24-91

REPORT TO: CONVERSE ENVIRONMENTAL (818) 796-8200 ATTN: Laura White
BILLING TO: Kern County
PO#/BILLING REFERENCE:

TURNAROUND TIME: 8 HR. | 24 HR. | 48 HR. X | 72 HR. | 5 DAY | 10 DAY | 15 DAY

ANALYSIS REQUESTED: 8010

SAMPLE ID#/ STATION	SAMPLE DESCRIPTION	NUMBER OF CONT.	TYPE CONT.	SAMPLING TIME/DATE	8010	REMARKS	SAMPLE NUMBER
B-3 A	GAS	1	TEDLAR	12:00 9/24/91		1094408	
B-2 A	"	"	"	12:45 "		09	
B-11 A	"	"	"	11:30 "		10	
B-5 A	"	"	"	13:30 "		11	
B-9 A	"	"	"	14:30 "		12	
B-12 A	"	"	"	10:30 "		13	

RELINQUISHED BY	DATE	TIME	RECEIVED BY	
Laura White	9-25-91	1:20	Allen Van Nest	TRAVEL TIME:
RELINQUISHED BY: Allen Van Nest	9/25/91	15:15	RECEIVED BY:	ON SITE TIME:
RELINQUISHED BY:	DATE	TIME:	RECEIVED IN LAB BY: K. [illegible] 9/26 430	OTHER:

WERE SAMPLES: PRESERVED ? YES NO
IN GOOD CONDITION?

APPENDIX E

GEOTECHNICAL TEST RESULTS

GEOTECHNICAL TEST RESULTS

Selected soil samples from the borings were tested to determine moisture content, dry density, and permeability. A summary of the test results are presented in Table E-1.

The laboratory tests were conducted in general accordance with the following ASTM test designations:

- ASTM D4959 — Determination of Water (moisture) Content of Soil by Direct Heating Method.
- ASTM D2434 — Permeability of soil in place by the Constant Head Method.
- ASTM D3927 — Density of Soil In Place by the Drive-Cylinder Method.

Table E-1

SUMMARY OF SOIL TESTS
Ridgecrest Burning Dump

Boring No.	Depth (ft)	Moisture Content (%)	Dry Density (PCF)	Permeability (cm/sec)
BH-3	13	13.6	101.4	4.9×10^{-3}
BH-5	5	13.0	114.5	---
	15	3.9	114.6	---
BH-9	12	7.8	119.6	1.1×10^{-5}
BH-11	8	8.3	105.4	---
	15	10.7	115.2	---

APPENDIX F

BORING LOGS

Log of Boring No. BH-1

Date Drilled: 9/23/91 Logged by: LJA Checked by: JR

Equipment: 8" Hollow Stem Auger Driving Weight and Drop 140 lb / 30 in

Ground Surface Elevation ______ Depth to Water none encountered

DEPTH (ft)	GRAPHIC LOG	SAMPLES: DRIVE & NUMBER	SAMPLES: BLOWS/FOOT	SUMMARY OF SUBSURFACE CONDITIONS This Log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of conditions encountered.	MOISTURE	CONSISTENCY	COLOR	OVA READINGS (ppm)
0				**SANDY SILT (ML)**; fine- to medium-grained sand	dry	soft	medium brown	BG=6
5				moderately consolidated		medium loose to dense		
10								
15		E1	135/ 11"	fine- to medium-grained sand, some pebbles				6
				caliche cemented layers				
20		E2	145/ 10"					6
25				End of boring at 25 feet below grade				

RIDGECREST BURNING DUMP
for: Kern County Public Works

Project No.
91-41-324-01

Drawing No.

Converse Environmental West

Log of Boring No. BH-2

Date Drilled: 9/23/91 Logged by: LJA Checked by: JR

Equipment: 8" Hollow Stem Auger Driving Weight and Drop 140 lb / 30 in

Ground Surface Elevation ______ Depth to Water none encountered

DEPTH (ft)	GRAPHIC LOG	SAMPLES: DRIVE & NUMBER	SAMPLES: BLOWS/FOOT	SUMMARY OF SUBSURFACE CONDITIONS This Log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of conditions encountered.	MOISTURE	CONSISTENCY	COLOR	OVA READINGS (ppm)
				Cover material upper 6": **SILTY SAND to SANDY SILT (SM)**	dry	loose	dark gray	BG=5
5				**FILL** - porcelain, glass and dark gray ash mixed with silty sand to sandy silt Base of Fill at 7 feet			light brown	
		E1	58/ 18"	**SILTY SAND to SANDY SILT (SM);** sand is fine- to medium-grained, moderately to well consolidated, caliche pods present		firm	medium brown	5
10		G1	150/ 10"					
		E2	119			firm to hard		5
		G2	75					
15								
				End of boring at 19 feet below grade OVA Reading for soil-gas Sample B-2A = 5 ppm BG = 5 ppm				

Log of Boring No. BH-3

Date Drilled: 9/23/91 Logged by: LJA Checked by: JR

Equipment: 8" Hollow Stem Auger Driving Weight and Drop 140 lb / 30 in

Ground Surface Elevation ____ Depth to Water none encountered

DEPTH (ft)	GRAPHIC LOG	SAMPLES DRIVE & NUMBER	SAMPLES BLOWS/FOOT	SUMMARY OF SUBSURFACE CONDITIONS This Log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of conditions encountered.	MOISTURE	CONSISTENCY	COLOR	OVA READINGS (ppm)
				SILTY SAND (SM); coarse, medium and fine-grained sand	dry	loose	medium brown	BG=5
				Base of cover material at 4.5'				
5				**FILL** - plastic, glass, wood, charcoal, metal mixed with silty sand				
		E1	67	Base of Fill at 8.5'				5
				SILTY SAND (SM); fine- to medium-grained sand, caliche pods and stringers are pervasive; natural soils are cemented due to caliche cement		very dense		
10								
		E2	205/ 11"					5
		G1	125/ 6"					
15								
		E3	95	more silt, pebbles 1/2" large				5

End of boring at 19 feet below grade

OVA Reading for soil-gas
Sample B-3A = 4 ppm
BG = 4 ppm

RIDGECREST BURNING DUMP
for: Kern County Public Works

Project No. 91-41-324-01

Drawing No.

Converse Environmental West

Log of Boring No. BH-4

Date Drilled: 9/23/91 Logged by: LJA Checked by: JR

Equipment: 8" Hollow Stem Auger Driving Weight and Drop 140 lb / 30 in

Ground Surface Elevation ______ Depth to Water none encountered

DEPTH (ft)	GRAPHIC LOG	SAMPLES: DRIVE & NUMBER	SAMPLES: BLOWS/FOOT	SUMMARY OF SUBSURFACE CONDITIONS This Log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of conditions encountered.	MOISTURE	CONSISTENCY	COLOR	OVA READINGS (ppm)
				SANDY SILT to SILTY SAND (ML); sand is fine- to medium-grained, moderately consolidated, caliche pods and stringers present	dry	medium loose	medium brown	
5								
10				**SAND (SP)**; pebbles increasing, sands increasing, some silt, well consolidated		medium dense		
15				End of boring at 15 feet below grade				

RIDGECREST BURNING DUMP
for: Kern County Public Works

Project No. **91-41-324-01**

Drawing No.

Converse Environmental West

Log of Boring No. BH-5

Date Drilled: 9/23/91 Logged by: LJA Checked by: JR

Equipment: 8" Hollow Stem Auger Driving Weight and Drop 140 lb / 30 in

Ground Surface Elevation ____________ Depth to Water none encountered

DEPTH (ft)	GRAPHIC LOG	SAMPLES: DRIVE & NUMBER	SAMPLES: BLOWS/FOOT	SUMMARY OF SUBSURFACE CONDITIONS This Log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of conditions encountered.	MOISTURE	CONSISTENCY	COLOR	OVA READINGS (ppm)
				Cover material (upper 3-4"); silty sand	dry	loose	light brown	BG=5
				FILL - SILTY SAND (SM); glass fragments, gray due to ash			medium gray	
		E1	32/ 18"					5
5		G1	21					
		E2	112	Base of Fill at 8.5'			light brown	
				SILTY SAND (SM); fine- to medium-grained, well consolidated		dense		5
10								
		E3	170/ 16"	**SAND (SP)**; minor silt, sand is mostly coarse-grained, well consolidated		very dense		5
15		G2	70					
		E4	108					
				End of boring at 19 feet below grade OVA reading for soil-gas Sample B-5A = 5 ppm BG = 5 ppm				

RIDGECREST BURNING DUMP
for: Kern County Public Works

Project No.
91-41-324-01

Drawing No.

Converse Environmental West

Log of Boring No. BH-6

Date Drilled: 9/23/91 Logged by: LJA Checked by: JR

Equipment: 8" Hollow Stem Auger Driving Weight and Drop 140 lb / 30 in

Ground Surface Elevation ______ Depth to Water none encountered

DEPTH (ft)	GRAPHIC LOG	SAMPLES: DRIVE & NUMBER	SAMPLES: BLOWS/FOOT	SUMMARY OF SUBSURFACE CONDITIONS This Log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of conditions encountered.	MOISTURE	CONSISTENCY	COLOR	OVA READINGS (ppm)
0–15 (5, 10, 15)				**SANDY SILT to SILTY SAND (ML/SM);** with pebbles, sand is fine- to medium-grained, moderately consolidated	dry	loose to dense	medium brown	
15				End of boring at 15 feet below grade				

RIDGECREST BURNING DUMP
for: Kern County Public Works

Project No.
91-41-324-01

Drawing No.

Converse Environmental West

Log of Boring No. BH-7

Date Drilled: **9/23/91** Logged by: **LJA** Checked by: **JR**

Equipment: **8" Hollow Stem Auger** Driving Weight and Drop **140 lb / 30 in**

Ground Surface Elevation ______ Depth to Water **none encountered**

DEPTH (ft)	GRAPHIC LOG	SAMPLES: DRIVE & NUMBER	SAMPLES: BLOWS/FOOT	SUMMARY OF SUBSURFACE CONDITIONS This Log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of conditions encountered.	MOISTURE	CONSISTENCY	COLOR	OVA READINGS (ppm)
				FILL - SANDY SILT (ML); glass, porcelain, ash	dry	loose	dark gray	BG=6
				Base of Fill at 4'				
		E1	140			dense	light brown	6
5		G1	150/6"	**SILTY SAND (SM)**; fine- to medium-grained sand, well consolidated				
10								
				End of boring at 10 feet below grade				

RIDGECREST BURNING DUMP
for: Kern County Public Works

Project No.
91-41-324-01

Drawing No.

Converse Environmental West

Log of Boring No. BH-8

Date Drilled: 9/23/91   Logged by: LJA   Checked by: JR

Equipment: 8" Hollow Stem Auger   Driving Weight and Drop 140 lb / 30 in

Ground Surface Elevation ________   Depth to Water none encountered

DEPTH (ft)	GRAPHIC LOG	SAMPLES: DRIVE & NUMBER	SAMPLES: BLOWS/FOOT	SUMMARY OF SUBSURFACE CONDITIONS This Log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of conditions encountered.	MOISTURE	CONSISTENCY	COLOR	OVA READINGS (ppm)
0				**SANDY SILT (ML)**; fine-grained sand, moderately to well consolidated	dry	firm	light brown	
5								
				less oxidized			tan	
10								
15				End of boring at 15 feet below grade				

RIDGECREST BURNING DUMP
for: Kern County Public Works

Project No.
91-41-324-01

Drawing No.

Converse Environmental West

Log of Boring No. BH-9

Date Drilled: 9/23/91 Logged by: LJA Checked by: JR

Equipment: 8" Hollow Stem Auger Driving Weight and Drop 140 lb / 30 in

Ground Surface Elevation ____ Depth to Water none encountered

DEPTH (ft)	GRAPHIC LOG	SAMPLES DRIVE & NUMBER	SAMPLES BLOWS/FOOT	SUMMARY OF SUBSURFACE CONDITIONS This Log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of conditions encountered.	MOISTURE	CONSISTENCY	COLOR	OVA READINGS (ppm)
				FILL - SILTY SAND (SM); fine-grained sand, minor pebbles, very minor glass particles and plastic	dry	medium loose	medium brown	BG=5
5								
10		E1	77					5
				Base of Fill at 11.5'				
		G1	145	**SILTY SAND (SM)**; well consolidated, caliche pods and stringers, fine- to medium-grained sand, more silt		firm		
15		E2	125					5
				End of boring at 16 feet below grade OVA reading for soil-gas Sample B-9A = 5 ppm BG = 5 ppm				

RIDGECREST BURNING DUMP
for: Kern County Public Works

Project No.
91-41-324-01

Drawing No.

Converse Environmental West

Log of Boring No. BH-10

Date Drilled: 9/23/91   Logged by: LJA   Checked by: JR

Equipment: 8" Hollow Stem Auger   Driving Weight and Drop 140 lb / 30 in

Ground Surface Elevation ____   Depth to Water none encountered

DEPTH (ft)	GRAPHIC LOG	SAMPLES: DRIVE & NUMBER	SAMPLES: BLOWS/FOOT	SUMMARY OF SUBSURFACE CONDITIONS This Log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of conditions encountered.	MOISTURE	CONSISTENCY	COLOR	OVA READINGS (ppm)
				SANDY SILT (ML); fine- to medium-grained sand, moderately consolidated	dry	medium loose	medium brown	
5								
10								
				End of boring at 14 feet below grade				

RIDGECREST BURNING DUMP
for: Kern County Public Works

Project No. **91-41-324-01**

Drawing No.

Converse Environmental West

Log of Boring No. BH-11

Date Drilled: 9/24/91 Logged by: LJA Checked by: JR

Equipment: 8" Hollow Stem Auger Driving Weight and Drop 140 lb / 30 in

Ground Surface Elevation ____ Depth to Water none encountered

DEPTH (ft)	GRAPHIC LOG	SAMPLES: DRIVE & NUMBER	SAMPLES: BLOWS/FOOT	SUMMARY OF SUBSURFACE CONDITIONS This Log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of conditions encountered.	MOISTURE	CONSISTENCY	COLOR	OVA READINGS (ppm)
				SILTY SAND (SM); fine- to medium-grained sand, few pebbles Bottom of cover soil at 3'	dry	loose	light brown	BG=5
5				**FILL**; abundant glass mixed with silty sand			dark brown	
		E1	132/9"					5
		G1	102	Base of Fill at 9'				
10				**SILTY SAND (SM)**; few pebbles, fine- to coarse-grained sand, well consolidated		firm	light brown	
		E2	115					5
15		G2	158					
		E3	170/8"					5
20				End of boring at 20 feet below grade OVA reading for soil-gas Sample B-11A = 11 ppm BG = 10 ppm				

RIDGECREST BURNING DUMP
for: Kern County Public Works

Project No. **91-41-324-01**

Drawing No.

Converse Environmental West

Log of Boring No. BH-12

Date Drilled: **9/24/91** Logged by: **LJA** Checked by: **JR**

Equipment: **8" Hollow Stem Auger** Driving Weight and Drop **140 lb / 30 in**

Ground Surface Elevation ______ Depth to Water **none encountered**

DEPTH (ft)	GRAPHIC LOG	SAMPLES: DRIVE & NUMBER	SAMPLES: BLOWS/FOOT	SUMMARY OF SUBSURFACE CONDITIONS This Log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of conditions encountered.	MOISTURE	CONSISTENCY	COLOR	OVA READINGS (ppm)
				SILTY SAND (SM); surface is very soft, fine- to meidum-grained sand, minor gravel Bottom of Cover Soil at 4'	dry	loose	light brown	BG=5
5		E1	34/18"	**FILL**; ash layers, abundant glass Base of Fill at 6'			black	8
		G1	130/10"	**SILTY SAND (SM)**; well consolidated, caliche pods and stringers, sand is fine- to medium-grained, minor gravel		very dense	light brown	
10		E2	120					
		G2	145					5
15		E3	105					8
				End of boring at 16 feet below grade OVA reading for soil-gas Sample B-12A = 6 ppm BG = 4 ppm				

RIDGECREST BURNING DUMP
for: Kern County Public Works

Project No.
91-41-324-01

Drawing No.

Converse Environmental West

Log of Boring No. BH-13

Date Drilled: 9/24/91　　Logged by: LJA　　Checked by: JR

Equipment: 8" Hollow Stem Auger　　Driving Weight and Drop 140 lb / 30 in

Ground Surface Elevation ______　　Depth to Water none encountered

DEPTH (ft)	GRAPHIC LOG	SAMPLES DRIVE & NUMBER	SAMPLES BLOWS/FOOT	SUMMARY OF SUBSURFACE CONDITIONS This Log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of conditions encountered.	MOISTURE	CONSISTENCY	COLOR	OVA READINGS (ppm)
				SILTY SAND (SM); fine- to medium-grained sand, well consolidated	dry	dense	medium brown	
5								
10								
15								
				End of boring at 15 feet below grade				

RIDGECREST BURNING DUMP
for: Kern County Public Works

Project No.
91-41-324-01

Drawing No.

Converse Environmental West

Log of Boring No. BH-14

Date Drilled: **9/24/91** Logged by: **LJA** Checked by: **JR**

Equipment: **8" Hollow Stem Auger** Driving Weight and Drop **140 lb / 30 in**

Ground Surface Elevation ______ Depth to Water **none encountered**

DEPTH (ft)	GRAPHIC LOG	SAMPLES: DRIVE & NUMBER	SAMPLES: BLOWS/FOOT	SUMMARY OF SUBSURFACE CONDITIONS This Log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of conditions encountered.	MOISTURE	CONSISTENCY	COLOR	OVA READINGS (ppm)
				SILTY SAND (SM); fine- to medium-grained sand, minor pebbles Bottom of Cover Soil at 4'	dry	loose	light brown	BG=7
5				**FILL - SILTY SAND (SM)**; with very minor glass shards				
		E1	46					7
		G1	105	Base of Fill at 8'				
				SILTY SAND (SM); fine- to medium-grained, caliche pods and stringers, well consolidated		very dense		
10		E2	110/6"					
		E3	140/9"					10
15				End of boring at 15 feet below grade				

RIDGECREST BURNING DUMP
for: Kern County Public Works

Project No.
91-41-324-01

Converse Environmental West

Drawing No.

Log of Boring No. BH-15

Date Drilled: 9/24/91 Logged by: LJA Checked by: JR

Equipment: 8" Hollow Stem Auger Driving Weight and Drop 140 lb / 30 in

Ground Surface Elevation ______ Depth to Water none encountered

DEPTH (ft)	GRAPHIC LOG	SAMPLES: DRIVE & NUMBER	SAMPLES: BLOWS/FOOT	SUMMARY OF SUBSURFACE CONDITIONS This Log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of conditions encountered.	MOISTURE	CONSISTENCY	COLOR	OVA READINGS (ppm)
				FILL - SILTY SAND (SM); fine- to medium-grained sand and minor ash	dry	medium loose	medium brown	BG=6
		E1	64/ 18"	Base of Fill at 4'				8
5		E2	100/ 6"	**SILTY SAND (SM)**; caliche pods and stringers, fine- to medium-grained sand, well consolidated		very dense		10
10								
15				End of boring at 15 feet below grade				

RIDGECREST BURNING DUMP
for: Kern County Public Works

Project No.
91-41-324-01

Drawing No.

Converse Environmental West

Log of Boring No. BH-16

Date Drilled: 9/24/91 Logged by: LJA Checked by: JR

Equipment: 8" Hollow Stem Auger Driving Weight and Drop 140 lb / 30 in

Ground Surface Elevation ______ Depth to Water none encountered

DEPTH (ft)	GRAPHIC LOG	SAMPLES: DRIVE & NUMBER	SAMPLES: BLOWS/FOOT	SUMMARY OF SUBSURFACE CONDITIONS This Log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of conditions encountered.	MOISTURE	CONSISTENCY	COLOR	OVA READINGS (ppm)
				SILTY SAND (SM); minor coarse-grained sand, most sand is fine- to medium-grained, minor pebbles, caliche pods and stringers, well consolidated	dry	dense	light brown	
				less oxidized			tan	
5								
10								
15								
				End of boring at 15 feet below grade				

RIDGECREST BURNING DUMP
for: Kern County Public Works

Project No. 91-41-324-01

Drawing No.

Converse Environmental West

Log of Boring No. BH-17

Date Drilled: 9/24/91 Logged by: LJA Checked by: JR

Equipment: 8" Hollow Stem Auger Driving Weight and Drop 140 lb / 30 in

Ground Surface Elevation ____ Depth to Water none encountered

DEPTH (ft)	GRAPHIC LOG	SAMPLES: DRIVE & NUMBER	SAMPLES: BLOWS/FOOT	SUMMARY OF SUBSURFACE CONDITIONS This Log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of conditions encountered.	MOISTURE	CONSISTENCY	COLOR	OVA READINGS (ppm)
				SILTY SAND (SM); fine- to coarse-grained sand, caliche pods and stringers, well consolidated	dry	dense	medium brown	BG=10
5								10
10								10
15								
				End of boring at 15 feet below grade				

RIDGECREST BURNING DUMP
for: Kern County Public Works

Project No.
91-41-324-01

Drawing No.

Converse Environmental West

Log of Boring No. BH-18

Date Drilled: 9/24/91 Logged by: LJA Checked by: JR

Equipment: 8" Hollow Stem Auger Driving Weight and Drop 140 lb / 30 in

Ground Surface Elevation ______ Depth to Water none encountered

DEPTH (ft)	GRAPHIC LOG	SAMPLES: DRIVE & NUMBER	SAMPLES: BLOWS/FOOT	SUMMARY OF SUBSURFACE CONDITIONS This Log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of conditions encountered.	MOISTURE	CONSISTENCY	COLOR	OVA READINGS (ppm)
				SILTY SAND (SM); fine- to medium-grained sand, some coarse-grained sand and pebbles, glass shards, very soft	dry	loose	light brown	BG=6
		E1	10/ 18"					
5				ash layers and glass shards			black	
		E2	8/6"	Base of Fill at 7.5'				11
		G1	63	**SILTY SAND (SM)**; fine- to medium-grained sand, moderately to well consolidated		dense	medium brown	
10		E3	120					
				End of boring at 11 feet below grade				

RIDGECREST BURNING DUMP
for: Kern County Public Works

Project No.
91-41-324-01

Drawing No.

Converse Environmental West

Log of Boring No. BH-19

Date Drilled: 9/24/91 Logged by: LJA Checked by: JR

Equipment: 8" Hollow Stem Auger Driving Weight and Drop 140 lb / 30 in

Ground Surface Elevation ______ Depth to Water none encountered

DEPTH (ft)	GRAPHIC LOG	SAMPLES DRIVE & NUMBER	SAMPLES BLOWS/FOOT	SUMMARY OF SUBSURFACE CONDITIONS This Log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of conditions encountered.	MOISTURE	CONSISTENCY	COLOR	OVA READINGS (ppm)
				SILTY SAND (SM); fine- to medium-grained sand Bottom of Cover Soil at 3'	dry	loose	medium brown	
		E1	71/ 18"	**FILL**; silty sand mixed with ash			gray	
5				Base of Fill at 6'				
		E2	135	**SILTY SAND (SM)**; fine- to medium-grained sand, caliche		dense	medium brown	
				End of boring at 7 feet below grade				

RIDGECREST BURNING DUMP
for: Kern County Public Works

Project No. 91-41-324-01

Drawing No.

Converse Environmental West

APPENDIX B

Test Pits and Photographs

Ninyo & Moore

TRENCH LOG

RIDGECREST BURN DUMP
RIDGECREST, CALIFORNIA

PROJECT NO.	DATE
104690092	5/16/17

DATE EXCAVATED 05.16.17 TRENCH NO. T-1

GROUND ELEVATION ~2880' MSL LOGGED BY [illegible]

METHOD OF EXCAVATION backhoe

LOCATION eastern extent of ~~waste~~ trench

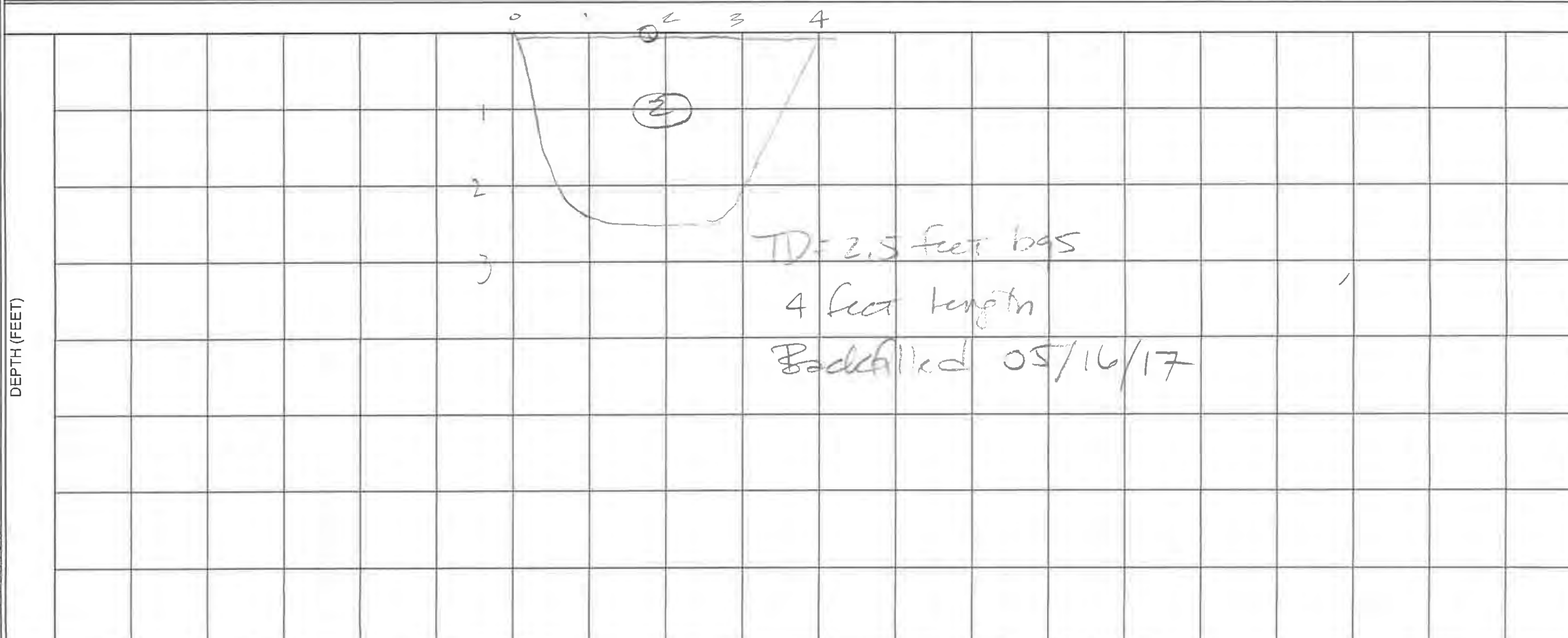
DESCRIPTION / INTERPRETATION

NOTES

(1) SURFACE WASTE ONLY

(2) Light brownish tan, dry to damp, silty SAND / sandy SILT; little fine gravel.

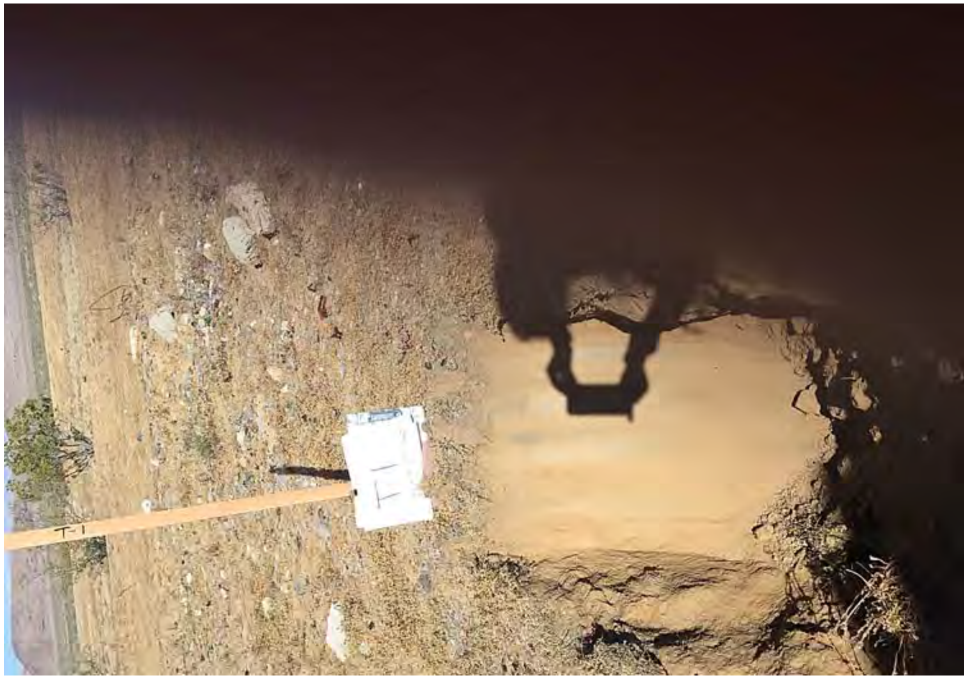
Excavation backfilled 05/16/17
Surface waste ONLY

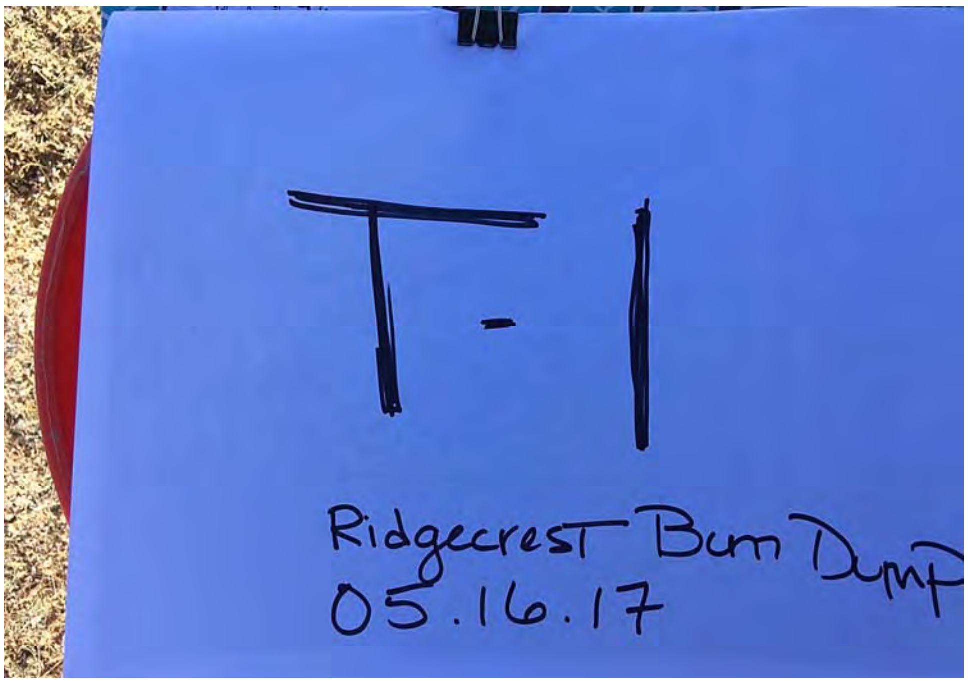


DEPTH (FEET)

SCALE = 1 in./ ft.

FIGURE A-


T-1


T-1
Ridgecrest Burn Dump
05.16.17


T-1

Ninyo & Moore

TRENCH LOG

RIDGECREST BURN DUMP
RIDGECREST, CALIFORNIA

PROJECT NO.	DATE
104690092	5/16/17

DATE EXCAVATED 05/16/17 TRENCH NO. T-2

GROUND ELEVATION ~2880' MSL LOGGED BY BB

METHOD OF EXCAVATION backhoe

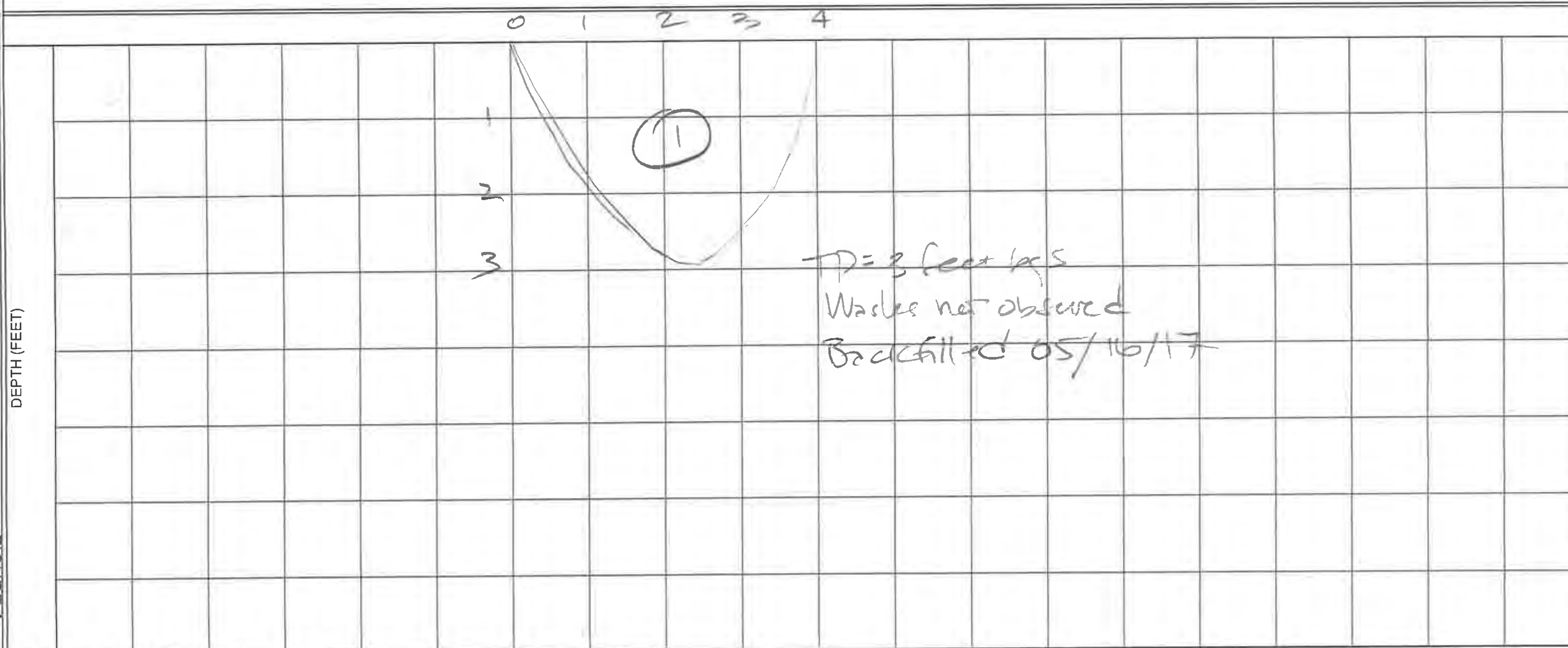
LOCATION between two waste trenches

DESCRIPTION / INTERPRETATION

NOTES

(No surface waste)

1 Brownish orange, dry to damp, SILTY SAND/ sandy SILT; with gravels

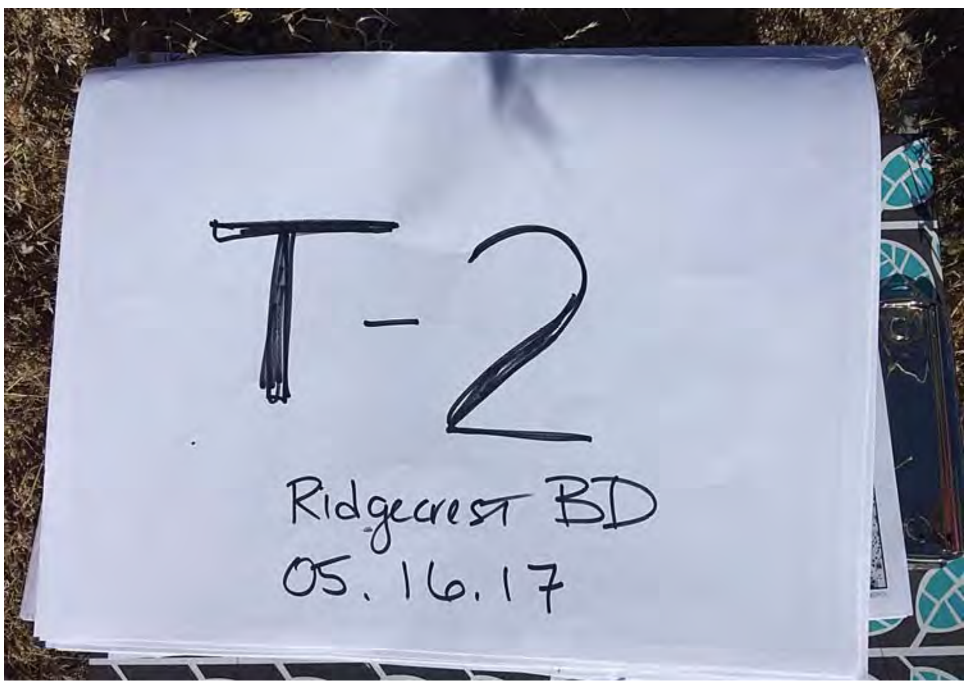


SCALE = 1 in./ ft.

FIGURE A-


T2


T-2


T-2
Ridgecrest BD
05.16.17


T-2

Ninyo & Moore

TRENCH LOG

RIDGECREST BURN DUMP
RIDGECREST, CALIFORNIA

PROJECT NO.	DATE
104690092	5/16/17

DATE EXCAVATED 05/16/17 TRENCH NO. T-3

GROUND ELEVATION ~2880' MSL LOGGED BY BAB

METHOD OF EXCAVATION backhoe

LOCATION east raised area

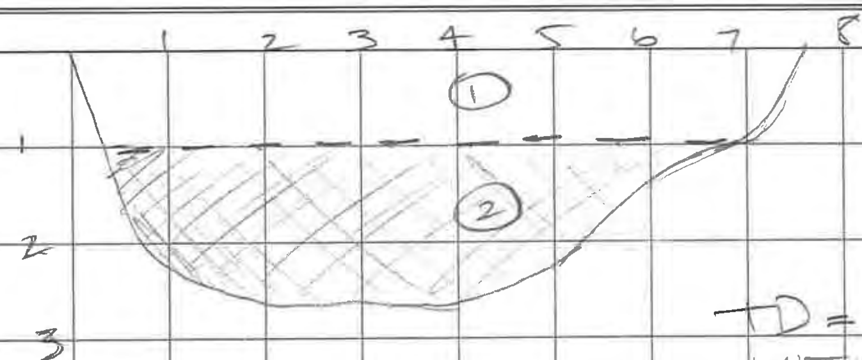
DESCRIPTION / INTERPRETATION

NOTES

(Occasional recent surface debris)

① FILL:
Light brown, dry to slightly damp, silty SAND; with gravels

② FILL + BURNED WASTES
Black-grey, dry, loose, silty SAND; with ~80-90% burned wastes consisting primarily of broken/fused glass/ash (only one backhoe bucket of waste excavated)



TD = 2.75 feet bgs
(Terminated in burned wastes)

Backfilled 05/16/17

DEPTH (FEET)

SCALE = 1 in./ ft.

FIGURE A-


T-3


T-3
Ridgecrest BD
05-16-17


T-3
Ridgecrest BD
05-16-17


T-3


T-3


DEERE

Ninyo & Moore

TRENCH LOG

RIDGECREST BURN DUMP
RIDGECREST, CALIFORNIA

PROJECT NO.	DATE
104690092	5/16/17

DATE EXCAVATED 05/16/17 TRENCH NO. T-4

GROUND ELEVATION ~2880' MSL LOGGED BY BAB

METHOD OF EXCAVATION backhoe

LOCATION low lying area

DESCRIPTION / INTERPRETATION

NOTES

(Concrete background minor surface waste debris)

① Brownish orange, dry, loose very silty SAND / sandy SILT; w/ gravels

Appears to be edge/lateral extent of waste trench

② FILL + WASTES

Brownish orange to grayish brown loose, very silty SAND w/ ~5-10% wastes consisting primarily of metal wire, concrete, some broken glass wood, and ash.

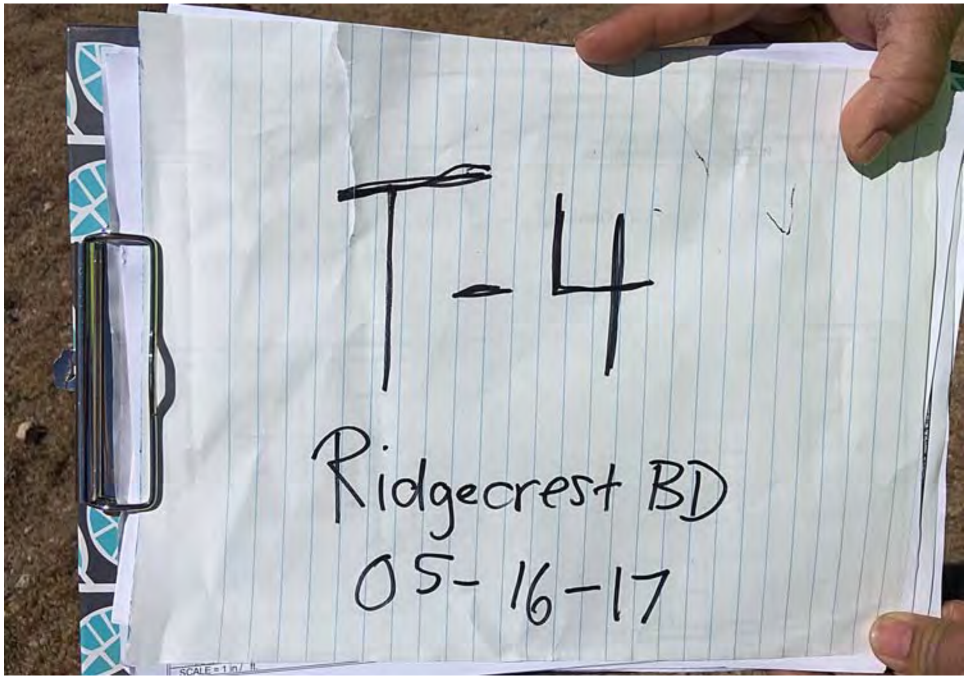
DEPTH (FEET)

TD = 3 feet bgs
Backfilled 05/16/17

SCALE = 1 in./ ft.

FIGURE A-


T-4
Ridgecrest BD
05-16-17


T-4
Ridgecrest BD
05-16-17


DEERE

Ninyo & Moore

TRENCH LOG

RIDGECREST BURN DUMP
RIDGECREST, CALIFORNIA

PROJECT NO.	DATE
104690092	5/16/17

DATE EXCAVATED 05/16/17 TRENCH NO. T-5

GROUND ELEVATION ~2880 MSL LOGGED BY BTB

METHOD OF EXCAVATION backhoe

LOCATION waste trench area

DESCRIPTION / INTERPRETATION

NOTES

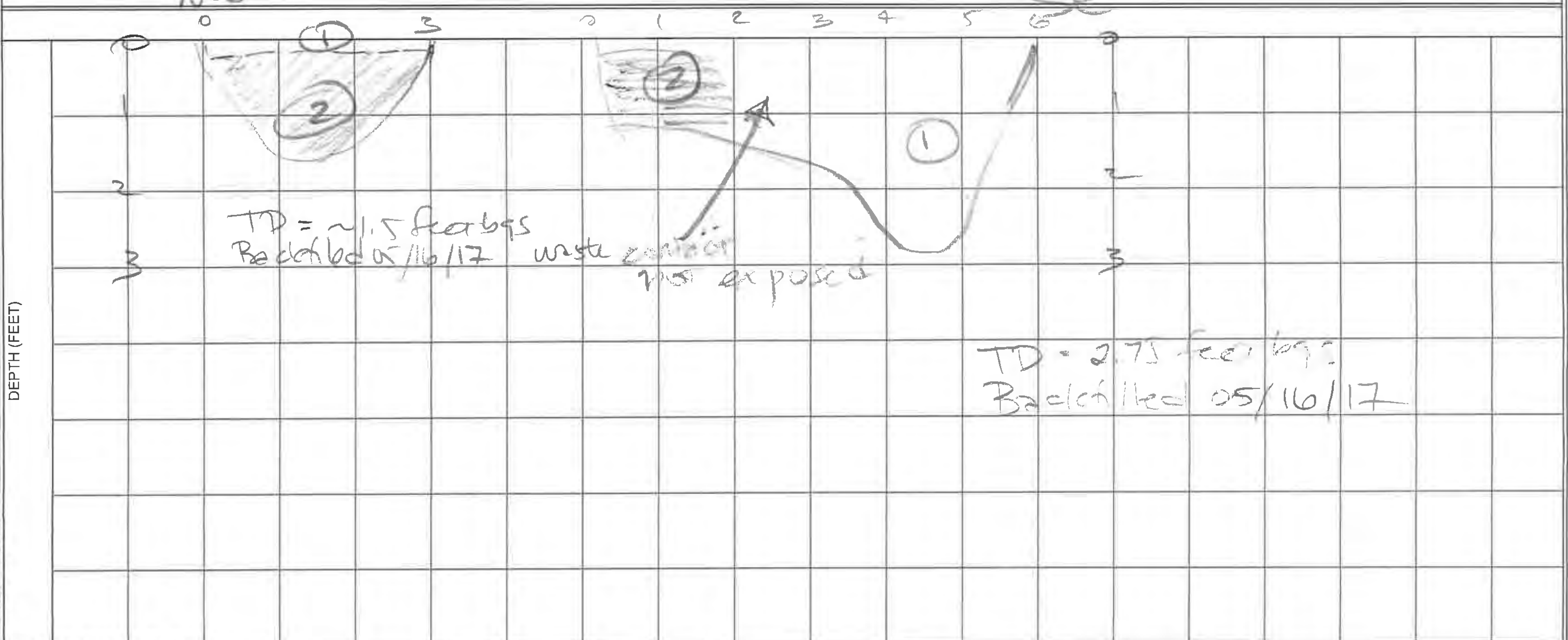
(Minor excavation only assume ~3-6 inches cover)

① FILL

Brownish orange dry loose silty SAND; with fine gravels

② FILL + BURNED WASTES

Greyish brown, loose silty SAND; with burned wastes consisting primarily of whole glass bottles, flat glass, metal wire, concrete, mattress spring...

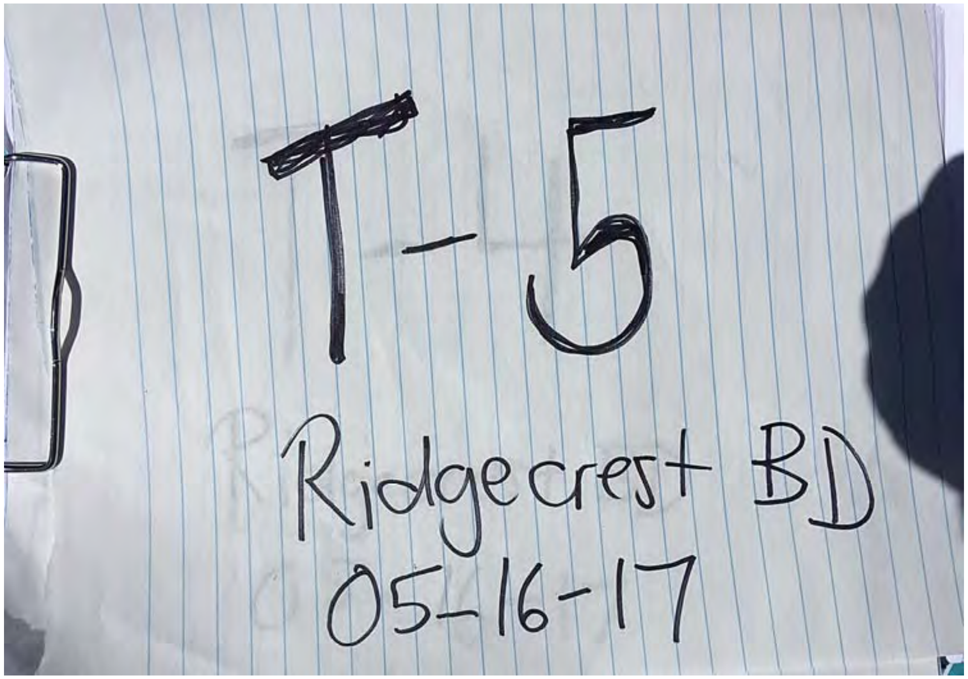


DEPTH (FEET)

SCALE = 1 in./ ft.

FIGURE A-


HercRentals
T-5
Ridgecrest BD
05-16-17


T-5
Ridgecrest BD
05-16-17

Ninyo & Moore

TRENCH LOG

RIDGECREST BURN DUMP
RIDGECREST, CALIFORNIA

PROJECT NO.	DATE
104690092	5/16/17

DATE EXCAVATED 05/16/17 TRENCH NO. T- 6

GROUND ELEVATION ~2880 MSL LOGGED BY BAB

METHOD OF EXCAVATION backhoe

LOCATION West of WDS area (?)

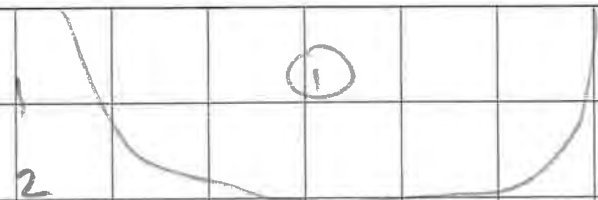
DESCRIPTION / INTERPRETATION

NOTES

① Alluvium (?)
Brown-orange, dry to slightly damp clayey silty SAND

@~2 feet becomes very hard (subcrop)

DEPTH (FEET)



TD ~ 2 feet bgs
Backfilled 05/16/17

FIGURE A-

SCALE = 1 in./ ft.


T-6
Ridgecrest BD
05-16-17


T-6


T-6
Ridgecrest BD
05-16-17


T-6

T-6

Ninyo & Moore

TRENCH LOG

RIDGECREST BURN DUMP
RIDGECREST, CALIFORNIA

PROJECT NO.	DATE
104690092	5/16/17

DATE EXCAVATED 05/16/17 TRENCH NO. T-7

GROUND ELEVATION ~2880' MSL LOGGED BY BAB

METHOD OF EXCAVATION backhoe

LOCATION northern WDA

DESCRIPTION / INTERPRETATION

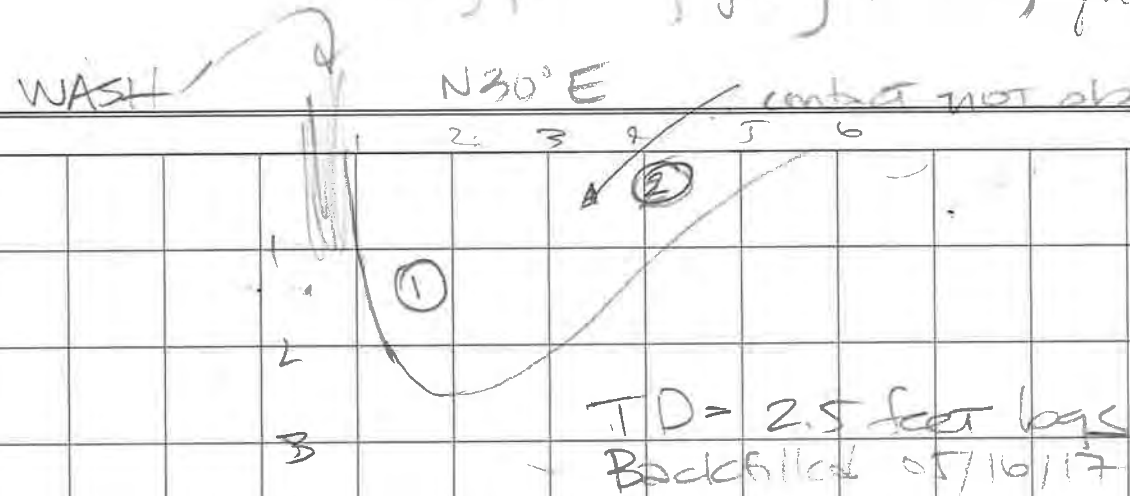
NOTES

① Alluvium (some surface wastes)

Brownish orange, dry, medium dense, becomes dense, clayey, silty SAND

② FILL + WASTES

Brownish grey, dry, loose, silty SAND; with some waste debris+ash; consisting primarily of dry board, glass, metal.



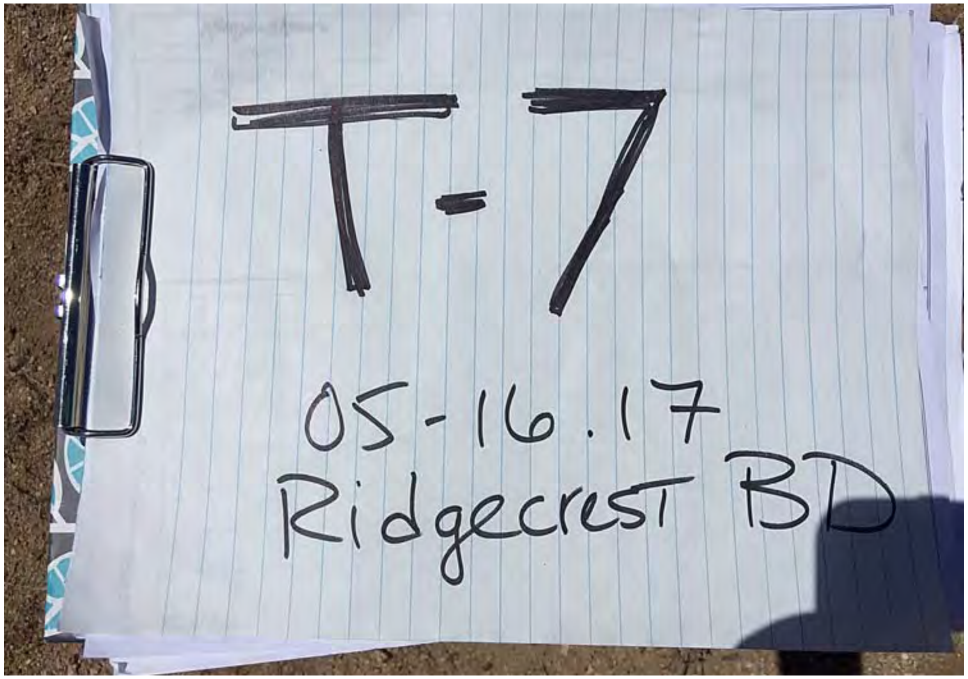
DEPTH (FEET)

SCALE = 1 in./ ft.

FIGURE A-


T-7
05-16.17
Ridgecrest BD


T-7
05-16.17
Ridgecrest BD


T-7
05-16.17
Ridgecrest BD


T-7
05-16.17
Ridgecrest BD

Ninyo & Moore

TRENCH LOG

RIDGECREST BURN DUMP
RIDGECREST, CALIFORNIA

PROJECT NO.	DATE
104690092	5/16/17

DATE EXCAVATED 05/16/17 TRENCH NO. T-8

GROUND ELEVATION ~2860' MSL LOGGED BY BAB

METHOD OF EXCAVATION backhoe

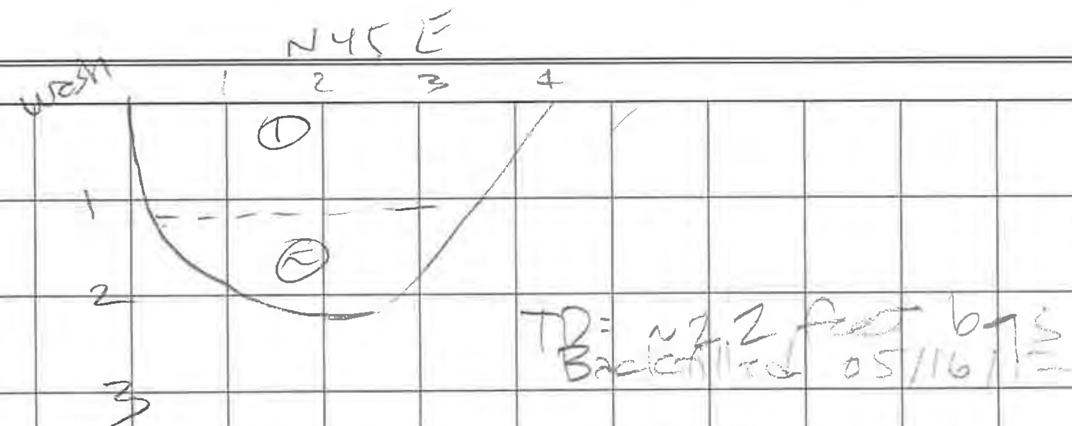
LOCATION northern WDA

DESCRIPTION / INTERPRETATION

NOTES

① FILL:
Light brown dry to slightly damp, very loose, very silty SAND with fine gravels

② Alluvium(?):
Brownish orange, damp, medium dense to dense, clayey silty SAND



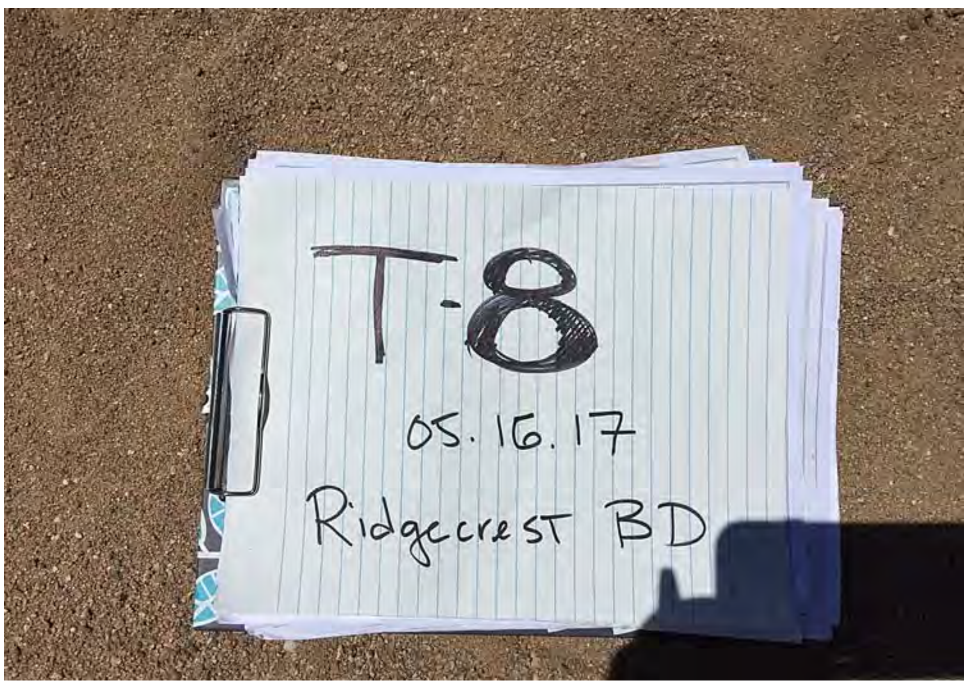
DEPTH (FEET)

SCALE = 1 in./ ft.

FIGURE A-


T-8


T-8
05.16.17
Ridgecrest BD


T-8
05.16.17
Ridgecrest BD


T-8
05.16.17
Ridgecrest BD

Ninyo & Moore

TRENCH LOG

RIDGECREST BURN DUMP
RIDGECREST, CALIFORNIA

PROJECT NO.	DATE
104690092	5/16/17

DATE EXCAVATED 05/16/17 TRENCH NO. T-9

GROUND ELEVATION ~2880 MSL LOGGED BY BB

METHOD OF EXCAVATION backhoe

LOCATION Southern WDA

DESCRIPTION / INTERPRETATION

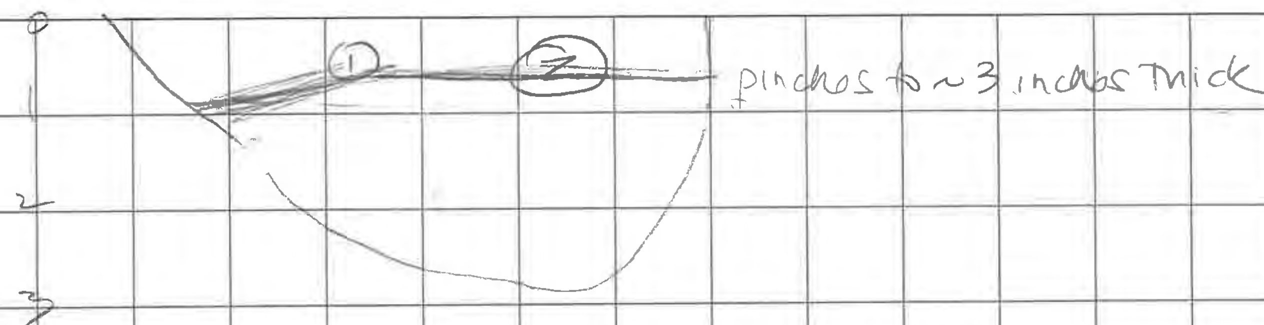
NOTES

① FILL: Light-brown, dry, very loose, silty fine SAND

② FILL + MINOR WASTE
Light brown, dry, very loose silty SAND, with metal, concrete. asphalt debris white dry wall / glass bottle contained in narrow waste zone

N40°E

Wash 9



TD = ~3 feet bgs
Backfilled 05/16/17

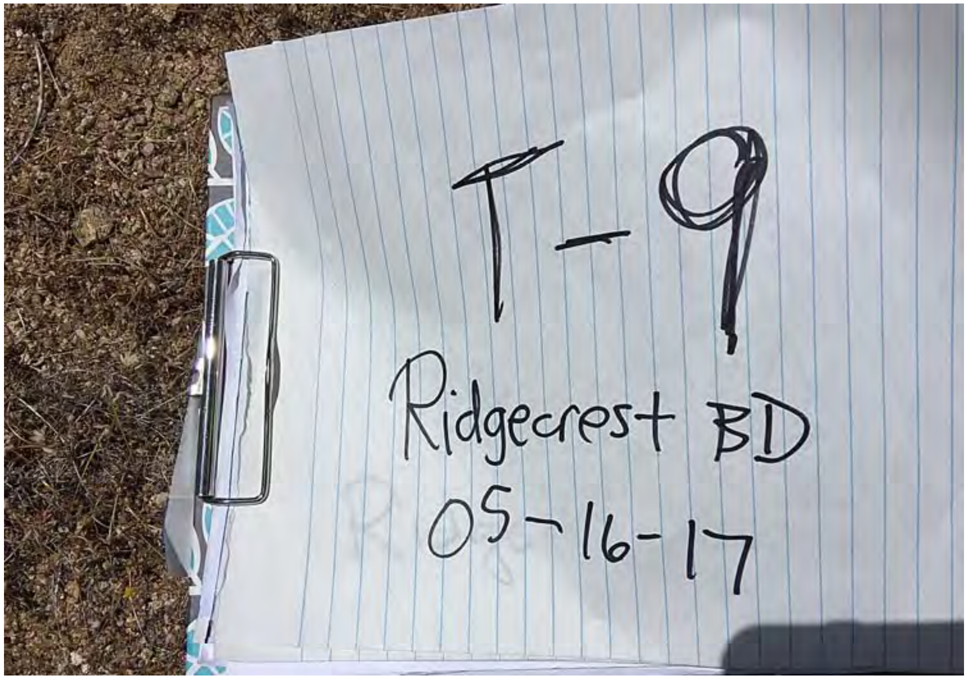
DEPTH (FEET)

SCALE = 1 in./ ft.

FIGURE A-


T-9
Ridgecrest BD
05-16-17


T-9
Ridgecrest BD
05-16-17


T-9
Ridgecrest BD
05-16-17


T-9
Ridgecrest BD


T-9
Ridgecrest BD
05-16-17


T-9
Ridgecrest BD
05-16-17


T-9
Ridgecrest BD
05-16-17

Ninyo & Moore

TRENCH LOG

RIDGECREST BURN DUMP
RIDGECREST, CALIFORNIA

PROJECT NO.	DATE
104690092	5/16/17

DATE EXCAVATED 05/16/17 TRENCH NO. T-10

GROUND ELEVATION ~2880' MSL LOGGED BY BAB

METHOD OF EXCAVATION backhoe

LOCATION Southern WDA (waste disp trench begin to the NE)

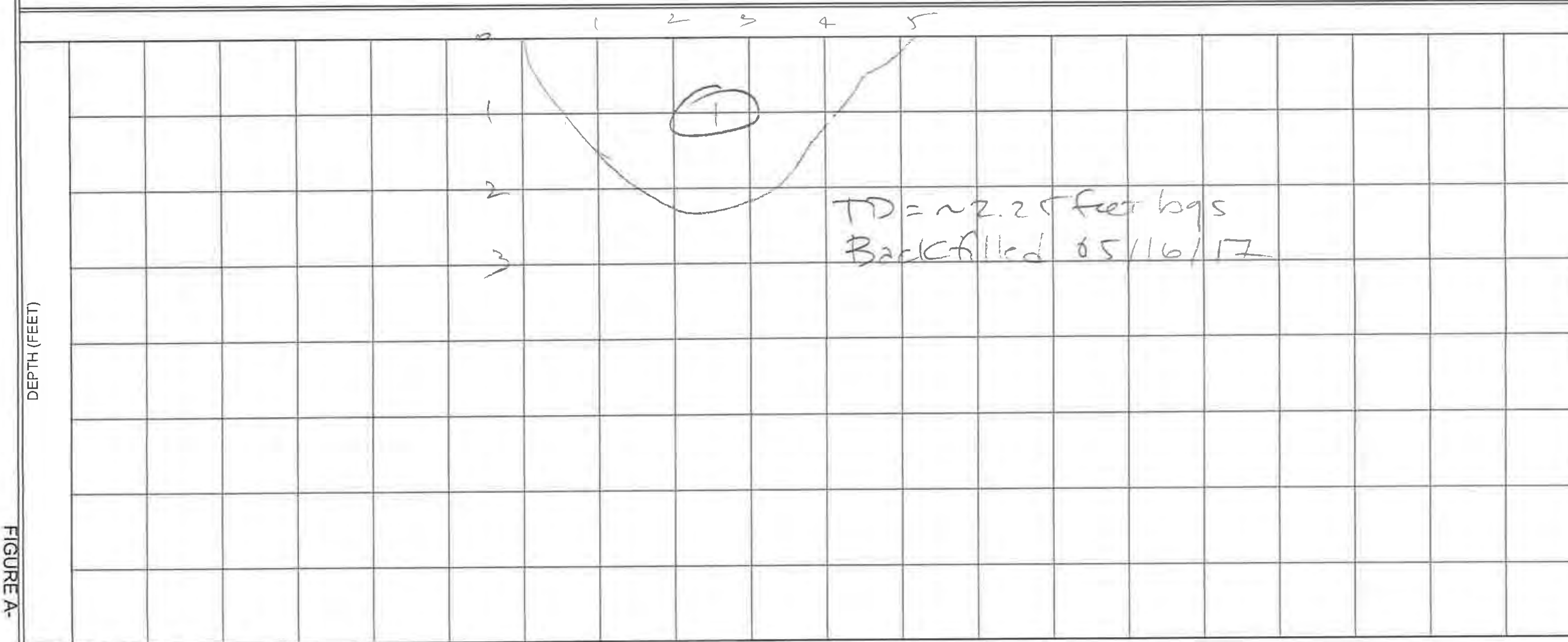
DESCRIPTION / INTERPRETATION

NOTES

1 Alluvium:

Brownish orange, dry to slightly damp, clayey silty SAND

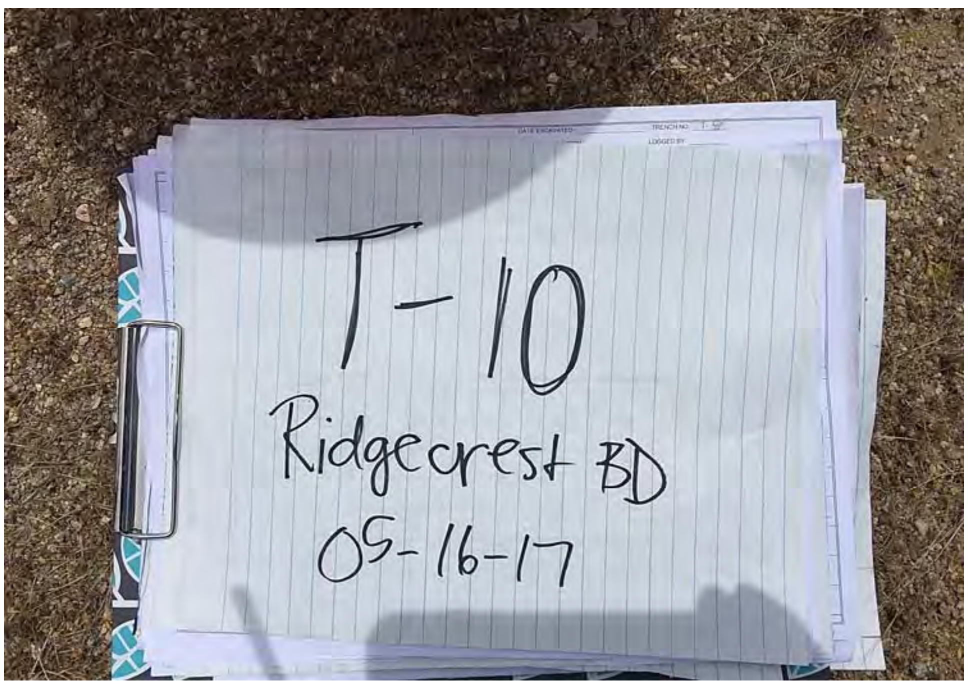
between two "older" wooden stakes

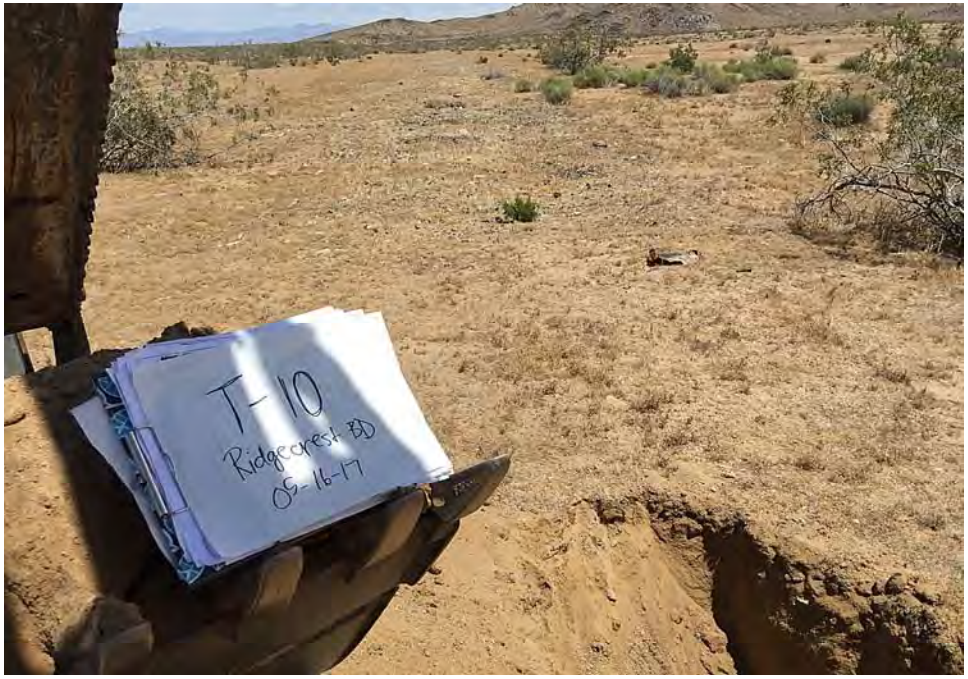


SCALE = 1 in./ ft.

FIGURE A-


Ninyo & Moore
T-10
Ridgecrest BD
05-16-17


T-10
Ridgecrest BD
05-16-17


T-10
Ridgecrest BD
05-16-17


T-10
Ridgecrest BD
05-16-17


T-10
Ridgecrest BD
05-16-17

Ninyo & Moore

TRENCH LOG

RIDGECREST BURN DUMP
RIDGECREST, CALIFORNIA

PROJECT NO.	DATE
104690092	5/16/17

DATE EXCAVATED 05/16/17 TRENCH NO. CS-1

GROUND ELEVATION 2280'MSL LOGGED BY BAB

METHOD OF EXCAVATION backhoe

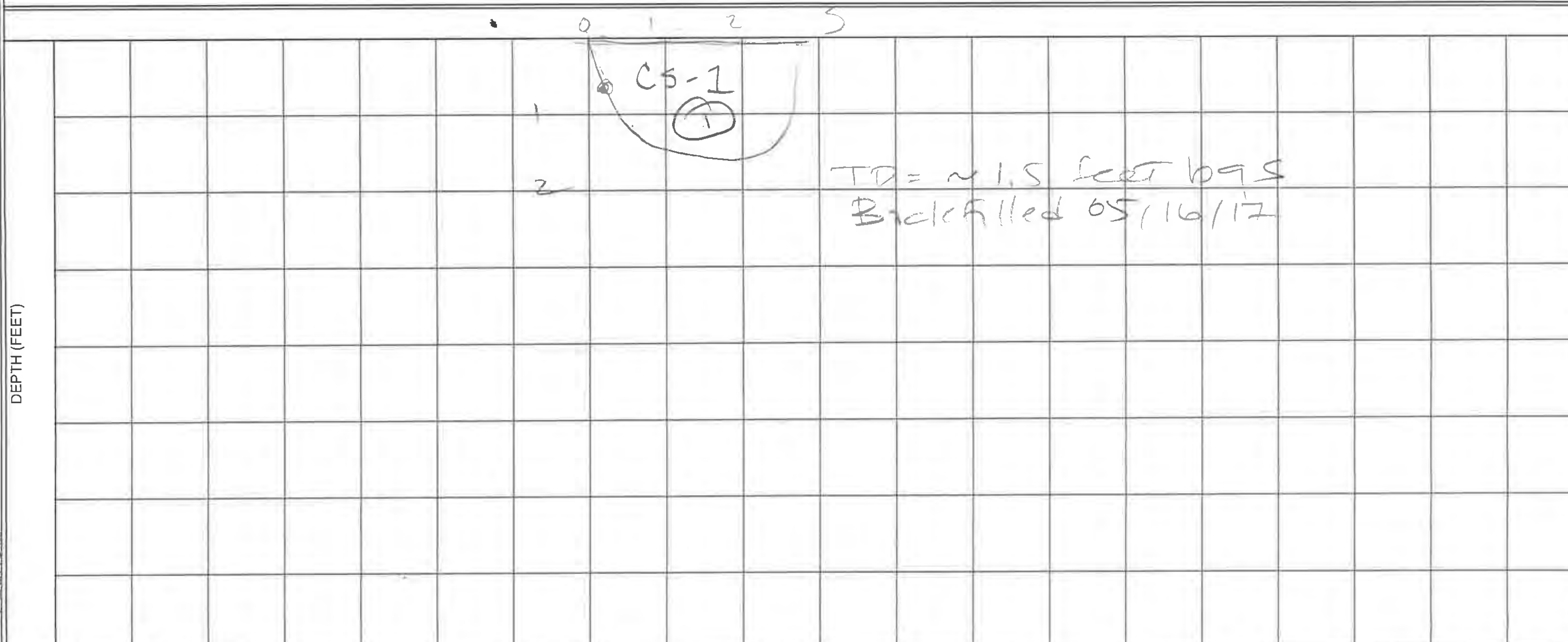
LOCATION eastern site area

DESCRIPTION / INTERPRETATION

NOTES

FILL + MINOR SURFACE WASTE

1 ALLUVIUM:
Brownish orange dry to damp, SILTY SAND; with fine gravels



SCALE = 1 in./ ft.

FIGURE A-


CS-1
Ridgecrest BD
05.16.17


CS-1
Ridgecrest BD
05.16.17


CS-1
Ridgecrest BD
05.16.17


CS-1
Ridgecrest BD
05.16.17

Ninyo & Moore

TRENCH LOG

RIDGECREST BURN DUMP
RIDGECREST, CALIFORNIA

PROJECT NO.	DATE
104690092	5/16/17

DATE EXCAVATED 05/16/17 TRENCH NO. ES-2

GROUND ELEVATION ~2880' MSL LOGGED BY BB

METHOD OF EXCAVATION backhoe

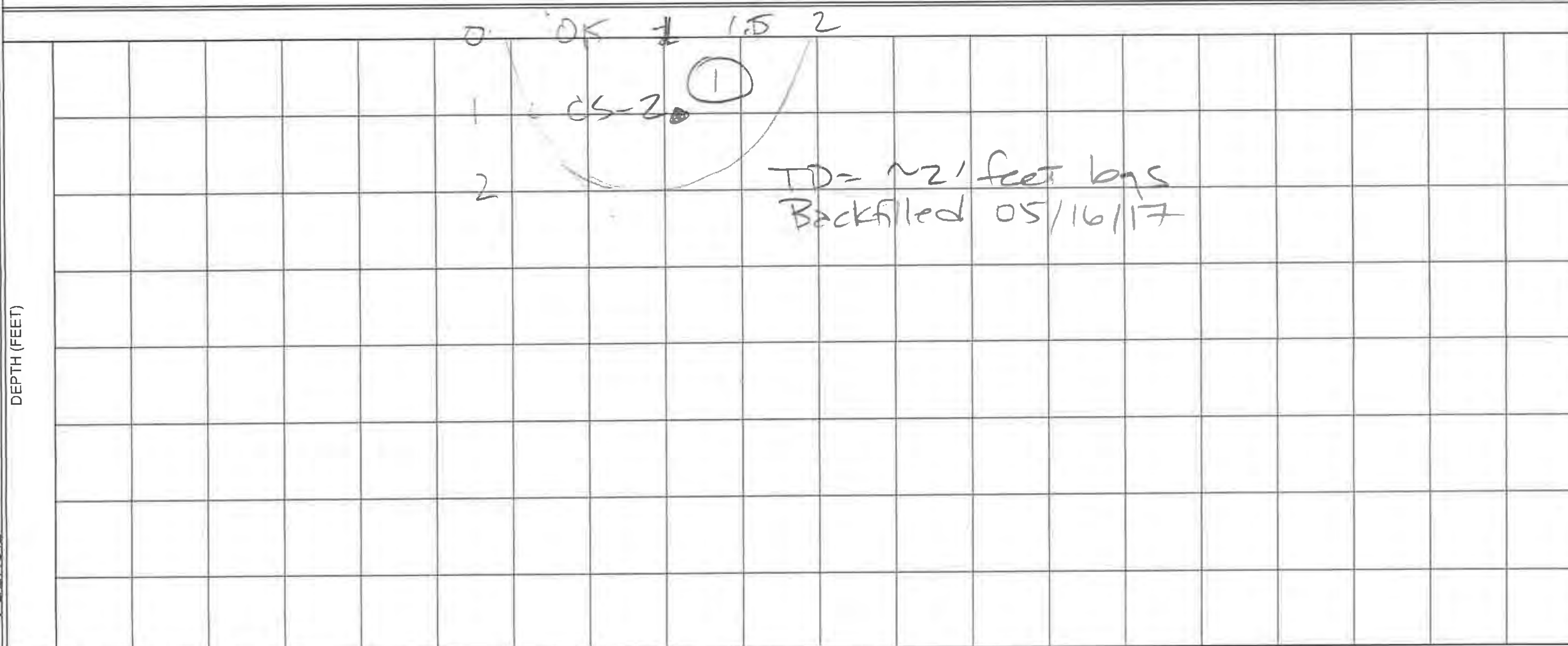
LOCATION eastern site area

DESCRIPTION / INTERPRETATION

NOTES

① Alluvium:

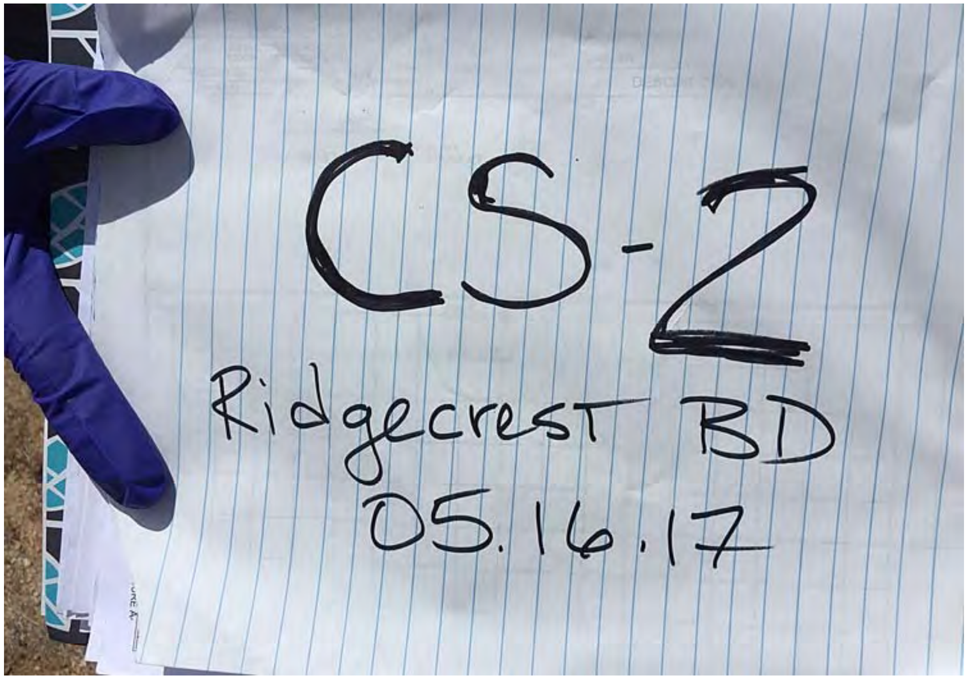
Brownish orange, dry to damp, silty fine SAND; w/ gravel



SCALE = 1 in./ ft.

FIGURE A-


CS-2


CS-2
Ridgecrest BD
05.16.17


CS-2
Ridgecrest BD
05.16.17

Ninyo & Moore	
TRENCH LOG	
RIDGECREST BURN DUMP RIDGECREST, CALIFORNIA	
PROJECT NO.	DATE
104690092	5/16/17

DATE EXCAVATED 05/16/17 TRENCH NO. CS-3

GROUND ELEVATION ~2880' MSL LOGGED BY BAB

METHOD OF EXCAVATION backhoe

LOCATION near small drainage, eastern site area

DESCRIPTION / INTERPRETATION

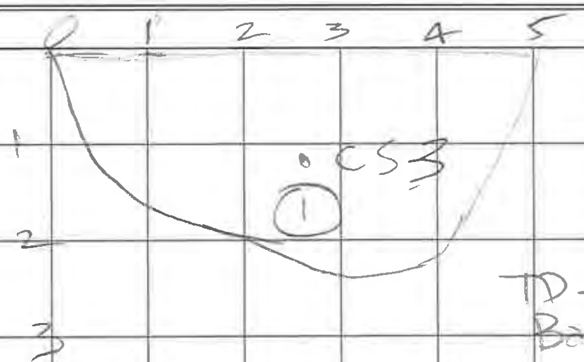
NOTES

MINOR SURFACE WASTES → bolt, minor broken glass <1%

1 ALLUVIUM

Brown orange, damp very silty SAND; w/ fine gravels

DEPTH (FEET)



TD = ~2.25 feet bgs
Backfilled 05/16/17

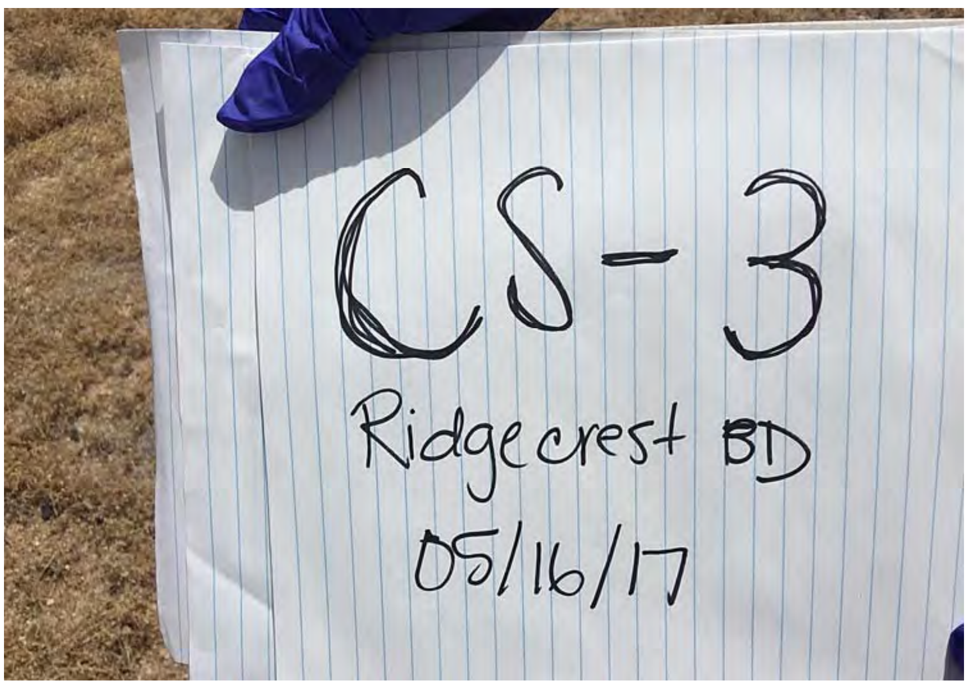
SCALE = 1 in./ ft.

FIGURE A-

CS-3


CS-3
Ridgecrest BD
05/16/17


CS-3
Ridgecrest BD
05/16/17


CS-3
Ridgecrest BD
05/16/17

CS-3

Ninyo & Moore

TRENCH LOG

RIDGECREST BURN DUMP
RIDGECREST, CALIFORNIA

PROJECT NO.	DATE
104690092	5/16/17

DATE EXCAVATED 05/16/17 TRENCH NO. CS-4

GROUND ELEVATION ~2880' MSL LOGGED BY B.R.

METHOD OF EXCAVATION backhoe

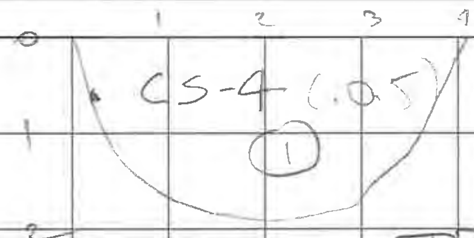
LOCATION eastern site area

DESCRIPTION / INTERPRETATION

NOTES

surficial waste debris (broken up pigeon/target practice pieces)

1 Alluvium:
Brownish orange, damp, silty SAND, w/ fine gravels



TD ~ 2 feet bgs
Backfilled 05/16/17

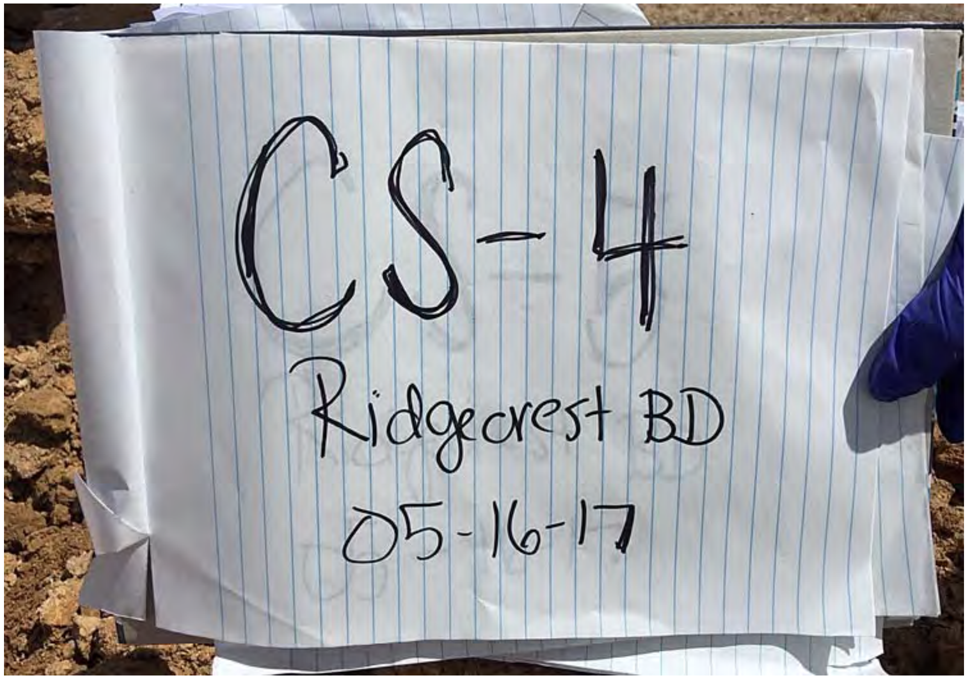
DEPTH (FEET)

SCALE = 1 in./ ft.

FIGURE A-


CS-4
Ridgecrest BD
05-16-17


CS-4
Ridgecrest BD
05-16-17


CS-4
Ridgecrest BD
05-16-17


CS-4
Ridgecrest BD
05-16-17

CS-4

Ninyo & Moore

TRENCH LOG

RIDGECREST BURN DUMP
RIDGECREST, CALIFORNIA

PROJECT NO.	DATE
104690092	5/16/17

DATE EXCAVATED 05/16/17 TRENCH NO. CS-5

GROUND ELEVATION ~2800 MSL LOGGED BY BB

METHOD OF EXCAVATION backhoe

LOCATION eastern site area

DESCRIPTION / INTERPRETATION

NOTES

Fill + surface waste Broken pipe/cast - broken glass

Alluvium

Brownish orange dry to damp silty SAND, w/ gravels

becomes hard at 1' bgs

DEPTH (FEET)

0

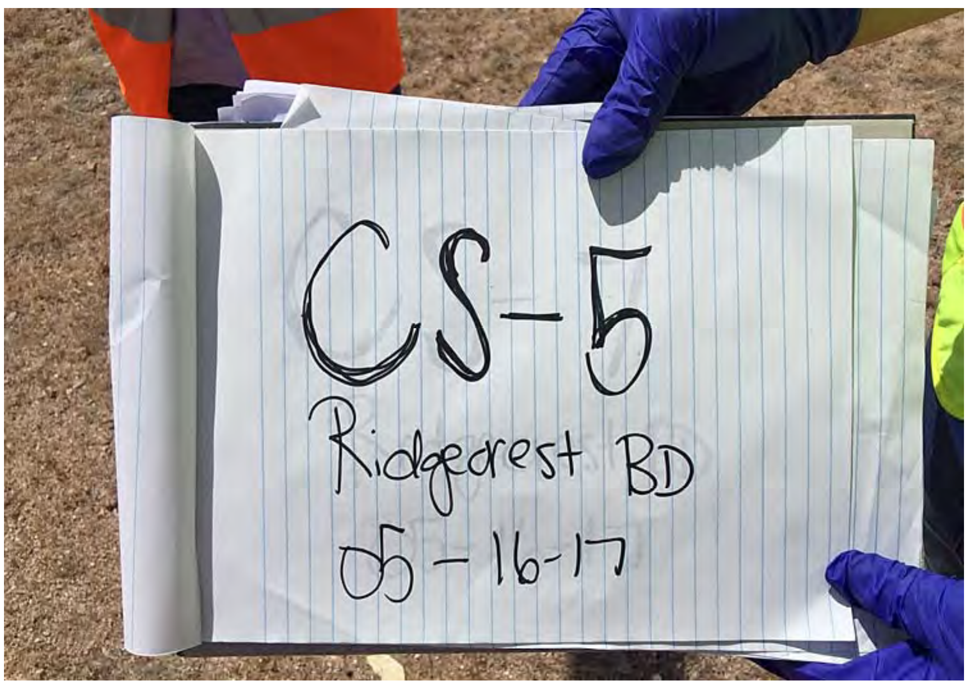
1 CS-5-1.0 hard alluvium at 1' bgs

2 TD = 1.0 on hard alluvium

SCALE = 1 in./ ft.

FIGURE A-


CS-5
Ridgecrest BD
05-16-17


CS-5
Ridgecrest BD
05-16-17

Ninyo & Moore

TRENCH LOG

RIDGECREST BURN DUMP
RIDGECREST, CALIFORNIA

PROJECT NO.	DATE
104690092	5/16/17

DATE EXCAVATED 05/16/17 TRENCH NO. CS-6

GROUND ELEVATION ~2880' MSL LOGGED BY BAB

METHOD OF EXCAVATION backhoe

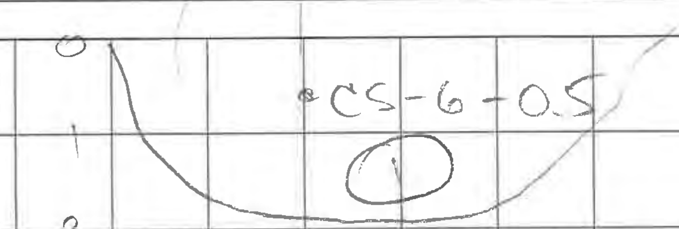
LOCATION eastern site area

DESCRIPTION / INTERPRETATION

NOTES

Minor surface waste, mostly shot up/broken pigeons

1 ALLUVIUM ?
Brownish orange, dry to slightly damp, slightly clayey, silty SAND



TD @ 2' bgs on hard alluvium
Backfilled 05/16/17

DEPTH (FEET)

SCALE = 1 in./ ft.

FIGURE A-


CS-6
Ridgecrest BD
05-16-17


CS-6
Ridgecrest BD
05-16-17


CS-6
Ridgecrest BD
05-16-17


CS-6
Ridgecrest BD
05-16-17


CS-5
Ridgecrest BD
05-16-17


CS-5
Ridgecrest BD
05-16-17


CS-5
Ridgecrest BD
05-16-17

Ninyo & Moore

TRENCH LOG

RIDGECREST BURN DUMP
RIDGECREST, CALIFORNIA

PROJECT NO.	DATE
104690092	5/16/17

DATE EXCAVATED 05/16/17 TRENCH NO. CS-7

GROUND ELEVATION ~2880' MSL LOGGED BY BAB

METHOD OF EXCAVATION backhoe

LOCATION eastern site area

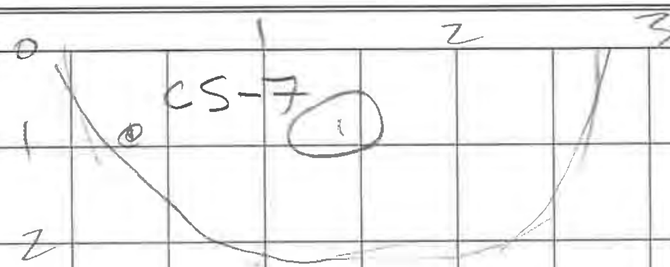
DESCRIPTION / INTERPRETATION

NOTES

MINOR SURFACE WASTES / BROKEN PIGEONS

Alluvium

① Brownish orange, dry to slightly damp, silty SAND; with fine gravel



TD = 2.2 feet bgs

Backfilled 05/16/17

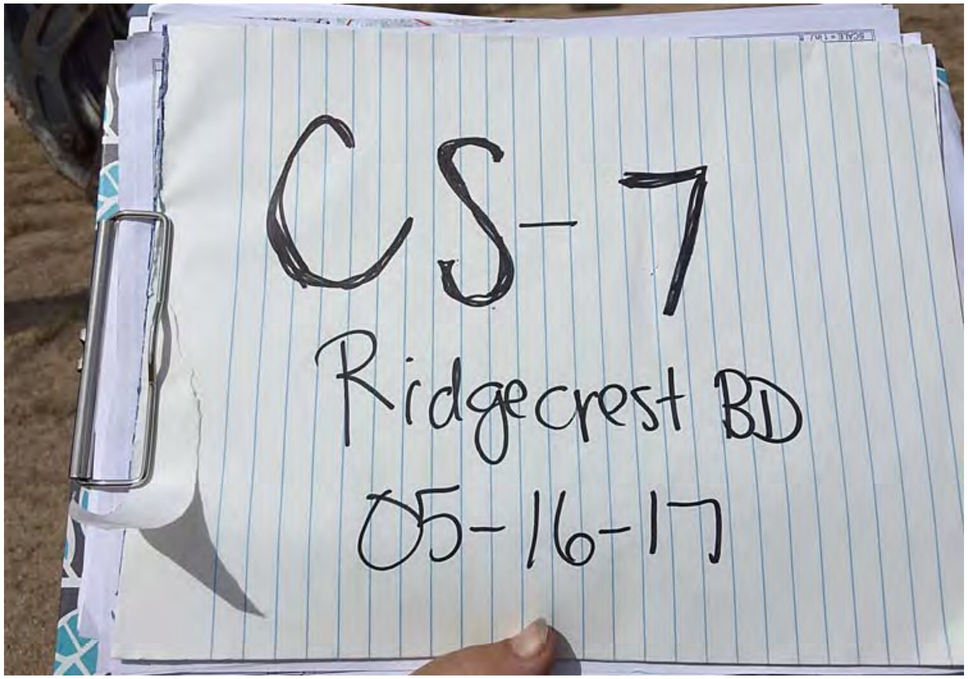
(not on "hard" material)

DEPTH (FEET)

SCALE = 1 in./ ft.

FIGURE A-


CS-7
Ridgecrest BD
05-16-17


CS-7
Ridgecrest BD
05-16-17


CS-7
Ridgecrest BD
05-16-17

Ninyo & Moore

TRENCH LOG

RIDGECREST BURN DUMP
RIDGECREST, CALIFORNIA

PROJECT NO.	DATE
104690092	5/16/17

DATE EXCAVATED 05/16/17 TRENCH NO. T-S-8

GROUND ELEVATION ~2880' MSL LOGGED BY BAB

METHOD OF EXCAVATION backhoe

LOCATION eastern site area

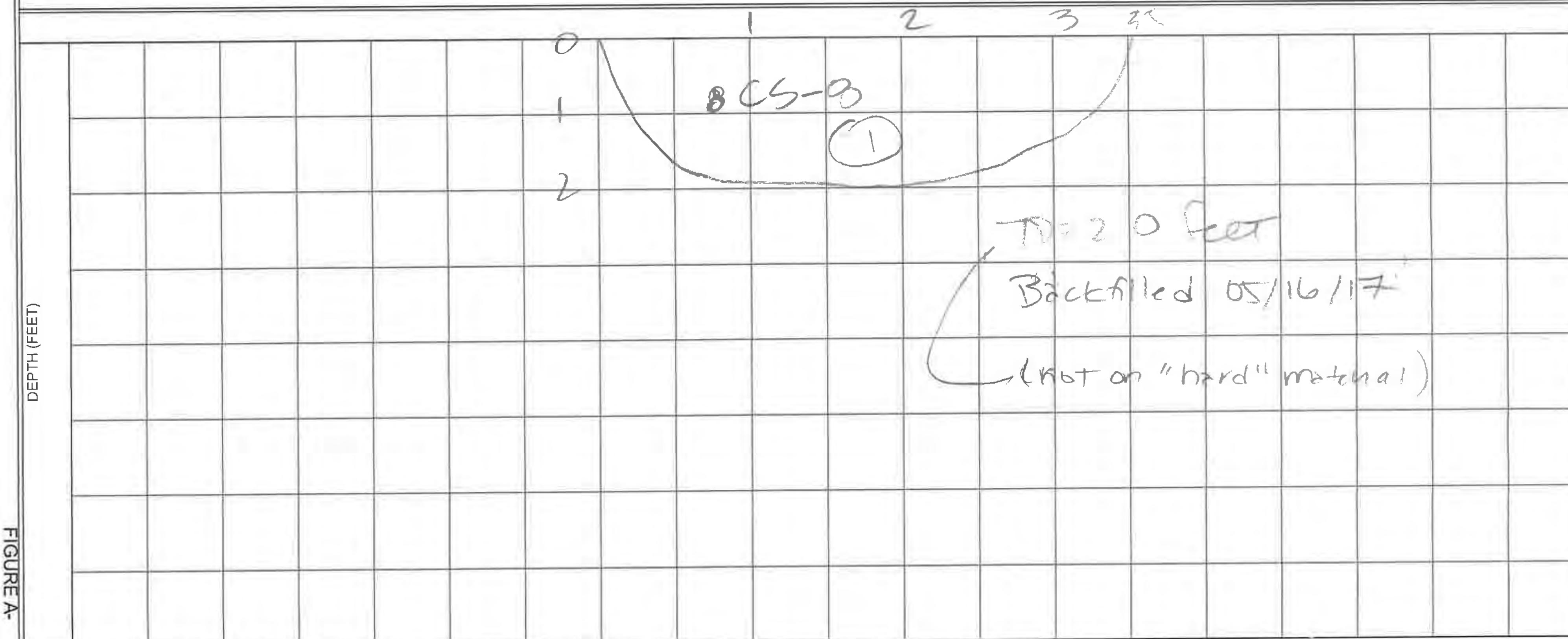
DESCRIPTION / INTERPRETATION

NOTES

Very minor SURFACE DEBRIS; Broken pigeons, scrap metal & concrete, old glass

(1) Alluvium:

Brown to orange, dry to damp silty SAND; w/ fine gravels



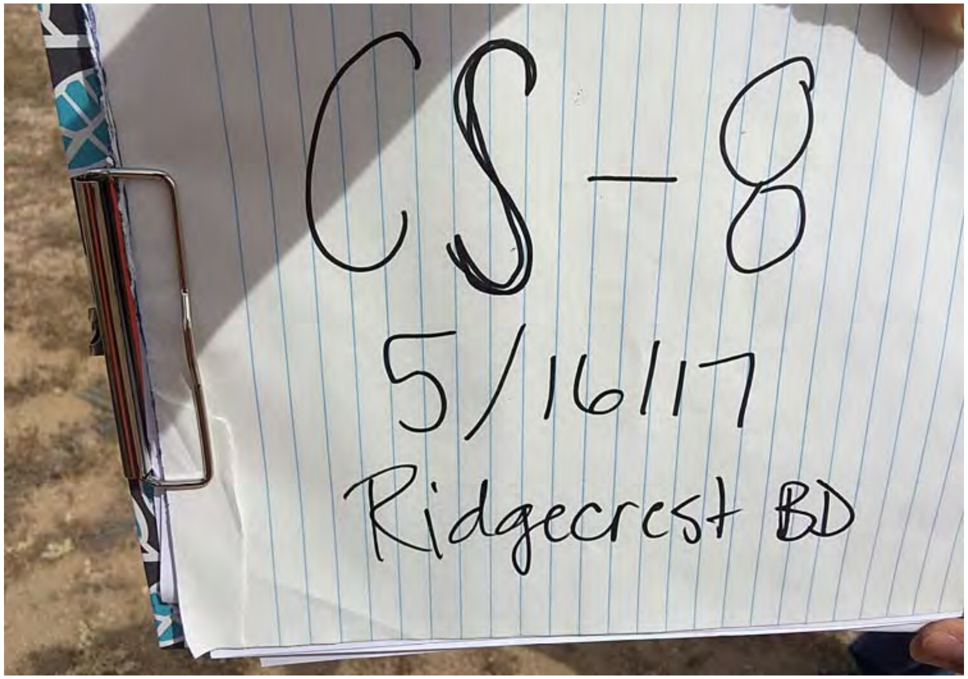
DEPTH (FEET)

SCALE = 1 in./ ft.

FIGURE A-


CS-8
5/16/17
Ridgecrest BD


CS-8
5/16/17
Ridgecrest BD


CS-8
5/16/17
Ridgecrest BD

CS-8

Ninyo & Moore

TRENCH LOG

RIDGECREST BURN DUMP
RIDGECREST, CALIFORNIA

PROJECT NO.	DATE
104690092	5/16/17

DATE EXCAVATED 05/16/17 TRENCH NO. CS-9

GROUND ELEVATION ~2880' MSL LOGGED BY BAB

METHOD OF EXCAVATION backhoe

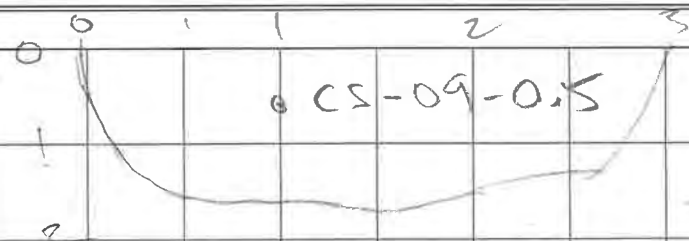
LOCATION eastern site area

DESCRIPTION / INTERPRETATION

NOTES

Surface minor waste debris primarily metal

(1) Allum:
Brown orange, dry to damp, silty SAND: w/ fine gravels



TD = 1.5 feet on hard allum

Backfilled 05/16/17

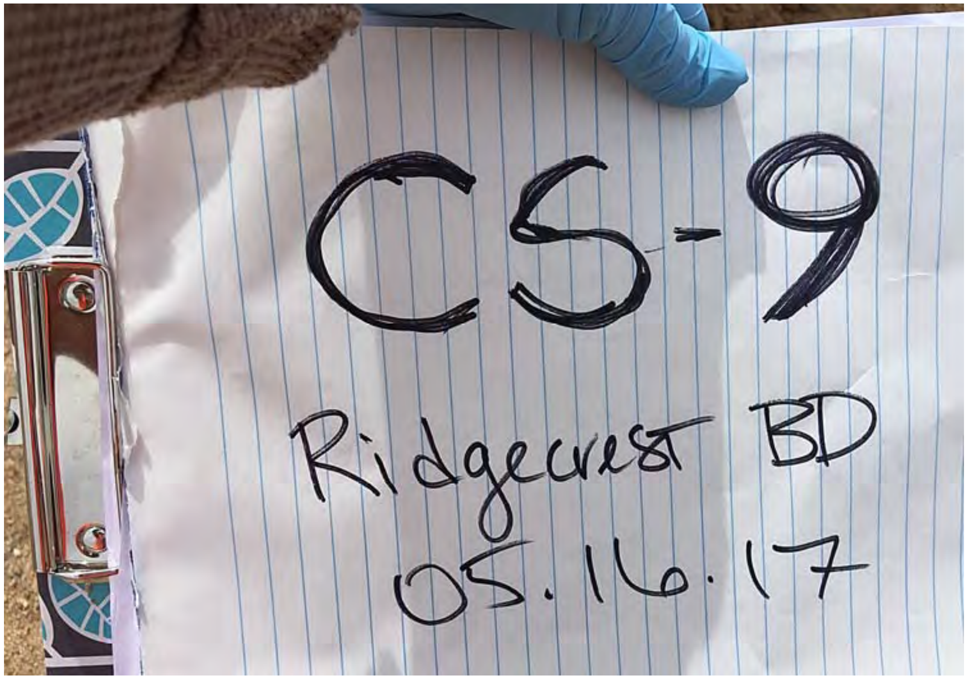
DEPTH (FEET)

SCALE = 1 in./ ft.

FIGURE A-


CS-9
Ridgecrest BD
05.16.17


CS-9
Ridgecrest BD
05.16.17


CS-9
Ridgecrest BD
05.16.17


CS-9
Ridgecrest BD
05.16.17

APPENDIX C

Laboratory Analytical Report

Angela Gomez
CalRecycle
1001 I Street
Sacramento, CA 95814

01-Jun-2017 10:21

RE: Ridgecrest Burn Dump Work Order: 1701714

Dear Client:

Enclosed is an analytical report for the above referenced project. The samples included in this report were received on 17-May-17 11:10 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Manual, applicable standard operating procedures, and other related documentation. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Meredith Sprister, Project Manager
msprister@oecusa.com

CalRecycle	Project: Ridgecrest Burn Dump	
1001 I Street	Project Number: [none]	**Reported:**
Sacramento CA, 95814	Project Manager: Angela Gomez	01-Jun-17 10:21

SAMPLE SUMMARY

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
CS-1	1701714-01	Solid	16-May-17 13:40	17-May-17 11:10
CS-2	1701714-02	Solid	16-May-17 13:52	17-May-17 11:10
CS-3	1701714-03	Solid	16-May-17 14:01	17-May-17 11:10
CS-4	1701714-04	Solid	16-May-17 14:16	17-May-17 11:10
CS-5	1701714-05	Solid	16-May-17 14:30	17-May-17 11:10
CS-6	1701714-06	Solid	16-May-17 14:45	17-May-17 11:10
CS-7	1701714-07	Solid	16-May-17 14:58	17-May-17 11:10
CS-8	1701714-08	Solid	16-May-17 15:10	17-May-17 11:10
CS-9	1701714-09	Solid	16-May-17 15:35	17-May-17 11:10
BG-1	1701714-10	Solid	16-May-17 15:40	17-May-17 11:10
BG-2	1701714-11	Solid	16-May-17 15:42	17-May-17 11:10
BG-3	1701714-12	Solid	16-May-17 15:50	17-May-17 11:10

CalRecycle	Project: Ridgecrest Burn Dump	
1001 I Street	Project Number: [none]	**Reported:**
Sacramento CA, 95814	Project Manager: Angela Gomez	01-Jun-17 10:21

ANALYTICAL REPORT FOR SAMPLES
1701714-01 (Solid)
CS-1

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Total Metals by EPA 6000/7000 Series Methods									
Antimony	ND	2.4	mg/kg	1	B7E0479	19-May-17	22-May-17	EPA 6010B	
Arsenic	**3.2**	1.9	"	"	"	"	"	"	
Barium	**60**	0.97	"	"	"	"	"	"	
Beryllium	ND	0.48	"	"	"	"	"	"	
Cadmium	ND	0.24	"	"	"	"	"	"	
Chromium	**1.5**	0.48	"	"	"	"	"	"	
Cobalt	**5.2**	0.48	"	"	"	"	"	"	
Copper	**13**	0.97	"	"	"	"	"	"	
Lead	**14**	0.48	"	"	"	"	"	"	
Molybdenum	ND	0.48	"	"	"	"	"	"	
Nickel	**6.4**	0.24	"	"	"	"	"	"	
Selenium	ND	1.9	"	"	"	"	"	"	
Silver	ND	0.48	"	"	"	"	"	"	
Thallium	ND	0.97	"	"	"	"	"	"	
Vanadium	**26**	0.97	"	"	"	"	"	"	
Zinc	**62**	0.97	"	"	"	"	"	"	
Mercury	ND	0.094	"	"	B7E0421	18-May-17	18-May-17	EPA 7471A	

CalRecycle	Project: Ridgecrest Burn Dump	
1001 I Street	Project Number: [none]	**Reported:**
Sacramento CA, 95814	Project Manager: Angela Gomez	01-Jun-17 10:21

1701714-02 (Solid)

CS-2

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Total Metals by EPA 6000/7000 Series Methods									
Antimony	ND	2.3	mg/kg	1	B7E0479	19-May-17	22-May-17	EPA 6010B	
Arsenic	**2.2**	1.9	"	"	"	"	"	"	
Barium	**38**	0.93	"	"	"	"	"	"	
Beryllium	ND	0.46	"	"	"	"	"	"	
Cadmium	ND	0.23	"	"	"	"	"	"	
Chromium	**3.0**	0.46	"	"	"	"	"	"	
Cobalt	**4.6**	0.46	"	"	"	"	"	"	
Copper	**9.2**	0.93	"	"	"	"	"	"	
Lead	**2.2**	0.46	"	"	"	"	"	"	
Molybdenum	ND	0.46	"	"	"	"	"	"	
Nickel	**5.9**	0.23	"	"	"	"	"	"	
Selenium	ND	1.9	"	"	"	"	"	"	
Silver	ND	0.46	"	"	"	"	"	"	
Thallium	ND	0.93	"	"	"	"	"	"	
Vanadium	**20**	0.93	"	"	"	"	"	"	
Zinc	**19**	0.93	"	"	"	"	"	"	
Mercury	ND	0.098	"	"	B7E0421	18-May-17	18-May-17	EPA 7471A	

CalRecycle	Project: Ridgecrest Burn Dump	
1001 I Street	Project Number: [none]	**Reported:**
Sacramento CA, 95814	Project Manager: Angela Gomez	01-Jun-17 10:21

1701714-03 (Solid)

CS-3

Total Metals by EPA 6000/7000 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Antimony	ND	2.3	mg/kg	1	B7E0479	19-May-17	22-May-17	EPA 6010B	
Arsenic	**2.1**	1.8	"	"	"	"	"	"	
Barium	**51**	0.91	"	"	"	"	"	"	
Beryllium	ND	0.46	"	"	"	"	"	"	
Cadmium	ND	0.23	"	"	"	"	"	"	
Chromium	**1.0**	0.46	"	"	"	"	"	"	
Cobalt	**5.2**	0.46	"	"	"	"	"	"	
Copper	**11**	0.91	"	"	"	"	"	"	
Lead	**6.9**	0.46	"	"	"	"	"	"	
Molybdenum	ND	0.46	"	"	"	"	"	"	
Nickel	**5.4**	0.23	"	"	"	"	"	"	
Selenium	ND	1.8	"	"	"	"	"	"	
Silver	ND	0.46	"	"	"	"	"	"	
Thallium	ND	0.91	"	"	"	"	"	"	
Vanadium	**24**	0.91	"	"	"	"	"	"	
Zinc	**77**	0.91	"	"	"	"	"	"	
Mercury	ND	0.096	"	"	B7E0421	18-May-17	18-May-17	EPA 7471A	

CalRecycle	Project: Ridgecrest Burn Dump	
1001 I Street	Project Number: [none]	**Reported:**
Sacramento CA, 95814	Project Manager: Angela Gomez	01-Jun-17 10:21

1701714-04 (Solid)

CS-4

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Total Metals by EPA 6000/7000 Series Methods									
Antimony	ND	2.4	mg/kg	1	B7E0479	19-May-17	22-May-17	EPA 6010B	
Arsenic	ND	1.9	"	"	"	"	"	"	
Barium	**40**	0.95	"	"	"	"	"	"	
Beryllium	ND	0.47	"	"	"	"	"	"	
Cadmium	ND	0.24	"	"	"	"	"	"	
Chromium	**1.2**	0.47	"	"	"	"	"	"	
Cobalt	**4.6**	0.47	"	"	"	"	"	"	
Copper	**8.7**	0.95	"	"	"	"	"	"	
Lead	**8.1**	0.47	"	"	"	"	"	"	
Molybdenum	ND	0.47	"	"	"	"	"	"	
Nickel	**4.9**	0.24	"	"	"	"	"	"	
Selenium	ND	1.9	"	"	"	"	"	"	
Silver	ND	0.47	"	"	"	"	"	"	
Thallium	ND	0.95	"	"	"	"	"	"	
Vanadium	**18**	0.95	"	"	"	"	"	"	
Zinc	**33**	0.95	"	"	"	"	"	"	
Mercury	ND	0.099	"	"	B7E0421	18-May-17	18-May-17	EPA 7471A	

CalRecycle	Project: Ridgecrest Burn Dump	
1001 I Street	Project Number: [none]	**Reported:**
Sacramento CA, 95814	Project Manager: Angela Gomez	01-Jun-17 10:21

1701714-05 (Solid)

CS-5

Total Metals by EPA 6000/7000 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Antimony	ND	2.5	mg/kg	1	B7E0479	19-May-17	22-May-17	EPA 6010B	
Arsenic	**3.3**	2.0	"	"	"	"	"	"	
Barium	**52**	0.98	"	"	"	"	"	"	
Beryllium	ND	0.49	"	"	"	"	"	"	
Cadmium	ND	0.25	"	"	"	"	"	"	
Chromium	**1.6**	0.49	"	"	"	"	"	"	
Cobalt	**6.7**	0.49	"	"	"	"	"	"	
Copper	**14**	0.98	"	"	"	"	"	"	
Lead	**4.5**	0.49	"	"	"	"	"	"	
Molybdenum	**0.51**	0.49	"	"	"	"	"	"	
Nickel	**6.6**	0.25	"	"	"	"	"	"	
Selenium	ND	2.0	"	"	"	"	"	"	
Silver	ND	0.49	"	"	"	"	"	"	
Thallium	ND	0.98	"	"	"	"	"	"	
Vanadium	**27**	0.98	"	"	"	"	"	"	
Zinc	**27**	0.98	"	"	"	"	"	"	
Mercury	ND	0.098	"	"	B7E0421	18-May-17	18-May-17	EPA 7471A	

CalRecycle	Project: Ridgecrest Burn Dump	
1001 I Street	Project Number: [none]	**Reported:**
Sacramento CA, 95814	Project Manager: Angela Gomez	01-Jun-17 10:21

1701714-06 (Solid)

CS-6

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Total Metals by EPA 6000/7000 Series Methods									
Antimony	ND	2.4	mg/kg	1	B7E0479	19-May-17	22-May-17	EPA 6010B	
Arsenic	**2.0**	1.9	"	"	"	"	"	"	
Barium	**46**	0.95	"	"	"	"	"	"	
Beryllium	ND	0.47	"	"	"	"	"	"	
Cadmium	ND	0.24	"	"	"	"	"	"	
Chromium	**1.4**	0.47	"	"	"	"	"	"	
Cobalt	**7.2**	0.47	"	"	"	"	"	"	
Copper	**11**	0.95	"	"	"	"	"	"	
Lead	**3.9**	0.47	"	"	"	"	"	"	
Molybdenum	ND	0.47	"	"	"	"	"	"	
Nickel	**5.6**	0.24	"	"	"	"	"	"	
Selenium	ND	1.9	"	"	"	"	"	"	
Silver	ND	0.47	"	"	"	"	"	"	
Thallium	ND	0.95	"	"	"	"	"	"	
Vanadium	**30**	0.95	"	"	"	"	"	"	
Zinc	**19**	0.95	"	"	"	"	"	"	
Mercury	ND	0.087	"	"	B7E0421	18-May-17	18-May-17	EPA 7471A	

307 Roemer Way, Suite 300, Santa Maria, CA 93454
Client Connect: client.oec.com\reports
www.oecusa.com
TEL: (805) 922-4772
FAX: (805) 925-3376

CalRecycle	Project: Ridgecrest Burn Dump	
1001 I Street	Project Number: [none]	**Reported:**
Sacramento CA, 95814	Project Manager: Angela Gomez	01-Jun-17 10:21

1701714-07 (Solid)

CS-7

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Total Metals by EPA 6000/7000 Series Methods									
Antimony	ND	2.3	mg/kg	1	B7E0479	19-May-17	22-May-17	EPA 6010B	
Arsenic	ND	1.9	"	"	"	"	"	"	
Barium	**57**	0.94	"	"	"	"	"	"	
Beryllium	ND	0.47	"	"	"	"	"	"	
Cadmium	ND	0.23	"	"	"	"	"	"	
Chromium	**0.63**	0.47	"	"	"	"	"	"	
Cobalt	**5.9**	0.47	"	"	"	"	"	"	
Copper	**12**	0.94	"	"	"	"	"	"	
Lead	**2.0**	0.47	"	"	"	"	"	"	
Molybdenum	ND	0.47	"	"	"	"	"	"	
Nickel	**5.8**	0.23	"	"	"	"	"	"	
Selenium	ND	1.9	"	"	"	"	"	"	
Silver	ND	0.47	"	"	"	"	"	"	
Thallium	ND	0.94	"	"	"	"	"	"	
Vanadium	**22**	0.94	"	"	"	"	"	"	
Zinc	**20**	0.94	"	"	"	"	"	"	
Mercury	ND	0.094	"	"	B7E0421	18-May-17	18-May-17	EPA 7471A	

CalRecycle	Project: Ridgecrest Burn Dump	
1001 I Street	Project Number: [none]	**Reported:**
Sacramento CA, 95814	Project Manager: Angela Gomez	01-Jun-17 10:21

1701714-08 (Solid)

CS-8

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Total Metals by EPA 6000/7000 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Antimony	ND	2.5	mg/kg	1	B7E0479	19-May-17	22-May-17	EPA 6010B	
Arsenic	**2.0**	2.0	"	"	"	"	"	"	
Barium	**44**	0.99	"	"	"	"	"	"	
Beryllium	ND	0.50	"	"	"	"	"	"	
Cadmium	ND	0.25	"	"	"	"	"	"	
Chromium	**1.2**	0.50	"	"	"	"	"	"	
Cobalt	**6.0**	0.50	"	"	"	"	"	"	
Copper	**9.8**	0.99	"	"	"	"	"	"	
Lead	**3.2**	0.50	"	"	"	"	"	"	
Molybdenum	ND	0.50	"	"	"	"	"	"	
Nickel	**6.3**	0.25	"	"	"	"	"	"	
Selenium	ND	2.0	"	"	"	"	"	"	
Silver	ND	0.50	"	"	"	"	"	"	
Thallium	ND	0.99	"	"	"	"	"	"	
Vanadium	**33**	0.99	"	"	"	"	"	"	
Zinc	**18**	0.99	"	"	"	"	"	"	
Mercury	ND	0.093	"	"	B7E0421	18-May-17	18-May-17	EPA 7471A	

CalRecycle	Project: Ridgecrest Burn Dump	
1001 I Street	Project Number: [none]	**Reported:**
Sacramento CA, 95814	Project Manager: Angela Gomez	01-Jun-17 10:21

1701714-09 (Solid)
CS-9

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Total Metals by EPA 6000/7000 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Antimony	ND	2.4	mg/kg	1	B7E0479	19-May-17	22-May-17	EPA 6010B	
Arsenic	**2.8**	1.9	"	"	"	"	"	"	
Barium	**23**	0.96	"	"	"	"	"	"	
Beryllium	**0.49**	0.48	"	"	"	"	"	"	
Cadmium	ND	0.24	"	"	"	"	"	"	
Chromium	**1.3**	0.48	"	"	"	"	"	"	
Cobalt	**5.4**	0.48	"	"	"	"	"	"	
Copper	**8.3**	0.96	"	"	"	"	"	"	
Lead	**3.2**	0.48	"	"	"	"	"	"	
Molybdenum	ND	0.48	"	"	"	"	"	"	
Nickel	**4.9**	0.24	"	"	"	"	"	"	
Selenium	ND	1.9	"	"	"	"	"	"	
Silver	ND	0.48	"	"	"	"	"	"	
Thallium	ND	0.96	"	"	"	"	"	"	
Vanadium	**29**	0.96	"	"	"	"	"	"	
Zinc	**17**	0.96	"	"	"	"	"	"	
Mercury	ND	0.095	"	"	B7E0421	18-May-17	18-May-17	EPA 7471A	

CalRecycle	Project: Ridgecrest Burn Dump	
1001 I Street	Project Number: [none]	**Reported:**
Sacramento CA, 95814	Project Manager: Angela Gomez	01-Jun-17 10:21

1701714-10 (Solid)

BG-1

Total Metals by EPA 6000/7000 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Antimony	ND	2.3	mg/kg	1	B7E0479	19-May-17	22-May-17	EPA 6010B	
Arsenic	**3.1**	1.9	"	"	"	"	"	"	
Barium	**79**	0.94	"	"	"	"	"	"	
Beryllium	ND	0.47	"	"	"	"	"	"	
Cadmium	ND	0.23	"	"	"	"	"	"	
Chromium	**13**	0.47	"	"	"	"	"	"	
Cobalt	**6.5**	0.47	"	"	"	"	"	"	
Copper	**17**	0.94	"	"	"	"	"	"	
Lead	**25**	0.47	"	"	"	"	"	"	
Molybdenum	ND	0.47	"	"	"	"	"	"	
Nickel	**7.4**	0.23	"	"	"	"	"	"	
Selenium	ND	1.9	"	"	"	"	"	"	
Silver	ND	0.47	"	"	"	"	"	"	
Thallium	**1.5**	0.94	"	"	"	"	"	"	
Vanadium	**33**	0.94	"	"	"	"	"	"	
Zinc	**210**	0.94	"	"	"	"	"	"	
Mercury	ND	0.097	"	"	B7E0421	18-May-17	18-May-17	EPA 7471A	

CalRecycle	Project: Ridgecrest Burn Dump	
1001 I Street	Project Number: [none]	**Reported:**
Sacramento CA, 95814	Project Manager: Angela Gomez	01-Jun-17 10:21

1701714-11 (Solid)

BG-2

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Total Metals by EPA 6000/7000 Series Methods									
Antimony	ND	2.3	mg/kg	1	B7E0419	18-May-17	22-May-17	EPA 6010B	
Arsenic	**2.5**	1.9	"	"	"	"	"	"	
Barium	**41**	0.94	"	"	"	"	"	"	
Beryllium	ND	0.47	"	"	"	"	"	"	
Cadmium	ND	0.23	"	"	"	"	"	"	
Chromium	**3.9**	0.47	"	"	"	"	"	"	
Cobalt	**4.6**	0.47	"	"	"	"	"	"	
Copper	**9.6**	0.94	"	"	"	"	"	"	
Lead	**9.4**	0.47	"	"	"	"	"	"	
Molybdenum	ND	0.47	"	"	"	"	"	"	
Nickel	**4.9**	0.23	"	"	"	"	"	"	
Selenium	ND	1.9	"	"	"	"	"	"	
Silver	ND	0.47	"	"	"	"	"	"	
Thallium	ND	0.94	"	"	"	"	"	"	
Vanadium	**25**	0.94	"	"	"	"	"	"	
Zinc	**32**	0.94	"	"	"	"	"	"	
Mercury	ND	0.094	"	"	B7E0421	18-May-17	18-May-17	EPA 7471A	

CalRecycle	Project: Ridgecrest Burn Dump	
1001 I Street	Project Number: [none]	**Reported:**
Sacramento CA, 95814	Project Manager: Angela Gomez	01-Jun-17 10:21

1701714-12 (Solid)

BG-3

Total Metals by EPA 6000/7000 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Antimony	ND	2.4	mg/kg	1	B7E0419	18-May-17	22-May-17	EPA 6010B	
Arsenic	ND	1.9	"	"	"	"	"	"	
Barium	**29**	0.96	"	"	"	"	"	"	
Beryllium	ND	0.48	"	"	"	"	"	"	
Cadmium	ND	0.24	"	"	"	"	"	"	
Chromium	**3.1**	0.48	"	"	"	"	"	"	
Cobalt	**5.3**	0.48	"	"	"	"	"	"	
Copper	**33**	0.96	"	"	"	"	"	"	
Lead	**6.7**	0.48	"	"	"	"	"	"	
Molybdenum	ND	0.48	"	"	"	"	"	"	
Nickel	**3.4**	0.24	"	"	"	"	"	"	
Selenium	ND	1.9	"	"	"	"	"	"	
Silver	ND	0.48	"	"	"	"	"	"	
Thallium	ND	0.96	"	"	"	"	"	"	
Vanadium	**22**	0.96	"	"	"	"	"	"	
Zinc	**14**	0.96	"	"	"	"	"	"	
Mercury	ND	0.098	"	"	B7E0421	18-May-17	18-May-17	EPA 7471A	

Total Metals by EPA 6000/7000 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7E0419 - EPA 3050B										
Blank (B7E0419-BLK1)				Prepared: 18-May-17 Analyzed: 22-May-17						
Antimony	ND	2.5	mg/kg							
Arsenic	ND	2.0	"							
Barium	ND	1.0	"							
Beryllium	ND	0.50	"							
Cadmium	ND	0.25	"							
Chromium	ND	0.50	"							
Cobalt	ND	0.50	"							
Copper	ND	1.0	"							
Lead	ND	0.50	"							
Molybdenum	ND	0.50	"							
Nickel	ND	0.25	"							
Selenium	ND	2.0	"							
Silver	ND	0.50	"							
Thallium	ND	1.0	"							
Vanadium	ND	1.0	"							
Zinc	ND	1.0	"							
LCS (B7E0419-BS1)				Prepared: 18-May-17 Analyzed: 22-May-17						
Antimony	98.6	2.5	mg/kg	100		98.6	80-120			
Arsenic	95.7	2.0	"	100		95.7	80-120			
Barium	97.7	1.0	"	100		97.7	80-120			
Beryllium	102	0.50	"	100		102	80-120			
Cadmium	104	0.25	"	100		104	80-120			
Chromium	102	0.50	"	100		102	80-120			
Cobalt	101	0.50	"	100		101	80-120			
Copper	105	1.0	"	100		105	80-120			
Lead	102	0.50	"	100		102	80-120			
Molybdenum	96.0	0.50	"	100		96.0	80-120			
Nickel	103	0.25	"	100		103	80-120			
Selenium	99.6	2.0	"	100		99.6	80-120			
Silver	4.42	0.50	"	5.00		88.5	80-120			
Thallium	106	1.0	"	100		106	80-120			
Vanadium	95.7	1.0	"	100		95.7	80-120			
Zinc	103	1.0	"	100		103	80-120			

CalRecycle	Project: Ridgecrest Burn Dump	
1001 I Street	Project Number: [none]	**Reported:**
Sacramento CA, 95814	Project Manager: Angela Gomez	01-Jun-17 10:21

Total Metals by EPA 6000/7000 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7E0419 - EPA 3050B										
LCS Dup (B7E0419-BSD1)				Prepared: 18-May-17 Analyzed: 22-May-17						
Antimony	101	2.5	mg/kg	100		101	80-120	2.60	20	
Arsenic	96.3	2.0	"	100		96.3	80-120	0.625	20	
Barium	99.6	1.0	"	100		99.6	80-120	1.93	20	
Beryllium	104	0.50	"	100		104	80-120	1.98	20	
Cadmium	106	0.25	"	100		106	80-120	2.09	20	
Chromium	104	0.50	"	100		104	80-120	1.85	20	
Cobalt	103	0.50	"	100		103	80-120	1.76	20	
Copper	107	1.0	"	100		107	80-120	1.61	20	
Lead	104	0.50	"	100		104	80-120	1.84	20	
Molybdenum	99.6	0.50	"	100		99.6	80-120	3.63	20	
Nickel	105	0.25	"	100		105	80-120	1.87	20	
Selenium	103	2.0	"	100		103	80-120	3.26	20	
Silver	4.48	0.50	"	5.00		89.5	80-120	1.12	20	
Thallium	108	1.0	"	100		108	80-120	1.59	20	
Vanadium	97.4	1.0	"	100		97.4	80-120	1.76	20	
Zinc	105	1.0	"	100		105	80-120	1.93	20	
Duplicate (B7E0419-DUP1)	**Source: 1701708-01**			Prepared: 18-May-17 Analyzed: 22-May-17						
Antimony	ND	2.3	mg/kg		ND				20	
Arsenic	1.58	1.9	"		2.94			59.9	20	QR-04
Barium	57.1	0.93	"		142			85.2	20	QR-04
Beryllium	ND	0.47	"		0.303				20	
Cadmium	ND	0.23	"		ND				20	
Chromium	6.59	0.47	"		11.5			54.0	20	QR-04
Cobalt	2.65	0.47	"		4.91			59.6	20	QR-04
Copper	8.07	0.93	"		15.8			64.6	20	QR-04
Lead	10.4	0.47	"		20.0			63.0	20	QR-04
Molybdenum	0.386	0.47	"		1.25			105	20	QR-04
Nickel	10.9	0.23	"		19.7			57.5	20	QR-04
Selenium	ND	1.9	"		ND				20	
Silver	ND	0.47	"		ND				20	
Thallium	ND	0.93	"		1.35				20	
Vanadium	12.3	0.93	"		22.4			58.3	20	QR-04
Zinc	42.1	0.93	"		87.0			69.5	20	QR-04

CalRecycle	Project: Ridgecrest Burn Dump	
1001 I Street	Project Number: [none]	**Reported:**
Sacramento CA, 95814	Project Manager: Angela Gomez	01-Jun-17 10:21

Total Metals by EPA 6000/7000 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7E0419 - EPA 3050B										
Matrix Spike (B7E0419-MS1)	**Source: 1701708-01**			Prepared: 18-May-17 Analyzed: 22-May-17						
Antimony	38.0	2.4	mg/kg	95.0	ND	40.1	10-113			
Arsenic	96.1	1.9	"	95.0	2.94	98.1	72-134			
Barium	205	0.95	"	95.0	142	66.3	14-200			
Beryllium	98.9	0.47	"	95.0	0.303	104	72-117			
Cadmium	97.3	0.24	"	95.0	ND	102	73-118			
Chromium	110	0.47	"	95.0	11.5	104	67-146			
Cobalt	98.4	0.47	"	95.0	4.91	98.5	69-130			
Copper	113	0.95	"	95.0	15.8	102	61-144			
Lead	127	0.47	"	95.0	20.0	113	66-129			
Molybdenum	90.5	0.47	"	95.0	1.25	93.9	69-114			
Nickel	115	0.24	"	95.0	19.7	101	71-132			
Selenium	91.3	1.9	"	95.0	ND	96.2	53-136			
Silver	4.18	0.47	"	4.75	ND	88.0	52-138			
Thallium	92.8	0.95	"	95.0	1.35	96.3	55-135			
Vanadium	118	0.95	"	95.0	22.4	101	74-132			
Zinc	171	0.95	"	95.0	87.0	88.3	38-159			
Matrix Spike Dup (B7E0419-MSD1)	**Source: 1701708-01**			Prepared: 18-May-17 Analyzed: 22-May-17						
Antimony	36.7	2.4	mg/kg	95.5	ND	38.4	10-113	3.61	20	
Arsenic	97.8	1.9	"	95.5	2.94	99.3	72-134	1.80	20	
Barium	208	0.96	"	95.5	142	69.0	14-200	1.43	20	
Beryllium	99.9	0.48	"	95.5	0.303	104	72-117	1.05	20	
Cadmium	98.8	0.24	"	95.5	ND	103	73-118	1.45	20	
Chromium	112	0.48	"	95.5	11.5	105	67-146	1.65	20	
Cobalt	99.7	0.48	"	95.5	4.91	99.3	69-130	1.29	20	
Copper	117	0.96	"	95.5	15.8	106	61-144	3.43	20	
Lead	113	0.48	"	95.5	20.0	97.7	66-129	11.3	20	
Molybdenum	89.7	0.48	"	95.5	1.25	92.6	69-114	0.803	20	
Nickel	119	0.24	"	95.5	19.7	104	71-132	2.93	20	
Selenium	93.3	1.9	"	95.5	ND	97.6	53-136	2.12	20	
Silver	4.29	0.48	"	4.78	ND	89.8	52-138	2.60	20	
Thallium	92.6	0.96	"	95.5	1.35	95.5	55-135	0.302	20	
Vanadium	123	0.96	"	95.5	22.4	105	74-132	3.49	20	
Zinc	175	0.96	"	95.5	87.0	91.8	38-159	2.20	20	

CalRecycle	Project: Ridgecrest Burn Dump	
1001 I Street	Project Number: [none]	**Reported:**
Sacramento CA, 95814	Project Manager: Angela Gomez	01-Jun-17 10:21

Total Metals by EPA 6000/7000 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7E0419 - EPA 3050B										
Post Spike (B7E0419-PS1)	**Source: 1701708-01**			Prepared: 18-May-17 Analyzed: 22-May-17						
Antimony	2.04		mg/L	2.00	-0.0355	102	75-125			
Arsenic	1.94		"	2.00	0.0607	94.0	75-125			
Barium	3.12		"	2.00	2.93	9.30	75-125			QL-02
Beryllium	2.01		"	2.00	0.00626	100	75-125			
Cadmium	2.01		"	2.00	-0.00734	100	75-125			
Chromium	2.11		"	2.00	0.237	93.8	75-125			
Cobalt	1.96		"	2.00	0.101	93.2	75-125			
Copper	2.20		"	2.00	0.326	93.5	75-125			
Lead	2.12		"	2.00	0.413	85.6	75-125			
Molybdenum	2.02		"	2.00	0.0258	99.6	75-125			
Nickel	2.20		"	2.00	0.407	89.4	75-125			
Selenium	1.92		"	2.00	-0.106	96.2	75-125			
Silver	0.0962		"	0.100	-0.00254	96.2	75-125			
Thallium	1.95		"	2.00	0.0280	96.1	75-125			
Vanadium	2.15		"	2.00	0.462	84.6	75-125			
Zinc	2.86		"	2.00	1.80	52.9	75-125			QL-02
Batch B7E0421 - EPA 7471A Prep										
Blank (B7E0421-BLK1)				Prepared & Analyzed: 18-May-17						
Mercury	ND	0.10	mg/kg							
LCS (B7E0421-BS1)				Prepared & Analyzed: 18-May-17						
Mercury	0.836	0.10	mg/kg	0.833		100	85-115			
LCS Dup (B7E0421-BSD1)				Prepared & Analyzed: 18-May-17						
Mercury	0.834	0.10	mg/kg	0.833		100	85-115	0.200	20	
Duplicate (B7E0421-DUP1)	**Source: 1701714-01**			Prepared & Analyzed: 18-May-17						
Mercury	0.0132	0.098	mg/kg		0.0141			6.39	20	
Matrix Spike (B7E0421-MS1)	**Source: 1701714-01**			Prepared & Analyzed: 18-May-17						
Mercury	0.842	0.099	mg/kg	0.822	0.0141	101	75-125			

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Total Metals by EPA 6000/7000 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7E0421 - EPA 7471A Prep										
Matrix Spike Dup (B7E0421-MSD1)	**Source: 1701714-01**			Prepared & Analyzed: 18-May-17						
Mercury	0.798	0.094	mg/kg	0.781	0.0141	100	75-125	5.28	20	
Post Spike (B7E0421-PS1)	**Source: 1701714-01**			Prepared & Analyzed: 18-May-17						
Mercury	5.02		ug/L	5.00	0.0896	98.5	85-115			
Batch B7E0479 - EPA 3050B										
Blank (B7E0479-BLK1)				Prepared: 19-May-17 Analyzed: 22-May-17						
Antimony	ND	2.5	mg/kg							
Arsenic	ND	2.0	"							
Barium	ND	1.0	"							
Beryllium	ND	0.50	"							
Cadmium	ND	0.25	"							
Chromium	ND	0.50	"							
Cobalt	ND	0.50	"							
Copper	ND	1.0	"							
Lead	ND	0.50	"							
Molybdenum	ND	0.50	"							
Nickel	ND	0.25	"							
Selenium	ND	2.0	"							
Silver	ND	0.50	"							
Thallium	ND	1.0	"							
Vanadium	ND	1.0	"							
Zinc	ND	1.0	"							
LCS (B7E0479-BS1)				Prepared: 19-May-17 Analyzed: 22-May-17						
Antimony	109	2.5	mg/kg	100		109	80-120			
Arsenic	109	2.0	"	100		109	80-120			
Barium	109	1.0	"	100		109	80-120			
Beryllium	112	0.50	"	100		112	80-120			
Cadmium	113	0.25	"	100		113	80-120			
Chromium	115	0.50	"	100		115	80-120			
Cobalt	114	0.50	"	100		114	80-120			
Copper	117	1.0	"	100		117	80-120			
Lead	114	0.50	"	100		114	80-120			
Molybdenum	110	0.50	"	100		110	80-120			
Nickel	114	0.25	"	100		114	80-120			
Selenium	110	2.0	"	100		110	80-120			
Silver	4.64	0.50	"	5.00		92.7	80-120			
Thallium	116	1.0	"	100		116	80-120			
Vanadium	109	1.0	"	100		109	80-120			
Zinc	114	1.0	"	100		114	80-120			

Total Metals by EPA 6000/7000 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7E0479 - EPA 3050B										
LCS Dup (B7E0479-BSD1)				Prepared: 19-May-17 Analyzed: 22-May-17						
Antimony	104	2.5	mg/kg	100		104	80-120	4.37	20	
Arsenic	105	2.0	"	100		105	80-120	4.07	20	
Barium	105	1.0	"	100		105	80-120	3.78	20	
Beryllium	107	0.50	"	100		107	80-120	4.20	20	
Cadmium	109	0.25	"	100		109	80-120	3.96	20	
Chromium	110	0.50	"	100		110	80-120	3.87	20	
Cobalt	109	0.50	"	100		109	80-120	4.08	20	
Copper	113	1.0	"	100		113	80-120	3.79	20	
Lead	109	0.50	"	100		109	80-120	4.08	20	
Molybdenum	107	0.50	"	100		107	80-120	3.46	20	
Nickel	109	0.25	"	100		109	80-120	4.03	20	
Selenium	106	2.0	"	100		106	80-120	3.62	20	
Silver	4.46	0.50	"	5.00		89.1	80-120	3.96	20	
Thallium	111	1.0	"	100		111	80-120	4.23	20	
Vanadium	105	1.0	"	100		105	80-120	3.70	20	
Zinc	110	1.0	"	100		110	80-120	3.92	20	
Duplicate (B7E0479-DUP1)	**Source: 1701714-05**			Prepared: 19-May-17 Analyzed: 22-May-17						
Antimony	ND	2.4	mg/kg		ND				20	
Arsenic	1.73	1.9	"		3.29			62.4	20	QR-04
Barium	47.6	0.94	"		52.0			8.87	20	
Beryllium	0.428	0.47	"		0.468			8.82	20	
Cadmium	ND	0.24	"		ND				20	
Chromium	2.19	0.47	"		1.56			33.2	20	QR-04
Cobalt	6.07	0.47	"		6.74			10.5	20	
Copper	13.0	0.94	"		13.8			5.63	20	
Lead	4.51	0.47	"		4.46			1.16	20	
Molybdenum	0.259	0.47	"		0.512			65.7	20	QR-04
Nickel	6.34	0.24	"		6.57			3.70	20	
Selenium	ND	1.9	"		ND				20	
Silver	ND	0.47	"		ND				20	
Thallium	0.621	0.94	"		0.876			34.1	20	QR-04
Vanadium	26.5	0.94	"		26.7			0.541	20	
Zinc	24.6	0.94	"		26.9			9.10	20	

Total Metals by EPA 6000/7000 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7E0479 - EPA 3050B										
Matrix Spike (B7E0479-MS1)	**Source: 1701714-05**			Prepared: 19-May-17 Analyzed: 22-May-17						
Antimony	31.9	2.4	mg/kg	96.3	ND	33.1	10-113			
Arsenic	104	1.9	"	96.3	3.29	105	72-134			
Barium	149	0.96	"	96.3	52.0	101	14-200			
Beryllium	105	0.48	"	96.3	0.468	108	72-117			
Cadmium	102	0.24	"	96.3	ND	106	73-118			
Chromium	108	0.48	"	96.3	1.56	111	67-146			
Cobalt	109	0.48	"	96.3	6.74	106	69-130			
Copper	122	0.96	"	96.3	13.8	112	61-144			
Lead	104	0.48	"	96.3	4.46	104	66-129			
Molybdenum	93.8	0.48	"	96.3	0.512	96.8	69-114			
Nickel	110	0.24	"	96.3	6.57	107	71-132			
Selenium	94.6	1.9	"	96.3	ND	98.2	53-136			
Silver	3.95	0.48	"	4.82	ND	81.9	52-138			
Thallium	99.2	0.96	"	96.3	0.876	102	55-135			
Vanadium	126	0.96	"	96.3	26.7	104	74-132			
Zinc	133	0.96	"	96.3	26.9	110	38-159			
Matrix Spike Dup (B7E0479-MSD1)	**Source: 1701714-05**			Prepared: 19-May-17 Analyzed: 22-May-17						
Antimony	25.2	2.3	mg/kg	92.0	ND	27.4	10-113	23.4	20	QR-02
Arsenic	102	1.8	"	92.0	3.29	108	72-134	2.15	20	
Barium	205	0.92	"	92.0	52.0	166	14-200	31.7	20	QR-02
Beryllium	99.4	0.46	"	92.0	0.468	107	72-117	5.12	20	
Cadmium	97.2	0.23	"	92.0	ND	106	73-118	5.08	20	
Chromium	103	0.46	"	92.0	1.56	110	67-146	4.88	20	
Cobalt	105	0.46	"	92.0	6.74	106	69-130	4.13	20	
Copper	119	0.92	"	92.0	13.8	114	61-144	2.07	20	
Lead	102	0.46	"	92.0	4.46	106	66-129	2.65	20	
Molybdenum	86.3	0.46	"	92.0	0.512	93.3	69-114	8.27	20	
Nickel	106	0.23	"	92.0	6.57	108	71-132	3.56	20	
Selenium	88.8	1.8	"	92.0	ND	96.6	53-136	6.31	20	
Silver	3.54	0.46	"	4.60	ND	77.0	52-138	10.8	20	
Thallium	94.3	0.92	"	92.0	0.876	101	55-135	5.10	20	
Vanadium	127	0.92	"	92.0	26.7	109	74-132	0.259	20	
Zinc	132	0.92	"	92.0	26.9	114	38-159	0.945	20	

CalRecycle	Project: Ridgecrest Burn Dump	
1001 I Street	Project Number: [none]	**Reported:**
Sacramento CA, 95814	Project Manager: Angela Gomez	01-Jun-17 10:21

Total Metals by EPA 6000/7000 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7E0479 - EPA 3050B										
Post Spike (B7E0479-PS1)	**Source: 1701714-05**			Prepared: 19-May-17 Analyzed: 22-May-17						
Antimony	1.91		mg/L	2.00	-0.00799	95.4	75-125			
Arsenic	1.93		"	2.00	0.0668	93.3	75-125			
Barium	2.90		"	2.00	1.06	92.3	75-125			
Beryllium	1.90		"	2.00	0.00948	94.7	75-125			
Cadmium	1.88		"	2.00	-0.0228	93.9	75-125			
Chromium	1.95		"	2.00	0.0317	95.7	75-125			
Cobalt	1.99		"	2.00	0.137	92.7	75-125			
Copper	2.20		"	2.00	0.280	95.9	75-125			
Lead	1.93		"	2.00	0.0904	92.2	75-125			
Molybdenum	1.95		"	2.00	0.0104	96.9	75-125			
Nickel	2.01		"	2.00	0.133	93.8	75-125			
Selenium	1.76		"	2.00	-0.0953	87.9	75-125			
Silver	0.0859		"	0.100	-0.00938	85.9	75-125			
Thallium	1.84		"	2.00	0.0178	91.2	75-125			
Vanadium	2.37		"	2.00	0.541	91.3	75-125			
Zinc	2.46		"	2.00	0.546	95.6	75-125			

Notes and Definitions

QR-04	The RPD exceeded the QC control limits.
QR-02	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
QL-02	The spike recovery is outside the control limits.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference

Oilfield Environmental and Compliance
307 Roemer Way Suite 300, Santa Maria, CA 93454
Phone: (805) 922-4772 Fax: (805) 925-3376 www.oecusa.com
101 Adkisson Way, Taft, CA 93268
Phone: (661) 762-9143

CHAIN OF CUSTODY

Company: Cal Recycle
Address: 1001 I St.
City/State/ZIP: Sacramento, CA 95814
Phone: 916-445-3638 Fax: E-mail: angela.gomez@calrecycle.ca.gov
Report To: Angela Gomez Sampler: Angela Gomez
Report Format(s): FAX- ☐ PDF (std)- ☒ Colt/LUFT EDF- ☐ EDD- ☐
Turnaround Time: 10 Days- ☒ 5 Days (std)- ☐ 3 Days- ☐ 2 Days- ☐ 1 Day- ☐ ASAP- ☐
NOTE: Samples received after 4:00PM will be considered as received the next business day

Project Name/#: Ridgecrest Burn Dump
Site: Ridgecrest, CA

OEC Sample ID	Date/Time Sampled	Matrix** (see key)	# of Cont.	Client Sample ID	Analysis Requested: Title 22 Metals	Special Instructions:
1701714-1A	5/16/17 1:40	Soil	1	CS-1	↓	
2A	1:52	↓	↓	CS-2	↓	
3A	2:01	↓	↓	CS-3	↓	
4A	2:16	↓	↓	CS-4	↓	
5A	2:30	↓	↓	CS-5	↓	
6A	2:45	↓	↓	CS-6	↓	
7A	2:58	↓	↓	CS-7	↓	
8A	3:10	↓	↓	CS-8	↓	
9A	3:35	↓	↓	CS-9	↓	
10A	3:40	↓	↓	BG-1	↓	
11A	3:42	↓	↓	BG-2	↓	
12A	3:50	↓	↓	BG-3	↓	

Relinquished By:	agomez	Date: 5/16/17	Time: 4:30
Received By:		Date:	Time:
Relinquished By:	FEDEX	Date: 05/~~16~~ 17/17 EH 5/17	Time: 1110
Received By:	Eric Hadley (OEC)	Date: 05/17/17	Time: 1110
Relinquished By:		Date:	Time:
Received By:		Date:	Time:

Matrix Key**:
A = air / vapor
AQ = aqueous
DW = drinking water
F = filter
GW = ground water
P = product / oil
PW = product water
S = solid / sediment
SW = surface water
WP = wipe
WW = waste water

Comments/PO#:

OEC

CLIENT: CAL RECYCLE

WORK ORDER: 1701714

TEMPERATURE: 4.2 °C

Acceptable Range: 0°C to 6°C [see exception notes below]

SAMPLE RECEIPT

COC RECEIVED DATE/TIME: 05/17/17 @ 1110

LOGIN DATE/TIME: 05/17/17 @ 1158

REFRIGERATOR(S): 8

SAMPLE TRANSPORT

- ☐ OEC Courier/Sampler
- ☐ Delivery (Other than OEC)
- ☐ After-Hours Outside Drop-Off [Brought Inside]
- Initials/Date/Time:
- ☒ Shipment Carrier: FEDEX
- Tracking #: 7865 9320 6190

CUSTODY SEALS

☒ None Present

Cooler(s): ☐ Present, Intact ☐ Present, Not Intact ☐ None

Sample(s): ☐ Present, Intact ☐ Present, Not Intact ☐ None

SAMPLE RECEIPT, CONDITION, PRESERVATION

- ☒ Samples Received on Ice Within Temperature Range [Acceptable]
- ☐ Samples Received Outside Temperature Range [Acceptable]
  - ☐ Direct from Field, on Ice
  - ☐ Ambient: Air or Filter Matrix
  - ☐ Received Ambient, Placed on Ice for Transport
  - ☐ Sample Temperature Acceptable for Analysis Requested
- ☐ Samples Received Outside Temperature Range [Exception]
  - ☐ Insufficient Ice or Unknown Cause
  - ☐ See Problem Chain *

(*) PROBLEM CHAIN REQUIRED	YES	NO	N/A	(**) OEC PRES. ID
Completed COC(s) Received With Samples	☒	☐*	☐	
Correct Container(s) for Analysis Requested	☒	☐*	☐	
Container(s) Intact and in Good Condition	☐	☒*	☐	
Container Label(s) Consistent with COC	☐	☒*	☐	
Proper Preservation on Sample Label(s)	☐	☐	☒	
OEC Preservative Added **	☐	☐	☒	
VOA Containers Free of Headspace	☐	☐V	☒	(V) See Comments below or Problem Chain
Tedlar Bag(s) Free of Condensation	☐	☐*	☒	

☒* OR ☒V (Comments) Expedited PM Notification [Init/Date/Time]:

CONTAINERS, COC CHANGES, AND/OR CORRECTIONS

OEC CONTAINER ID	CONTAINER DESCRIPTION	PRESERVATIVE	CHECKS: Cl⁻, S⁻ &/or pH	MATRIX	COMMENTS	INITIALS
1-12 A	1-8oz GLASS JAR EA	—	—	S	SAMPLE 6 RECEIVED BROKEN IN TRANSIT	EA

Rev. 02/12/2016

RECEIPT LOGIN BY: EA

RECEIPT REVIEWED BY: W

OEC PROBLEM CHAIN

CLIENT: CALRECYCLE **OEC ID #:** 1701714

ISSUES RECORDED BY (DATE/TIME/INITIALS): 05/17/17 @ 1158 EAT

ISSUE(S): PLEASE PROVIDE DETAILS OF ISSUE(S) BELOW – Samples/Containers Affected, as necessary.

- ☐ Samples Received Outside Temp. Range (see below)
- ☐ NO COC document(s) received with samples
- ② ☒ Container(s) NOT intact or in good condition
- ☐ Incorrect containers for analysis requested
- ① ☒ Container label(s) NOT consistent with COC
- ☐ Custody Seals Broken
- ☐ OTHER: (if multiple, identify with numbers)

① SAMPLE 10A CONTAINER LABELED "BG-1", COC HAS "BG-11".

② SAMPLE 6A RECEIVED BROKEN IN TRANSIT. EXTRICATED AS MUCH UNCONTAMINATED SAMPLE AS POSSIBLE. AVOIDED SAMPLE WITH VISIBLE GLASS CONTAMINATION.

RESOLUTIONS: MINIMUM INFO: Issue#[if necessary] – Description – Contact Type (Verbal, email, etc.) – Client Authorization Contact – Date/Time/Initials

①,② WILL EMAIL CLIENT.

FINAL RESOLUTION OF ISSUES BY (DATE/TIME/INITIALS): ______

ORIGIN ID:IYKA (916) 445-3638
ANGELA GOMEZ
CAL RECYCLE
1001 I ST

SACRAMENTO, CA 95814
UNITED STATES US

SHIP DATE: 16MAY17
ACTWGT: 32.00 LB
CAD: 006994322/SSFE1802
DIMS: 20x15x15 IN

BILL THIRD PARTY

TO **GRACIE VENEGAS**
OEC
307 ROEMER WAY
STE 300
SANTA MARIA CA 93454

(805) 922-4772 REF:
INV:
PO: DEPT:

FedEx
Express

E

J171117021401uv

REL#
3785346

WED - 17 MAY 3:00P
STANDARD OVERNIGHT

TRK# 0201 **7865 9320 6190**

93 SMXA

93454
CA-US **ONT**


S/S A-1

OEC

Oilfield Environmental and Compliance

307 Roemer Way Suite 300, Santa Maria, CA 93454
Phone: (805) 922-4772 Fax: (805) 925-3376 www.oecusa.com

101 Adkisson Way, Taft, CA 93268
Phone: (661) 762-9143

CHAIN OF CUSTODY

Company: Cal Recycle
Address: 1001 I St.
City/State/ZIP: Sacramento, CA 95814
Phone: 916-445-3638 **Fax:** **E-mail:** angela.gomez@calrecycle.ca.gov
Report To: Angela Gomez **Sampler:** Angela Gomez
Report Format(s): FAX-☐ PDF (std)-☒ Colt/LUFT EDF-☐ EDD-☐
Turnaround Time: 10 Days-☒ 5 Days (std)-☐ 3 Days-☐ 2 Days-☐ 1 Day-☐ ASAP-☐
NOTE: Samples received after 4:00PM will be considered as received the next business day

Project Name/#: Ridgecrest Burn Dump
Site: Ridgecrest, CA

OEC Sample ID	Date/Time Sampled	Matrix** (see key)	# of Cont.	Client Sample ID	Analysis Requested: Title 22 Metals										Special Instructions:
1701714-1A	5/16/17 1:40	Soil	1	CS-1	↓										
2A	1:52	↓	↓	CS-2											
3A	2:01			CS-3											
4A	2:16			CS-4											
5A	2:30			CS-5											
6A	2:45			CS-6											
7A	2:58			CS-7											
8A	3:10			CS-8											
9A	3:35			CS-9											
10A	3:40			BG-1 + MS 5/17/17 per client											
11A	3:42			BG-2											
12A	3:50			BG-3											

Relinquished By: agomez	**Date:** 5/16/17	**Time:** 4:30
Received By:	**Date:**	**Time:**
Relinquished By: FEDEX	**Date:** 05/~~16~~ 17/17 EH 5/17	**Time:** 1110
Received By: Eric Hadley (OEC)	**Date:** 05/17/17	**Time:** 1110
Relinquished By:	**Date:**	**Time:**
Received By:	**Date:**	**Time:**

Matrix Key:**
A = air / vapor
AQ = aqueous
DW = drinking water
F = filter
GW = ground water
P = product / oil
PW = product water
S = solid / sediment
SW = surface water
WP = wipe
WW = waste water

Comments/PO#:

OEC

CLIENT: CAL RECYCLE

WORK ORDER: 1701714

TEMPERATURE: 4.2 °C

Acceptable Range: 0°C to 6°C [see exception notes below]

SAMPLE RECEIPT

COC RECEIVED DATE/TIME: 05/17/17 @ 1110

LOGIN DATE/TIME: 05/17/17 @ 1158

REFRIGERATOR(S): 8

SAMPLE TRANSPORT

- ☐ OEC Courier/Sampler
- ☐ Delivery (Other than OEC)
- ☐ After-Hours Outside Drop-Off [Brought Inside]
  - Initials/Date/Time:
- ☒ Shipment — Carrier: FEDEX
  - Tracking #: 7865 9320 6190

CUSTODY SEALS

☒ None Present

Cooler(s): ☐ Present, Intact ☐ Present, Not Intact ☐ None

Sample(s): ☐ Present, Intact ☐ Present, Not Intact ☐ None

SAMPLE RECEIPT, CONDITION, PRESERVATION

- ☒ Samples Received on Ice Within Temperature Range [Acceptable]
- ☐ Samples Received Outside Temperature Range [Acceptable]
  - ☐ Direct from Field, on Ice
  - ☐ Ambient: Air or Filter Matrix
  - ☐ Received Ambient, Placed on Ice for Transport
  - ☐ Sample Temperature Acceptable for Analysis Requested
- ☐ Samples Received Outside Temperature Range [Exception]
  - ☐ Insufficient Ice or Unknown Cause
  - ☐ See Problem Chain *

(*) PROBLEM CHAIN REQUIRED

	YES	NO	N/A	(**) OEC PRES. ID
Completed COC(s) Received With Samples	☒	☐*	☐	
Correct Container(s) for Analysis Requested	☒	☐*	☐	
Container(s) Intact and in Good Condition	☐	☒*	☐	
Container Label(s) Consistent with COC	☐	☒*	☐	
Proper Preservation on Sample Label(s)	☐	☐	☒	
OEC Preservative Added **	☐	☐	☒	
VOA Containers Free of Headspace	☐	☐V	☒	(V) See Comments below or Problem Chain
Tedlar Bag(s) Free of Condensation	☐	☐*	☒	

☒* OR ☒V (Comments) Expedited PM Notification [Init/Date/Time]:

CONTAINERS, COC CHANGES, AND/OR CORRECTIONS

OEC CONTAINER ID	CONTAINER DESCRIPTION	PRESERVATIVE	CHECKS: Cl⁻, S⁻ &/or pH	MATRIX	COMMENTS	INITIALS
1-12 A	1- 8oz GLASS JAR EA	—	—	S	SAMPLE 6 RECEIVED BROKEN IN TRANSIT	EA

Rev. 02/12/2016

RECEIPT LOGIN BY: EA

RECEIPT REVIEWED BY: LW

Page 1 of 2

OEC PROBLEM CHAIN

CLIENT: CALRECYCLE **OEC ID #:** 1701714

ISSUES RECORDED BY (DATE/TIME/INITIALS): 05/17/17 @ 1158 EA

ISSUE(S): PLEASE PROVIDE DETAILS OF ISSUE(S) BELOW – Samples/Containers Affected, as necessary.

- ☐ Samples Received Outside Temp. Range (see below)
- ☐ **NO** COC document(s) received with samples
- ② ☒ Container(s) **NOT** intact or in good condition
- ☐ Incorrect containers for analysis requested
- ① ☒ Container label(s) **NOT** consistent with COC
- ☐ Custody Seals Broken
- ☐ OTHER: (if multiple, identify with numbers)

① SAMPLE 10A CONTAINER LABELED "BG-1", COC HAS "BG-1 1".

② SAMPLE 6A RECEIVED BROKEN IN TRANSIT. EXTRICATED AS MUCH UN CONTAMINATED SAMPLE AS POSSIBLE. AVOIDED SAMPLE WITH VISIBLE GLASS CONTAMINATION.

RESOLUTIONS: MINIMUM INFO: Issue#[if necessary] – Description – Contact Type (Verbal, email, etc.) – Client Authorization Contact – Date/Time/Initials

①,② WILL EMAIL CLIENT.

05-17-17 1534 ky emailed Angela, cc to Eric and Meredith

The sample name is BG-1 per client email 5/17/17 MLS

FINAL RESOLUTION OF ISSUES BY (DATE/TIME/INITIALS): 05-17-17 /

Page 2 of 2

09/09/08

Ninyo & Moore

Geotechnical & Environmental Sciences Consultants

5710 Ruffin Road | San Diego, California 92123 | p. 858.576.1000

SAN DIEGO | IRVINE | LOS ANGELES | FONTANA | OAKLAND | SAN FRANCISCO | SACRAMENTO

SAN JOSE | PHOENIX | TUCSON | PRESCOTT | LAS VEGAS | DENVER | BROOMFIELD | HOUSTON

www.ninyoandmoore.com

APPENDIX C

Air Quality Impact Analysis, Ridgecrest Burn Dump #1 Remediation Project

Air Quality Impact Analysis

Ridgecrest Burn Dump #1 Remediation Project
Eastern Kern County, California

Project # 180505.0235

Prepared for:

Kern County Public Works - Waste Management Division
2700 M Street, Suite 400
Bakersfield, CA 93301

Prepared by:

Insight Environmental Consultants | Trinity Consultants

5500 Ming Avenue, Suite 140
Bakersfield, California 93309
661-282-2200

December 2018

Table of Contents

EXECUTIVE SUMMARY

Insight Environmental Consultants, Inc., a Trinity Consultants Company, has completed an Air Quality Impact Analysis (AQIA) for the Kern County Waste Management Department's Ridgecrest Burn Dump #1 Remediation Project (Project). The Project consists of the surface remediation of the closed burn dump located approximately two miles southwest of the City of Ridgecrest and 0.28 miles south of the Brown Road, China Lake Boulevard and State Highway 395 convergence.

The 17-acre site is on land owned by the United States Department of the Interior – Bureau of Land Management (BLM) and was used by Kern County as a municipal burn dump from 1962 through 1969. The Project will consist of covering the disposal trenches with soil cover and then revegetating the area.

The Project will consist only of construction activities as the site will be permanently closed with no further activities conducted thereon. As such, emissions from the Project will consist primarily of short-term construction emissions including the following criteria pollutant emissions: reactive organic gases (ROG), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and suspended particulate matter (PM_{10} and $PM_{2.5}$). Project operations would generate air pollutant emissions from mobile sources (automobile activity from quarterly facility inspections and maintenance). Project construction and operational activities would also generate greenhouse gas (GHG) emissions. Criteria and GHG emissions were estimated using the California Emissions Estimator Model (CalEEMod) version 2016.3.1 (California Air Pollution Control Officers Association (CAPCOA) 2016), the California EPA's EMFAC 2014 Web database (California Air Resources Board (CARB) 2016) and the California Climate Action Registry General Reporting Protocol (Climate Action Registry 2009).

Tables 7-1, 7-2 and 9-1 present the Project's construction, operational, and GHG emissions and provide substantial evidence to support a *less than significant* air quality impact in Eastern Kern Air Pollution Control District's (EKAPCD) portion of the Mojave Desert Air Basin (MDAB).

An evaluation of the cumulative emissions impacts to the MDAB also supports a finding that the Project's contribution would not be cumulatively considerable because the proposed Project's incremental emissions would be less than significant.

1.0 INTRODUCTION

This AQIA was prepared pursuant to the EKAPCD's Rule 210.1 New and Modified Stationary Source Review (NSR) (EKACPD 2000), EKAPCD's Guidelines for Implementation of the California Environmental Quality Act of 1970, EKAPCD Policy, "Addendum to CEQA Guidelines Addressing GHG Emission Impacts for Stationary Source Projects When Serving As Lead CEQA Agency" (EKAPCD 2012), the Kern County Planning Department's Air Quality Preparation Guidelines (2006), the California Environmental Quality Act (CEQA) (Public Resources Code 21000 to 21177) and CEQA Guidelines (California Code of Regulations Title 14, Division 6, Chapter 3, Sections 15000 – 15387).

2.0 GENERAL PROJECT DESCRIPTION

The Project site is within a portion of APN 511-020-03, owned by the United States Department of the Interior - Bureau of Land Management (BLM) and is located in Section 31 of Township 27 South, Range 40 East of the Mount Diablo Base and Meridian (T27S, R40E, S31, MDB&M) [**Figure 2-1**]. The property is accessed by an unnamed, unpaved BLM managed trail off of Hwy 395. There are no existing wells or utilities located on the Project site.

The Project site was used as a municipal burn dump by Kern County from 1962 through 1969 when it was closed. According to Kern County documents, the site was leased from the BLM and open to the public for the disposal of non-hazardous household waste. During operations, the site was staffed by a County employee who maintained the site and ensured non-hazardous waste was accepted at the site.

The operational method of disposal at the historic Ridgecrest Burn Dump #1 was trench and fill. Contractors were hired to excavate a trench approximately 10 feet below the natural ground surface. Household waste was then disposed of in the pit and when a sufficient amount was accumulated, the waste was incinerated using an open burning method. Soil was placed intermittently between incinerated waste for dust control. Once an area reached capacity, a new trench was constructed and the soil from the excavation process was placed over the previous trench. A total of three parallel, northeast trending trenches were excavated and filled.

When operations at the site ceased, additional soil was placed over the trenches. The thickness of the compacted soil cover ranges from three to four inches to four feet. Since closure, the site has not been used and remains inactive and structurally undeveloped.

The Project would consist of covering the disposal trenches with a minimum of two-feet of soil as cover, including the areas in between the burn trenches due to the uncertainty of the limit of waste in each trench. The cover system will be comprised of clean soil excavated from the adjacent on-site borrow area. Approximately 23,500 cubic yards of clean soil will be placed in the burn dump area.

At the start of construction, the burn dump area and borrow site will be cleared and grubbed. Surficial trash and materials will be collected and incorporated into the trench area prior to the placement of cover. The soil will be placed over the area and graded from the perimeter with a 3:1 slope until the thickness reaches the minimum two feet. The cover will be graded at an approximately 3.8% grade, which is similar to existing grades. A stormwater v-ditch will be graded on the east side of the cover to divert run-on water around the closed burn dump. Rip rap scour protection and geotextile will be included on the north side of the closure area to protect the existing drainage channel. Once construction is complete, the disturbed areas will be revegetated.

Figure 2-1 - Project Location

Figure 2-2 depicts the Project site's topography based on United States Geological Survey's (USGS) National Map (USGS 2012). The Project site is located at an elevation of approximately 2,900 feet above mean sea level and is surrounded by open high desert scrub lands to the north, south, east, and west. Currently the Project site is essentially an open field.

Figure 2-2 – Project Site Topography (USGS)

3.0 BACKGROUND OF AIR QUALITY STANDARD

Protection of the public health is maintained through the attainment and maintenance of ambient air quality standards for various atmospheric compounds and the enforcement of emissions limits for individual stationary sources. The Federal Clean Air Act requires that the U.S. Environmental Protection Agency (EPA) establish National Ambient Air Quality Standards (NAAQS) to protect the health, safety, and welfare of the public. NAAQS have been established for ozone (O_3), CO, NO_2, SO_2, PM_{10} and $PM_{2.5}$, and lead (Pb). California has also adopted ambient air quality standards (CAAQS) for these "criteria" air pollutants. CAAQS are more stringent than the corresponding NAAQS and include standards for hydrogen sulfide (H_2S), vinyl chloride (chloroethene) and visibility reducing particles. The U.S. Clean Air Act Amendments of 1977 required each state to identify areas that were in non-attainment of the NAAQS and to develop State Implementation Plans (SIP's) containing strategies to bring these non-attainment areas into compliance. NAAQS and CAAQS designation/classification for Kern County are presented in **Section 4.0** below and further details are included in **Attachments A, B, C** and **D**.

Responsibility for regulation of air quality in California lies with the California Air Resources Board (CARB), the 35 local air districts with oversight responsibility held by the EPA. CARB is responsible for regulating mobile source emissions, establishing CAAQS, conducting research, managing regulation development, and providing oversight and coordination of the activities of the 35 air districts. The air districts are primarily responsible for regulating stationary source emissions and monitoring ambient pollutant concentrations. CARB also determines whether air basins, or portions thereof, are “unclassified,” in “attainment” or in “non-attainment” for the NAAQS and CAAQS relying on statewide air quality monitoring data.

4.0 EXISTING SETTING

The Project area is located in the northwestern portion of the MDAB for which the EKAPCD has jurisdiction to regulate air pollutant emissions.

Under the provisions of the U.S. Clean Air Act, the Kern County portion of the MDAB has been classified as non-attainment, attainment, unclassified/attainment or unclassified under the established NAAQS and CAAQS for various criteria pollutants. **Table 4-1** provides the EKAPCD’s designation and classification based on the various criteria pollutants under both NAAQS and CAAQS. **Table 4-2** provides the NAAQS and CAAQS.

Table 4-1 - EKAPCD Attainment Status

Pollutant	Designation/Classification			
	National Ambient Air Quality Standards (NAAQS)			State Ambient Air Quality Standards
	EKAPCD	Kern River / Cummings Valley[1,2]	Indian Wells Valley[3,4,5]	
Ozone – 1 Hour	Attainment[6,7]	Part of EKAPCD Area	Part of EKAPCD Area	Nonattainment
Ozone – 8 Hour[8]	Serious Nonattainment	Part of EKAPCD Area	Unclassifiable/ Attainment	Nonattainment
PM10	Unclassifiable/ Attainment	Serious Nonattainment	Attainment Maintenance	Nonattainment
PM2.5	Unclassifiable/ Attainment	Part of EKAPCD Area	Part of EKAPCD Area	Unclassified
Carbon Monoxide	Unclassifiable/ Attainment	Part of EKAPCD Area	Part of EKAPCD Area	Unclassified
Nitrogen Dioxide	Unclassified	Part of EKAPCD Area	Part of EKAPCD Area	Attainment
Sulfur Dioxide	Unclassified	Part of EKAPCD Area	Part of EKAPCD Area	Attainment
Lead Particulates	Unclassifiable/ Attainment	Part of EKAPCD Area	Part of EKAPCD Area	Attainment

Source: EKAPCD 2018
Notes:
[1] Kern River Valley, Bear Valley, and Cummings Valley were previously included in the federally designated San Joaquin Valley PM10 Serious Nonattainment Area but were made a separate Nonattainment area in 2008.
[2] Kern River Valley, Bear Valley, and Cummings Valley are included in EKAPCD for all NAAQS other than PM10.
[3] Indian Wells Valley is a separate planning area from the rest of EKAPCD for PM10 NAAQS.
[4] Indian Wells Valley is a separate area for the 1997 and 2008 8-hour ozone NAAQS (0.08 & 0.075 ppm).
[5] Indian Wells Valley is included in EKAPCD for all NAAQS other than PM10 and 8-hour ozone.
[6] 1-hour ozone NAAQS was revoked effective June 15, 2004.
[7] EKAPCD was in attainment for 1-hour ozone NAAQS at time of revocation; the proposed Attainment Maintenance designation's effective date.
[8] Attainment for 1997 8-hour Ozone NAAQS (0.08 ppm), Nonattainment/Marginal for 2008 NAAQS (0.075 ppm), and Nonattainment State 8-hour standard (0.070 ppm)

Table 4-2 - Federal & California Standards

Pollutant	Averaging Time	NAAQS Concentration	CAAQS Concentration
O_3	8-Hour	0.070 ppm (137 μg/m³) [a]	0.070 ppm (137 μg/m³)
	1-Hour		0.09 ppm (180 μg/m³)
CO	8-Hour	9 ppm (10 mg/m³)	9 ppm (10 mg/m³)
	1-Hour	35 ppm (40 mg/m³)	20 ppm (23 mg/m³)
NO_2	Annual Average	53 ppb (100 μg/m³)	0.030 ppm (57 μg/m³)
	1-Hour	100 ppb (188.68 μg/m³)	0.18 ppm (339 μg/m³)
SO_2	3-Hour	0.5 ppm (1,300 μg/m³)	
	24 Hour	0.14 ppm (365 μg/m³)	0.04 ppm (105 μg/m³)
	1-Hour	75 ppb (196 μg/m³)	0.25 ppm (655 μg/m³)
Particulate Matter (PM10)	Annual Arithmetic Mean		20 μg/m³
	24-Hour	150 μg/m³	50 μg/m³
Fine Particulate Matter (PM2.5)	Annual Arithmetic Mean	12 μg/m³	12 μg/m³
	24-Hour	35 μg/m³	
Sulfates	24-Hour		25 μg/m³
Pb [d]	Rolling Three-Month Average	0.15 μg/m³	
	30 Day Average		1.5 μg/m³
H_2S	1-Hour		0.03 ppm (42 μg/m³)
Vinyl Chloride (chloroethene)	24-Hour		0.010 ppm (26 μg/m³)
Visibility Reducing particles	8 Hour (1000 to 1800 PST)		b

ppm = parts per million
ppb = parts per billion
mg/m3 = milligrams per cubic meter
μg/m³ = micrograms per cubic meter

Source: CARB August 2017

a On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm

b In 1989, the CARB converted both the general statewide 10-mile visibility standards and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

As noted above in **Table 4-1**, the EKAPCD has been designated as unclassifiable/attainment for the NAAQS for CO, PM_{10}, $PM_{2.5}$, and Lead, serious nonattainment for the O_3 eight-hour average standard, attainment for the O_3 one-hour average standard, and unclassified for NO_X and SO_X. A federal designation for hydrogen sulfide (H_2S) has not been made.

The EKAPCD has been designated as nonattainment for the state one-hour and eight-hour standards for O_3, and PM_{10}, unclassified for $PM_{2.5}$ and CO, and attainment for NO_X, SOx, and Lead. A state designation for hydrogen sulfide (H_2S) has not been made.

The EKACPD along with CARB operates an air quality monitoring network that provides average concentrations of those pollutants for which state or federal agencies have established ambient air quality standards. Information from the various monitoring stations is available from the corresponding agency's websites. A map of the monitoring stations in the Mojave Desert Air Basin is provided in **Figure 4-1** below.

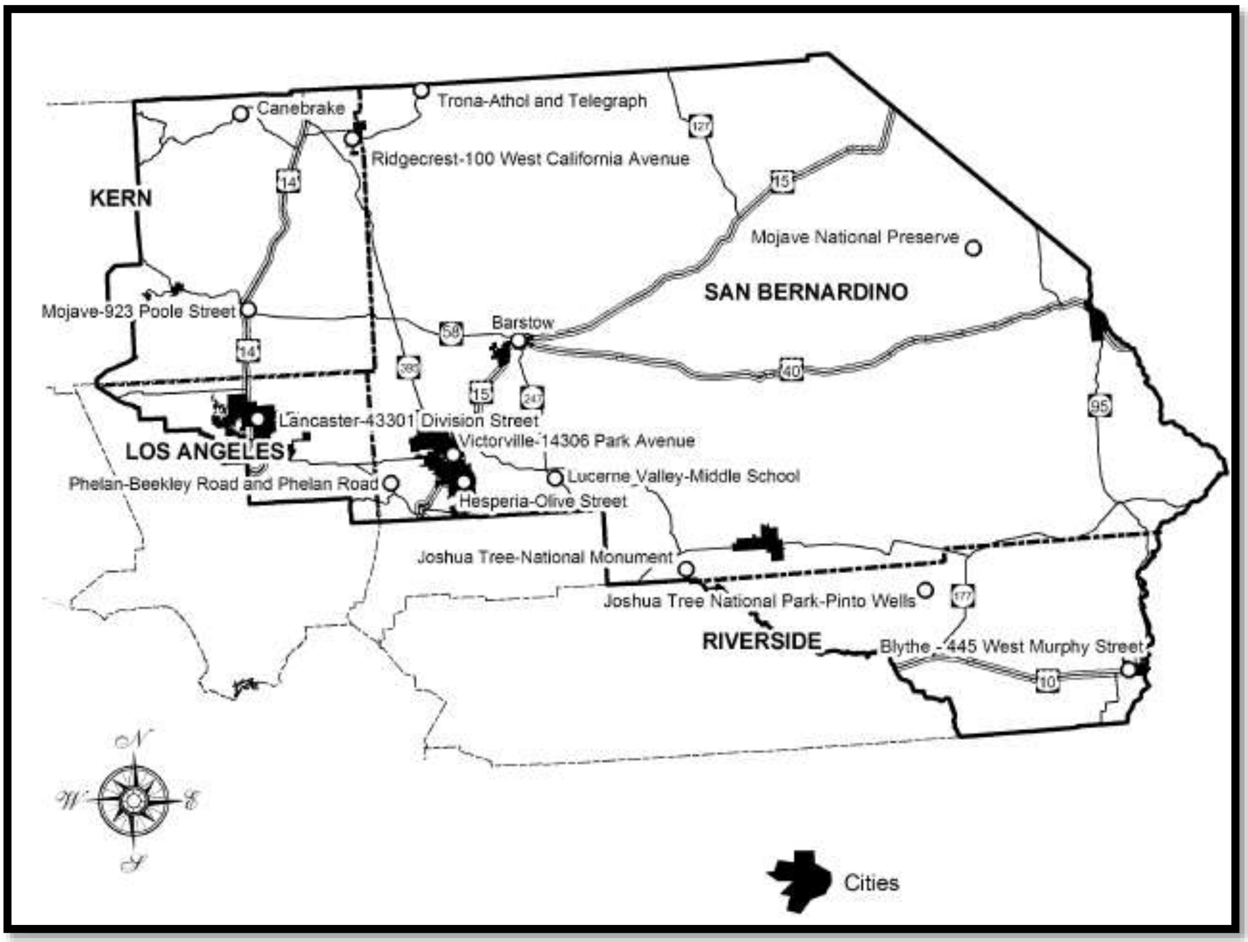

Figure 4-1 – CARB Monitoring Network

Existing Air Quality

For the purposes of background data and this air quality assessment, this analysis relied on data collected between 2013 and 2015 at the CARB monitoring stations that are located in the closest proximity to the Project site. **Table 4-3** provides the background concentrations for O_3, PM_{10}, $PM_{2.5}$, CO, NO_2, SO_2, and Pb as of November 2016. Information is provided for the Mojave – 923 Poole Street, Mojave National Preserve, Barstow, Trona – Athol and Telegraph, Canebrake, Ridgecrest – 100 West California Avenue, Lancaster – 43301 Division Street, and Ridgecrest Ward Monitoring Stations. No data is available for CO, SO_2, H_2S, Vinyl Chloride or other toxic air contaminants in eastern Kern County.

Table 4-3 - Existing Air Quality Monitoring Data in Project Area

	Maximum Concentration			Days Exceeding Standard		
Pollutant and CARB Monitoring Station Location	**2015**	**2016**	**2017**	**2015**	**2016**	**2017**
O_3 – 1-hour CAAQS (0.09 ppm)						
Mojave – 923 Poole Street	0.104	0.104	0.097	1	2	1
Mojave National Preserve	0.090	0.096	0.082	0	2	0
Barstow	0.090	0.089	0.084	0	0	0
Trona - Athol and Telegraph	0.076	0.100	0.0874	0	1	0
O_3 – 8-hour CAAQS (0.07 ppm)						
Mojave – 923 Poole St.	0.085	0.093	0.086	33	60	37
Mojave National Preserve	0.082	0.083	0.076	22	21	8
Barstow	0.083	0.084	0.077	20	27	10
Trona - Athol and Telegraph	0.072	0.077	0.077	2	11	6
O_3 – 8-hour NAAQS (0.07 ppm)						
Mojave – 923 Poole St.	0.084	0.093	0.085	31	52	35
Mojave National Preserve	0.082	0.082	0.076	19	18	8
Barstow	0.082	0.083	0.076	18	25	9
Trona - Athol and Telegraph	0.071	0.077	0.077	2	10	6
PM10 – 24-hour CAAQS (50 µg/m3)						
Canebrake	59.4	52.9	40.2	1	1	0
Ridgecrest – 100 West California Avenue	43.2	59.0	47.1	0	1	0
Trona - Athol and Telegraph	*	*	*	*	*	*
PM10 – 24-hour NAAQS (150 µg/m^3)						
Canebrake	67.1	58.9	45.5	0	0	0
Ridgecrest – 100 West California Avenue	44.5	66.2	48.8	0	0	0
Trona - Athol and Telegraph	112.1	138.0	262.3	0	0	2
PM2.5 - 24-hour NAAQS (35 µg/m3)						
Mojave – 923 Poole St.	42.2	25.7	26.9	2	0	0
Lancaster – 43301 Division Street	10.4	64.8	26.6	0	2	0
Ridgecrest – 100 West California Avenue	12.5	25.8	13.3	0	0	0
CO - 8-Hour CAAQS & NAAQS (9.0 ppm)						
	*	*	*	*	*	*
NO2 - 1-Hour CAAQS (0.18 ppm)						
Barstow	0.061	0.066	0.061	0	0	0
Trona - Athol and Telegraph	0.105	0.223	0.046	0	2	0
NO2 - 1-Hour NAAQS (0.10 ppm)						
Barstow	0.061	0.067	0.061	0	0	0
Trona - Athol and Telegraph	0.106	0.223	0.047	1	4	0
SO2 – 24-hour Concentration - CAAQS (0.04 ppm) & NAAQS (0.14 ppm)						
	*	*	*	*	*	*
Pb - Maximum 30-Day Concentration CAAQS (1500 ng/m3)						
	*	*	*	*	*	*

Source: CARB 2016a.
Notes: ppm= parts per million, * There was insufficient (or no) data available to determine the value.

The following is a description of criteria air pollutants, typical sources and health effects and the recently documented pollutant levels in the Project vicinity.

Ozone (O_3)

The MDAB has high concentrations of O_3 and these high levels are known to cause eye irritation and impair respiratory functions. High levels of O_3 can also affect plants and materials. Grapes, lettuce, spinach and many types of garden flowers and shrubs are particularly vulnerable to O_3 damage. O_3 is not directly emitted into the atmosphere; it is a secondary pollutant produced from a photochemical interaction between hydrocarbons and nitrogen oxides (NOx). One to three hours of strong sunlight in a stable atmosphere creates O_3. The "O_3 season" therefore typically spans from April through October. O_3 is a regional pollutant; wind transports and diffuses the precursors while activating the photochemical reaction process. The data presented in **Table 4-3** shows that the Mojave, Barstow and Trona area monitoring stations exceeded the 1-hour average ambient O_3 CAAQS and the 8-hour average ambient O_3 NAAQS and CAAQS between 2015 through 2017.

Suspended Particulate Matter (PM_{10} and $PM_{2.5}$)

Both NAAQS and CAAQS now apply to particulates under 10 microns (PM_{10}). Since the smaller diameter fraction of total suspended particulates are documented to represent the greatest health hazard, EPA has established NAAQS for particulates under 2.5 microns ($PM_{2.5}$). The Project area is classified as unclassifiable/attainment for PM_{10} and $PM_{2.5}$ for NAAQS.

Dust and fumes from industrial and agricultural operations generate particulate matter. Natural activities, such as wind-raised dust, fires and ocean spray, also increase the level of particulates in the atmosphere. The largest source of PM_{10} and $PM_{2.5}$ in Kern County is vehicle movement over paved and unpaved roads from demolition and construction activities and farming operations. PM_{10} and $PM_{2.5}$ are considered regional pollutants with elevated levels typically occurring over a wide geographic area. Concentrations tend to be highest in the winter, during periods of high atmospheric stability and low wind speed. Very small particulates may contain absorbed gases that produce injury to the respiratory tract. Particulates of aerosol size suspended in the air can both scatter and absorb sunlight, producing haze and reducing visibility. They can also damage a wide range of materials. **Table 4-3** shows that PM_{10} levels exceeded the CAAQS during 2015 and 2016, exceeded the NAAQS in 2017, and exceeded the $PM_{2.5}$ NAAQS 2015 and 2016. Similar levels can be expected to occur in the vicinity of the Project site.

Carbon Monoxide (CO)

Ambient CO concentrations normally correspond closely to the spatial and temporal distributions of vehicular traffic. Relatively high concentrations of CO would be expected along heavily traveled roads and near busy intersections. Wind speed and atmospheric mixing also influence CO concentrations; however, under desert conditions prevalent in the Mojave Desert, CO concentrations may be more uniformly distributed over a broad area.

Internal combustion engines, principally in vehicles, produce CO due to incomplete fuel combustion. Various industrial processes also produce CO emissions through incomplete combustion. Gasoline-powered motor vehicles are typically the major source of this contaminant. CO does not irritate the respiratory tract, but passes through the lungs directly into the blood stream, and by interfering with the transfer of fresh oxygen to the blood, deprives sensitive tissues of oxygen, thereby aggravate cardiovascular disease, causing fatigue, headaches, and dizziness. CO is not known to have adverse effects on vegetation, visibility or materials. **Table 4-3** reports insufficient data for the CO monitoring at the any nearby monitoring stations during the three-year period from 2015 through 2017.

Nitrogen Dioxide (NO_2) and Hydrocarbons

Eastern Kern County has been designated as an unclassified area for the NAAQS for NO_2. NO_2 is the "whiskey brown" colored gas readily visible during periods of heavy air pollution. Mobile sources account for nearly all of the county's NOx emissions, most of which is emitted as NO_2. Combustion in motor vehicle engines, power plants, refineries and other industrial operations are the primary sources in the air basin. Railroads and aircraft are other potentially significant sources of combustion air contaminants. Oxides of nitrogen are direct participants in photochemical smog reactions. The emitted compound, nitric oxide, combines with oxygen in the atmosphere in the presence of hydrocarbons and sunlight to form NO_2 and O_3. NO_2, the most significant of these pollutants, can color the atmosphere at concentrations as low as 0.5 ppm on days of 10-mile visibility. NO_x is an important air pollutant in the region because it is a primary receptor of ultraviolet light, which initiates the reactions producing photochemical smog. It also reacts in the air to form nitrate particulates.

Motor vehicles are the major source of reactive hydrocarbons in the basin. Other sources include evaporation of organic solvents and petroleum production and refining operations. Certain hydrocarbons can damage plants by inhibiting growth and by causing flowers and leaves to fall. Levels of hydrocarbons currently measured in urban areas are not known to cause adverse effects in humans. However, certain members of this contaminant group are important components in the reactions, which produce photochemical oxidants. **Table 4-3** shows that the NO_2 levels exceeded the NO_2 CAAQS in 2016 and the NO_2 NAAQS in 2015 and 2016 at the Trona area-monitoring station. Hydrocarbons are not currently monitored.

Sulfur Dioxide (SO_2)

Eastern Kern County has been designated as an unclassified area for the NAAQS for SO_2. SO_2 is the primary combustion product of sulfur, or sulfur containing fuels. Fuel combustion is the major source of this pollutant, while chemical plants, sulfur recovery plants, and metal processing facilities are minor contributors. Gaseous fuels (natural gas, propane, etc.) typically have lower percentages of sulfur containing compounds than liquid fuels such as diesel or crude oil. SO_2 levels are generally higher in the winter months. Decreasing levels of SO_2 in the atmosphere reflect the use of natural gas in power plants and boilers.

At high concentrations, SO_2 irritates the upper respiratory tract. At lower concentrations, when respirated in combination with particulates, SO_2 can result in greater harm by injuring lung tissues. Sulfur oxides (SOx), in combination with moisture and oxygen, results in the formation of sulfuric acid, which can yellow the leaves of plants, dissolve marble, and oxidize iron and steel. SOx can also react to produce sulfates that reduce visibility and sunlight. **Table 4-3** reports insufficient data for the SO_2 monitoring at the any nearby monitoring stations during the three-year period from 2015 through 2017.

Lead (Pb) and Suspended Sulfate

Ambient Pb levels have dropped dramatically due to the increase in the percentage of motor vehicles that run exclusively on unleaded fuel. Ambient Pb levels in Bakersfield (the closest monitoring station to the Project) are well below the ambient standard and are expected to continue to decline; the data reported in **Table 4-3** only shows the highest concentration as the number of days exceeding standards are not reported. Suspended sulfate levels have stabilized to the point where no excesses of the State standard are expected in any given year.

5.0 CLIMATE

Climate of the project area is a high desert type, characterized by moderate, dry winters and hot, dry summers. Evening temperatures drop to the mid to upper 60s and rise to the upper 90s during the summers. Mean monthly temperature for the year is reported to be 75.8°F with extremes of 118°F and 53°F. The mean annual precipitation in Ridgecrest, California is 4.27 inches, the bulk of which falls during the period November through March. Snowfall rarely occurs from November through March.

Meteorological data for various monitoring stations is maintained by the Western Regional Climate Center. Meteorological data for the Project site is expected to be similar to the data recorded at the China Lake NAF, California monitoring station. **Table 5-1** presents average precipitation data recorded at the China Lake NAF, California monitoring station from February 1944 through June 2016 (the most recent data available).

Table 5-1 – China Lake NAF, California Weather Data

Period of Record Monthly Climate Summary for the Period 2/1/1944 to 6/10/2016													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Maximum Temp (F)	61.3	63.7	74.4	76.1	85.9	98.2	101.8	101.9	94.3	81.2	64.3	58.5	80.1
Average Minimum Temp (F)	30..6	34.6	40.1	454.6	52.8	63.1	68.4	67.4	69.4	48.3	33.8	26.1	47.5
Average Total Precip.(in.)	0.88	0.79	0.78	0.13	0.11	0.02	0.09	0.31	0.24	0.18	0.27	0.47	4.27
Average Snowfall (in.)	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.3
Average Snow Depth (in.)	*	*	*	*	*	*	*	*	*	*	*	*	*
Percent of possible observations for period of record: Max. Temp.: 1.2% Min. Temp.: 1.2% Precipitation: 95.7% Snowfall: 95.5% Snow Depth: 95.5%													

Source: Western Regional Climate Center, 2017.

6.0 SIGNIFICANCE CRITERIA

To determine whether a proposed Project could create a potential CEQA impact, local, state and federal agencies have developed various means by which a project's impacts may be measured and evaluated. Such means can generally be categorized as follows:

- Thresholds of significance adopted by air quality agencies to guide lead agencies in their evaluation of air quality impacts under the CEQA.
- Regulations established by air districts, CARB and EPA for the evaluation of stationary sources when applying for Authorities to Construct, Permits to Operate and other permit program requirements (e.g., New Source Review).
- Thresholds used to determine if a project would cause or contribute significantly to violations of the ambient air quality standards or other concentration-based limits.
- Regulations applied in areas where severe air quality problems exist.

Summary tables of these emission-based and concentration-based thresholds of significance for each pollutant are provided below along with a discussion of their applicability.

Thresholds Adopted for the Evaluation of Air Quality Impacts under CEQA

In order to maintain consistency with CEQA, the EKACPD adopted guidelines to assist applicants in complying with the various requirements. According to the EKAPCD's Guidelines (EKAPCD 1999), a proposed project does not have significant air quality impacts on the environment, if operation of the project will:

- Emit (from all projects sources subject to EKAPCD Rule 201) less than offsets trigger levels set forth in Subsection III.B.3 of EKAPCD's Rule 210.1 (New and Modified Source Review Rule);
- Emit less than 137 pounds per day (25 tons per year) of NO_X or Reactive Organic Compounds from motor vehicle trips (indirect sources only);
- Not cause or contribute to exceeding any California or National Ambient Air Quality Standard;
- Not exceed the District health risk public notification thresholds adopted by the EKAPCD Board; or
- Be consistent with adopted Federal and State Air Quality Attainment Plans.

The guideline thresholds are designed to implement the general criteria for air quality emissions as required in the State CEQA Guidelines, Appendix G, Paragraph III and CEQA (State of California CEQA Guidelines, §15064.7). As such, EKAPCD thresholds provide a means by which the general standards set forth by Appendix G may be used to quantitatively measure the air quality impacts of a specific project. According to the EKAPCD Guidelines and Thresholds of Significance, which apply to a project located within the proposed project area would result in a significant impact if it exceeds any of the thresholds are presented in Table 6-1.

Table 6-1 EKAPCD CEQA Thresholds of Significance

Criteria Pollutant	Significance Level	
	Daily (Indirect Mobile Only)	Annual
NOx	137 lbs/day	25 tons/yr
ROG	137 lbs/day	25 tons/yr
SOx	-	27 tons/yr
PM10	-	15 tons/yr
PM2.5	-	15 tons/yr

Sources: EKAPCD1999 and EKAPCD2000/c2017.

<u>Thresholds for Ambient Air Quality Impacts</u>

CEQA Guidelines – Appendix G (Environmental Checklist) states that a project that would "*violate any air quality standard or contribute substantially to an existing or projected air quality violation*" would be considered to create significant impacts on air quality. Therefore, an AQIA should determine whether the emissions from a project would cause or contribute significantly to violations of the NAAQS or CAAQS (presented above in Table 4-2) when added to existing ambient concentrations.

The EPA has established the federal Prevention of Significant Deterioration (PSD) program to determine what comprises "significant impact levels" (SIL) to NAAQS attainment areas. A project's impacts are considered less than significant if emissions are below PSD SIL for a particular pollutant. When a SIL is exceeded, an additional "increment analysis" is required. As the Project would not include modification to the stationary source under New Source Review (NSR), it would not be subject to either PSD or NSR review. The PSD SIL thresholds are used with ambient air quality modeling for a CEQA project to address whether the project would "*violate any air quality standard or contribute substantially to an existing or projected air quality violation.*" Ambient air quality emissions estimates below the PSD SIL thresholds would result in less than significant ambient air quality impacts on both a project and cumulative CEQA impact analysis. The MDAB is classified as non-attainment/marginal for the 8-hour O_3 NAAQS and, as such, is subject to non-attainment NSR. PSD SILs and increments are more stringent than the CAAQS or NAAQS and represent the most stringent thresholds of significance.

<u>Thresholds for Hazardous Air Pollutants</u>

The EKAPCD's Guidelines state, that a project result in a significant impact if it exceeds that District's health risk notification thresholds presented in Table 6-2.

Table 6-2 Measures of Significance – TOXIC AIR CONTAMINANTS

Agency	Level	Description
Significance Thresholds Adopted for the Evaluation of Impacts Under CEQA		
EKAPCD	Carcinogens	Maximally Exposed Individual risk **equals or exceeds** 1 in one million.
	Non-Carcinogens	**Acute**: Hazard Index **equals or exceeds** 0.2 for the Maximally Exposed Individual.
		Chronic: Hazard Index **equals or exceeds** 0.2 for the Maximally Exposed Individual.
Source: EKAPCD 1996/Re-checked 12/2018		

<u>Global Climate Change Thresholds of Significance</u>

On March 8, 2012, the EKAPCD adopted *Addendum to CEQA Guidelines Addressing GHG Emission Impacts For Stationary Source Projects When Serving As Lead CEQA Agency*; which outlined the EKAPCD's Project-Specific CEQA significance thresholds for GHG emissions (EKAPCD 2012):

- If project is exempt from CEQA due to either a statutory or categorical exemption, no further analysis under CEQA is required.
- Project-Specific GHG Emissions must be quantified if the project is not exempt from CEQA.
- Project is considered to have a less than significant impact or not have a cumulatively considerable impact on GHG emissions if it meets one of the following conditions:
    1. Project-Specific GHG emissions are less than 25,000 tons per year (tpy);
    2. Project demonstrates to EKAPCD that it is in compliance with state GHG reduction plan such as AB 32 or future federal GHG reduction plan if it is more stringent than state plan;
    3. Project GHG emissions will be mitigated to a less than significant impact if GHGs can be reduced by at least 20% below Business-As-Usual (BAU) through implementation of one or more of the following strategies:
        a. Compliance with a Best Performance Standard (BPS) as set forth in Section VI of this Policy;
        b. Compliance with GHG Offset as detailed in Section VI of this Policy;
        c. Compliance with an Alternative GHG Reduction Strategy as discussed in Section VII of this Policy.
- If none of the above is met the project will be deemed significant and an Environmental Impact Report (EIR) will be required.

7.0 PROJECT-RELATED EMISSIONS

This document was prepared pursuant to the EKAPCD's *Guidelines for Implementation of the California Environmental Quality Act, July 1, 1999 Revision.* The guidelines do not necessarily require a quantification of construction emissions for all projects. Construction emissions quantification is typically required only at the request of the lead agency. The EKAPCD generally assumes that implementation of any construction-related mitigation measures will result in construction emissions impacts that are *less than significant*.

Project emissions were estimated separately for each emission source. EMFAC model version 2014 and California Emissions Estimator Model (CalEEMod) were used to estimate emissions for both short-term, construction-related, sources as well as long-term, operations-related, sources.

Short-Term Emissions

Short-term emissions are primarily from the construction phase of a project and are recognized to be short in duration and without lasting impacts on air quality. CalEEMod was used to estimate emissions from construction worker vehicles and on-site construction equipment. Construction equipment was provided by the Kern County Waste Management Department.

Many variables are factored into the calculation of construction emissions including length of the construction period, number of each type of equipment, site characteristics, area climate, and construction personnel activities. CalEEMod default load factors were used for all construction equipment. Adjustment to the CalEEMod default values were as follows:

- Land use lot acreage was adjusted to match the Project description;
- Demolition construction phase was removed as the Project Location is open land;
- The construction schedule was adjusted to match the anticipated schedule for the Project;
- The Project specific construction equipment list described above was used;
- Water exposed area 3 times per day; and
- Reduce vehicle speed to less than 15 miles per hour.

Table 7-1 presents the Project's short-term emissions based on the various emission sources and a 9-month construction period during 2019. The emission calculations based on CalEEMod and emission factors from EMFAC2014 and AP-42 are available in **Attachment D.**

Table 7-1 – Short-Term Project Emissions

Emissions Source	Pollutant (tons/year)					
	ROG	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
2019 Unmitigated Construction Emissions	0.065	0.731	0.384	0.0001	0.150	0.081
2019 Mitigated Construction Emissions	0.065	0.731	0.384	0.0001	0.078	0.048
EKAPCD Threshold	25	25	NA	27	15	15
Is Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**
Source: Insight Environmental Consultants 2017						

As calculated with CalEEMod, EMFAC 2014, and AP-42 emission factors using the specified equipment listing (see **Attachment D**), the estimated short-term construction-related emissions would *not exceed* EKAPCD significance threshold levels during the construction year of 2019. Additionally, as the construction period is so short, daily Indirect Mobile Source emissions would be significantly less than the daily thresholds established by EKAPCD. Therefore, the Project would be considered to be *less than significant*.

Long-Term Operations Emissions

Long-term operational emissions expected from this Project will only be from a maximum of one vehicle round trip per quarter to the site for inspections.

The proposed Project's long-term air quality emissions are shown in **Tables 7-2**. The emission calculation based on the emission factors from EMFAC2017 are available in **Attachment D.**

Table 7-2 summarizes the Project emissions at full buildout which will occur in year 2019.

Table 7-2 – Post-Project (Operational) Emissions

Emissions Source	Pollutant (tons/year)[1]					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Quarterly Inspections Emissions	0.00012	0.0007	0.0008	0.0000	0.0001	0.0000
EKAPCD Threshold	25	25	NA	27	15	15
Is Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	NO	NO

As shown in **Table 7-2**, operational-related emissions, as estimated with EMFAC2014 (see **Attachment D**), would be below the EKAPCD annual significance threshold levels. As operational emissions would be conducted over approximately four days per year, the Project will remain *significantly less* than the daily thresholds established by the EKAPCD. Therefore, the proposed Project would have *a less than significant long term air quality impact*.

PM_{10} generated as a part of fugitive dust emissions pose a potentially serious health hazard, alone or in combination with other pollutants. EKAPCD under Rule 402 implements required control measures to assist in further minimizing these emissions.

The Project would comply with applicable EKAPCD Rules and Regulations, the local zoning codes, and additional mitigation measures required in this analysis to reduce PM_{10} fugitive dust emissions even further to ensure that the project's emissions remain at a "*less than significant*" level.

Potential Impacts on Sensitive Receptors

Sensitive receptors are defined as locations where young children, chronically ill individuals, the elderly or people who are more sensitive than the general population reside, such as schools, hospitals, nursing homes and daycare centers. The nearest proposed residential sensitive receptors are immediately west of the proposed Project site. There are no known non-residential sensitive receptors within 2 miles of the Project site as detailed below in **Table 7-3**.

Table 7-3 – Sensitive Receptors Located ≤ 2 Miles from Project

Receptor	Type of Facility	Distance from Project in Miles	Direction from Project
NONE	-	-	-

Based on the criteria pollutant analysis above and the potential visibility, health, and odor impacts analyzed below, the proposed Project is expected to have a *less than significant* impact on any sensitive receptors.

Potential Impacts to Visibility to Nearby Class 1 Areas

Visibility impact analyses are intended for stationary sources of emissions which are subject to the PSD requirements in 40 CFR Part 60; they are not usually conducted for area sources. Because the Project's PM10 emissions increase are predicted to be less than the PSD threshold levels, an impact at any Class 1 area within 100 kilometers of the Project (including Edwards Air Force Base, China Lake Naval Weapons Station and the entire R-2508 Airspace Complex, and Death Valley National Monument) is extremely unlikely. Therefore, based on the Project's predicted less-than significant PM_{10} emissions, the Project would be expected to have a *less than significant* impact to visibility at any Class 1 Area.

Potential Impacts from Carbon Monoxide (CO) – Mobile Sources

Ambient CO concentrations normally correspond closely to the spatial and temporal distributions of vehicular traffic. Relatively high concentrations of CO would be expected along heavily traveled roads and near busy intersections. CO concentrations are also influenced by wind speed and atmospheric mixing. CO concentrations may be more uniformly distributed when inversion conditions are prevalent in the valley.

Under certain meteorological conditions CO concentrations along a congested roadway or intersection may reach unhealthful levels for sensitive receptors, e.g. children, the elderly, hospital patients, etc. This localized impact can result in elevated levels of CO, or "hotspots" even though concentrations at the closest air quality monitoring station may be below NAAQS and CAAQS.

The localized project impacts depend on whether ambient CO levels in the Project vicinity would be above or below NAAQS. If ambient levels are below the standards, a project is considered to have significant impacts if a project's emissions would exceed of one or more of these standards. If ambient levels already exceed a state standard, a project's emissions are considered significant if they would increase one-hour CO concentrations by 10 ppm or more or eight-hour CO concentrations by 0.45 ppm or more.

There was no traffic study available for this Project at the time this analysis was completed. However, no vehicular traffic other than sporadic maintenance vehicles are expected and due to the location of the site, potentially impacted intersections and roadway segments are anticipated to operate at a LOS of C or better during Project operations. Therefore, CO "Hotspot" Modeling was not conducted for this Project and no concentrated excessive CO emissions are expected to be caused once the proposed Project is completed.

Predicted Health Risk Impacts

Projects are considered for potential health risks wherein a new or modified source of HAPs is proposed for a location near an existing residential area or other sensitive receptor when evaluating potential impacts related to HAPs.

The proposed Project is a short-term construction project and is not anticipated to generate any additional sources of toxic air contaminates with the exception of increased diesel particulate matter (DPM) from construction and quarterly inspections. Despite being estimated conservatively, the quantity of increased on-site DPM from the Project is well below any typical screening levels for air toxics. Therefore, the project would not be expected to generate a health risk impact due to its activity and size. Its potential health risk impacts would therefore be considered *less than significant* and no further health risk assessment is required.

Odor Impacts and Mitigation

An evaluation is typically conducted for both of the following situations: 1) a potential source of objectionable odors is proposed for a location near existing sensitive receptors, and 2) sensitive receptors are proposed to be located near an existing source of objectionable odors. The criteria for this evaluation are based on the Lead Agency's determination of the proximity to one another of the proposed project and the sensitive receptors. A sensitive receptor is a location where human populations, especially children, senior citizens and sick persons, are present, and where there is a reasonable expectation of continuous human exposure to pollutants, according to the averaging period for ambient air quality standards, i.e. the 24-hour, 8-hour or 1-hour standards. Commercial and industrial sources are not considered sensitive receptors. **Table 7-3** lists no known sensitive receptors that are in relative close proximity (within a two mile radius) to the project area.

The proposed Project is not considered a source of objectionable odors or odorous compounds. Furthermore, there does not appear to be any significant source of objectionable odors in close proximity that may adversely impact the project site when it is in operation. As such, the proposed project will not be a source of any odorous compounds nor will it likely be impacted by any odorous source.

Impacts to the Ambient Air Quality

Since the project's long term emissions are considered minimal, an ambient air quality analysis was not performed to determine if the proposed project has the potential to impact ambient air quality through a violation of the ambient air quality standards or a substantial contribution to an existing or projected air quality standard. The project is considered *less than significant* for impacts to ambient air quality standards.

8.0 CUMULATIVE IMPACTS

CEQA defines cumulative impacts as two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. The EKAPCD Guidelines for Implementation of CEQA also states that "*Unless otherwise specified in published/adopted thresholds of significance and guidelines, a project's potential contribution to cumulative impacts shall be assessed utilizing the same significance criteria as those for project specific impacts*."[1] Based on the analysis conducted for this project, it is individually *less than significant*. This AQIA, however, also considered impacts of the proposed project in conjunction with the impacts of other projects previously proposed in the area. The following cumulative impacts were considered:

- Cumulative O_3 Impacts (ROG and NOx) from numerous sources within the region including transport from outside the region. O_3 is formed through chemical reactions of ROG and NOx in the presence of sunlight.
- Cumulative CO Impacts produced primarily by vehicular emissions.
- Cumulative PM_{10} Impacts from within the region and locally from the various projects. Such projects may cumulatively produce a significant amount of PM_{10} if several projects conduct grading or earthmoving activities at the same time; and
- Hazardous Air Pollutant (HAP) Impacts on sensitive receptors from within the recommended screening radius of one mile.

The cumulative analysis is based on a quantitative cumulative analysis of projects located within a six-mile radius of the proposed Project. A six-mile radius is for cumulative project analysis is required within Kern County.

The cumulative analysis quantifies operational and area impacts proposed by the project as well as all identified projects within close proximity (six-miles) of the project site. The analysis quantifies operational emissions from these other projects to determine the impacts to the air basin posed by these sources with the increases proposed by the subject project. These emissions are then compared to the proposed growth and anticipated emissions increases included in the various regional growth forecasts to determine 1) if they were included in the forecast; 2) if their inclusion can be considered consistent with the attainment plan for air emissions within the air basin; and 3) if these emissions are in conformance with the State Implementation Plan emission budget or baseline emissions for ROG, NOx, CO and PM_{10}.

Cumulative Regional Air Quality Impacts

The most recent, certified MDAB Emission Inventory data available from the EKAPCD is based on data gathered for the 2015 annual inventory (see **Attachment E**).[2] This data will be used to assist the EKAPCD in demonstrating attainment of Federal 1-hour O_3 Standards. **Table 8-1** provides a comparative look at the impacts proposed by the proposed Project to the MDAB Emissions Inventory.

Table 8-1 – Comparative Analysis Based on MDAB 2015 Inventory

Emissions Inventory Source	Pollutant (tons/year)					
	ROG	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
Kern County – 2015	3,796	11,790	20,805	2,920	5,767	2,774
MDAB – 2015	22,046	56,356	85,739	4,015	49,531	13,578
Proposed Project	0.00012	0.0007	0.0008	0.0000	0.0001	0.0000
Proposed Project's % of Kern	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
Proposed Project's % of MDAB	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%

[1] EKAPCD Guidelines for Implementation of CEQA , Page 22
[2] EKAPCD Emissions for Aggregated Stationary, Area-Wide, and Mobile Sources

Source: CARB 2017 *Notes*: This is the latest inventory available as of December 2018.

As shown in **Table 8-1** the proposed Project does not pose a significant increase to basin emissions, as such basin emissions would be essentially the same if the Project is approved.

Tables 8-2 through **8-4** provide CARB Emissions Inventory projections for the year 2020 for both the MDAB and the Kern County portion of the air basin (see **Attachment F**). Looking at the MDAB Emissions predicted by the CARB year 2020 emissions inventory, the Kern County portion of the air basin is a moderate source of the emissions. The proposed Project produces a small portion of the total emissions in both Kern County and the entire MDAB.

Table 8-2 – Emission Inventory MDAB 2020 Projection – Tons per Year

	ROG	NO_X	PM_{10}
Total Emissions	20,842	51,246	52,378
Percent Stationary Sources	34.85%	53.85%	42.02%
Percent Area-Wide Sources	26.97%	1.42%	53.17%
Percent Mobile Sources	38.18%	44.73%	4.81%
Total Stationary Source Emissions	7,264	27,594	22,010
Total Area-Wide Source Emissions	5,621	730	27,850
Total Mobile Source Emissions	7,957	22,922	2,519
Source: CARB 2017 *Note:* Total may not add due to rounding.			

Table 8-3 – Emission Inventory MDAB – Kern County Portion 2020 Estimate Projection – Tons per Year

	ROG	NO_X	PM_{10}
Total Emissions	3,577	11,315	5,913
Percent Stationary Sources	13.27%	67.10%	20.37%
Percent Area-Wide Sources	26.53%	1.94%	59.88%
Percent Mobile Sources	60.20%	30.97%	19.75%
Total Stationary Source Emissions	475	7,592	1,205
Total Area-Wide Source Emissions	949	219	3,541
Total Mobile Source Emissions	2,154	3,504	1168
Source: CARB 2017 *Note:* Total may not add due to rounding.			

Table 8-4 – 2020 Emissions Projections – Proposed Project, Kern County and MDAB

	ROG	NO_X	PM_{10}
Proposed Project	0.00012	0.0007	0.0001
Kern County	3,577	11,315	5,913
MDAB	20,842	51,246	52,378
Proposed Project Percent of Kern County	0.000%	0.000%	0.000%
Proposed Project Percent of MDAB	0.000%	0.000%	0.000%
Kern County Percent of MDAB	17.16%	22.08%	11.29%

Source: CARB 2017
Note:
1) The emission estimates for Kern County and the MDAB are based on 2020 projections. The Proposed Project emission estimates are for the proposed emissions that are not already included in the MDAB Emissions Inventory. Project emissions are conservatively based year 2019 (Project operations are anticipated to start in the Year 2020). The Project's emissions are expected to decline as cleaner, less polluting vehicles replace vehicles with higher emissions.
2) Percentages equaling 0.0000 could represent a percent <0.00005.

As shown above, the proposed Project would pose no impact on regional O_3 and PM_{10} formation. Because the regional contribution to these cumulative impacts would be negligible, the Project would not be considered cumulatively considerable in its contribution to regional O_3 and PM_{10} impacts.

The most recent, certified MDAB Emission Inventory data available from the CARB is based on data gathered for the 2012 annual inventory (CARB 2016). This data will be used to assist the EKAPCD in demonstrating attainment of Federal 8-hour O_3 Standards and contained 41,282 tons per year ROG and 63,839 tons per year NOx from all sources. On a regional basis, the proposed Project represents less than 0.00005% of the ROG and NOx emissions of the 2012 inventory of the MDAB. The projected emissions posed by the Project upon the air basin would be *less than significant* because basin emissions would be essentially the same whether or not the Project is built.

Cumulative Localized Air Quality Impacts

No similar projects were identified within a six-mile radius of the Project. The project's primary impacts are short-term and less than significant; therefore, the project cannot have a significant impact on the air basin.

There are no cumulative significance thresholds established by the EKAPCD, CARB or other regulatory authority. Because: 1) the cumulative projects are already approved; 2) it is assumed that these projects are in conformance with the regional AQAP and/or the Kern County General Plan; and 3) the Project's incremental contribution is *less-than significant*; therefore, the Project's incremental contribution to a cumulative effect is considered less than significant. (CEQA Guidelines Section 15064(h)(3) (EKAPCD 2015).

Cumulative Hazardous Air Pollutants (HAPs)

Combined HAPs emission impacts from the project and other existing and planned projects are considered cumulatively significant when air quality standards are exceeded. Because the Project would not be a significant source of HAPS, the proposed Project would also not be expected to pose a significant cumulative HAPs impact.

Cumulative Carbon Monoxide (CO) – Mobile Sources

Traffic increases and added congestion caused by a project can combine to cause a CO "Hotspot". There was no traffic study available for this Project at the time this analysis was completed. However, no vehicular traffic other than quarterly inspections; potentially impacted intersections and roadway segments are anticipated to operate at a LOS of C or better during Project operations. Therefore, cumulative CO "Hotspot" Modeling was not conducted for this Project and no concentrated excessive CO emissions are expected to be caused once the proposed Project is completed.

9.0 IMPACTS TO GLOBAL CLIMATE CHANGE

Global Climate Change Regulatory Issues

In 1988, the United Nations established the Intergovernmental Panel on Climate Change to evaluate the impacts of global warming and to develop strategies that nations could implement to curtail global climate change. In 1992, the United Nations Framework Convention on Climate Change established an agreement with the goal of controlling GHG emissions, including methane. As a result, the Climate Change Action Plan was developed to address the reduction of GHGs in the United States. The plan consists of more than 50 voluntary programs. Additionally, the Montreal Protocol was originally signed in 1987 and substantially amended in 1990 and 1992. The Montreal Protocol stipulates that the production and consumption of compounds that deplete O_3 in the stratosphere (chlorofluorocarbons [CFCs], halons, carbon tetrachloride, and methyl chloroform) were phased out by 2000 (methyl chloroform was phased out by 2005).

On September 27, 2006, Assembly Bill 32 (AB32), the California Global Warming Solutions Act of 2006 (the Act) was enacted by the State of California. The legislature stated, "global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California." The Act caps California's GHG emissions at 1990 levels by 2020. The Act defines GHG emissions as all of the following gases: carbon dioxide (CO_2), methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride. This agreement represents the first enforceable statewide program in the U.S. to cap all GHG emissions from major industries that includes penalties for non-compliance. While acknowledging that national and international actions will be necessary to fully address the issue of global warming, AB32 lays out a program to inventory and reduce GHG emissions in California and from power generation facilities located outside the state that serve California residents and businesses.

AB32 charges CARB with responsibility to monitor and regulate sources of GHG emissions in order to reduce those emissions. CARB has adopted a list of discrete early action measures that can be implemented to reduce GHG emissions. CARB has defined the 1990 baseline emissions for California, and has adopted that baseline as the 2020 statewide emissions cap. CARB is conducting rulemaking for reducing GHG emissions to achieve the emissions cap by 2020. In designing emission reduction measures, CARB must aim to minimize costs, maximize benefits, improve and modernize California's energy infrastructure, maintain electric system reliability, maximize additional environmental and economic co-benefits for California, and complement the state's efforts to improve air quality.

Global warming and climate change have received substantial public attention for more than 20 years. For example, the United States Global Change Research Program was established by the Global Change Research Act of 1990 to enhance the understanding of natural and human-induced changes in the Earth's global environmental system, to monitor, understand and predict global change, and to provide a sound scientific basis for national and international decision-making. Even so, the analytical tools have not been developed to determine the effect on worldwide global warming from a particular increase in GHG emissions, or the resulting effects on climate change in a particular locale. The scientific tools needed to evaluate the impacts that a specific project may have on the environment are even farther in the future.

The California Supreme Court's most recent CEQA decision on the Newhall Ranch development case, *Center for Biological v. California Department of Fish and Wildlife* (November 30, 2015, Case No. 217763), determined that the project's Environmental Impact Report (EIR) did not substantiate the conclusion that the GHG cumulative impacts would be less than significant. The EIR determined that the Newhall Ranch development project would reduce GHG emissions by 31 percent from BAU. This reduction was compared to the California's target of reducing GHG emissions statewide by 29 percent from BAU. The Court determined that "the EIR's deficiency stems from taking a quantitative comparison method developed by the Scoping Plan as a measure of the greenhouse gas reduction effort required by the state as a whole, and attempting to use that method, without adjustments, for a purpose very different from its original design." In the Court's final ruling it offered suggestions that were deemed appropriate use of the BAU methodology:

1. Lead agencies can use the comparison to BAU methodology if they determine what reduction a particular project must achieve in order to comply with statewide goals,
2. Project design features that comply with regulations to reduce emissions may demonstrate that those components of emissions are less that significant, and
3. Lead agencies could also demonstrate compliance with locally adopted climate plans, or could apply specific numerical thresholds developed by some local agencies.

As discussed in Section 6.0 Significance Criteria, the EKAPCD has developed a specific numerical threshold to determine significance of a proposed project. According to the Court's ruling this numerical threshold can be used to demonstrate compliance. This threshold is applied to the subject Project in order to determine significance.

Global Climate Change Impacts from the Proposed Project

The Earth's atmosphere naturally includes a number of gases, including CO_2, methane, and nitrous oxides (N_2O) that are referred to as GHGs. These gases trap some amount of solar radiation and the Earth's own radiation, preventing it from passing through Earth's atmosphere and into space. GHGs are vital to life on Earth; without them Earth would be an icy planet. CO_2 is also a trace element that is essential to the cycle of life. It is essential to plant growth and studies have shown that vegetation growth has increased in North America commensurate with the increase in CO_2 over the past decades. However, increasing GHG concentrations tend to warm the planet. A warming trend of about 0.7°F to 1.5°F reportedly occurred during the 20^{th} century, and a number of scientific analyses indicate that rising levels of GHGs in the atmosphere may be contributing to climate change.

As the average temperature of the Earth increases, weather may be affected, including changes in precipitation patterns, accumulation of snow pack, and intensity and duration of spring snowmelt. There may be rises in sea level, resulting in coastal erosion and inundation of coastal areas. Emissions of air pollutants and ambient levels of pollutants also may be affected in areas. Climate zones may change, affecting the ecology and biological resources of a region. There may be changes in fire hazards due to the changes in precipitation and climate zones.

While scientists have established a connection between increasing CO_2 concentrations and increasing average temperatures, important scientific questions remain about how much warming will occur, how fast it will occur, and how the warming will affect the rest of the climate system. At this point, scientific efforts are unable to quantify the degree to which human activity impacts climate change. The phenomenon is worldwide, yet it is expected that there will be substantial regional and local variability in climate changes. It is not possible with today's science to determine the effect of global climate change in a specific locale, or whether the effect of one aspect of climate change may be counteracted by another aspect of climate change, or exacerbated by it.

Human activities generate GHGs. Since pre-industrial times, there has been a build-up of levels of gases like CO_2 in the atmosphere. The human contribution to the increase in atmospheric CO_2 concentrations largely has resulted from the burning of fossil fuels. Fossil fuel combustion accounts for approximately 98 percent of CO_2 emissions from human activity.

The United States has the second highest emissions of GHGs of any nation on Earth, though CO_2 emissions in California are less than the national average, both in per capita emissions and in emissions per gross state product. Transportation is the largest source of CO_2 emissions in California, accounting for approximately 41 percent of total emissions. Electricity generation accounts for approximately 22 percent of CO_2 emissions in California, and the industrial sector accounts for approximately 20.5 percent.

There are a number of factors available for estimating the GHG emissions. Not all GHGs exhibit the same ability to induce climate change; as a result, GHG contributions are commonly quantified in carbon dioxide equivalents (CO_2e). The proposed Project's construction and operational GHG emissions were estimated using the CalEEMod and EMFAC2014 programs. The Project's annualized construction and operations emissions as well as GHG savings are summarized in **Table 9-1 (Attachment D)**.

Table 9-1 – Estimated Annual GHG Emissions (Tons/Year)

Source	CO_2	CH_4	N_2O	CO_2e
Construction Emissions - 2019	88.297	0.027	0.000	88.970
Annualized Construction Emissions[1]	2.943	0.001	0.000	2.966
Total Project Operational Emissions	0.231	0.000	0.000	0.242
Total Project Emissions	3.174	0.001	0.000	3.208
EKACPD's Significance Threshold	**-**	**-**	**-**	**25,000**
Significance Threshold Exceeded?	**-**	**-**	**-**	**NO**

*Note: 0.000 could represent <0.000
[1] Per South Coast AQMD's Methodology: Construction emissions are annualized over a 30 year period.
[2] California Climate Action Registry Reporting Protocol (Version 3.1).

The Project will not result in the emissions of hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), or sulfur hexafluoride (SF_6), the other gases identified as GHG in AB32. The proposed Project will be subject to any regulations developed under AB32 as determined by CARB. The proposed Project does not exceed EKAPCD's GHG Policy threshold of 25,000 MT of CO_2e per year (EKAPCD 2012), and therefore would have a *less than significant* GHG impact.

Feasible and Reasonable Mitigation Relative to Global Warming

CEQA requires that all feasible and reasonable mitigation be applied to the project to reduce the impacts from construction and operations on air quality. The SJVAPCD's "Non-Residential On-Site Mitigation Checklist" was applied in preparing the mitigation measures and evaluating the Project's features as a proxy for EKAPCD. These measures include using controls that limit the exhaust from construction equipment and using alternatives to diesel when possible. Additional reductions would be achieved through the air districts and CARB implementing regulations to reduce diesel engine emissions.

While it is not possible to determine whether the Project individually would have a significant impact on global warming or climate change, the Project would potentially contribute to cumulative GHG emissions reductions in California as well as related health effects. The Project operational emissions would only be a very small fraction of the statewide GHG emissions and these small increases would be offset by reductions in GHGs that would result in reduced need for fossil-fuel generated power sources. However, without the necessary science and analytical tools, it is not possible to assess, with certainty, whether the Project's contribution would be cumulatively considerable, within the meaning of CEQA Guidelines Sections 15065(a)(3) and 15130. CEQA, however, does note that the more severe environmental problems the lower the thresholds for treating a project's contribution to cumulative impacts as significant. Given the position of the legislature in AB32 which states that global warming poses serious detrimental effects, and the requirements of CEQA for the lead agency to determine that a project not have a cumulatively considerable contribution, the effect of the Project's CO_2 contribution/reduction may would not be considered cumulatively considerable and would be considered *less than significant*. This determination is based on the lack of clear scientific evidence or other criteria for determining the significance of the Project's contribution or reduction of GHG to the air quality in the MDAB. The strategies currently being implemented by CARB may help in further reducing the Project's GHG emissions and are summarized in the table below.

Table 9-2 – Select CARB GHG Emission Reduction Strategies

Strategy	Description of Strategy
Vehicle Climate Change Standards	AB 1493 (Pavley) required the state to develop and adopt regulations that achieve the maximum feasible and cost-effective reduction of climate change emissions emitted by passenger vehicles and light duty trucks. Regulations were adopted by CARB in Sept. 2004.
Diesel Anti-Idling	In July 2004, CARB adopted a measure to limit diesel-fueled retail motor vehicle idling.
Other Light-Duty Vehicle Technology	New standards would be adopted to phase in beginning in the 2017 model year.
Alternative Fuels: Biodiesel Blends	CARB would develop regulations to require the use of 1% to 4% Biodiesel displacement of California diesel fuel.
Alternative Fuels: Ethanol	Increased use of ethanol fuel.
Heavy-Duty Vehicle Emission Reduction Measures	Increased efficiency in the design of heavy-duty vehicles and an educational program for the heavy-duty vehicle sector.

Not all of these measures are currently appropriate or applicable to the proposed Project. While future legislation could further reduce the Project's GHG footprint, the analysis of this is speculative and in accordance with CEQA Guidelines Section 15145, will not be further evaluated in this AQIA.

CEQA Guidelines Section 15130 notes that sometimes the only feasible mitigation for cumulative impacts may involve the adoption of ordinances or regulations rather than the imposition of conditions on a project-by-project basis. Global climate change is this type of issue. The causes and effects may not be just regional or statewide, they may also be worldwide. Given the uncertainties in identifying, let alone quantifying the impact of any single project on global warming and climate change, and the efforts made to reduce emissions of GHGs from the Project through design, in accordance with CEQA Section 15130, any further feasible emissions reductions would be accomplished through CARB regulations adopted pursuant to AB32. The cumulative impacts of the Project to global climate change as demonstrated in **Table 9-1** would be below the GHG thresholds of significance established by the EKAPCD. Therefore, the cumulative impacts to global climate change would be *less than significant.*

10.0 CONSISTENCY WITH THE AIR QUALITY ATTAINMENT PLAN

Air quality impacts from proposed projects within the eastern Kern County are controlled through policies and provisions of the EKAPCD and the Kern County General Plan (Kern County 2004). In order to demonstrate that a proposed project would not cause further air quality degradation in either of the EKAPCD's plan to improve air quality within the air basin or federal requirements to meet certain air quality compliance goals, each project should also demonstrate consistency with the EKAPCD's adopted AQAP. The EKAPCD is required to submit a "Rate of Progress" document to the CARB that demonstrates past and planned progress toward reaching attainment for all criteria pollutants. The California Clean Air Act (CCAA) requires the local air districts with severe or extreme air quality problems to provide for a 5 percent reduction in non-attainment emissions per year. The Attainment Plans prepared for the Eastern Kern County by the EKAPCD complies with this requirement. CARB reviews, approves or amends the document and forwards the plan to the U.S. Environmental Protection Agency (U.S. EPA) for final review and approval within the State Implementation Plan (SIP).

Air pollution sources associated with stationary sources are regulated through the EKAPCD permitting authority under the New and Modified Stationary Source Review Rule (EKAPCD Rule 210.1). Owners of any new or modified equipment that emits, reduces or controls air contaminants, except those specifically exempted by the EKAPCD, are required to apply for an Authority to Construct and Permit to Operate (EKAPCD Rule 201). Additionally, best available control technology (BACT) is required on specific types of stationary equipment and are required to offset both stationary source emission increases along with increases in cargo carrier emissions if the specified threshold levels are exceeded (EKAPCD Rule 210.1, III.B.). Through this mechanism, the EKAPCD would ensure that all stationary sources within a project area would be subject to the standards of the EKAPCD to ensure that new developments do not result in net increases in stationary sources of criteria air pollutants.

Required Evaluation Guidelines

CEQA Guidelines and the Federal Clean Air Act (Sections 176 and 316) contain specific references on the need to evaluate consistency between a proposed project and the applicable AQAP for the Project site. To accomplish this, CARB has developed a three-step approach to determine project conformity with the applicable AQAP:

1. *Determination that an AQAP is being implemented in the area where the Project is being proposed*. The EKAPCD has implemented the current, modified, AQAP as approved by the CARB. The current AQAP is under review by the U.S. EPA.
2. *The proposed Project must be consistent with the growth assumptions of the applicable AQAP*. The proposed Project is included within the population and employment increases projected in the Kern County General Plan (**Tables 10-1 and 10-2**).
3. *The Project must contain in its design all reasonably available and feasible air quality control measures*. The proposed Project incorporates various policy and rule-required implementation measures that will reduce related emissions.

The CCAA and AQAP identify transportation control measures as methods to further reduce emissions from mobile sources. Strategies identified to reduce vehicular emissions such as reductions in vehicle trips, vehicle use, vehicle miles traveled, vehicle idling and traffic congestion, in order to reduce vehicular emissions, can be implemented as control measures under the CCAA as well. Additional measures may also be implemented through the building process such as providing electrical outlets on exterior walls of structures to encourage use of electrical landscape maintenance equipment.

As the growth represented by the proposed Project was anticipated by the Kern County General Plan and incorporated into the AQAP, conclusions may be drawn from the following criteria:

1. The findings of the analysis conducted using review of TAZ data show that sufficient population and household increases are planned for the project area (**Table 10-1** below);
2. That, by definition, the proposed emissions from the Project are below the EKAPCD's established emissions impact thresholds; and
3. That the primary source of emissions from the Project would be motor vehicles which would be licensed through the State of California and whose emissions are already incorporated into the CARB's Eastern Kern County's Emissions Inventory.

Based on these factors, the Project *appears to be consistent with the AQAP*.

Consistency with the Kern Council of Government's Regional Conformity Analysis

The Kern Council of Governments (Kern COG) Regional Conformity Analysis Determination demonstrates that the regional transportation expenditure plans (Destination 2030 Regional Transportation Plan and Federal Transportation Improvement Program) in the Kern County portion of the Kern County portion of the Mojave Desert air quality attainment areas would not hinder the efforts set out in the CARB's SIP for each area's non-attainment pollutants (CO, O_3 and PM_{10}). The analysis uses an adopted regional growth forecast, governed by both the adopted Kern COG Policy and Procedure Manual and a Memorandum of Understanding between the County of Kern and Kern COG (representing itself and outlying municipal member agencies).

The Kern COG Regional Conformity Analysis considers General Plan Amendments (GPA) and zone changes that were enacted at the time of the analysis as projected growth within the area based on land use designations incorporated within the Kern County General Plan. Land use designations that are altered based on subsequent GPAs that were not included in the Regional Conformity Analysis were not incorporated into the Kern COG analysis. Consequently, if a proposed project is not included in the regional growth forecast using the latest planning assumptions, it may not be said to conform to the regional growth forecast.

Item 2 under Section 3 – Model Maintenance Procedure, of the Kern COG Regional Transportation Modeling Policy and Procedure Manual states "*Land Use Data – General Plan land capacity data or "Build -out capacity" is used to distribute the forecasted County totals, and may be updated as new information becomes available, and is revised in regular consultation with local planning departments*."

Under the current Kern County Zoning, the Project site is designated as "OS" for Open Space and would be included in the regional growth forecast (see **Figure 10-1 and Table 10-1**).

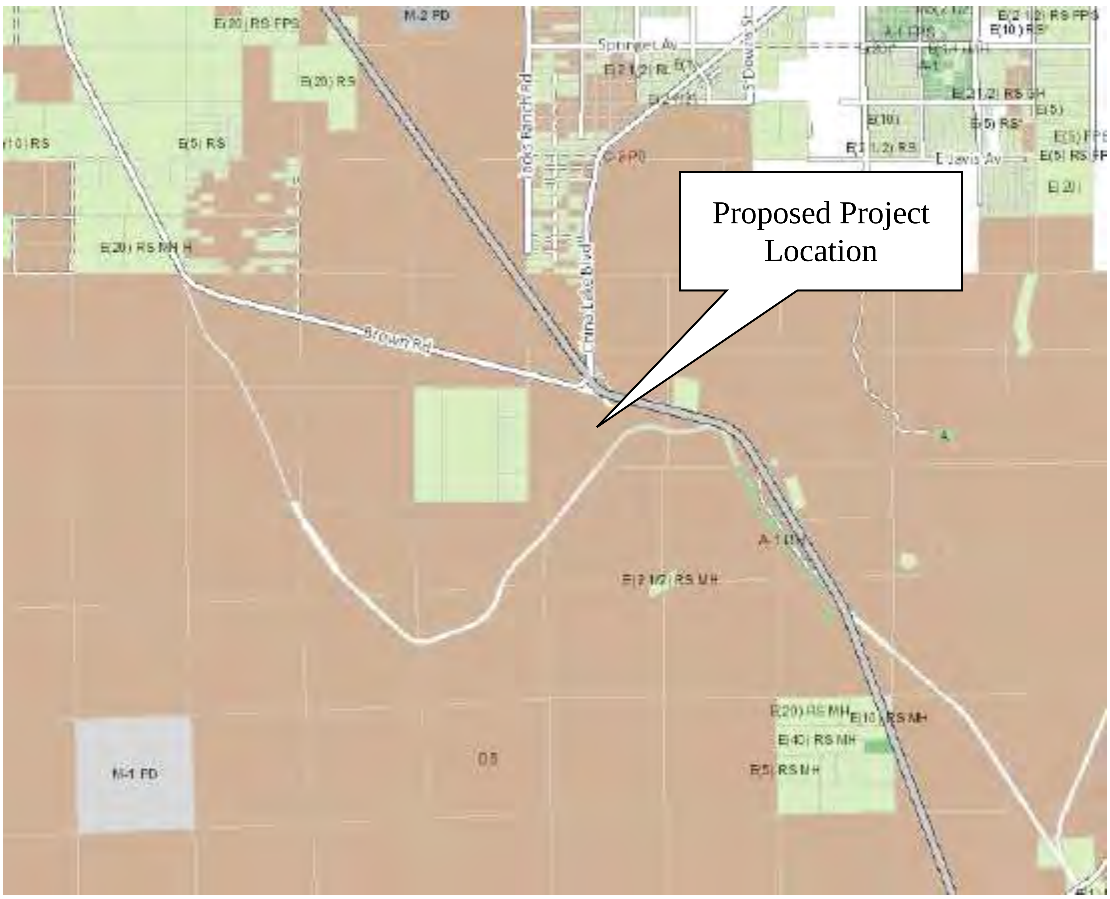

Figure 10-1 – Kern County Zoning

In addition, a review of Kern COG regional forecast was prepared to evaluate if the Project area growth forecast would be sufficient to account for the Project's projected employment increase. The adopted growth forecasts are assigned to Traffic Analysis Zones (TAZ) (see **Figure 10-2**); a review of the growth forecast one mile from a project presents a conservative assessment of the Project area. The TAZ's included in the one mile radius from the proposed Project site are: 755, 781, 824-827, 829-833, 1588, 1589, 1593, 1594 and 1615.

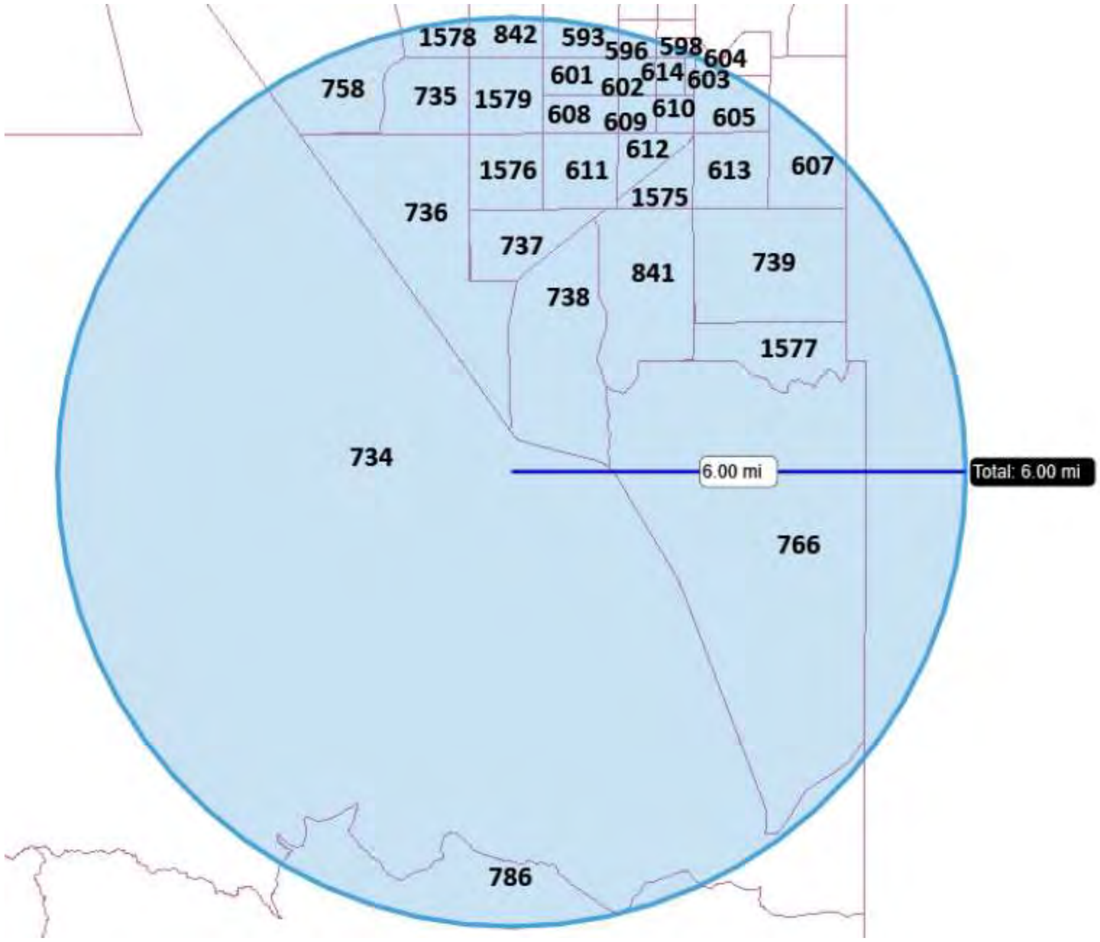

Figure 10-2 – 6-Mile TAZ Map

Table 10-1 – TAZ Analysis Area Projected Growth Analysis

Years:	2017	2020	2030
Population	21,764	22,149	23,850
Households	8,334	8,647	9,376
Employment	5,858	6,151	7,164

Table 10-2 provides the percent increase/decrease for the analysis area population, households and employment. This comparison contrasts both 2020 and 2030 to baseline year 2015.

Table 10-2 – Percent Increase/Decrease on TAZ Analysis Area

Years	Percent Increase / Decrease		
	Population	Households	Employment
2017*	0	0	0
2020	2	4	5
2030	8	8	16
*Baseline year of 2017 was valued at "0" to measure net percent increase/decrease.			

Given there is already enough population and employment to account for the proposed Project, the Project is consistent with the regional growth forecast (see **Figure 10-1 and Tables 10-1 and 10-2**).

11.0 MITIGATION AND OTHER RECOMMENDED MEASURES

As the estimated construction and operational emissions from the proposed Project would be *less than significant*, no specific mitigation measures would be required. However, to ensure that Project is in compliance with all applicable EKAPCD rules and regulations and emissions are further reduced, the applicant would be required to implement and comply with a number of measures by regulation and would result in further emission reductions through their inclusion in Project construction and long-term design. The following measures have been applied to the Project as EKAPCD rules and regulations and conditions of approval and through the CalEEMod model analysis:

Suggested PM_{10} Reduction Measures

As the Project would be completed in compliance with EKAPCD Rules and Regulation, dust control measures would be taken to ensure compliance specifically during grading and the construction phase.

Land Preparation, Excavation and/or Demolition - The following dust control measures should be implemented:

- All soil excavated or graded should be sufficiently watered to prevent excessive dust. Watering should occur as needed with complete coverage of disturbed soil areas. Watering should be a minimum of twice daily on unpaved/untreated roads and on disturbed soil areas with active operations.

- All clearing, grading, earth moving and excavation activities should cease
  - during periods of winds greater than 20 mph (averaged over one hour), if disturbed material is easily windblown, or
  - when dust plumes of 20% or greater opacity impact public roads, occupied structures or neighboring property.

- All fine material transported offsite should be either sufficiently watered or securely covered to prevent excessive dust.
- If more than 5,000 cubic yards of fill material will be imported or exported from the site, then all haul trucks should be required to exit the site via an access point where a gravel pad or grizzly has been installed.
- Areas disturbed by clearing, earth moving or excavation activities should be minimized at all times.
- Stockpiles of soil or other fine loose material shall be stabilized by watering or other appropriate method to prevent wind-blown fugitive dust.
- Where acceptable to the fire department, weed control should be accomplished by mowing instead of discing, thereby, leaving the ground undisturbed and with a mulch covering.

Building (structure) Construction - After clearing, grading, earth moving and/or excavating, the following dust control practices should be implemented:

- Once initial leveling has ceased all inactive soil areas within the construction site should either be seeded and watered until plant growth is evident, treated with a dust palliative, or watered twice daily until soil has sufficiently crusted to prevent fugitive dust emission.
- All active disturbed soil areas should be sufficiently watered to prevent excessive dust, but no less than twice per day.

Vehicular Activities - During all phases of construction, the following vehicular control measures should be implemented:

Dust

- Onsite vehicle speed should be limited to 15 mph.
- All areas with vehicle traffic should be paved, treated with dust palliatives, or watered a minimum of twice daily.
- Streets adjacent to the project site should be kept clean and accumulated silt removed.
- Access to the site should be by means of an apron into the project from adjoining surfaced roadways. The apron should be surfaced or treated with dust palliatives. If operating on soils that cling to the wheels of the vehicles, a grizzly or other such device should be used on the road exiting the project, immediately prior to the pavement, in order to remove most of the soil material from the vehicle's tires.

Tailpipe Emissions

- Properly maintain and tune all internal combustion engine powered equipment.
- Require employees and subcontractors to comply with California's idling restrictions for compression ignition engines.
- Use low sulfur (CARB) diesel fuel.

Recommended Measures to Reduce Equipment Exhaust

These measures are recommended to reduce exhaust emissions:

- Maintain all construction equipment as recommended by manufacturer manuals.
- Shut down equipment when not in use for extended periods.
- Construction equipment shall operate no longer than eight (8) cumulative hours per day.
- Use electric equipment for construction whenever possible in lieu of diesel or gasoline powered equipment.
- Curtail use of high-emitting construction equipment during periods of high or excessive ambient pollutant concentrations.
- All construction vehicles shall be equipped with proper emissions control equipment and kept in good and proper running order to substantially reduce NO_x emissions.
- On-Road and Off-Road diesel equipment shall use diesel particulate filters if permitted under manufacturer's guidelines.
- On-Road and Off-Road diesel equipment shall use cooled exhaust gas recirculation (EGR) if permitted under manufacturer's guidelines.
- All construction workers shall be encouraged to shuttle (car-pool) to retail establishments or to remain on-site during lunch breaks.
- All construction activities within the Project area shall be discontinued during the first stage smog alerts.
- Construction and grading activities shall not be allowed during first stage O_3 alerts. First stage O_3 alerts are declared when the O_3 level exceeds 0.20 ppm (1-hour average).

12.0 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The proposed Project would have short-term air quality impacts due to facility construction activities as well as vehicular emissions. Construction-related short-term emissions would be reduced by implementation of measures required of all projects by EKACPD and *were found to be less than significant* with no mitigation required.

The proposed Project would result in long-term air quality impacts due to operational-related mobile source emissions. These operational-related long term emissions *were found to be less than significant* with no mitigation required.

The proposed Project's incremental contribution to cumulative impacts are below thresholds of significance. Therefore, the Project would not be considered cumulatively considerable because of presumed conformance with the AQAP and/or the Kern County's General Plan. Therefore, the Project's contribution to cumulative impacts *were found to be less than significant*.

The proposed Project in conjunction with other past, present and foreseeable future projects would result in cumulative long-term impacts to global climate change. The proposed Project's incremental contribution to these impacts are considered *less than significant.*

13.0 ATTACHMENTS

A. Ozone Concentration Data
B. PM_{10} and $PM_{2.5}$ Concentration Data
C. NOx Concentration Data
D. Project Emissions Calculations (Electronic Format)
    - Proposed Project Construction Emissions Estimates - CalEEMod v.2016.3.1 Output & EMFAC2014 & AP-42 emissions estimates
    - Proposed Project Operations Emissions Estimates - EMFAC2014 & AP-42 emissions estimates
    - GHG EMFAC2014 Project-related emissions & Climate Action Registry savings
E. California Air Resources Board 2015 Estimated Annual Average Emissions
    - MDAB
    - Kern County
F. California Air Resources Board 2020 Forecasted Annual Average Emissions Estimated Annual Average Emissions
    - MDAB
    - Kern County

14.0 REFERENCES

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ATTACHMENT A: OZONE CONCENTRATION DATA

Top 4 Summary: Highest 4 Daily Maximum 8-Hour Ozone Averages

at Trona-Athol and Telegraph

	2015		2016		2017	
	Date	8-Hr Average	Date	8-Hr Average	Date	8-Hr Average
National 2015 Std (0.070 ppm):						
First High:	Jun 18	0.071	Jul 15	0.077	Jul 11	0.077
Second High:	Aug 22	0.071	Jul 23	0.075	Jul 3	0.076
Third High:	Jun 17	0.070	Jun 26	0.074	Jul 2	0.075
Fourth High:	Aug 20	0.068	Jul 16	0.073	Jul 10	0.075
California Std (0.070 ppm):						
First High:	Jun 18	0.072	Jul 15	0.077	Jul 11	0.077
Second High:	Aug 22	0.071	Jun 26	0.075	Jul 3	0.076
Third High:	Jun 17	0.070	Jul 23	0.075	Jul 10	0.076
Fourth High:	May 30	0.068	Jul 16	0.074	Jul 2	0.075
National 2015 Std (0.070 ppm):						
# Days Above the Standard:		2		10		6
Nat'l Standard Design Value:		0.067		0.069		0.072
National Year Coverage:		100		96		92
California Std (0.070 ppm):						
# Days Above the Standard:		2		11		6
California Designation Value:		0.072		0.077		0.077
Expected Peak Day Concentration:		0.073		0.078		0.078
California Year Coverage:		97		94		90

Notes:

Eight-hour ozone averages and related statistics are available at Trona-Athol and Telegraph between 1997 and 2017. Some years in this range may not be represented.

All averages expressed in parts per million.

An exceedance of a standard is not necessarily related to a violation of the standard.

State and national statistics may differ for the following reasons:

National 8-hour averages are truncated to three decimal places; State 8-hour averages are rounded to three decimal places.

State criteria for ensuring that data are sufficiently complete for calculating 8-hour averages are more stringent than the national criteria.

Daily maximum 8-hour averages associated with the National 0.070 ppm standard exclude those 8-hour averages that have first hours between midnight and 6:00 am, Pacific Standard Time.

Daily maximum 8-hour averages associated with the National 0.070 ppm standard include only those 8-hour averages from days that have sufficient data for the day to be considered valid.

Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.

* means there was insufficient data available to determine the value.

Top 4 Summary: Highest 4 Daily Maximum 8-Hour Ozone Averages

at Mojave National Preserve

iADAM

	2015		2016		2017	
	Date	8-Hr Average	Date	8-Hr Average	Date	8-Hr Average
National 2015 Std (0.070 ppm):						
First High:	Jun 18	0.082	Jun 26	0.082	Jul 11	0.076
Second High:	Jun 16	0.081	Jul 14	0.081	May 24	0.073
Third High:	Jun 17	0.080	Jul 5	0.079	Jun 17	0.073
Fourth High:	Jun 22	0.078	Jul 6	0.078	Jun 15	0.072
California Std (0.070 ppm):						
First High:	Jun 18	0.082	Jun 26	0.083	Jul 11	0.076
Second High:	Jun 16	0.081	Jul 14	0.082	May 24	0.074
Third High:	Jun 17	0.081	Jul 5	0.080	Jun 17	0.074
Fourth High:	Jun 22	0.078	Jul 6	0.079	Jun 16	0.073
National 2015 Std (0.070 ppm):						
# Days Above the Standard:		19		18		8
Nat'l Standard Design Value:		0.078		0.077		0.076
National Year Coverage:		76		100		73
California Std (0.070 ppm):						
# Days Above the Standard:		22		21		8
California Designation Value:		0.094		0.083		0.083
Expected Peak Day Concentration:		*		*		*
California Year Coverage:		56		100		70

Notes:

Eight-hour ozone averages and related statistics are available at Mojave National Preserve between 2012 and 2017. Some years in this range may not be represented.

All averages expressed in parts per million.

An exceedance of a standard is not necessarily related to a violation of the standard.

State and national statistics may differ for the following reasons:

National 8-hour averages are truncated to three decimal places; State 8-hour averages are rounded to three decimal places.

State criteria for ensuring that data are sufficiently complete for calculating 8-hour averages are more stringent than the national criteria.

Daily maximum 8-hour averages associated with the National 0.070 ppm standard exclude those 8-hour averages that have first hours between midnight and 6:00 am, Pacific Standard Time.

Daily maximum 8-hour averages associated with the National 0.070 ppm standard include only those 8-hour averages from days that have sufficient data for the day to be considered valid.

Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.

* means there was insufficient data available to determine the value.

Top 4 Summary: Highest 4 Daily Maximum 8-Hour Ozone Averages

at Mojave-923 Poole Street

	2015		2016		2017	
	Date	8-Hr Average	Date	8-Hr Average	Date	8-Hr Average
National 2015 Std (0.070 ppm):						
First High:	Jun 24	0.084	Jul 28	0.093	Jul 14	0.085
Second High:	Jun 17	0.081	Jul 29	0.086	Jul 1	0.081
Third High:	Jun 30	0.081	Jul 27	0.085	Jun 23	0.080
Fourth High:	May 30	0.080	Jun 20	0.084	Jul 15	0.080
California Std (0.070 ppm):						
First High:	Jun 24	0.085	Jul 28	0.093	Jul 14	0.086
Second High:	Jun 17	0.081	Jul 29	0.086	Jul 1	0.082
Third High:	Jun 30	0.081	Jul 27	0.085	Jul 15	0.081
Fourth High:	May 30	0.080	Aug 13	0.085	Jun 23	0.080
National 2015 Std (0.070 ppm):						
# Days Above the Standard:		31		52		35
Nat'l Standard Design Value:		0.083		0.084		0.081
National Year Coverage:		97		96		99
California Std (0.070 ppm):						
# Days Above the Standard:		33		60		37
California Designation Value:		0.090		0.093		0.086
Expected Peak Day Concentration:		0.095		0.094		0.088
California Year Coverage:		96		92		99

Notes:

Eight-hour ozone averages and related statistics are available at Mojave-923 Poole Street between 1993 and 2017. Some years in this range may not be represented.

All averages expressed in parts per million.

An exceedance of a standard is not necessarily related to a violation of the standard.

State and national statistics may differ for the following reasons:

- National 8-hour averages are truncated to three decimal places; State 8-hour averages are rounded to three decimal places.
- State criteria for ensuring that data are sufficiently complete for calculating 8-hour averages are more stringent than the national criteria.

Daily maximum 8-hour averages associated with the National 0.070 ppm standard exclude those 8-hour averages that have first hours between midnight and 6:00 am, Pacific Standard Time.

Daily maximum 8-hour averages associated with the National 0.070 ppm standard include only those 8-hour averages from days that have sufficient data for the day to be considered valid.

Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.

* means there was insufficient data available to determine the value.

Top 4 Summary: Highest 4 Daily Maximum 8-Hour Ozone Averages

at Barstow

	2015		2016		2017	
	Date	8-Hr Average	Date	8-Hr Average	Date	8-Hr Average
National 2015 Std (0.070 ppm):						
First High:	Jun 24	0.082	Aug 9	0.083	Jul 2	0.076
Second High:	Jun 17	0.079	Aug 10	0.082	Jul 17	0.076
Third High:	Jun 16	0.078	Jul 23	0.081	Jul 3	0.075
Fourth High:	Aug 21	0.077	Jul 7	0.080	Jul 1	0.074
California Std (0.070 ppm):						
First High:	Jun 24	0.083	Aug 9	0.084	Jul 17	0.077
Second High:	Jun 17	0.080	Aug 10	0.082	Jul 2	0.076
Third High:	Jun 16	0.078	Jul 23	0.081	Jul 1	0.075
Fourth High:	Aug 21	0.077	Jul 7	0.080	Jul 3	0.075
National 2015 Std (0.070 ppm):						
# Days Above the Standard:		18		25		9
Nat'l Standard Design Value:		0.079		0.080		0.077
National Year Coverage:		100		99		94
California Std (0.070 ppm):						
# Days Above the Standard:		20		27		10
California Designation Value:		0.087		0.087		0.084
Expected Peak Day Concentration:		0.089		0.087		0.085
California Year Coverage:		100		98		93

Notes:

Eight-hour ozone averages and related statistics are available at Barstow between 1973 and 2017. Some years in this range may not be represented.

All averages expressed in parts per million.

An exceedance of a standard is not necessarily related to a violation of the standard.

State and national statistics may differ for the following reasons:

National 8-hour averages are truncated to three decimal places; State 8-hour averages are rounded to three decimal places.

State criteria for ensuring that data are sufficiently complete for calculating 8-hour averages are more stringent than the national criteria.

Daily maximum 8-hour averages associated with the National 0.070 ppm standard exclude those 8-hour averages that have first hours between midnight and 6:00 am, Pacific Standard Time.

Daily maximum 8-hour averages associated with the National 0.070 ppm standard include only those 8-hour averages from days that have sufficient data for the day to be considered valid.

Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.

* means there was insufficient data available to determine the value.

Top 4 Summary: Highest 4 Daily Maximum Hourly Ozone Measurements

at Trona-Athol and Telegraph

	2015		2016		2017	
	Date	Measurement	Date	Measurement	Date	Measurement
First High:	Jun 25	0.076	Jul 23	0.100	Jul 10	0.084
Second High:	Jun 17	0.075	Jun 24	0.089	Jul 11	0.083
Third High:	Jun 18	0.075	Aug 20	0.084	Jul 1	0.078
Fourth High:	Aug 22	0.074	Jun 26	0.082	Jul 3	0.078
California:						
# Days Above the Standard:		0		1		0
California Designation Value:		0.08		0.08		0.08
Expected Peak Day Concentration:		0.075		0.081		0.083
National:						
# Days Above the Standard:		*0*		*0*		*0*
3-Year Estimated Expected Number of Exceedance Days:		*0.0*		*0.0*		*0.0*
1-Year Estimated Expected Number of Exceedance Days:		*0.0*		*0.0*		*0.0*
Nat'l Standard Design Value:		*0.075*		*0.082*		*0.084*
Year Coverage:		98		97		92

Notes:

Hourly ozone measurements and related statistics are available at Trona-Athol and Telegraph between 1997 and 2017. Some years in this range may not be represented.

All concentrations expressed in parts per million.

The national 1-hour ozone standard was revoked in June 2005. Statistics related to the national 1-hour ozone standard are shown in or .

An exceedance of a standard is not necessarily related to a violation of the standard.

Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.

* means there was insufficient data available to determine the value.

Top 4 Summary: Highest 4 Daily Maximum Hourly Ozone Measurements

at Mojave National Preserve

	2015		2016		2017	
	Date	Measurement	Date	Measurement	Date	Measurement
First High:	Jun 16	0.090	Jul 5	0.106	Jun 21	0.082
Second High:	Jun 17	0.085	Jul 14	0.097	Jun 15	0.081
Third High:	Jun 18	0.085	Jul 7	0.092	Jul 11	0.079
Fourth High:	Jun 30	0.085	Jun 26	0.091	May 24	0.078
California:						
# Days Above the Standard:		0		2		0
California Designation Value:		0.10		0.09		0.11
Expected Peak Day Concentration:		*		0.093		*
National:						
# Days Above the Standard:		*0*		*0*		*0*
3-Year Estimated Expected Number of Exceedance Days:		*0.0*		*0.0*		*0.0*
1-Year Estimated Expected Number of Exceedance Days:		*0.0*		*0.0*		*0.0*
Nat'l Standard Design Value:		*0.093*		*0.097*		*0.097*
Year Coverage:		99		100		73

Notes:

Hourly ozone measurements and related statistics are available at Mojave National Preserve between 2012 and 2017. Some years in this range may not be represented.

All concentrations expressed in parts per million.

The national 1-hour ozone standard was revoked in June 2005. Statistics related to the national 1-hour ozone standard are shown in or .

An exceedance of a standard is not necessarily related to a violation of the standard.

Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.

* means there was insufficient data available to determine the value.

Top 4 Summary: Highest 4 Daily Maximum Hourly Ozone Measurements

at Mojave-923 Poole Street

iADAM

	2015		2016		2017	
	Date	Measurement	Date	Measurement	Date	Measurement
First High:	Jun 24	0.104	Jul 28	0.104	Jul 14	0.097
Second High:	Jun 30	0.092	Jul 29	0.097	Jul 1	0.089
Third High:	Jun 18	0.088	Jul 26	0.093	Jul 8	0.089
Fourth High:	Jun 16	0.086	Jul 27	0.093	Jun 24	0.088
California:						
# Days Above the Standard:		1		2		1
California Designation Value:		0.10		0.10		0.09
Expected Peak Day Concentration:		0.098		0.099		0.092
National:						
# Days Above the Standard:		*0*		*0*		*0*
3-Year Estimated Expected Number of Exceedance Days:		*0.0*		*0.0*		*0.0*
1-Year Estimated Expected Number of Exceedance Days:		*0.0*		*0.0*		*0.0*
Nat'l Standard Design Value:		*0.097*		*0.103*		*0.097*
Year Coverage:		96		95		99

Notes:

Hourly ozone measurements and related statistics are available at Mojave-923 Poole Street between 1993 and 2017. Some years in this range may not be represented.

All concentrations expressed in parts per million.

The national 1-hour ozone standard was revoked in June 2005. Statistics related to the national 1-hour ozone standard are shown in or .

An exceedance of a standard is not necessarily related to a violation of the standard.

Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.

* means there was insufficient data available to determine the value.

Top 4 Summary: Highest 4 Daily Maximum Hourly Ozone Measurements

at Barstow

	2015 Date	2015 Measurement	2016 Date	2016 Measurement	2017 Date	2017 Measurement
First High:	Jun 17	0.090	Jul 23	0.089	Aug 4	0.084
Second High:	Jun 24	0.088	Jul 24	0.089	Jul 2	0.083
Third High:	Jun 23	0.086	Aug 10	0.089	Jul 3	0.083
Fourth High:	Jun 16	0.085	Jun 25	0.088	Jul 10	0.081
California:						
# Days Above the Standard:		0		0		0
California Designation Value:		0.09		0.09		0.09
Expected Peak Day Concentration:		0.093		0.094		0.092
National:						
# Days Above the Standard:		*0*		*0*		*0*
3-Year Estimated Expected Number of Exceedance Days:		*0.0*		*0.0*		*0.0*
1-Year Estimated Expected Number of Exceedance Days:		*0.0*		*0.0*		*0.0*
Nat'l Standard Design Value:		*0.092*		*0.091*		*0.089*
Year Coverage:		100		98		94

Notes:

Hourly ozone measurements and related statistics are available at Barstow between 1973 and 2017. Some years in this range may not be represented.

All concentrations expressed in parts per million.

The national 1-hour ozone standard was revoked in June 2005. Statistics related to the national 1-hour ozone standard are shown in or .

An exceedance of a standard is not necessarily related to a violation of the standard.

Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.

* means there was insufficient data available to determine the value.

ATTACHMENT B: PM_{10} and $PM_{2.5}$ Concentration Data

Top 4 Summary: Highest 4 Daily 24-Hour PM10 Averages

at Trona-Athol and Telegraph

	2015 Date	2015 24-Hr Average	2016 Date	2016 24-Hr Average	2017 Date	2017 24-Hr Average
National:						
First High:	Nov 16	112.1	Mar 28	138.0	Mar 30	262.3
Second High:	Nov 24	93.5	Nov 16	86.5	Dec 20	216.4
Third High:	Aug 6	89.6	Jul 30	85.3	Mar 5	117.6
Fourth High:	Jun 1	72.7	Aug 24	63.7	Nov 27	81.7
California:						
First High:		*		*		*
Second High:		*		*		*
Third High:		*		*		*
Fourth High:		*		*		*
National:						
Estimated # Days > 24-Hour Std:		0.0		*		*
Measured # Days > 24-Hour Std:		0		0		2
3-Yr Avg Est # Days > 24-Hr Std:		1.0		*		*
Annual Average:		*21.1*		*23.3*		*25.9*
3-Year Average:		*24*		*24*		*23*
California:						
Estimated # Days > 24-Hour Std:		*		*		*
Measured # Days > 24-Hour Std:		*		*		*
Annual Average:		*		*		*
3-Year Maximum Annual Average:		*		*		*
Year Coverage:		0		0		0

Notes:

Daily PM10 averages and related statistics are available at Trona-Athol and Telegraph between 1997 and 2017. Some years in this range may not be represented.

All averages expressed in micrograms per cubic meter.

The national annual average PM10 standard was revoked in December 2006 and is no longer in effect.
Statistics related to the revoked standard are shown in *italics* or *italics* .

An exceedance of a standard is not necessarily related to a violation of the standard.

All values listed above represent midnight-to-midnight 24-hour averages and may be related to an exceptional event.

State and national statistics may differ for the following reasons:

State statistics are based on California approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and national statistics may therefore be based on different samplers.

State statistics for 1998 and later are based on local conditions (except for sites in the South Coast Air Basin, where State statistics for 2002 and later are based on local conditions). National statistics are based on standard conditions.

State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

Measurements are usually collected every six days. Measured days counts the days that a measurement was greater than the level of the standard; Estimated days mathematically estimates how many days concentrations would have been greater than the level of the standard had each day been monitored.

3-Year statistics represent the listed year and the 2 years before the listed year.

Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.

* means there was insufficient data available to determine the value.

Top 4 Summary: Highest 4 Daily 24-Hour PM10 Averages

at Ridgecrest-Ward

	2015		2016		2017	
	Date	24-Hr Average	Date	24-Hr Average	Date	24-Hr Average
National:						
First High:		*		*	Dec 20	60.2
Second High:		*		*	Nov 27	52.4
Third High:		*		*	Nov 25	44.0
Fourth High:		*		*	Nov 18	43.0
California:						
First High:		*		*	Dec 20	57.4
Second High:		*		*	Nov 27	49.7
Third High:		*		*	Nov 18	42.2
Fourth High:		*		*	Nov 25	41.9
National:						
Estimated # Days > 24-Hour Std:		*		*		*
Measured # Days > 24-Hour Std:		0		0		0
3-Yr Avg Est # Days > 24-Hr Std:		*		*		*
Annual Average:		*		*		*23.3*
3-Year Average:		*		*		*
California:						
Estimated # Days > 24-Hour Std:		*		*		*
Measured # Days > 24-Hour Std:		0		0		1
Annual Average:		*		*		*
3-Year Maximum Annual Average:		*		*		*
Year Coverage:		*		*		0

Notes:

Daily PM10 averages and related statistics are available at Ridgecrest-Ward between 2017 and 2017. Some years in this range may not be represented.

All averages expressed in micrograms per cubic meter.

The national annual average PM10 standard was revoked in December 2006 and is no longer in effect. Statistics related to the revoked standard are shown in *italics* or *italics* .

An exceedance of a standard is not necessarily related to a violation of the standard.

All values listed above represent midnight-to-midnight 24-hour averages and may be related to an exceptional event.

State and national statistics may differ for the following reasons:

State statistics are based on California approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and national statistics may therefore be based on different samplers.

State statistics for 1998 and later are based on local conditions (except for sites in the South Coast Air Basin, where State statistics for 2002 and later are based on local conditions). National statistics are based on standard conditions.

State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

Measurements are usually collected every six days. Measured days counts the days that a measurement was greater than the level of the standard; Estimated days mathematically estimates how many days concentrations would have been greater than the level of the standard had each day been monitored.

3-Year statistics represent the listed year and the 2 years before the listed year.

Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.

* means there was insufficient data available to determine the value.

Top 4 Summary: Highest 4 Daily 24-Hour PM10 Averages

at Ridgecrest-100 West California Avenue

	2015 Date	2015 24-Hr Average	2016 Date	2016 24-Hr Average	2017 Date	2017 24-Hr Average
National:						
First High:	Dec 8	44.5	Aug 22	66.2	Dec 27	48.8
Second High:	Aug 22	36.3	Aug 28	44.8	Oct 4	43.9
Third High:	Dec 2	32.6	Sep 3	39.5	Aug 5	42.5
Fourth High:	Sep 3	32.0	Aug 4	37.9	Dec 15	39.9
California:						
First High:	Dec 8	43.2	Aug 22	59.0	Dec 27	47.1
Second High:	Aug 22	32.1	Aug 28	40.1	Oct 4	41.6
Third High:	Dec 2	32.0	Sep 3	35.3	Dec 15	38.6
Fourth High:	Jan 6	29.2	Apr 26	33.6	Aug 5	37.8
National:						
Estimated # Days > 24-Hour Std:		0.0		0.0		0.0
Measured # Days > 24-Hour Std:		0		0		0
3-Yr Avg Est # Days > 24-Hr Std:		0.0		0.0		0.0
Annual Average:		*19.3*		*23.2*		*23.5*
3-Year Average:		*22*		*22*		*22*
California:						
Estimated # Days > 24-Hour Std:		0.0		*		0.0
Measured # Days > 24-Hour Std:		0		1		0
Annual Average:		17.8		*		21.6
3-Year Maximum Annual Average:		22		22		22
Year Coverage:		89		91		98

Notes:

Daily PM10 averages and related statistics are available at Ridgecrest-100 West California Avenue between 2000 and 2017. Some years in this range may not be represented.

All averages expressed in micrograms per cubic meter.

The national annual average PM10 standard was revoked in December 2006 and is no longer in effect.
Statistics related to the revoked standard are shown in *italics* or *italics* .

An exceedance of a standard is not necessarily related to a violation of the standard.

All values listed above represent midnight-to-midnight 24-hour averages and may be related to an exceptional event.

State and national statistics may differ for the following reasons:

State statistics are based on California approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and national statistics may therefore be based on different samplers.

State statistics for 1998 and later are based on local conditions (except for sites in the South Coast Air Basin, where State statistics for 2002 and later are based on local conditions). National statistics are based on standard conditions.

State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

Measurements are usually collected every six days. Measured days counts the days that a measurement was greater than the level of the standard; Estimated days mathematically estimates how many days concentrations would have been greater than the level of the standard had each day been monitored.

3-Year statistics represent the listed year and the 2 years before the listed year.

Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.

* means there was insufficient data available to determine the value.

Top 4 Summary: Highest 4 Daily 24-Hour PM10 Averages

at Canebrake

	2015 Date	2015 24-Hr Average	2016 Date	2016 24-Hr Average	2017 Date	2017 24-Hr Average
National:						
First High:	Aug 28	67.1	Aug 22	58.9	Jul 6	45.5
Second High:	Aug 22	39.0	Aug 28	47.3	Jun 18	45.2
Third High:	Mar 31	37.0	Jul 23	46.5	Jun 30	36.6
Fourth High:	Sep 9	33.8	Jun 5	41.1	Oct 4	36.6
California:						
First High:	Aug 28	59.4	Aug 22	52.9	Jul 6	40.2
Second High:	Aug 22	34.9	Aug 28	42.1	Jun 18	39.5
Third High:	Mar 31	34.1	Jul 23	41.0	Oct 4	34.2
Fourth High:	Sep 9	30.0	Jun 5	36.1	Jun 30	32.5
National:						
Estimated # Days > 24-Hour Std:		0.0		*		0.0
Measured # Days > 24-Hour Std:		0		0		0
3-Yr Avg Est # Days > 24-Hr Std:		0.0		*		*
Annual Average:		*14.0*		*16.1*		*16.4*
3-Year Average:		*15*		*16*		*16*
California:						
Estimated # Days > 24-Hour Std:		6.1		*		0.0
Measured # Days > 24-Hour Std:		1		1		0
Annual Average:		12.6		*		14.8
3-Year Maximum Annual Average:		15		15		15
Year Coverage:		96		86		99

Notes:

Daily PM10 averages and related statistics are available at Canebrake between 2009 and 2017. Some years in this range may not be represented.

All averages expressed in micrograms per cubic meter.

The national annual average PM10 standard was revoked in December 2006 and is no longer in effect. Statistics related to the revoked standard are shown in *italics* or *italics* .

An exceedance of a standard is not necessarily related to a violation of the standard.

All values listed above represent midnight-to-midnight 24-hour averages and may be related to an exceptional event.

State and national statistics may differ for the following reasons:

- State statistics are based on California approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and national statistics may therefore be based on different samplers.
- State statistics for 1998 and later are based on local conditions (except for sites in the South Coast Air Basin, where State statistics for 2002 and later are based on local conditions). National statistics are based on standard conditions.
- State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

Measurements are usually collected every six days. Measured days counts the days that a measurement was greater than the level of the standard; Estimated days mathematically estimates how many days concentrations would have been greater than the level of the standard had each day been monitored.

3-Year statistics represent the listed year and the 2 years before the listed year.

Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.

* means there was insufficient data available to determine the value.

Top 4 Summary: Highest 4 Daily 24-Hour PM2.5 Averages

at Ridgecrest-Ward

	2015 Date	2015 24-Hr Average	2016 Date	2016 24-Hr Average	2017 Date	2017 24-Hr Average
National:						
First High:		*		*	Nov 2	10.9
Second High:		*		*	Dec 31	10.9
Third High:		*		*	Dec 20	10.7
Fourth High:		*		*	Dec 18	10.1
California:						
First High:		*		*	Nov 2	10.9
Second High:		*		*	Dec 31	10.9
Third High:		*		*	Dec 20	10.7
Fourth High:		*		*	Dec 18	10.1
National:						
Estimated # Days > 24-Hour Std:		*		*		*
Measured # Days > 24-Hour Std:		0		0		0
24-Hour Standard Design Value:		*		*		*
24-Hour Standard 98th Percentile:		*		*		*
2006 Annual Std Design Value:		*		*		*
2013 Annual Std Design Value:		*		*		*
Annual Average:		*		*		*
California:						
Annual Std Designation Value:		*		*		*
Annual Average:		*		*		*
Year Coverage:		*		*		17

Notes:

Daily PM2.5 averages and related statistics are available at Ridgecrest-Ward between 2017 and 2017. Some years in this range may not be represented.

All averages expressed in micrograms per cubic meter.

An exceedance of a standard is not necessarily related to a violation of the standard.

State statistics are based on California approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and national statistics may therefore be based on different samplers.

Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.

* means there was insufficient data available to determine the value.

Top 4 Summary: Highest 4 Daily 24-Hour PM2.5 Averages

at Ridgecrest-100 West California Avenue

	2015 Date	2015 24-Hr Average	2016 Date	2016 24-Hr Average	2017 Date	2017 24-Hr Average
National:						
First High:	Aug 22	12.5	Aug 22	25.8	Jul 6	13.3
Second High:	Jan 18	11.2	Aug 28	15.9	Oct 4	10.4
Third High:	Dec 8	10.7	Dec 8	12.2	Aug 23	8.1
Fourth High:	Jan 12	10.0	Aug 4	12.0	Aug 17	7.5
California:						
First High:	Aug 22	12.5	Aug 22	25.8	Jul 6	13.3
Second High:	Jan 18	11.2	Aug 28	15.9	Oct 4	10.4
Third High:	Dec 8	10.7	Dec 8	12.2	Aug 23	8.1
Fourth High:	Jan 12	10.0	Aug 4	12.0	Aug 17	7.5
National:						
Estimated # Days > 24-Hour Std:		0.0		*		*
Measured # Days > 24-Hour Std:		0		0		0
24-Hour Standard Design Value:		*		*		*
24-Hour Standard 98th Percentile:		11.2		*		*
2006 Annual Std Design Value:		*		*		*
2013 Annual Std Design Value:		*		*		*
Annual Average:		5.0		*		*
California:						
Annual Std Designation Value:		*		*		*
Annual Average:		*		*		*
Year Coverage:		89		90		71

Notes:

Daily PM2.5 averages and related statistics are available at Ridgecrest-100 West California Avenue between 1999 and 2017. Some years in this range may not be represented.

All averages expressed in micrograms per cubic meter.

An exceedance of a standard is not necessarily related to a violation of the standard.

State statistics are based on California approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and national statistics may therefore be based on different samplers.

Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.

* means there was insufficient data available to determine the value.

Top 4 Summary: Highest 4 Daily 24-Hour PM2.5 Averages

at Mojave-923 Poole Street

	2015 Date	2015 24-Hr Average	2016 Date	2016 24-Hr Average	2017 Date	2017 24-Hr Average
National:						
First High:	Apr 14	42.2	Jul 28	25.7	Jul 14	26.9
Second High:	Mar 23	37.1	Jul 30	23.8	Jul 11	20.1
Third High:	Mar 24	26.3	Nov 16	23.0	Oct 19	18.5
Fourth High:	Dec 14	16.5	Aug 22	22.8	Dec 16	18.0
California:						
First High:	Apr 14	42.2	Jul 28	25.7	Jul 14	26.9
Second High:	Mar 23	37.1	Jul 30	23.8	Jul 11	20.1
Third High:	Sep 12	14.8	Nov 16	23.0	Oct 19	18.5
Fourth High:	Aug 25	14.7	Aug 22	22.8	Dec 16	18.0
National:						
Estimated # Days > 24-Hour Std:		2.0		0.0		0.0
Measured # Days > 24-Hour Std:		2		0		0
24-Hour Standard Design Value:		*		20		17
24-Hour Standard 98th Percentile:		12.7		20.6		16.6
2006 Annual Std Design Value:		*		6.1		6.0
2013 Annual Std Design Value:		*		6.1		6.0
Annual Average:		4.9		7.4		5.5
California:						
Annual Std Designation Value:		6		6		*
Annual Average:		*		*		*
Year Coverage:		99		96		95

Notes:

Daily PM2.5 averages and related statistics are available at Mojave-923 Poole Street between 1999 and 2017. Some years in this range may not be represented.

All averages expressed in micrograms per cubic meter.

An exceedance of a standard is not necessarily related to a violation of the standard.
State statistics are based on California approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and national statistics may therefore be based on different samplers.
Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.
* means there was insufficient data available to determine the value.

Top 4 Summary: Highest 4 Daily 24-Hour PM2.5 Averages

at Lancaster-43301 Division Street

	2015		2016		2017	
	Date	24-Hr Average	Date	24-Hr Average	Date	24-Hr Average
National:						
First High:	Aug 22	10.4	Jul 24	64.8	Oct 12	26.6
Second High:	Feb 18	9.8	Jul 25	49.1	Dec 16	23.9
Third High:	Dec 2	9.3	Jun 28	33.3	Jul 15	19.5
Fourth High:	Jul 17	8.6	Jul 30	30.1	Sep 2	19.3
California:						
First High:	Aug 22	10.4	Jul 24	64.8	Oct 12	26.6
Second High:	Feb 18	9.8	Jun 28	33.3	Dec 16	23.9
Third High:	Dec 2	9.3	Jul 30	30.1	Jul 15	19.5
Fourth High:	Jul 17	8.6	May 14	23.9	Sep 2	19.3
National:						
Estimated # Days > 24-Hour Std:		*		2.0		0.0
Measured # Days > 24-Hour Std:		0		2		0
24-Hour Standard Design Value:		*		*		*
24-Hour Standard 98th Percentile:		*		20.5		15.7
2006 Annual Std Design Value:		*		*		*
2013 Annual Std Design Value:		*		*		*
Annual Average:		*		7.6		7.2
California:						
Annual Std Designation Value:		*		*		7
Annual Average:		*		*		7.3
Year Coverage:		14		98		97

Notes:

Daily PM2.5 averages and related statistics are available at Lancaster-43301 Division Street between 2001 and 2017. Some years in this range may not be represented.

All averages expressed in micrograms per cubic meter.

An exceedance of a standard is not necessarily related to a violation of the standard.
State statistics are based on California approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and national statistics may therefore be based on different samplers.
Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.
* means there was insufficient data available to determine the value.

ATTACHMENT C: NOx Concentration Data

Top 4 Summary: Highest 4 Daily Maximum Hourly Nitrogen Dioxide Measurements

at Trona-Athol and Telegraph

	2015		2016		2017	
	Date	Measurement	Date	Measurement	Date	Measurement
National:						
First High:	Mar 31	105.9	Sep 15	223.1	Jun 20	46.5
Second High:	Apr 1	68.4	Sep 14	213.4	Apr 7	37.9
Third High:	Apr 3	57.8	Sep 13	174.4	Jun 4	35.1
Fourth High:	Mar 29	53.6	Sep 12	140.2	Mar 4	34.9
California:						
First High:	Mar 31	105	Sep 15	223	Jun 20	46
Second High:	Apr 1	68	Sep 14	213	Apr 7	37
Third High:	Apr 3	57	Sep 13	174	Jun 4	35
Fourth High:	Mar 29	53	Sep 12	140	Mar 4	34
National:						
1-Hour Standard Design Value:		*		*		*
1-Hour Standard 98th Percentile:		48.1		38.7		33.6
# Days Above the Standard:		1		4		0
Annual Standard Design Value:		3		4		3
California:						
1-Hour Std Designation Value:		60		60		60
Expected Peak Day Concentration:		61		56		57
# Days Above the Standard:		0		2		0
Annual Std Designation Value:		3		4		4
Annual Average:		*		4		*
Year Coverage:		86		97		82

Notes:

Hourly nitrogen dioxide measurements and related statistics are available at Trona-Athol and Telegraph between 1997 and 2017. Some years in this range may not be represented.

All concentrations expressed in parts per billion.

An exceedance of a standard is not necessarily related to a violation of the standard.

Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.

* means there was insufficient data available to determine the value.

Top 4 Summary: Highest 4 Daily Maximum Hourly Nitrogen Dioxide Measurements

at Barstow

	2015		2016		2017	
	Date	Measurement	Date	Measurement	Date	Measurement
National:						
First High:	Apr 29	61.3	Sep 27	66.7	Aug 18	61.3
Second High:	Dec 18	61.2	Nov 26	64.3	Sep 30	60.6
Third High:	Aug 9	57.8	Nov 8	59.4	Oct 12	60.1
Fourth High:	May 28	57.4	Oct 13	59.1	Oct 5	58.3
California:						
First High:	Apr 29	61	Sep 27	66	Aug 18	61
Second High:	Dec 18	61	Nov 26	64	Sep 30	60
Third High:	May 28	57	Oct 13	59	Oct 12	60
Fourth High:	Aug 9	57	Nov 8	59	Jul 3	58
National:						
1-Hour Standard Design Value:		*		56		56
1-Hour Standard 98th Percentile:		54.6		55.7		56.3
# Days Above the Standard:		0		0		0
Annual Standard Design Value:		15		14		15
California:						
1-Hour Std Designation Value:		70		60		60
Expected Peak Day Concentration:		67		64		64
# Days Above the Standard:		0		0		0
Annual Std Designation Value:		16		16		15
Annual Average:		15		14		14
Year Coverage:		99		98		97

Notes:
Hourly nitrogen dioxide measurements and related statistics are available at Barstow between 1973 and 2017. Some years in this range may not be represented.
All concentrations expressed in parts per billion.
An exceedance of a standard is not necessarily related to a violation of the standard.

Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.

* means there was insufficient data available to determine the value.

ATTACHMENT D: PROJECT EMISSIONS CALCULATIONS

ELECTRONIC FILES

Ridgecrest Burn Dump

Kern-Mojave Desert County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	17.00	User Defined Unit	17.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	7			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Project size is 17 acres

Construction Phase -

Off-road Equipment - Based on construction equipment listing provided

Trips and VMT - 5 workers expected = 3 equipment operators, 2 laborers, 1 supervisor
Expected worker distribution = 60% Bakersfield, 40% Ridgecrest

Area Coating -

Ridgecrest Burn Dump - Kern-Mojave Desert County, Annual

Table Name	Column Name	Default Value	New Value
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblGrading	MaterialImported	0.00	30,000.00
tblLandUse	LotAcreage	0.00	17.00
tblOffRoadEquipment	HorsePower	158.00	523.00
tblOffRoadEquipment	HorsePower	187.00	185.00
tblOffRoadEquipment	HorsePower	367.00	365.00
tblOffRoadEquipment	HorsePower	97.00	100.00
tblOffRoadEquipment	HorsePower	172.00	354.00
tblOffRoadEquipment	HorsePower	88.00	320.00
tblOffRoadEquipment	LoadFactor	0.42	0.45
tblOffRoadEquipment	LoadFactor	0.34	0.45
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Covering and Compacting
tblOffRoadEquipment	PhaseName		Covering and Compacting
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	3,750.00	0.00
tblTripsAndVMT	WorkerTripLength	16.80	66.20
tblTripsAndVMT	WorkerTripNumber	18.00	5.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.0645	0.7313	0.3838	9.8000e-004	0.1201	0.0293	0.1494	0.0536	0.0269	0.0805	0.0000	88.2968	88.2968	0.0269	0.0000	88.9704
Maximum	**0.0645**	**0.7313**	**0.3838**	**9.8000e-004**	**0.1201**	**0.0293**	**0.1494**	**0.0536**	**0.0269**	**0.0805**	**0.0000**	**88.2968**	**88.2968**	**0.0269**	**0.0000**	**88.9704**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.0645	0.7313	0.3838	9.8000e-004	0.0491	0.0293	0.0784	0.0215	0.0269	0.0484	0.0000	88.2967	88.2967	0.0269	0.0000	88.9703
Maximum	**0.0645**	**0.7313**	**0.3838**	**9.8000e-004**	**0.0491**	**0.0293**	**0.0784**	**0.0215**	**0.0269**	**0.0484**	**0.0000**	**88.2967**	**88.2967**	**0.0269**	**0.0000**	**88.9703**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**59.12**	**0.00**	**47.53**	**59.89**	**0.00**	**39.84**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.0000e-005	0.0000	1.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-004	3.0000e-004	0.0000	0.0000	3.2000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.0000e-005**	**0.0000**	**1.6000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**3.0000e-004**	**3.0000e-004**	**0.0000**	**0.0000**	**3.2000e-004**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.0000e-005	0.0000	1.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-004	3.0000e-004	0.0000	0.0000	3.2000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.0000e-005**	**0.0000**	**1.6000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**3.0000e-004**	**3.0000e-004**	**0.0000**	**0.0000**	**3.2000e-004**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Covering and Compacting	Grading	10/1/2019	11/11/2019	5	30	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Covering and Compacting	Excavators	1	4.00	523	0.38
Covering and Compacting	Graders	1	8.00	185	0.41
Covering and Compacting	Other Construction Equipment	1	6.00	354	0.45
Covering and Compacting	Other General Industrial Equipment	1	8.00	320	0.45
Covering and Compacting	Rubber Tired Dozers	1	8.00	247	0.40
Covering and Compacting	Scrapers	1	8.00	365	0.48
Covering and Compacting	Tractors/Loaders/Backhoes	1	4.00	100	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Covering and Compacting	7	5.00	0.00	0.00	66.20	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Covering and Compacting - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1164	0.0000	0.1164	0.0526	0.0000	0.0526	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0630	0.7301	0.3726	9.4000e-004		0.0292	0.0292		0.0269	0.0269	0.0000	84.8694	84.8694	0.0269	0.0000	85.5407
Total	**0.0630**	**0.7301**	**0.3726**	**9.4000e-004**	**0.1164**	**0.0292**	**0.1457**	**0.0526**	**0.0269**	**0.0795**	**0.0000**	**84.8694**	**84.8694**	**0.0269**	**0.0000**	**85.5407**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4800e-003	1.2100e-003	0.0112	4.0000e-005	3.7000e-003	2.0000e-005	3.7300e-003	9.8000e-004	2.0000e-005	1.0000e-003	0.0000	3.4274	3.4274	9.0000e-005	0.0000	3.4296
Total	**1.4800e-003**	**1.2100e-003**	**0.0112**	**4.0000e-005**	**3.7000e-003**	**2.0000e-005**	**3.7300e-003**	**9.8000e-004**	**2.0000e-005**	**1.0000e-003**	**0.0000**	**3.4274**	**3.4274**	**9.0000e-005**	**0.0000**	**3.4296**

3.2 Covering and Compacting - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0454	0.0000	0.0454	0.0205	0.0000	0.0205	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0630	0.7301	0.3726	9.4000e-004		0.0292	0.0292		0.0269	0.0269	0.0000	84.8693	84.8693	0.0269	0.0000	85.5406
Total	**0.0630**	**0.7301**	**0.3726**	**9.4000e-004**	**0.0454**	**0.0292**	**0.0746**	**0.0205**	**0.0269**	**0.0474**	**0.0000**	**84.8693**	**84.8693**	**0.0269**	**0.0000**	**85.5406**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4800e-003	1.2100e-003	0.0112	4.0000e-005	3.7000e-003	2.0000e-005	3.7300e-003	9.8000e-004	2.0000e-005	1.0000e-003	0.0000	3.4274	3.4274	9.0000e-005	0.0000	3.4296
Total	**1.4800e-003**	**1.2100e-003**	**0.0112**	**4.0000e-005**	**3.7000e-003**	**2.0000e-005**	**3.7300e-003**	**9.8000e-004**	**2.0000e-005**	**1.0000e-003**	**0.0000**	**3.4274**	**3.4274**	**9.0000e-005**	**0.0000**	**3.4296**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.466291	0.031960	0.164877	0.131500	0.023119	0.007290	0.020969	0.142348	0.001645	0.001858	0.006120	0.000997	0.001026

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.0000e-005	0.0000	1.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-004	3.0000e-004	0.0000	0.0000	3.2000e-004
Unmitigated	1.0000e-005	0.0000	1.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-004	3.0000e-004	0.0000	0.0000	3.2000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	1.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-004	3.0000e-004	0.0000	0.0000	3.2000e-004
Total	**1.0000e-005**	**0.0000**	**1.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**3.0000e-004**	**3.0000e-004**	**0.0000**	**0.0000**	**3.2000e-004**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	1.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-004	3.0000e-004	0.0000	0.0000	3.2000e-004
Total	**1.0000e-005**	**0.0000**	**1.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**3.0000e-004**	**3.0000e-004**	**0.0000**	**0.0000**	**3.2000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

PollutantS	PollutantFu	PollutantName
1	Reactive C	ROG
1	Nitrogen C	NOX
1	Carbon Mc	CO
1	Sulfur Diox	SO2
1	Particulate	PM10
1	Particulate	PM2_5
1	Fugitive PI	PM10_FUG
1	Fugitive PI	PM25_FUG
1	Biogenic C	CO2_BIO
1	Non-Bioge	CO2_NBIO
1	Carbon Di	CO2
1	Methane ((	CH4
1	Nitrous Ox	N2O
1	CO2 Equiv	CO2E

tblLandUse

LandUseT	LandUseS	LandUseU	LandUseS	LotAcreag	LandUseS	Population	BuildingSp	GreenSpa	RecSwimmingArea	AllowEdit
Industrial	User Defin	17	User Defin	17	0	0	0	0	0	

tblConstructionPhase

PhaseNum	PhaseNam	PhaseType	PhaseStar	PhaseEnd	NumDays\	NumDays	PhaseDescription
1	Covering a	Grading	2019/10/0	2019/11/1	5	30	

PhaseNam	OffRoadEq	OffRoadEq	UsageHou	HorsePow	LoadFactor
Covering a	Excavators	1	4	523	0.38
Covering a	Graders	1	8	185	0.41
Covering a	Other Con:	1	6	354	0.45
Covering a	Other Gen	1	8	320	0.45
Covering a	Rubber Tir	1	8	247	0.4
Covering a	Scrapers	1	8	365	0.48
Covering a	Tractors/Lo	1	4	100	0.37

PhaseNam	WorkerTrip	VendorTrip	HaulingTrip	WorkerTrip	VendorTrip	HaulingTrip	WorkerVeh	VendorVeh	HaulingVeh
Covering a	3	0	1000	66.2	6.6	0.25	LD_Mix	HDT_Mix	HHDT

hicleClass

PhaseNam	WorkerPer	VendorPer	HaulingPe	RoadSiltLo	MaterialSil	MaterialMo	AverageVe	MeanVehicleSpeed
Covering a	100	100	100	0.1	8.5	0.5	2.4	40

PhaseNam	Demolition	DemolitionUnitAmount

PhaseNam	MaterialIm	MaterialEx	GradingSiz	ImportExp	MeanVehic	AcresOfGr	MaterialMc	MaterialMc	MaterialSilt
Covering a	30000	0	Cubic Yard	1	7.1	45	7.9	12	6.9

tContent

PhaseNam	Architectur	Architectur	EF_Reside	ConstArea	EF_Reside	ConstArea	EF_Nonres	ConstArea	EF_Nonres

ConstArea	EF_Parkin	ConstArea_Parking

ParkingLotAcreage

VehicleTrip	VehicleTrip	WD_TR	ST_TR	SU_TR	HW_TL	HS_TL	HO_TL	CC_TL	CW_TL
User Defin	User Defin	0	0	0	0	0	0	6.6	14.7

CNW_TL	PR_TP	DV_TP	PB_TP	HW_TTP	HS_TTP	HO_TTP	CC_TTP	CW_TTP	CNW_TTP
6.6	0	0	0	0	0	0	0	0	0

Season	EmissionT	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD
A	CH4_IDLE	0	0	0	0	0.005221	0.003955	0.020127	1.980099
A	CH4_RUN	0.005387	0.016182	0.008573	0.015386	0.024515	0.011649	0.015198	0.010831
A	CH4_STRI	0.00769	0.023086	0.011951	0.023359	0.020228	0.010046	0.074547	0.098704
A	CO_IDLEX	0	0	0	0	0.141201	0.123631	0.542642	3.889189
A	CO_RUNE	0.628102	1.749716	0.944681	1.628192	1.493002	0.858484	0.917321	0.688834
A	CO_STRE	1.511859	4.315783	2.300971	3.93632	2.711125	1.374206	6.961301	1.224872
A	CO2_NBIC	0	0	0	0	9.46587	14.63629	176.2644	6721.779
A	CO2_NBIC	299.2406	361.919	413.8034	567.9032	700.9029	745.6391	1219.218	1594.276
A	CO2_NBIC	62.50775	75.3447	86.65871	116.6392	28.7081	24.74068	48.0888	3.74889
A	NOX_IDLE	0	0	0	0	0.101085	0.126833	1.548681	29.57973
A	NOX_RUN	0.062483	0.189631	0.118227	0.21249	2.398658	1.94079	3.516569	4.174529
A	NOX_STR	0.101138	0.251406	0.204076	0.375453	0.959946	0.581757	13.08352	20.44578
A	PM10_IDL	0	0	0	0	0.001093	0.001356	0.011002	0.034692
A	PM10_PM	0.03675	0.03675	0.03675	0.03675	0.07644	0.08918	0.13034	0.061453
A	PM10_PM	0.008	0.008	0.008	0.008	0.010252	0.010731	0.012	0.035786
A	PM10_RU	0.001859	0.00316	0.001833	0.001803	0.024718	0.022827	0.094262	0.022766
A	PM10_STI	0.002347	0.004087	0.002424	0.002458	0.000963	0.000417	0.001001	0.000033
A	PM25_IDL	0	0	0	0	0.001045	0.001298	0.010526	0.033191
A	PM25_PM	0.01575	0.01575	0.01575	0.01575	0.03276	0.03822	0.05586	0.026337
A	PM25_PM	0.002	0.002	0.002	0.002	0.002563	0.002683	0.003	0.008947
A	PM25_RU	0.001713	0.002914	0.001686	0.001664	0.023605	0.021819	0.090179	0.021781
A	PM25_STI	0.002158	0.00376	0.00223	0.002265	0.000887	0.000384	0.000923	0.000031
A	ROG_DIUI	0.057656	0.214348	0.084747	0.110121	0.003636	0.001592	0.001986	0.000053
A	ROG_HTS	0.119408	0.369582	0.157287	0.209113	0.096483	0.042569	0.053601	0.001957
A	ROG_IDLI	0	0	0	0	0.016773	0.014684	0.053409	1.035784
A	ROG_RES	0.040899	0.136184	0.062174	0.086204	0.00152	0.000697	0.000814	0.000027
A	ROG_RUN	0.013583	0.041958	0.021786	0.04518	0.168582	0.137931	0.225267	0.137365
A	ROG_RUN	0.040819	0.244615	0.09174	0.130789	0.307818	0.109203	0.022174	0.000126
A	ROG_STR	0.103717	0.311437	0.161201	0.315277	0.272904	0.135489	0.420052	0.033627
A	SO2_IDLE	0	0	0	0	0.000094	0.000143	0.001691	0.064079
A	SO2_RUN	0.002996	0.003642	0.004146	0.005693	0.006869	0.007254	0.011689	0.015199
A	SO2_STRI	0.000651	0.00083	0.000906	0.001236	0.000338	0.000273	0.000603	0.000058
A	TOG_DIUI	0.057656	0.214348	0.084747	0.110121	0.003636	0.001592	0.001986	0.000053
A	TOG_HTS	0.119408	0.369582	0.157287	0.209113	0.096483	0.042569	0.053601	0.001957
A	TOG_IDLE	0	0	0	0	0.023077	0.019652	0.066112	1.181029
A	TOG_RES	0.040899	0.136184	0.062174	0.086204	0.00152	0.000697	0.000814	0.000027
A	TOG_RUN	0.019723	0.060401	0.031542	0.062818	0.206743	0.161712	0.260674	0.160824
A	TOG_RUN	0.040819	0.244615	0.09174	0.130789	0.307818	0.109203	0.022174	0.000126
A	TOG_STR	0.113552	0.340925	0.176475	0.345038	0.298736	0.148336	0.459781	0.036792
S	CH4_IDLE	0	0	0	0	0.005221	0.003955	0.018772	1.870124
S	CH4_RUN	0.006293	0.018744	0.00994	0.017787	0.025259	0.011837	0.015387	0.010848
S	CH4_STRI	0.006315	0.018978	0.009776	0.019222	0.019087	0.009501	0.070538	0.093382
S	CO_IDLEX	0	0	0	0	0.141201	0.123631	0.385613	2.842086
S	CO_RUNE	0.798826	2.159067	1.185764	2.019001	1.525106	0.866624	0.927558	0.69175
S	CO_STRE	1.253659	3.571291	1.897751	3.304578	2.51659	1.279529	6.484434	1.146596
S	CO2_NBIC	0	0	0	0	9.46587	14.63629	186.8275	7114.787
S	CO2_NBIC	331.9001	399.2569	457.5573	626.266	700.9029	745.6391	1219.218	1594.276
S	CO2_NBIC	62.50775	75.3447	86.65871	116.6392	28.7081	24.74068	48.0888	3.74889
S	NOX_IDLE	0	0	0	0	0.101085	0.126833	1.598513	30.51294
S	NOX_RUN	0.058569	0.17521	0.109888	0.198061	2.25994	1.835137	3.329283	3.95733

S	NOX_STR	0.094932	0.236002	0.191047	0.352798	0.905277	0.550177	13.03176	20.44055
S	PM10_IDL	0	0	0	0	0.001093	0.001356	0.009275	0.03053
S	PM10_PM	0.03675	0.03675	0.03675	0.03675	0.07644	0.08918	0.13034	0.061453
S	PM10_PM	0.008	0.008	0.008	0.008	0.010252	0.010731	0.012	0.035786
S	PM10_RU	0.001859	0.00316	0.001833	0.001803	0.024718	0.022827	0.094262	0.022766
S	PM10_STI	0.002347	0.004087	0.002424	0.002458	0.000963	0.000417	0.001001	0.000033
S	PM25_IDL	0	0	0	0	0.001045	0.001298	0.008874	0.02921
S	PM25_PM	0.01575	0.01575	0.01575	0.01575	0.03276	0.03822	0.05586	0.026337
S	PM25_PM	0.002	0.002	0.002	0.002	0.002563	0.002683	0.003	0.008947
S	PM25_RU	0.001713	0.002914	0.001686	0.001664	0.023605	0.021819	0.090179	0.021781
S	PM25_STI	0.002158	0.00376	0.00223	0.002265	0.000887	0.000384	0.000923	0.000031
S	ROG_DIUI	0.146001	0.548326	0.214074	0.276188	0.009045	0.003927	0.005057	0.000133
S	ROG_HTS	0.149146	0.486024	0.198762	0.253061	0.120442	0.052714	0.068236	0.002315
S	ROG_IDLI	0	0	0	0	0.016773	0.014684	0.050129	0.978338
S	ROG_RES	0.089863	0.302036	0.136424	0.182795	0.00333	0.001487	0.001863	0.00006
S	ROG_RUN	0.015845	0.048503	0.025234	0.050935	0.170332	0.138381	0.225719	0.137406
S	ROG_RUN	0.040278	0.241316	0.090454	0.129047	0.308928	0.109439	0.022511	0.000128
S	ROG_STR	0.085177	0.256024	0.131861	0.259453	0.257513	0.128139	0.397471	0.031816
S	SO2_IDLE	0	0	0	0	0.000094	0.000143	0.001791	0.067826
S	SO2_RUN	0.003325	0.004021	0.004587	0.006282	0.00687	0.007254	0.011689	0.015199
S	SO2_STRI	0.000646	0.000817	0.000899	0.001225	0.000335	0.000271	0.000595	0.000056
S	TOG_DIUI	0.146001	0.548326	0.214074	0.276188	0.009045	0.003927	0.005057	0.000133
S	TOG_HTS	0.149146	0.486024	0.198762	0.253061	0.120442	0.052714	0.068236	0.002315
S	TOG_IDLE	0	0	0	0	0.023077	0.019652	0.062008	1.115524
S	TOG_RES	0.089863	0.302036	0.136424	0.182795	0.00333	0.001487	0.001863	0.00006
S	TOG_RUN	0.023016	0.069861	0.036545	0.071298	0.209337	0.162374	0.26134	0.160884
S	TOG_RUN	0.040278	0.241316	0.090454	0.129047	0.308928	0.109439	0.022511	0.000128
S	TOG_STR	0.093254	0.280266	0.144356	0.283941	0.281885	0.140289	0.43506	0.034809
W	CH4_IDLE	0	0	0	0	0.005221	0.003955	0.021618	2.131969
W	CH4_RUN	0.005063	0.01539	0.0081	0.014539	0.023986	0.011479	0.015031	0.010816
W	CH4_STRI	0.008835	0.026775	0.013592	0.026968	0.021223	0.010583	0.078798	0.104205
W	CO_IDLEX	0	0	0	0	0.141201	0.123631	0.731889	5.335188
W	CO_RUNE	0.575251	1.634441	0.871836	1.527021	1.475463	0.85117	0.909322	0.686259
W	CO_STRE	1.786441	5.148313	2.690333	4.655199	2.886811	1.474941	7.494149	1.317573
W	CO2_NBIC	0	0	0	0	9.46587	14.63629	161.9298	6179.053
W	CO2_NBIC	286.9396	347.8734	397.3697	545.8343	700.9029	745.6391	1219.218	1594.276
W	CO2_NBIC	62.50775	75.3447	86.65871	116.6392	28.7081	24.74068	48.0888	3.74889
W	NOX_IDLE	0	0	0	0	0.101085	0.126833	1.479887	28.29101
W	NOX_RUN	0.066238	0.203243	0.124915	0.226883	2.431274	1.96751	3.57641	4.236427
W	NOX_STR	0.109348	0.272877	0.2194	0.407267	1.011259	0.615594	13.13795	20.45113
W	PM10_IDL	0	0	0	0	0.001093	0.001356	0.013387	0.040439
W	PM10_PM	0.03675	0.03675	0.03675	0.03675	0.07644	0.08918	0.13034	0.061453
W	PM10_PM	0.008	0.008	0.008	0.008	0.010252	0.010731	0.012	0.035786
W	PM10_RU	0.001859	0.00316	0.001833	0.001803	0.024718	0.022827	0.094262	0.022766
W	PM10_STI	0.002347	0.004087	0.002424	0.002458	0.000963	0.000417	0.001001	0.000033
W	PM25_IDL	0	0	0	0	0.001045	0.001298	0.012808	0.038689
W	PM25_PM	0.01575	0.01575	0.01575	0.01575	0.03276	0.03822	0.05586	0.026337
W	PM25_PM	0.002	0.002	0.002	0.002	0.002563	0.002683	0.003	0.008947
W	PM25_RU	0.001713	0.002914	0.001686	0.001664	0.023605	0.021819	0.090179	0.021781
W	PM25_STI	0.002158	0.00376	0.00223	0.002265	0.000887	0.000384	0.000923	0.000031
W	ROG_DIUI	0.025233	0.088642	0.039732	0.047081	0.001812	0.000677	0.000794	0.000022

W	ROG_HTS	0.121093	0.379466	0.161108	0.2108	0.10528	0.044861	0.055576	0.002083
W	ROG_IDLE	0	0	0	0	0.016773	0.014684	0.057542	1.115113
W	ROG_RES	0.016669	0.052705	0.026762	0.035125	0.000746	0.000312	0.000333	0.000012
W	ROG_RUN	0.012779	0.04004	0.020634	0.043644	0.167432	0.13751	0.224878	0.137332
W	ROG_RUN	0.046842	0.292375	0.108668	0.153928	0.33595	0.119685	0.024365	0.000136
W	ROG_STR	0.119161	0.361214	0.183343	0.363993	0.286326	0.142738	0.444013	0.035503
W	SO2_IDLE	0	0	0	0	0.000094	0.000143	0.001556	0.058905
W	SO2_RUN	0.002872	0.003499	0.003981	0.005471	0.006869	0.007254	0.011688	0.015199
W	SO2_STRI	0.000656	0.000845	0.000913	0.001249	0.000341	0.000275	0.000612	0.000059
W	TOG_DIUI	0.025233	0.088642	0.039732	0.047081	0.001812	0.000677	0.000794	0.000022
W	TOG_HTS	0.121093	0.379466	0.161108	0.2108	0.10528	0.044861	0.055576	0.002083
W	TOG_IDLE	0	0	0	0	0.023077	0.019652	0.071203	1.271489
W	TOG_RES	0.016669	0.052705	0.026762	0.035125	0.000746	0.000312	0.000333	0.000012
W	TOG_RUN	0.01855	0.057583	0.029852	0.060331	0.204995	0.161096	0.260096	0.160774
W	TOG_RUN	0.046842	0.292375	0.108668	0.153928	0.33595	0.119685	0.024365	0.000136
W	TOG_STR	0.13046	0.395414	0.200715	0.398353	0.313426	0.156273	0.486004	0.038843

OBUS	UBUS	MCY	SBUS	MH
0.012737	0	0	0.852999	0
0.018422	1.657696	0.447072	0.02466	0.054386
0.035733	0.063828	0.164661	0.111999	0.036692
0.284482	0	0	5.487263	0
1.122389	8.416681	24.49163	1.459195	4.811155
7.171652	11.68466	9.992375	8.366709	7.840889
88.02366	0	0	1286.281	0
1331.307	1980.087	176.7738	1133.437	1240.772
71.95182	110.8544	48.04937	35.38159	62.25731
0.538515	0	0	13.80441	0
1.977921	7.601737	1.210227	5.861912	2.124964
2.332146	14.91152	0.314489	15.6626	0.974129
0.000299	0	0	0.016965	0
0.13034	0.578092	0.01176	0.7448	0.13034
0.012	0.012	0.004	0.010937	0.012983
0.009278	0.108691	0.001937	0.032662	0.044979
0.000939	0.000955	0.004173	0.000715	0.001869
0.000286	0	0	0.016231	0
0.05586	0.247754	0.00504	0.3192	0.05586
0.003	0.003	0.001	0.002734	0.003246
0.008855	0.10396	0.00182	0.031226	0.042964
0.000869	0.000879	0.003951	0.000657	0.00174
0.002441	0.006751	1.582645	0.007977	1.730293
0.022068	0.08087	0.94004	0.051533	0.102616
0.039758	0	0	0.656833	0
0.000822	0.002582	0.865907	0.002143	0.488079
0.09094	0.649261	2.536315	0.151461	0.201516
0.042933	0.013669	0.574071	0.028541	0.029825
0.454711	0.860929	2.249086	0.424434	0.496444
0.000852	0	0	0.01245	0
0.013066	0.013181	0.002239	0.010912	0.012352
0.000846	0.001318	0.00071	0.000499	0.000761
0.002441	0.006751	1.582645	0.007977	1.730293
0.022068	0.08087	0.94004	0.051533	0.102616
0.054368	0	0	0.935381	0
0.000822	0.002582	0.865907	0.002143	0.488079
0.116124	2.37763	3.072353	0.188235	0.267125
0.042933	0.013669	0.574071	0.028541	0.029825
0.497602	0.942528	2.445838	0.464702	0.542604
0.012705	0	0	0.852315	0
0.018948	1.660594	0.437629	0.025314	0.056938
0.033471	0.056436	0.139726	0.088324	0.034307
0.270844	0	0	5.31354	0
1.151219	8.48962	24.97131	1.497703	4.994865
6.540738	9.495489	9.196316	5.440424	7.166605
92.22028	0	0	1352.333	0
1331.307	1980.087	176.7738	1133.437	1240.772
71.95182	110.8544	48.04937	35.38159	62.25731
0.555761	0	0	14.24689	0
1.854335	7.17005	1.040203	5.528243	1.959994

2.266587	14.81946	0.29031	15.61059	0.91477
0.000252	0	0	0.014302	0
0.13034	0.578092	0.01176	0.7448	0.13034
0.012	0.012	0.004	0.010937	0.012983
0.009278	0.108691	0.001937	0.032662	0.044979
0.000939	0.000955	0.004173	0.000715	0.001869
0.000241	0	0	0.013683	0
0.05586	0.247754	0.00504	0.3192	0.05586
0.003	0.003	0.001	0.002734	0.003246
0.008855	0.10396	0.00182	0.031226	0.042964
0.000869	0.000879	0.003951	0.000657	0.00174
0.006028	0.016681	4.23273	0.019904	4.323161
0.025958	0.106321	1.457667	0.062149	0.125952
0.03911	0	0	0.652691	0
0.001761	0.005891	2.307786	0.004795	1.092039
0.092117	0.656194	2.463035	0.15308	0.205744
0.043032	0.013261	0.565885	0.025171	0.029733
0.425931	0.761222	1.908357	0.334714	0.464239
0.000892	0	0	0.01308	0
0.013067	0.013183	0.002244	0.010913	0.012355
0.000835	0.001281	0.000687	0.00045	0.000749
0.006028	0.016681	4.23273	0.019904	4.323161
0.025958	0.106321	1.457667	0.062149	0.125952
0.05363	0	0	0.930666	0
0.001761	0.005891	2.307786	0.004795	1.092039
0.117896	2.387853	2.987365	0.190597	0.274213
0.043032	0.013261	0.565885	0.025171	0.029733
0.466099	0.833373	2.075385	0.36647	0.507364
0.012781	0	0	0.853945	0
0.017991	1.654969	0.460721	0.024011	0.052928
0.037822	0.071423	0.188443	0.133402	0.038633
0.303316	0	0	5.727164	0
1.100764	8.354486	25.59542	1.421561	4.77973
7.807384	14.07306	11.07354	11.34846	8.394186
82.22834	0	0	1195.066	0
1331.307	1980.087	176.7738	1133.437	1240.772
71.95182	110.8544	48.04937	35.38159	62.25731
0.514699	0	0	13.19337	0
2.009286	7.748625	1.281229	5.953165	2.166829
2.395059	15.00607	0.33397	15.71241	1.016198
0.000364	0	0	0.020643	0
0.13034	0.578092	0.01176	0.7448	0.13034
0.012	0.012	0.004	0.010937	0.012983
0.009278	0.108691	0.001937	0.032662	0.044979
0.000939	0.000955	0.004173	0.000715	0.001869
0.000348	0	0	0.01975	0
0.05586	0.247754	0.00504	0.3192	0.05586
0.003	0.003	0.001	0.002734	0.003246
0.008855	0.10396	0.00182	0.031226	0.042964
0.000869	0.000879	0.003951	0.000657	0.00174
0.00113	0.002867	0.732989	0.003183	1.012665

0.022803	0.086589	1.031654	0.052864	0.122493
0.040653	0	0	0.662553	0
0.000449	0.001249	0.294773	0.001065	0.307177
0.089934	0.642839	2.628923	0.149854	0.200257
0.046253	0.016545	0.659984	0.036428	0.031655
0.48128	0.963377	2.574012	0.505546	0.522705
0.000797	0	0	0.01158	0
0.013066	0.01318	0.00226	0.010912	0.012351
0.000857	0.001359	0.000738	0.000548	0.00077
0.00113	0.002867	0.732989	0.003183	1.012665
0.022803	0.086589	1.031654	0.052864	0.122493
0.055387	0	0	0.941892	0
0.000449	0.001249	0.294773	0.001065	0.307177
0.114629	2.368116	3.181622	0.18589	0.264255
0.046253	0.016545	0.659984	0.036428	0.031655
0.526683	1.054682	2.799142	0.553509	0.571303

RoadPerc	RoadSiltLo	MaterialSil	MaterialMo	MobileAve	MeanVehi	CARB_PM_VMT
100	0.1	4.3	0.5	2.4	40	0

Woodstove	NumberCo	NumberCa	NumberNo	NumberPe	Woodstove	WoodstoveWoodMass

Fireplaces	NumberW	NumberGa	NumberPr	NumberNo	FireplaceH	FireplaceD	FireplaceWoodMass

ROG_EF	ROG_EF_	ROG_EF_PesticidesFertilizers
2.14E-05	3.54E-07	5.15E-08

Area_EF_I	Area_Resi	Area_EF_I	Area_Resi	Area_EF_I	Area_Nonı	Area_EF_I	Area_Nonı	Reapplicat	Area_EF_I
250	0	250	0	250	0	250	0	10	250

Area_Parking
0

NumberSn	NumberSummerDays
0	180

EnergyUse	T24E	NT24E	LightingEle	T24NG	NT24NG
User Defin	0	0	0	0	0

WaterLanc	WaterLanc	IndoorWat	OutdoorW	ElectricityI	ElectricityI	ElectricityI	ElectricityI	SepticTanl	AerobicPe
User Defin	User Defin	0	0	9727	111	1272	1911	10.33	87.46

Anaerobic	AnaDigest	AnaDigestCogenComb	DigestGasPercent
2.21	100	0	

SolidWaste	SolidWaste	SolidWaste	LandfillNo(	LandfillCap	LandfillCaptureGasEnergyRecovery
User Defin	User Defin	0	6	94	0

Vegetation	Vegetation	AcresBegi	AcresEnd	CO2peracre

BroadSpe(	NumberOf	CO2perTree

ConstMitig	FuelType	Tier	NumberOf	TotalNumb	DPF	OxidationCatalyst
Excavators	Diesel	No Change	0	1	No Change	0
Graders	Diesel	No Change	0	1	No Change	0
Other Con	Diesel	No Change	0	1	No Change	0
Other Gen	Diesel	No Change	0	1	No Change	0
Rubber Tir	Diesel	No Change	0	1	No Change	0
Scrapers	Diesel	No Change	0	1	No Change	0
Tractors/L	Diesel	No Change	0	1	No Change	0

SoilStabiliz	SoilStabiliz	SoilStabiliz	ReplaceGr	ReplaceGr	ReplaceGr	WaterExpo	WaterExpo	WaterExpo	WaterExpo
0	0	0	0	0	0	1	3	61	61

WaterUnpa	WaterUnpa	WaterUnpa	WaterUnpa	CleanPavedRoadPercentReduction
0	1	0	15	0

ProjectSet	IncreaseD	IncreaseD	IncreaseD	IncreaseDi	ImproveWa	ImproveWa	ImproveDe	ImproveDe	IncreaseTr

IncreaseTr	IntegrateB	IntegrateB	ImprovePe	ImprovePe	ProvideTra	ProvideTra	ProvideTra	Implement	LimitParkir

LimitParkir	UnbundleF	UnbundleF	OnStreetM	OnStreetM	ProvideBR	ProvideBR	ExpandTra	ExpandTra	IncreaseTr

IncreaseTr	IncreaseTransitFrequencyHeadwaysPercentReduction

Implement	Implement	Implement	TransitSub	TransitSub	TransitSub	Implement	Implement	Workplace	Workplace
0			0			0		0	

Workplace	Encourage	Encourage	Encourage	Encourage	MarketCor	MarketCor	Employee\	Employee\	Employee\
	0				0		0		2

tblCommuteMitigation

ProvideRic	ProvideRic	Implement	ImplementSchoolBusProgramPercentFamilyUsing
0		0	

Landscape	Landscape	Landscape	Landscape	Landscape	Landscape	UseLowVC	UseLowVC	UseLowVC	UseLowVC
0		0		0		0	250	0	250

UseLowV(	UseLowV(	UseLowV(	UseLowV(	HearthOnl	NoHearth(	UseLowV(	UseLowV(	UseLowVOCPaintPar
0	250	0	250	0	0	0	0	250

kingValue

ExceedTitl	ExceedTitl	InstallHigh	InstallHigh	OnSiteRer	KwhGener	KwhGener	PercentOfl	PercentOfElectricityUs

seGenerated

ApplianceT	ApplianceL	PercentImprovement
ClothWasher		30
DishWasher		15
Fan		50
Refrigerator		15

ApplyWate	ApplyWate	ApplyWate	UseReclai	PercentOu	PercentInc	UseGreyW	PercentOu	PercentInc	InstallLowI
0			0			0			0

PercentRe	InstallLowF	PercentRe	InstallLowF	PercentRe	InstallLowF	PercentRe	TurfReduc	TurfReduc	TurfReduc
32	0	18	0	20	0	20	0		

UseWaterI	UseWaterI	WaterEffic	MAWA	ETWU
0	6.1	0		

InstituteRe	InstituteRecyclingAndCompostingServicesWastePercentReduction

OperOffRc	OperOffRc	OperHours	OperDaysI	OperHorse	OperLoadI	OperFuelType

FleetMixLa	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS
User Defin	0.466291	0.03196	0.164877	0.1315	0.023119	0.00729	0.020969	0.142348	0.001645

UBUS	MCY	SBUS	MH
0.001858	0.00612	0.000997	0.001026

Generators	NumberOf	Generators	HorsePow	Load_Fact	HoursPerD	HoursPerY	GeneratorsPumpsEquipmentDes

scription

BoilerEqui	NumberOf	BoilerFuel	BoilerRatir	DailyHeatI	AnnualHea	BoilerEquipmentDescription

tblStationaryUserDefined

UserDefin	UserDefin	TOG_lb_d	TOG_tpy	ROG_lb_d	ROG_tpy	CO_lb_day	CO_tpy	NOX_lb_d	NOX_tpy

SO2_lb_da	SO2_tpy	PM10_lb_	PM10_tpy	PM2_5_lb_	PM2_5_tpy	CO2_lb_da	CO2_tpy	CH4_lb_da	CH4_tpy

Generators	TOG_EF	TOG_EF_	ROG_EF	ROG_EF_	CO_EF	CO_EF_U	NOX_EF	NOX_EF_	SO2_EF

SO2_EF_(	PM10_EF	PM10_EF_	PM2_5_EF	PM2_5_EF	CO2_EF	CO2_EF_(	CH4_EF	CH4_EF_UOM

BoilerEqui	TOG_EF	TOG_EF_	ROG_EF	ROG_EF_	CO_EF	CO_EF_U	NOX_EF	NOX_EF_	SO2_EF

SO2_EF_U	PM10_EF	PM10_EF_	PM2_5_EF	PM2_5_EF	CO2_EF	CO2_EF_U	CH4_EF	CH4_EF_UOM

SubModul	PhaseNan	Season	Remarks
1			
3			Project size is 17 acres
4			

ATTACHMENT E: CARB 2015 ESTIMATED ANNUAL AVERAGE EMISSIONS

2016 SIP Emission Projection Data

2015 Estimated Annual Average Emissions

MOJAVE DESERT AIR BASIN

All emissions are represented in Tons per Day and reflect the most current data provided to ARB.

See detailed information.

Start a new query.

STATIONARY SOURCES	TOG	ROG	CO	NOX	SOX	PM	PM10	PM2.5	NH3
FUEL COMBUSTION	7.2	1.3	9.9	24.6	1.3	10.5	4.9	2.5	0.2
WASTE DISPOSAL	34.2	0.4	0.1	0.1	0.0	69.9	20.3	2.1	1.7
CLEANING AND SURFACE COATINGS	11.2	7.7	0.0	0.0	-	0.6	0.6	0.6	-
PETROLEUM PRODUCTION AND MARKETING	17.9	6.3	0.0	0.0	-	-	-	-	-
INDUSTRIAL PROCESSES	2.0	1.7	15.9	40.7	9.5	64.2	32.9	12.8	0.1
*** TOTAL STATIONARY SOURCES**	**72.4**	**17.4**	**25.9**	**65.5**	**10.8**	**145.3**	**58.7**	**18.0**	**2.1**
AREAWIDE SOURCES	**TOG**	**ROG**	**CO**	**NOX**	**SOX**	**PM**	**PM10**	**PM2.5**	**NH3**
SOLVENT EVAPORATION	10.2	8.8	-	-	-	-	-	-	2.5
MISCELLANEOUS PROCESSES	38.5	5.7	24.5	2.0	0.1	129.2	69.6	13.5	13.3
*** TOTAL AREAWIDE SOURCES**	**48.7**	**14.5**	**24.5**	**2.0**	**0.1**	**129.2**	**69.6**	**13.5**	**15.7**
MOBILE SOURCES	**TOG**	**ROG**	**CO**	**NOX**	**SOX**	**PM**	**PM10**	**PM2.5**	**NH3**
ON-ROAD MOTOR VEHICLES	16.1	14.5	117.1	47.1	0.2	3.0	2.9	1.4	1.6
OTHER MOBILE SOURCES	15.3	14.0	67.3	39.9	0.5	4.5	4.4	4.2	0.0
*** TOTAL MOBILE SOURCES**	**31.4**	**28.5**	**184.4**	**87.0**	**0.8**	**7.5**	**7.3**	**5.6**	**1.6**
GRAND TOTAL FOR MOJAVE DESERT AIR BASIN	**152.5**	**60.4**	**234.9**	**154.4**	**11.7**	**281.9**	**135.7**	**37.2**	**19.4**

Start a new query.

2016 SIP Emission Projection Data
2015 Estimated Annual Average Emissions
KERN COUNTY

All emissions are represented in Tons per Day and reflect the most current data provided to ARB.

See detailed information.

Start a new query.

KERN COUNTY COUNTY - MOJAVE DESERT AIR BASIN

STATIONARY SOURCES	TOG	ROG	CO	NOX	SOX	PM	PM10	PM2.5	NH3
FUEL COMBUSTION	0.5	0.1	0.7	2.4	0.2	0.4	0.4	0.3	0.0
WASTE DISPOSAL	7.6	0.1	0.0	-	0.0	0.0	0.0	0.0	0.1
CLEANING AND SURFACE COATINGS	0.9	0.8	-	-	-	0.0	0.0	0.0	-
PETROLEUM PRODUCTION AND MARKETING	0.2	0.2	-	-	-	-	-	-	-
INDUSTRIAL PROCESSES	0.1	0.1	9.3	16.7	7.4	3.3	2.7	1.6	0.1
*** TOTAL STATIONARY SOURCES**	**9.3**	**1.2**	**10.0**	**19.1**	**7.6**	**3.7**	**3.0**	**1.9**	**0.1**
AREAWIDE SOURCES	**TOG**	**ROG**	**CO**	**NOX**	**SOX**	**PM**	**PM10**	**PM2.5**	**NH3**
SOLVENT EVAPORATION	1.4	1.3	-	-	-	-	-	-	1.4
MISCELLANEOUS PROCESSES	3.4	1.2	11.0	0.6	0.0	18.3	9.5	2.5	0.7
*** TOTAL AREAWIDE SOURCES**	**4.9**	**2.4**	**11.0**	**0.6**	**0.0**	**18.3**	**9.5**	**2.5**	**2.1**
MOBILE SOURCES	**TOG**	**ROG**	**CO**	**NOX**	**SOX**	**PM**	**PM10**	**PM2.5**	**NH3**
ON-ROAD MOTOR VEHICLES	1.9	1.7	12.4	6.3	0.0	0.3	0.3	0.2	0.2
OTHER MOBILE SOURCES	5.2	5.1	23.7	6.4	0.3	3.0	3.0	2.9	0.0
*** TOTAL MOBILE SOURCES**	**7.1**	**6.8**	**36.1**	**12.7**	**0.3**	**3.4**	**3.3**	**3.1**	**0.2**
TOTAL KERN COUNTY IN MOJAVE DESERT	**21.2**	**10.4**	**57.0**	**32.3**	**8.0**	**25.4**	**15.8**	**7.6**	**2.3**

KERN COUNTY COUNTY - SAN JOAQUIN VALLEY AIR BASIN

STATIONARY SOURCES	TOG	ROG	CO	NOX	SOX	PM	PM10	PM2.5	NH3
FUEL COMBUSTION	13.0	1.9	10.3	8.3	0.7	2.8	2.7	2.7	1.5
WASTE DISPOSAL	207.8	11.4	0.1	0.0	0.0	0.1	0.0	0.0	4.9
CLEANING AND SURFACE COATINGS	2.8	2.5	-	-	-	0.0	0.0	0.0	-
PETROLEUM PRODUCTION AND MARKETING	47.2	12.9	1.0	0.4	0.4	0.2	0.1	0.1	0.0
INDUSTRIAL PROCESSES	2.2	2.0	0.1	0.1	0.1	3.3	1.4	0.5	0.1
*** TOTAL STATIONARY SOURCES**	**273.0**	**30.8**	**11.5**	**8.8**	**1.2**	**6.4**	**4.3**	**3.4**	**6.7**
AREAWIDE SOURCES	**TOG**	**ROG**	**CO**	**NOX**	**SOX**	**PM**	**PM10**	**PM2.5**	**NH3**
SOLVENT EVAPORATION	10.5	9.6	-	-	-	-	-	-	28.0
MISCELLANEOUS PROCESSES	63.6	9.9	5.2	1.3	0.0	61.6	30.7	5.6	17.0
*** TOTAL AREAWIDE SOURCES**	**74.0**	**19.5**	**5.2**	**1.3**	**0.0**	**61.6**	**30.7**	**5.6**	**45.0**
MOBILE SOURCES	**TOG**	**ROG**	**CO**	**NOX**	**SOX**	**PM**	**PM10**	**PM2.5**	**NH3**
ON-ROAD MOTOR VEHICLES	7.9	7.1	48.6	33.2	0.1	1.8	1.7	0.9	0.9
OTHER MOBILE SOURCES	4.8	4.2	27.4	13.9	0.0	0.7	0.7	0.7	0.0
*** TOTAL MOBILE SOURCES**	**12.7**	**11.3**	**76.0**	**47.1**	**0.2**	**2.5**	**2.5**	**1.6**	**0.9**
TOTAL KERN COUNTY IN SAN JOAQUIN VALLEY	**359.7**	**61.6**	**92.8**	**57.1**	**1.4**	**70.5**	**37.5**	**10.5**	**52.5**
GRAND TOTAL FOR KERN COUNTY	**380.9**	**72.1**	**149.8**	**89.5**	**9.4**	**96.0**	**53.4**	**18.1**	**54.8**

Start a new query.

ATTACHMENT F: CARB 2020 FORECASTED ANNUAL AVERAGE EMISSIONS

2016 SIP Emission Projection Data

2020 Estimated Annual Average Emissions

MOJAVE DESERT AIR BASIN

All emissions are represented in Tons per Day and reflect the most current data provided to ARB.

See detailed information.

Start a new query.

STATIONARY SOURCES	TOG	ROG	CO	NOX	SOX	PM	PM10	PM2.5	NH3
FUEL COMBUSTION	9.7	1.4	12.0	27.8	1.3	9.9	4.7	2.6	0.2
WASTE DISPOSAL	36.3	0.5	0.1	0.1	0.0	61.6	17.9	1.8	1.8
CLEANING AND SURFACE COATINGS	14.2	9.8	0.0	0.0	-	0.8	0.8	0.8	-
PETROLEUM PRODUCTION AND MARKETING	17.7	6.2	0.0	0.0	-	0.0	0.0	0.0	-
INDUSTRIAL PROCESSES	2.3	2.0	18.3	47.7	10.7	71.5	36.8	14.8	0.1
*** TOTAL STATIONARY SOURCES**	**80.2**	**19.9**	**30.5**	**75.6**	**12.0**	**143.9**	**60.3**	**19.9**	**2.1**
AREAWIDE SOURCES	**TOG**	**ROG**	**CO**	**NOX**	**SOX**	**PM**	**PM10**	**PM2.5**	**NH3**
SOLVENT EVAPORATION	11.1	9.6	-	-	-	-	-	-	2.3
MISCELLANEOUS PROCESSES	38.8	5.8	24.7	2.0	0.1	142.5	76.3	14.6	13.4
*** TOTAL AREAWIDE SOURCES**	**49.8**	**15.4**	**24.7**	**2.0**	**0.1**	**142.5**	**76.3**	**14.6**	**15.7**
MOBILE SOURCES	**TOG**	**ROG**	**CO**	**NOX**	**SOX**	**PM**	**PM10**	**PM2.5**	**NH3**
ON-ROAD MOTOR VEHICLES	10.6	9.6	70.7	31.3	0.2	3.0	2.9	1.3	1.4
OTHER MOBILE SOURCES	13.3	12.3	68.9	31.5	0.5	4.1	4.0	3.8	0.0
*** TOTAL MOBILE SOURCES**	**23.9**	**21.8**	**139.6**	**62.8**	**0.8**	**7.1**	**6.9**	**5.1**	**1.4**
GRAND TOTAL FOR MOJAVE DESERT AIR BASIN	**153.9**	**57.1**	**194.8**	**140.4**	**12.9**	**293.5**	**143.5**	**39.7**	**19.3**

Start a new query.

2016 SIP Emission Projection Data

2020 Estimated Annual Average Emissions

KERN COUNTY

All emissions are represented in Tons per Day and reflect the most current data provided to ARB.

See detailed information.

Start a new query.

KERN COUNTY COUNTY - MOJAVE DESERT AIR BASIN

STATIONARY SOURCES	TOG	ROG	CO	NOX	SOX	PM	PM10	PM2.5	NH3
FUEL COMBUSTION	0.5	0.1	0.8	2.4	0.2	0.4	0.4	0.4	0.0
WASTE DISPOSAL	8.4	0.1	0.0	-	0.0	0.0	0.0	0.0	0.1
CLEANING AND SURFACE COATINGS	0.9	0.8	-	-	-	0.0	0.0	0.0	-
PETROLEUM PRODUCTION AND MARKETING	0.1	0.1	-	-	-	-	-	-	-
INDUSTRIAL PROCESSES	0.1	0.1	10.2	18.4	8.1	3.7	2.9	1.7	0.1
*** TOTAL STATIONARY SOURCES**	**10.2**	**1.3**	**11.0**	**20.8**	**8.3**	**4.1**	**3.3**	**2.1**	**0.1**
AREAWIDE SOURCES	**TOG**	**ROG**	**CO**	**NOX**	**SOX**	**PM**	**PM10**	**PM2.5**	**NH3**
SOLVENT EVAPORATION	1.6	1.4	-	-	-	-	-	-	1.3
MISCELLANEOUS PROCESSES	3.5	1.2	11.0	0.6	0.0	18.6	9.7	2.6	0.7
*** TOTAL AREAWIDE SOURCES**	**5.0**	**2.6**	**11.0**	**0.6**	**0.0**	**18.6**	**9.7**	**2.6**	**2.0**
MOBILE SOURCES	**TOG**	**ROG**	**CO**	**NOX**	**SOX**	**PM**	**PM10**	**PM2.5**	**NH3**
ON-ROAD MOTOR VEHICLES	1.1	1.1	7.2	4.1	0.0	0.3	0.3	0.1	0.1
OTHER MOBILE SOURCES	5.0	4.9	23.8	5.5	0.3	3.0	2.9	2.9	0.0
*** TOTAL MOBILE SOURCES**	**6.2**	**5.9**	**31.0**	**9.6**	**0.3**	**3.3**	**3.2**	**3.0**	**0.1**
TOTAL KERN COUNTY IN MOJAVE DESERT	**21.4**	**9.8**	**53.0**	**31.0**	**8.6**	**26.0**	**16.2**	**7.7**	**2.3**

KERN COUNTY COUNTY - SAN JOAQUIN VALLEY AIR BASIN

STATIONARY SOURCES	TOG	ROG	CO	NOX	SOX	PM	PM10	PM2.5	NH3
FUEL COMBUSTION	12.6	1.8	9.9	7.6	0.7	2.7	2.6	2.5	1.6
WASTE DISPOSAL	224.6	12.2	0.2	0.1	0.0	0.1	0.0	0.0	5.4
CLEANING AND SURFACE COATINGS	3.0	2.7	-	-	-	0.0	0.0	0.0	-
PETROLEUM PRODUCTION AND MARKETING	46.2	11.8	0.9	0.3	0.4	0.2	0.1	0.1	0.0
INDUSTRIAL PROCESSES	2.4	2.3	0.1	0.1	0.1	3.7	1.6	0.6	0.2
*** TOTAL STATIONARY SOURCES**	**288.8**	**30.7**	**11.1**	**8.0**	**1.1**	**6.7**	**4.4**	**3.3**	**7.2**
AREAWIDE SOURCES	**TOG**	**ROG**	**CO**	**NOX**	**SOX**	**PM**	**PM10**	**PM2.5**	**NH3**
SOLVENT EVAPORATION	10.9	10.0	-	-	-	-	-	-	26.5
MISCELLANEOUS PROCESSES	63.6	9.9	5.2	1.2	0.0	61.8	30.9	5.7	17.1
*** TOTAL AREAWIDE SOURCES**	**74.5**	**19.9**	**5.2**	**1.2**	**0.0**	**61.8**	**30.9**	**5.7**	**43.6**
MOBILE SOURCES	**TOG**	**ROG**	**CO**	**NOX**	**SOX**	**PM**	**PM10**	**PM2.5**	**NH3**
ON-ROAD MOTOR VEHICLES	5.4	4.9	31.4	23.5	0.1	1.7	1.6	0.7	0.8
OTHER MOBILE SOURCES	4.0	3.5	27.2	10.8	0.0	0.6	0.5	0.5	0.0
*** TOTAL MOBILE SOURCES**	**9.4**	**8.4**	**58.6**	**34.2**	**0.2**	**2.2**	**2.2**	**1.2**	**0.8**
TOTAL KERN COUNTY IN SAN JOAQUIN VALLEY	**372.7**	**59.0**	**74.9**	**43.5**	**1.4**	**70.7**	**37.4**	**10.2**	**51.7**
GRAND TOTAL FOR KERN COUNTY	**394.0**	**68.8**	**127.9**	**74.4**	**10.0**	**96.7**	**53.6**	**17.9**	**54.0**

Start a new query.

APPENDIX D

Habitat Assessment Survey Results for the Kern County Ridgecrest Burn Dump

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October 16, 2018 8473-29

Sent via electronic mail

Amanda Plunkett
Waste Management Specialist
Kern County Public Works Department
2700 M. Street, Suite 500
Bakersfield, California 93301-2372

Subject: Habitat Assessment Survey Results for the Kern County Waste Management Department Ridgecrest Burn Dump Project, Unincorporated Kern County, California

Dear Ms. Plunkett:

This biological resources letter report contains the results of a habitat suitability survey conducted by Dudek for the proposed Ridgecrest Burn Dump Remediation Project (proposed project). The purpose of the survey was to assess habitat availability/suitability for special-status wildlife and plant species known to occur within the project site, determine whether the site contains sensitive vegetation communities or has the potential for jurisdictional waters of the United States/state, and to determine if any biological resources pose a constraint to the proposed project.

Project Location

The study area is approximately 26 acres and is located in eastern Kern County approximately 0.33 miles south of the intersection of Highway 395 and South China Lake Boulevard, and approximately 5.84-miles southwest of the City of Ridgecrest, Kern County, California (Attachment A, Figure 1). The approximate center of the project site corresponds to 35°32'34.35" N, 117°42'55.40" W and is situated within the Ridgecrest South U.S. Geological Survey 7.5-minute quadrangle, Section 31, Range 27S, Township 40E.

Methods

Literature and Database Review

Prior to conducting fieldwork, literature and database searches were conducted to assess the potential for special-status biological resources to occur within the project site. The following sources were reviewed: (1) the most recent versions of the California Natural Diversity Database (CNDDB) for special-status wildlife species, special-status plant species, and sensitive vegetation communities (CDFW 2018a[1]); (2) a list of potentially occurring federally listed species generated from a review of the U.S. Fish and Wildlife Service's (USFWS's) IPaC

1 CDFW (California Department of Fish and Wildlife). 2018a. Rarefind 5: Commercial version. Online database. California Natural Diversity Database. California Department of Fish and Wildlife, Biogeographic Data Branch. Accessed August2018. http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp.

Trust Resources Report (USFWS 2018a[2]); (3) a list of potentially occurring special-status plants generated by a nine-quad search of the California Native Plant Society (CNPS) *Inventory or Rare and Endangered Plants* (CNPS 2018[3]); and (4) the USFWS's National Wetlands Inventory (USFWS 2018b[4]).

Field Survey

Russell Sweet, a Dudek biologist, conducted a habitat assessment survey within the project site on August 31, 2018, between the hours of 8:40 a.m. and 11:20 a.m. Weather conditions were favorable, with temperatures ranging from 74° to 85° and wind ranging from 3 to 4 miles per hour with occasional gusts of 5 to 6 miles per hour. Cloud cover was 0% throughout the entire survey period. The study area was methodically surveyed via a pedestrian survey providing 100% visual coverage. All biological resources and potential biological constraints were identified and inventoried. Potential special-status biological resources identified during the survey were mapped using a handheld Garmin Global Positioning System unit for inclusion in the report figures. All plant and wildlife species observed during the site visit were recorded. Plants were detected and identified through direct sight. Wildlife species were detected by sight, calls, tracks, scat, or other sign. The potential for special-status plant and wildlife species to occur was determined according to known habitat preferences of regional wildlife species and knowledge of their relative distribution in the area. Attachment B provides a list of plant species and Attachment C provides a list of wildlife species observed during the project site visit. The nomenclature for vegetation communities in the study area follows the *Manual of California Vegetation* Second Edition (Sawyer et al. 2009[5]), and the California Natural Community List (CDFW 2018b[6]). Natural vegetation communities were mapped in the field using the Manual of California Vegetation and List of Sensitive Communities.

Survey Limitations

The habitat suitability survey was conducted during the daytime to maximize the detection of most animal species. Migratory birds represent the largest component of the vertebrate fauna during the time of the survey, and because most birds are active in the daytime, diurnal surveys maximize the number of bird observations. Conversely, diurnal surveys usually result in few observations of mammals, many of which may only be active at night. In addition, many species of reptiles and amphibians are secretive in their habits and are sometimes difficult to observe using standard transects on a single site visit. No protocol or focused surveys were conducted during the survey effort. A jurisdictional delineation was not conducted for any jurisdictional resources potentially occurring within the project alignment.

[2] USFWS (United States Fish and Wildlife Service). 2018a. IPaC Trust Resources Report. Accessed March 2017. http://ecos.fws.gov/ipac.
[3] CNPS (California Native Plant Society). 2018. *Inventory of Rare and Endangered Plants of California*, online ed. Accessed August 2018. http://www.rareplants.cnps.org
[4] USFWS. 2018b. National Wetlands Inventory. Accessed August 2018. http://www.fws.gov/wetlands.
[5] Sawyer, J.O., T. Keeler-Wolf., and J.M. Evens. 2009. *A Manual of California Vegetation*. 2nd ed. California Native Plant Society.
[6] CDFW. 2018b. California Natural Communities List. Accessed August 2018. https://nrm.dfg.ca.gov/FileHandler.ashx? DocumentID=153398&inline.

Results

General Site Conditions

The study area is located within the Mojave Desert of northeastern Kern County. The project site is within a fenced-in area maintained by Kern County Public Works Department and Bureau of Land Management (BLM). The project site has been disturbed in the past and was used as a historic burn dump property. The vegetation communities observed on site were creosote bush scrub and non-native grassland. Several old rows of trash, mostly consisting of glass, were observed in the north-central portion of the study area. The northeast corner of the survey area appears to have been disturbed in the past; however, this area is not covered in trash or glass as is the north-central portion. Both areas are mostly mixed with sparse shrub, native and non-native herbs, and non-native grass cover with large areas of barren ground throughout. The western and southern sides of the project site are mostly untouched natural areas of creosote bush scrub with intermixed non-native grasses (see Attachment A, Figure 2).

Vegetation Communities

Table 1 presents the acreages of the mapped vegetation communities and other land covers within the study area. Each vegetation community and land cover is described in detail in this section.

Table 1. Vegetation Communities and Land Covers

Vegetation Communities and Land Covers	Acreage
Creosote bush scrub	10.23
Disturbed non-native grassland	9.94
Disturbed habitat	6.10
Total	**26.27**

Creosote Bush Scrub

The creosote bush scrub alliance has an open to intermittent shrub canopy cover with shrubs less than 3 meters (10 feet) in height with a open to intermittent ground layer containing seasonal annuals or perennial grasses (Sawyer et al. 2009). For a stand of vegetation to be classified as creosote bush scrub, creosote (*Larrea tridentata*) must exceed other shrubs in cover, including emergent small trees and taller shrubs, except for white bursage (*Ambrosia dumosa*). The creosote bush scrub alliance occurs in the Mojave, Sonoran, and Colorado Deserts; southeastern Great Basin; and Southern California mountains and valleys. This alliance occurs at elevations ranging from 75 meters (246 feet) below sea level to 1,000 meters (3,280 feet) above mean sea level. The creosote bush scrub alliance occurs on upland slopes, alluvial fans, bajadas, and intermittent washes (Sawyer et al. 2009).

Within the study area, the creosote bush is the dominant vegetation community covering approximately 40% of the entire study area (Attachment D, Photos 4 through 11). Additional native species noted in the study area include white bursage, Menzies' fiddleneck (*Amsinckia menziesii*), Wiggins' cholla (*Cylindropuntia echinocarpa*), and water jacket (*Lycium andersonii*). Non-native species observed within the study area included red brome (*Bromus madritensis* ssp. *rubens*) and schismus (*Schismus* spp.).

Status

The creosote bush scrub alliance is ranked as G5S5 (secure in state and globally) and is not considered a sensitive biological resource by CDFW under CEQA (CDFW 2018b).

Disturbed Non-Native Grassland

Non-native grassland has a sparse to dense cover of annual grasses that is typically 0.2 meters (0.7 feet) to 0.5 meters (1.6 feet) tall, though it can grow up to 1 meter (3 feet) tall. This land has very few native species. Grasses that occur in non-native grassland include wild oats (*Avena* spp.), bromes (*Bromus* spp.), fescue (*Vulpia* spp.), Italian ryegrass (*Festuca perennis*), and barley (*Hordeum* spp.). Forbs that occur with these grasses include California poppy (*Eschscholzia californica*), stork's bill (*Erodium* ssp.), goldfields (*Lasthenia* spp.), phacelias (Phacelia ssp.), gilias (*Gilia* spp.), and baby blue eyes (*Nemophila menziesii*) (Holland 1986[7]). Non-native grassland also includes land that is used as pasture for grazing purposes.

Because the northeast portion of the project site has been disturbed in the past, presumably through the burn dump efforts, the vegetation community has been qualified as disturbed non-native grassland. The area consists of large spans of bare ground intermixed with, but not limited to, non-native bromes and schismus. Several herbaceous annuals are also mixed within the area but were dead and unidentifiable during the survey. A few shrub species including creosote and white bursage are scattered throughout the area. Because disturbance has occurred in the past, and is potentially occurring from use of the project site, native vegetation will typically take longer to re-establish itself, whereas the non-native grasses can thrive due to the disturbed nature of the project site. The project site is anticipated to continue to colonize and/or recruit native and non-native species, much of which are likely to be annuals that will grow, set seed, and die (Attachment D, Photos 1 through 3).

Status

None of the semi-natural stands, including non-native grasslands, are considered sensitive biological resources by CDFW under CEQA (CDFW 2018b).

Disturbed Habitat

Disturbed habitat in this report is associated with the burn dump berms. There is some vegetative growth due to the glass and trash that make some areas inaccessible to vehicles. As mentioned above, once the soil is disturbed, it will typically take longer for native species to re-establish. There are scattered scrub alliances of creosote and white bursage with bromes and schismus (Attachment D, Photos 15 and 16). The disturbed habitat still provides suitable habitat for wildlife species associated with the native surrounding environment.

7 Holland, R.F. 1986. *Preliminary Descriptions of the Terrestrial Natural Communities of California.* Nongame-Heritage Program, California Department of Fish and Game. October 1986.

Status

Disturbed lands are not considered to be sensitive biological resource by CDFW under CEQA (CDFW 2018c).

Common Wildlife

The study area supports habitat for a number of upland wildlife species. The creosote scrub provides diversity suitable for wildlife species. A total of six wildlife taxa were observed and recorded on the project site. Three birds, including two visually and one aurally, were observed. Two reptiles, the common side-blotched lizard (*Uta stansburiana*) and California tiger whiptail (*Aspidoscelis tigris munda*), were observed. One mammal species, coyote (*Canis latrans*), was observed by its sign (scat). Attachment C provides a cumulative list of wildlife species observed in the study area.

Special-Status Plant Species

Review of the CNDDB (2018) (Attachment A, Figure 3) and the CNPS's *Inventory of Rare and Endangered Plants of California* (CNPS 2018) for the Ridgecrest South and surrounding eight U.S. Geological Survey 7.5-minute quadrangles, yielded 4 special-status plant species that are known to occur in those quadrangles. These special-status plants are identified in Table 2.

Table 2. Special-Status Plant Species Reported to Occur within the Project Vicinity

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Cryptantha clokeyi	Clokey's cryptantha	None/None/1B.2	Mojavean desert scrub/annual herb/Apr/2379 to 4478	Potential to occur. The project site does contain suitable habitat for this species. Closest known occurrence is located 11.5 miles away.
Erythranthe rhodopetra	Red Rock Canyon monkeyflower	None/None/1B.1	Mojavean desert scrub; sandy, canyon washes/annual herb/Mar–Apr/2001 to 3002	Potential to occur. The project site does contain suitable habitat for this species. Closest known occurrence is located 15 miles away.
Eschscholzia minutiflora ssp. *twisselmannii*	Red Rock poppy	None/None/1B.2	Mojavean desert scrub, desert washes, flats, slopes /annual herb/Mar–May/2231 to 4035	Not likely to occur. The project site does contain suitable habitat for this species. Closest known occurrence is located 8.75 miles away.
Phacelia nashiana	Charlotte's phacelia	None/None/1B.2	Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodland; usually granitic, sandy/annual	Potential to occur. The project site does contain suitable habitat for this species. Closest known

Table 2. Special-Status Plant Species Reported to Occur within the Project Vicinity

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
			herb/Mar–June/1969 to 7218	occurrence is located 8.7 miles away.

Notes:
CRPR – California Rare Plant Rank
1A – plants presumed extirpated in California and either rare or extinct elsewhere
1B – plants rare, threatened, or endangered in California and elsewhere
4 – plants of limited distribution – a watch list
0.1 – seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
0.2 – moderately threatened in California (20–80% of occurrences threatened/moderate degree and immediacy of threat)
0.3 – not very threatened in California (less than 20% of occurrences threatened/low degree and immediacy of threat or no current threats known)
Federal Designations
FE – Federally Listed as Endangered
DL – Federally Delisted
State Designations
SE – State Listed as Endangered

A survey assessing potential for special-status plants to occur was conducted on August 31, 2018, outside of the optimal phenological period for many special-status plant species identified in Table 2. The survey resulted in no special-status plant species observed within the study area. Many of the plant species on site have either senesced or have died, making identification problematic. Based on the results of the habitat suitability survey, the present conditions of the project site, and on an evaluation of the habitat requirements of potentially occurring special-status plant species relative to the biotic types on the project site, the project site provides suitable habitat for special-status plant species identified in Table 2 and they could potentially occur on the site.

Clokey's Cryptantha

Clokey's cryptantha (*Cryptantha clokeyi*) is a CRPR 1B.2 species native to California that occurs in Mojavean desert scrub. This annual plant species flowers from April to May and is known to occur in rocky to gravelly slopes, ridges, and desert woodlands at elevations between 2,379 and 4,478 feet (CNPS 2018). The closest CNDDB record of the species is approximately 11.5 miles northeast from the project site.

Red Rock Canyon Monkeyflower

Red Rock Canyon monkeyflower (*Erythranthe rhodopetra*) is a CRPR 1B.1 species native to California. Red Rock Canyon monkeyflower is an annual herb that occurs in Mojavean desert scrub, desert washes, flats, and slopes. This species flowers from March through April at an elevation ranging from 2,001 to 3,002 feet and is recorded in CNDDB within the Red Rock Canyon Park, approximately 15 miles southwest of the project site.

Red Rock Poppy

Red Rock poppy (*Eschscholzia minutiflora* ssp. *twisselmannii*) is a CRPR 1B.2 species native to California that occurs in Mojavean desert scrub and canyon washes in sandy soils. Red Rock poppy is an annual plant known to flower from March through May at elevations from 2,231 to 4,035 feet. This species is recorded in the CNDDB approximately 8.5 miles southeast from the project site.

Charlotte's phacelia

Charlotte's phacelia (*Phacelia nashiana*) is a CRPR 1B.2 species that occurs in sandy to rocky soils within Joshua tree woodland, Mojavean desert scrub, and pinyon and juniper woodlands. This species is an annual plant endemic to California that flowers from March to June at elevations from 1,969 to 7,218 feet. The nearest CNDDB record of Charlotte's phacelia is approximately 8.7 miles southwest of the project site.

Special-Status Wildlife Species

This section assesses the potential for special-status wildlife to occur on the project site, based on the results of the habitat suitability survey conducted in 2018 and of the literature review. Focused biological surveys were not conducted in 2018 on the project site to document the presence or absence of select special-status species and other sensitive biological resources that had potential to occur. To determine the potential for special-status wildlife to occur on the project site, Dudek compiled a list of wildlife species through a query of CNDDB (CDFW 2018a) (see Attachment A, Figure 3). Eleven special-status wildlife species are known to occur in the vicinity of the proposed project. Table 3 lists the special-status wildlife species with the potential to occur based upon soils, vegetation, and elevation that are recorded within the U.S. Geological Survey quadrangle where the proposed project is located and the surrounding eight quadrangles. Species that have no potential to occur due to various factors (e.g., lack of suitable habitat, the site is outside the known elevation or geographic range, or the species has been extirpated from the region) are not discussed further in this letter. In addition, some special-status wildlife species that occur in the study area are avian species that may occasionally fly over or forage in the project site, but are not expected to breed on site; thus project implementation would not result in impacts to them and they are not further discussed in this letter report.

Table 3. Special-Status Wildlife Species Reported to Occur within the Project Vicinity

Common Name	Scientific Name	Status (Federal/State)	Habitat	Potential to Occur
Reptiles				
Mojave Desert tortoise	*Gopherus agassizii*	FT/ST	Arid and semi-arid habitats in Mojave and Sonoran Deserts, including sandy or gravelly locations along riverbanks, washes, sandy dunes, canyon bottoms, desert oases, rocky hillsides, creosote flats, and hillsides	High potential to occur. Suitable habitat for this species is present on the project site. Mojave Desert tortoise is also known to occur within the immediate vicinity of the project site. Historic CNDDB records resulted in known occurrences within 2 miles of the site. In addition, one potential burrow was observed in the study area.

Table 3. Special-Status Wildlife Species Reported to Occur within the Project Vicinity

Common Name	Scientific Name	Status (Federal/State)	Habitat	Potential to Occur
Birds				
burrowing owl	*Athene cunicularia* (burrow sites and some wintering sites)	BCC/SSC	Nests and forages in grassland, open scrub, and agriculture, particularly where ground squirrel burrows are present	High potential to occur. Suitable nesting and foraging habitat for this species. Burrowing owl has been observed on site per communication with Caroline Woods with BLM.
loggerhead shrike	*Lanius ludovicianus* (nesting)	BCC/SSC	Nests and forages in open habitats with scattered shrubs, trees, or other perches	Occurs on site. Observed on site and foraging in the study area. Suitable foraging habitat occurs on the project site Unlikely to nest. No trees are present on the project site. Creosote shrubs are the largest shrubs occurring; however, based on the lack of their sturdy stems, loggerhead shrike are unlikely to nest within the creosote shrubs.
golden eagle	*Aquila chrysaetos* (nesting and wintering)	BCC/FP, WL	Nests and winters in hilly, open/semi-open areas, including shrublands, grasslands, pastures, riparian areas, mountainous canyon land, open desert rimrock terrain; nests in large trees and on cliffs in open areas; forages in open habitats	Not expected to occur. No nesting habitat is present on the project site. However, the site could potentially be used for foraging.
prairie falcon	*Falco mexicanus* (nesting)	BCC/WL	Forages in grassland, savanna, rangeland, agriculture, desert scrub, and alpine meadows; nest on cliffs or bluffs	Not expected to occur. No nesting habitat is present on the project site. However, the site could potentially be used for foraging.

Table 3. Special-Status Wildlife Species Reported to Occur within the Project Vicinity

Common Name	Scientific Name	Status (Federal/State)	Habitat	Potential to Occur
LeConte's thrasher	*Toxostoma lecontei*	BCC/SSC	Nests and forages in desert wash, desert scrub, alkali desert scrub, desert succulent, and Joshua tree habitats; nests in spiny shrubs or cactus	Low potential to occur. Suitable foraging habitat occurs on the project site. Creosote shrubs are the largest shrubs occurring; however, based on the lack of their sturdy stems, LeConte's thrasher are unlikely to nest within the creosote shrubs.
Mammals				
American badger	*Taxidea taxus*	None/SSC	Dry, open, treeless areas; grasslands, coastal scrub, agriculture, and pastures, especially with friable soils	Low potential to occur. Suitable habitat is present on the project site.
Mohave ground squirrel	*Spermophilus (Xerospermophilus) mohavensis*	None/ST	Desert scrub habitats including those dominated by creosote bush and burrowbush, desert sink scrub, and desert saltbush scrub	Moderate potential to occur. Suitable habitat for this species is present on the project site. Mohave ground squirrel is also known to occur within the immediate vicinity of the project site. Historic CNDDB records resulted in known occurrences within 2 miles of the site.
spotted bat	*Euderma maculatum*	None/SSC	Foothills, mountains, desert regions of Southern California, including arid deserts, grasslands, and mixed-conifer forests; roosts in rock crevices and cliffs; feeds over water and along washes	Not expected to occur. No suitable habitat present.

Notes:
Federal Designations
BCC – U.S. Fish and Wildlife Service Bird of Conservation Concern
FE – Federally Endangered
State Designations
SSC – California Species of Special Concern
FP – Fully Protected
SE – California Endangered
ST – California Threatened
WL – Watch List

Special-status species with some potential to occur on the project site are described in this section in more detail.

Reptiles

Mojave Desert Tortoise

The Mojave Desert tortoise (*Gopherus agassizii*) is a federally threatened and state threatened species that occurs through much of the Mojave (including the Antelope Valley) and Sonoran Deserts in California. It also occurs in parts of southern Nevada, southwestern Utah, and northwestern Arizona. Mojave Desert tortoises occupy a wide variety of desert habitats. In most parts of the Mojave Desert, they occur primarily in gently sloping terrain, but in some parts of their range, they occur more commonly in upper alluvial fans and lower mountain slopes (USFWS 2011[8]). In lower to middle elevations, they tend to occupy habitats dominated by creosote and white bursage, where rainfall ranges from 2 to 8 inches, the diversity of perennial plants is relatively high, and high production of annuals occurs (USFWS 2011; Germano et al. 1994[9]). Occupied habitats also include black bush scrub, juniper woodland, Joshua tree woodland, and other desert scrub communities (USFWS 2011; Germano et al. 1994). Mojave Desert tortoises feed largely on annuals, but also on a variety perennial plants. Mojave Desert tortoises spend most of their lives underground in burrows, and are most active during spring and fall, but often emerge in summer after rain storms (Nagy and Medica 1986[10]). They are long-lived, reaching sexual maturity between 13 and 20 years of age, and have a low reproductive rate (USFWS 2011).

The project site is within the known range for Mojave Desert tortoise. One burrow suitable in size and shape for Mojave Desert tortoise was observed in the west side of the project site. The burrow was measured approximately 10 inches wide by 9 inches tall and had a half-moon shape typical of Mojave Desert tortoise. No Mojave Desert tortoise or Mojave Desert tortoise signs (i.e., known burrows, scat, tracks, etc.) were observed on site. The project site does provide suitable habitat for this species.

Birds

Burrowing Owl

Burrowing owl (*Athene cunicularia*) is a USFWS bird of conservation concern and a California species of special concern. With a relatively wide-ranging distribution throughout the west, burrowing owls are considered to be habitat generalists (Lantz et al. 2004[11]). In California, burrowing owls are yearlong residents of open, dry grassland and desert habitats, and in grass, forb and open shrub stages of pinyon–juniper and ponderosa pine habitats (Zeiner et al. 1990[12]). Preferred habitat is generally typified by short, sparse vegetation with few shrubs, level to gentle topography, and well-drained soils (Poulin et al. 2011[13]).

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8 USFWS (U.S. Fish and Wildlife Service). 2011. *Revised Recovery Plan for the Mojave Population of the Desert Tortoise (*Gopherus agassizii*)*. Sacramento, California: U.S. Fish and Wildlife Service. May 6, 2011. https://www.fws.gov/nevada/desert_tortoise/documents/recovery_plan/RRP%20for%20the%20Mojave%20Desert%20Tortoise%20-%20May%202011.pdf.

9 Germano, D.J., R.B. Bury, T.C. Esque, T.H. Fritts, P.A. Medica. 1994. "Range and Habitats of the Desert Tortoise." *Fish and Wildlife Research* 13: 73–84.

10 Nagy, K.A., and P.A. Medica. 1986. "Physiological Ecology of Desert Tortoises in Southern Nevada." *Herpetologica* 42(1): 73–92.

11 Lantz, S. J., H. Smith, and D.A. Keinath. 2004. *Species Assessment for Western Burrowing Owl (*Athene cunicularia hypugaea*) in Wyoming*. Prepared for the U.S. Department of Interior and Bureau of Land Management, Wyoming State Office, Cheyenne, Wyoming. September 2004.

12 Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M. White, eds. 1990. *Birds*. Vol. 2 in *California's Wildlife*. Sacramento, California: California Department of Fish and Game. November 1990.

13 Poulin, R.G., L.D. Todd, E.A. Huag, B.A. Millsap, and M.S. Martell. 2011. "Burrowing Owl (*Athene cunicularia*)." In *The Birds of North America*, edited by A.F. Poole. Ithaca, New York: American Ornithologists' Union and Cornell Lab of Ornithology. Accessed October 2018. https://doi.org/10.2173/bna.61.

The presence of burrows is the most essential component of burrowing owl habitat, as they are required for nesting, roosting, cover, and caching prey (Coulombe 1971[14]; Martin 1973[15]; Green and Anthony 1989[16]; Poulin et al. 2011). In California, western burrowing owls most commonly live in burrows created by California ground squirrels (*Spermophilus beecheyi*). Burrowing owls may occur in human-altered landscapes such as agricultural areas, ruderal grassy fields, vacant lots, and pastures if the vegetation structure is suitable (i.e., open and sparse); useable burrows are available; and foraging habitat occurs in close proximity (Gervais et al. 2008[17]). Debris piles, riprap, culverts, and pipes can be used for nesting and roosting.

The project site provides suitable habitat for burrowing owl. Three burrows were identified on the project site suitable in size for burrowing owl. Burrows were measured ranging from 4 to 6 inches wide and 4 to 6 inches tall. Pellets and downy feathers were observed at two potential burrowing owl burrows, and one potential burrowing owl burrow was observed to only have pellets.

Loggerhead Shrike

The loggerhead shrike (*Lanius ludovicianus*) is a USFWS bird of conservation concern and a California species of special concern. It is widespread throughout the United States, Mexico, and portions of Canada (Humple 2008)[18]. The species is a yearlong resident in most of the United States, including from California east to Virginia and south to Florida, and in Mexico. In California, while shrikes are widespread at the lower elevations in the state, the largest breeding populations are located in portions of the Central Valley, the Coast Ranges, and the southeastern deserts (Humple 2008).

Preferred habitats for loggerhead shrikes are open areas that include scattered shrubs, trees, posts, fences, utility lines, or other structures that provide hunting perches with views of open ground, as well as nearby spiny vegetation or man-made structures (such as the top of chain-link fences or barbed wire) that provide a location to impale prey items for storage or manipulation (Humple 2008). Loggerhead shrikes occur most frequently in riparian areas along the woodland edge, grasslands with sufficient perch and butcher sites, scrublands, and open canopied woodlands, although they can be quite common in agricultural and grazing areas, and can sometimes be found in mowed roadsides, cemeteries, and golf courses. Loggerhead shrikes occur only rarely in heavily urbanized areas. For nesting, the height of shrubs and presence of canopy cover are most important (Yosef 1996)[19]. The project site provides suitable foraging habitat for loggerhead shrikes. One loggerhead shrike was observed during the field survey.

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14 Coulombe, H.N. 1971. "Behavior and Population Ecology of the Burrowing owl, *Speotyto cunicularia*, in the Imperial Valley of California." *Condor* 73:162–176.

15 Martin, D.J. 1973. "Selected Aspects of Burrowing owl Ecology and Behavior." *Condor* 75: 446–456.

16 Green, G.A. and R.G. Anthony. 1989. "Nesting Success and Habitat Relationships of Burrowing owls in the Columbia Basin, Oregon." *Condor* 91:347–354.

17 Gervais, J.A., D.K. Rosenberg, and L.A. Comrack. 2008. "Burrowing Owl (*Athene cunicularia*)." In *California Bird Species of Special Concern: A Ranked Assessment of Species, Subspecies, and Distinct Populations of Birds of Immediate Conservation Concern in California*, edited by W.D. Shuford and T. Gardali, 218–226. Studies of Western Birds no. 1. California: Western Field Ornithologists (Camarillo), and California Department of Fish and Game (Sacramento). February 4, 2008. Accessed December 11, 2012. http://www.dfg.ca.gov/wildlife/ nongame/ssc/birds.html.

18 Humple, D. 2008. "Loggerhead Shrike (*Lanius ludovicianus*)." In *California Bird Species of Special Concern: A Ranked Assessment of Species, Subspecies, and Distinct Populations of Birds of Immediate Conservation Concern in California*, edited by W.D. Shuford and T. Gardali, 271–277. Studies of Western Birds no. 1. California: Western Field Ornithologists (Camarillo) and California Department of Fish and Game (Sacramento). February 4, 2008. Accessed December 11, 2012. http://www.dfg.ca.gov/wildlife/nongame/ssc/birds.html.

19 Yosef, R. 1996. "Loggerhead Shrike." In *The Birds of North America*, edited by A. Poole. Ithaca, New York: Cornell Lab of Ornithology. Accessed February 2008. https://doi.org/10.2173/bna.231.

LeConte's Thrasher

The LeConte's thrasher (*Toxostoma lecontei*) is a USFWS bird of conservation concern species that is resident in low to middle elevations in the deserts of eastern California and within a limited, disjunct range in the western San Joaquin Valley and adjacent smaller valleys, from southwestern Fresno County southward (Grinnell and Miller 1944; Fitton 2008). LeConte's thrashers occur in open scrub habitats, usually with sandy soils or in alkaline terrain, including desert washes, creosote scrub, alkali desert scrub, desert succulent scrub, Joshua tree habitats, and (in the San Joaquin Valley) saltbush scrub (Grinnell and Miller 1944[20]; Fitton 2008[21]). They feed mostly on a variety of insects and arthropods, but also on lizards and other small vertebrates. LeConte's thrashers were not observed during the biological survey.

Other Birds of Prey

Two uncommon birds of prey, the golden eagle (*Aquila chrysaetos*)—a USFWS bird of conservation concern and California fully protected species—and prairie falcon (*Falco mexicanus*)—a USFWS bird of conservation concern and California watch list species—have the potential to forage on the project site. Both species are known to forage in open habitats that are present on the project site; however, the project site does not contain suitable nesting habitat for either of the birds. Both species occur in a variety of habitats across California, including grasslands, agriculture, open brushlands, and desert scrub. No golden eagles or prairie falcons were observed during the biological survey.

Mammals

Mohave Ground Squirrel

Mohave ground squirrel (*Spermophilus (Xerospermophilus) mohavensis*) is a state threatened species. It is a small ground squirrel (approximately 9 inches long) distinguished from the more common sympatric antelope ground squirrel (*Ammospermophilus leucurus*) by the absence of stripes or spots. The Mohave ground squirrel occurs in the Mojave Desert, in parts of Inyo, Kern, Los Angeles, and San Bernardino Counties. The project site is located in the northern part of the species' historical range.

Mohave ground squirrel is active only during the spring to summer months and spends most of the year (approximately 7 months) aestivating below ground. Mohave ground squirrel is known to occur in a number of habitat types (Gustafson 1993)[22], including (i) Mojave creosote bush scrub (dominated by creosote and other perennial shrubs) and Joshua tree woodland, which includes Joshua trees (*Yucca brevifolia*) at a range of densities and in association with a variety of shrub species; (ii) desert saltbush scrub (dominated by various species of saltbush [*Atriplex* spp.]); (iii) desert sink scrub, which is similar to saltbush scrub but is sparser and grows on poorly drained soils

[20] Grinnell, J., and A.H. Miller. 1944. The Distribution of the Birds of California. Pacific Coast Avifauna, no. 27. Berkeley, California: Cooper Ornithological Club. December 30, 1944.

[21] Fitton, S. 2008. "Le Conte's Thrasher (*Toxostoma lecontei*)." In *California Bird Species of Special Concern: A Ranked Assessment of Species, Subspecies, and Distinct Populations of Birds of Immediate Conservation Concern in California*, edited by W.D. Shuford and T. Gardali, 271–277. Studies of Western Birds no. 1. California: Western Field Ornithologists (Camarillo) and California Department of Fish and Game (Sacramento). February 4, 2008. Accessed December 11, 2012. http://www.dfg.ca.gov/wildlife/nongame/ssc/birds.html.

[22] Gustafson, J.R. 1993. A Status Review of the Mohave Ground Squirrel (*Spermophilus mohavensis*). Nongame Bird and Mammals Report 93-9. Sacramento, California: California Department of Fish and Game.

with high alkalinity; (iv) desert greasewood scrub, with sparse vegetation and which is generally located on valley bottoms and dry lake beds; and (v) shadscale scrub (dominated by *Atriplex* species such as shadscale [*Atriplex confertifolia*] and bud sage [*Atriplex spinescens*]). The creosote bush scrub that occurs on the project site is potentially suitable for Mohave ground squirrel.

Several small mammal burrows measuring 3 inches tall/wide and smaller were observed throughout portions of the study area, with more burrows in the western and southern halves of the project site. Burrows were noted to be gently sloped downward in position. Several scat droppings were observed in association with the burrows and measured to a consistent 0.2 centimeters in length. Based on scat size and shape, it is reasonable to conclude that several small mammal mouse species such as, but not limited to, house mouse (*Mus musculus*) or pocket mouse (*Chaetodipus penicillatus*), could occur on the project site. In addition, these burrows could potentially be used by Mohave ground squirrel. No Mohave ground squirrel or signs of Mohave ground squirrel (i.e., tracks and scat) were observed during the survey effort. The project site is located within the known range for Mohave ground squirrel and suitable habitat is present on site.

American badger

The American badger is a California species of special concern that is an uncommon, permanent resident throughout most of the state. It is most abundant in the drier open stages of most shrub, forest, and herbaceous habitats with friable soils. Badgers are generally associated with treeless regions, prairies, park lands, and cold desert areas. They need sufficient food, uncultivated ground, and burrowing rodents to support their prey base. No badgers were observed in the study area; however, suitable habitat is present throughout the study area.

Critical Habitat

The USFWS IPaC database was queried for known occurrences of critical habitat within the study area and surrounding areas. No USFWS-designated critical habitat for listed wildlife species exists within the study area including a 5-mile buffer.

Wildlife Corridors and Habitat Linkages

Based on the fact that the surrounding areas adjacent to the project site are similar in nature with wide open areas of vegetation and no physical barriers to impede movement through the area, it is not considered likely that any portion of the project site serves as an important linkage between habitats. In addition, there are no regional migratory wildlife corridors that have been identified by Kern County or state resources agencies.

Special-Status Vegetation Communities

As noted above, the study area is composed of creosote bush scrub, disturbed non-native grassland, and disturbed habitat. None of these communities are considered sensitive by CDFW under CEQA (CDFW 2018c[23]).

[23] CDFW. 2018c. California Sensitive Natural Communities. Accessed April 2018. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=153609&inline

Jurisdictional Waters

The National Wetlands Inventory query resulted in no known mapped jurisdictional drainages or wetlands within the project site. Based on the survey, drainage features observed within the study area originate from flows from the dirt roadway to the east as water flows westward into the project site as road runoff and either flows off site and dissipate into the desert floor, evaporating or infiltrating into the groundwater basin. However, these features would not be considered jurisdictional waters of the United States/state.

Discussion and Conclusions

As proposed, the Kern County Public Works Department will be conducting remediation efforts on the Ridgecrest burn dump site. Existing trash will remain in its present location and covered by using topsoil from the adjacent naturally vegetated areas within the fence line of the project site. The habitat assessment survey conducted by Dudek documented the presence of suitable habitat for special-status plants and wildlife. Even though the project site has been disturbed in the past as part of a historic burn dump, overall, there are potential constraints to the proposed remediation action. These constraints are described below and include recommended actions prior to construction.

On August 3, 2018, via a phone conference, Dudek biologist Russell Sweet and BLM biologist Caroline Woods, briefly discussed the BLM's concerns regarding the potential impacts the proposed project may have to biological resources. During the phone call, Ms. Woods most notably expressed the BLM's concern regarding the potential occurrence of Mojave Desert tortoise and Mohave ground squirrel. Having intimate knowledge of the project site, Ms. Woods's assessment of the property is that there is potential for both species to occur. Her recommendation is that presence/absence surveys be conducted for both species. In addition, Ms. Woods also mentioned the known occurrence of a single burrowing owl within the project site, and recommended that special attention should be made for burrowing owl presence during the habitat assessment survey. During the conversation, Ms. Woods also discussed, briefly, the potential for special-status plant species to occur on the project site and would wait for the habitat assessment regarding their potential for occurrence.

Special-Status Plant Species

Based on the CNDDB and CNPS *Inventory or Rare and Endangered Plants* and the on-site habitat, the project site does provide suitable habitat for special-status plant species. Therefore, it is recommended that a focused special-status plant species survey be conducted prior to implementation of the proposed project. Surveys should be conducted during appropriate blooming periods for those species with potential to occur as noted in Table 2.

Special-Status Wildlife Species

The biological survey identified potential for special-status wildlife species to occur within the project site. Conclusions are based on existing site conditions, species observed during the survey, and species with potential to occur based on proximity according to the CNDDB and for which suitable habitat is present.

Mojave Desert Tortoise

Construction activities could result in take of Mojave Desert tortoise; therefore, it is recommended that a pre-activity survey be conducted in accordance with the USFWS pre-project field survey protocol (USFWS 2017[24]) to conclude presence/absence.

Burrowing Owl

Depending on the timing of construction-related activities, the proposed project could result in the direct loss of an active nest(s), the abandonment of an active nest(s) by adult birds during the nesting season, or direct loss of individual burrowing owls occurring within burrows. Therefore, the potential loss of individual burrowing owls and/or active nest(s) would be a significant impact. Impacts can be mitigated through implementation of a pre-construction burrowing owl survey conducted in accordance with the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012[25]) as part of pre-construction mitigation measures.

Loggerhead Shrike

One adult loggerhead shrike was observed foraging on the project site. The project site has suitable foraging habitat, but marginally suitable nesting habitat for this species. Construction activities near a loggerhead shrike nest could result in nest abandonment and, therefore, mortality to nestlings or eggs. These impacts are potentially significant, but can be mitigated through implementing a nesting bird survey and avoidance and minimization measures. Because higher quality habitat occurs in the immediate vicinity and throughout the region, and project impacts would be temporary, loss of suitable habitat for the species would be less than significant under CEQA.

LeConte's Thrasher

The project site provides suitable nesting habitat for LeConte's thrasher. Construction activities near a LeConte's thrasher nest could result in nest abandonment and, therefore, mortality to nestlings or eggs. These impacts are potentially significant, but can be mitigated through implementing a nesting bird survey and avoidance and minimization measures. Loss of suitable habitat for the species would be less than significant under CEQA.

Other Birds of Prey

The project site does not contain suitable nesting habitat for golden eagle or prairie falcon. Although no nesting habitat is present, foraging habitat for both species occurs on the project site. Based on similar habitat within the immediate vicinity and throughout the region, implementation of the proposed project would not result in significant impacts to foraging habitat for either species.

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[24] USFWS. 2017. Preparing for Any Action That May Occur within the Range of the Mojave Desert Tortoise (Gopherus agassizii). August 31, 2017. Accessed September 2018. https://www.fws.gov/nevada/desert_tortoise/documents/manuals/Mojave%20Desert%20Tortoise_Pre-project%20Survey%20Protocol_2017.pdf

[25] CDFG (California Department of Fish and Game). 2012. Staff Report on Burrowing Owl Mitigation. March 7, 2012.

Mohave Ground Squirrel

The project site provides suitable habitat for Mohave ground squirrel and is within the known range for this species. It is recommended that surveys be conducted in accordance with the Mohave Ground Squirrel Survey Guidelines (CDFG 2010[26]) to conclude presence/absence of the species.

American Badger

The project site provides suitable denning and habitat for American Badger. Therefore, a pre-construction survey for American badger may be required to avoid impacts to the species.

Should you require additional information, please do not hesitate to give me a call at 661.369.5741 or by email at rsweet@dudek.com.

Sincerely,

Russell Sweet
Senior Biologist

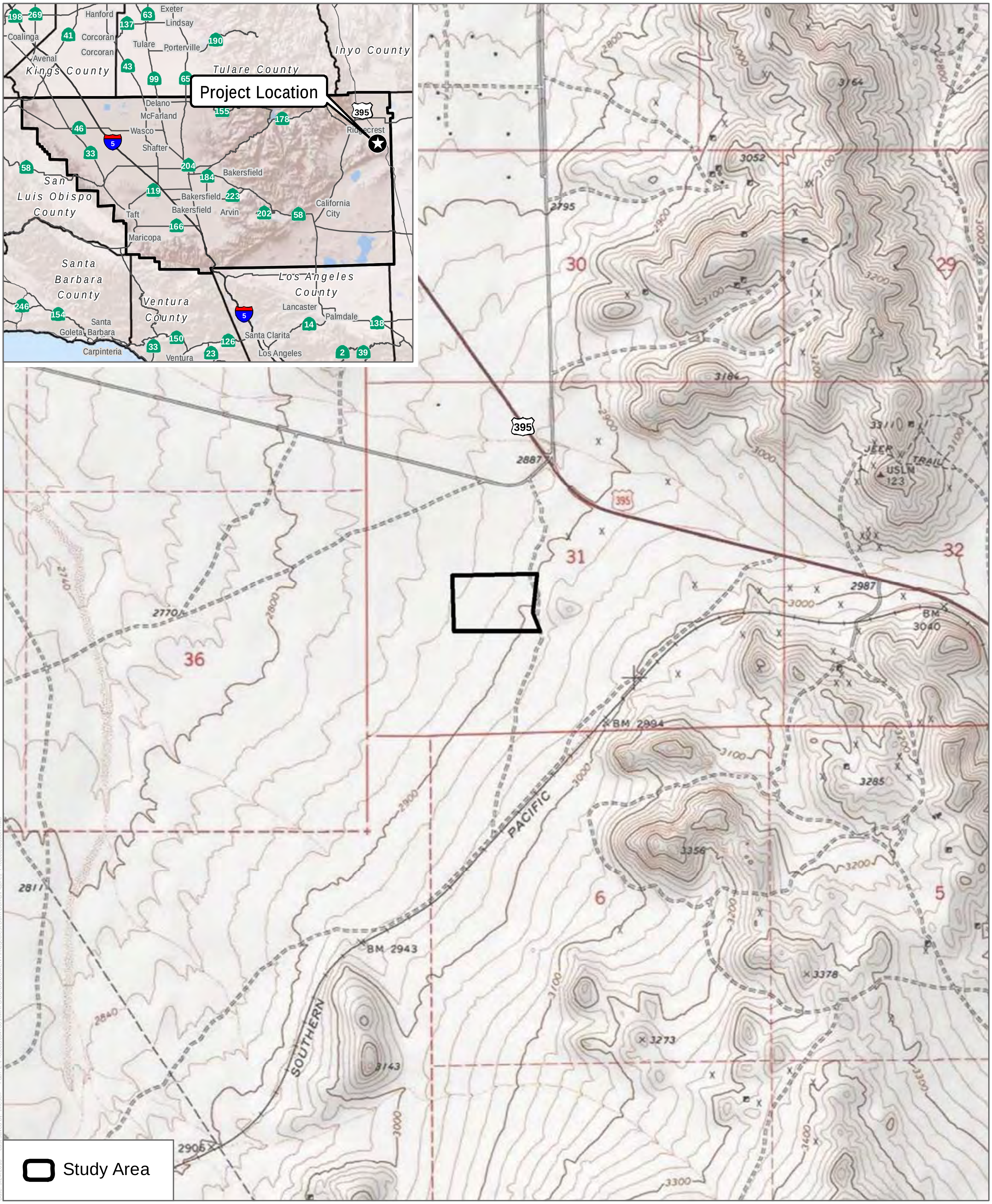
Cc: *Megan Enright, Dudek*

Att: *Attachment A, Figures 1–3*
Attachment B, Plant Compendium
Attachment C, Wildlife Compendium
Attachment D, Photo Log

[26] CDFG. 2010. Mohave Ground Squirrel Survey Guidelines. July 2010. Accessed October 2018. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83975&inline.

Attachment A

Figures 1–3



SOURCE: USGS 7.5 Minute Series Ridgecrest South Quadrangle
Township 27S / Range 40E / Section 31

DUDEK

0 1,000 2,000 Feet

FIGURE 1
Project Location
Ridgecrest Burn Dump Habitat Assessment

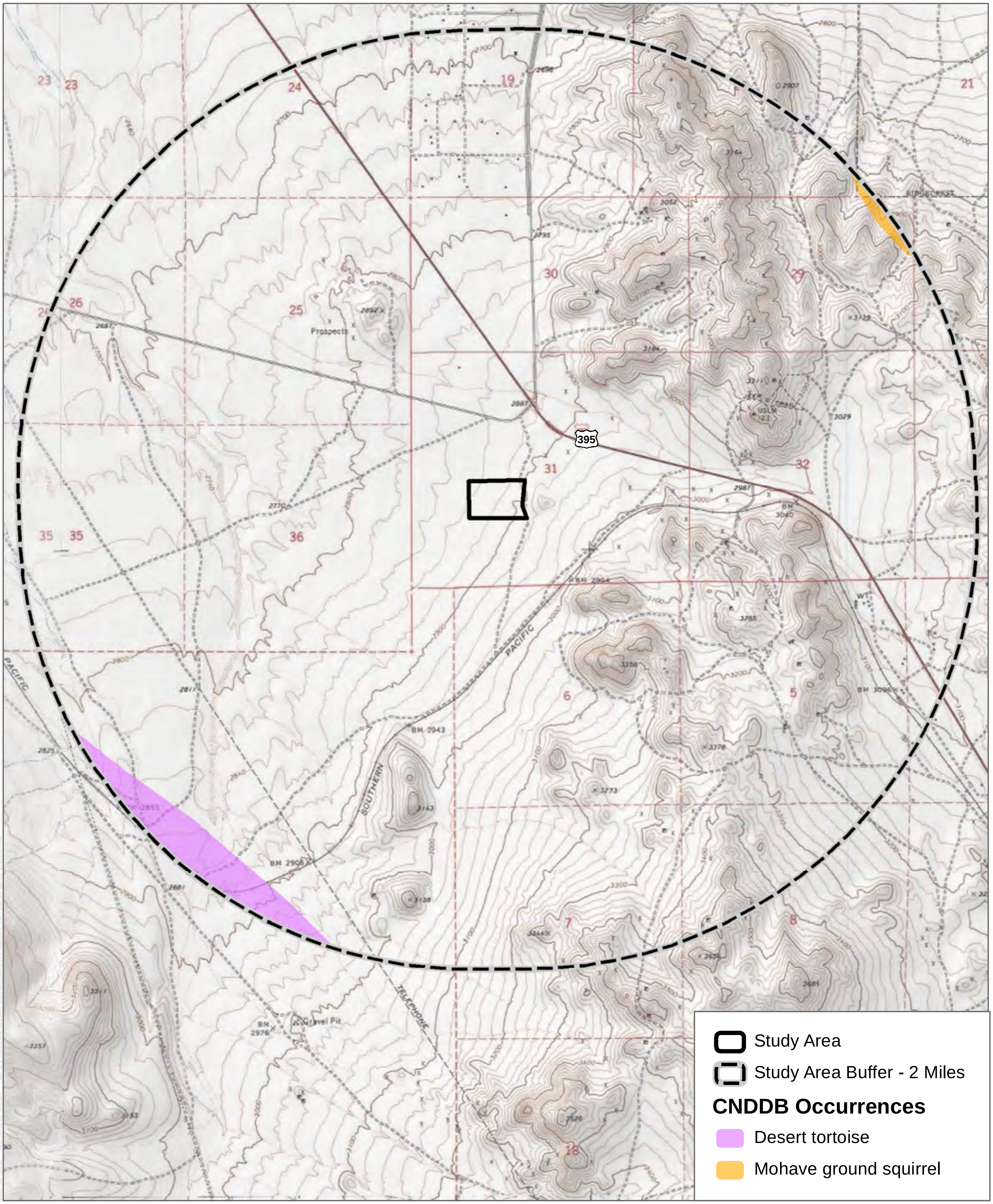
SOURCE: USDA 2018

0 150 300 Feet

FIGURE 2

Biological Resources and Vegetation Communities

Ridgecrest Burn Dump Habitat Assessment



SOURCE: USGS 7.5 Minute Series Ridgecrest South Quadrangle
Township 27S / Range 40E / Section 31
CDFW 2018

DUDEK

0 1,500 3,000 Feet

FIGURE 3

CNDDB Occurrences

Ridgecrest Burn Dump Habitat Assessment

Attachment B

Plant Compendium

ATTACHMENT B
Plant Compendium

MONOCOTS

POACEAE—GRASS FAMILY

* *Bromus* sp.—cheatgrass
* *Schismus arabicus*—Arabian schismus
* *Schismus barbatus*—common Mediterranean grass

EUDICOTS

ASTERACEAE—SUNFLOWER FAMILY

Ambrosia dumosa—white bursage
Ambrosia salsola—burrobrush
Ericameria nauseosa—rubber rabbitbrush

BORAGINACEAE—BORAGE FAMILY

Amsinckia menziesii—Menzies' fiddleneck

CACTACEAE—CACTUS FAMILY

Cylindropuntia echinocarpa—Wiggins' cholla

CUCURBITACEAE—GOURD FAMILY

Cucurbita palmata—coyote gourd

EUPHORBIACEAE—SPURGE FAMILY

Stillingia linearifolia—queen's-root
Croton setiger—dove weed

SOLANACEAE—NIGHTSHADE FAMILY

Lycium andersonii—water jacket

ZYGOPHYLLACEAE—CALTROP FAMILY

Larrea tridentata—creosote bush

* signifies introduced (non-native) species

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Attachment C

Wildlife Compendium

ATTACHMENT C
Wildlife Compendium

BIRDS

FALCONS

FALCONIDAE—CARACARAS AND FALCONS

Falco sparverius—American kestrel

OWLS

STRIGIDAE—TYPICAL OWLS

Athene cunicularia—burrowing owl*

SHRIKES

LANIIDAE—SHRIKES

Lanius ludovicianus—loggerhead shrike

MAMMAL

CANIDS

CANIDAE—WOLVES & FOXES

* *Canis latrans*—coyote

REPTILES

LIZARDS

PHRYNOSOMATIDAE—IGUANID LIZARDS

Uta stansburiana—common side-blotched lizard

TEIIDAE—WHIPTAIL LIZARDS

Aspidoscelis tigris munda—California tiger whiptail

*detected by sign (i.e., tracks, pellets, feathers, whitewash)

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Attachment D

Photo Log

ATTACHMENT D
Photo Log

Photo 1. Looking south from northeast corner.

Photo 2. Looking southwest from northeast corner.

Photo 3. Looking west from northeast corner.

Photo 4. Looking west from the southeast corner.

Photo 5. Looking northwest from southeast corner.

Photo 6. Looking north from southeast corner.

Photo 7. Looking north from the southwest corner.

Photo 8. Looking northeast from southwest corner.

Photo 9. Looking east form the northwest corner.

Photo 10. Looking southeast from northwest corner.

Photo 11. Looking south from northwest corner.

Photo 12. Half-dome burrow suitable size for desert tortoise, also owl pellets observed.

	
Photo 13. Burrow, approximately 3 inches deep.	Photo 14. Looking east at glass pile within the burn dump area.
	No Photo
Photo 15. Looking northeast along berm within the burn dump area, mostly glass present.	

APPENDIX E

Class III Archaeological Survey of 42.5 Acres of Land for the Proposed Closure of the Ridgecrest Burn Disposal Site

A CLASS III ARCHAEOLOGICAL SURVEY OF 42.5 ACRES OF LAND FOR THE PROPOSED CLOSURE OF THE RIDGECREST BURN DISPOSAL SITE, NEAR RIDGECREST, KERN COUNTY, CALIFORNIA

- *Cultural Resources Survey for the Proposed Closure of the Ridgecrest Burn Disposal Site*

- *Class III archaeological survey of 42.5 acres in portions of Section 31, Township 27 South, Range 40 East, Ridgecrest South, CA (1971) USGS 7.5-minute series topographic quadrangle*

- *Historic Ridgecrest Burn Disposal Site (1962-1969)*

Stantec

Submitted to:
Bureau of Land Management
Ridgecrest Field Office
300 South Richmond Road
Ridgecrest, CA 93555

and

County of Kern
Public Works Department
2700 M Street, Suite 450
Bakersfield, CA 93301

Submitted by:
Hubert Switalski and Victoria Harvey
Stantec Consulting Services Inc.
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Bakersfield, CA 93309

October 2018

This document entitled *A CLASS III ARCHAEOLOGICAL SURVEY OF 42.5 ACRES OF LAND FOR THE PROPOSED CLOSURE OF THE RIDGECREST BURN DISPOSAL SITE, NEAR RIDGECREST, NEAR RIDGECREST, KERN COUNTY, CALIFORNIA,* was prepared by Stantec Consulting Services Inc. for the account of *County of Kern Public Works Department*. The material in it reflects Stantec Consulting Services Inc. best judgment in light of the information available to it at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. Stantec Consulting Services Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

Prepared by ______________________
(signature)

Hubert Switalski, Senior Archaeologist

Prepared by Victoria Harvey
(signature)

Victoria Harvey, RPA, Senior Archaeologist

Reviewed by Michelle C. Cross
(signature)

Michelle Cross, RPA, Cultural Resources Practice Lead

Cover page: Overview of the Ridgecrest Burn Disposal Site with El Paso Mountains in background, view south (Stantec IMG_0415).

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1.0 MANAGEMENT SUMMARY

On September 6, 2018, Stantec Consulting Services, Inc. (Stantec) conducted a Class III archaeological study on behalf of the Kern County Public Works Department (KCPWD) of 42.5 acres of land, near the City of Ridgecrest, Kern County, California. The archaeological study was conducted in an anticipation of the proposed closure and remediation of the Ridgecrest Burn Disposal Site (APN 511-020-03), which was open to the public for disposal of non-hazardous household waste between 1962 and 1969.

The Ridgecrest Burn Disposal Site was initially operated by the KCPWD under a long-term lease from the Bureau of Land Management (BLM), Ridgecrest Field Office (Ridgecrest BLM). As the Ridgecrest Disposal Site is located on surface estate managed by the BLM and may require Federal permits prior to its closure and remediation, the proposed project is considered an undertaking subject to compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended and its implementing regulations (36 Code of Federal Regulations [CFR] 800). The purpose of this archaeological study was to identify and document cultural resources within the Project Area of Potential Effects (APE), to evaluate such resources for National Register of Historic Places (NRHP) eligibility, and to assess any future project effects on historic properties.

This archaeological study was conducted under *BLM Permit No. CA-18-23* (issued August 15, 2018) and *Fieldwork Authorization* (FWA) issued by the Ridgecrest BLM on August 21, 2018. The archaeological study consisted of an archival records search of the Study Area conducted at the Southern San Joaquin Valley Information Center (SSJVIC), located at California State University, Bakersfield (CSUB), as well as an intensive pedestrian survey of approximately 42.5 acres of land.

The survey resulted in the identification and recordation of the Ridgecrest Burn Disposal Site as it was in operation between 1962 and 1969. Based on archival research and data gathered in the field, the resource does not appear eligible for inclusion to the NRHP. While the resource was a designated County non-hazardous household waste dump site, the majority of the artifacts and household refuse found within the site have been extensively burned and as a result most items are either highly deformed, fragmented, or a combination of both. The site itself, while a historic dump site, does not appear to qualify for the inclusion to the NRHP under Criterion A, as it does not appear to be associated with events that made a significant contribution to the patterns of our history; nor does it qualify under Criterion B, as it does not appear to be associated with lives of significant persons or individuals in our past. Furthermore, the Ridgecrest Burn Disposal Site does not qualify under Criterion C, as it does not represent any distinctive characteristic of a type, period, or method of construction, or does it represent a significant and distinguishable entity, nor does it qualify under Criterion D, as it does not appear likely to yield information or data important to our history. Thus, based on the analysis of this study it is recommended that a determination of “No Historic Properties Affected” (36 CFR §800.4) for the proposed undertaking be made.

2.0 REGULATORY FRAMEWORK

As the project is located on surface estate lands managed by the BLM Ridgecrest, the proposed project is a Federal undertaking subject to compliance with Section 106 of the NHPA of 1966, as amended, and its implementing regulations (36 Code of Federal Regulations [CFR] 800). The purpose of the archaeological study was to identify and document cultural resources within the APE, to evaluate such resources for NRHP eligibility, and to assess future project effects on historic properties. The project was conducted in accordance with the conditions listed and included under *BLM Permit No. CA-18-23 and* Fieldwork Authorization issued by BLM Ridgecrest on August 21, 2018.

The APE for this project was designed to consider both direct and indirect effects on cultural resources from the undertaking. An APE is defined as "the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any properties exist" (36 CFR 800.16(d)). The APE for direct effects to archaeological and historical resources for this undertaking is confined to the extent of the Ridgecrest Burn Disposal Site (APN 511-020-03), an existing access road leading to the disposal site, as well as a 30-meter (100-foot) wide buffer surrounding the site and the access road, for a total of 42.5 acres, with excavation depths for the borrow pit not exceeding 5-6 feet in depth. It is expected that any potential adverse impacts arising from any activities associated with the proposed dump closure and remediation will be contained within this acreage. The *Study Area* for this undertaking consists of the APE and a ½-mile buffer surrounding the APE.

3.0 PROJECT DESCRIPTION

The KCPWD manages and maintains seven landfills throughout the county, including landfills near Bakersfield, Mojave and Rosamond area, Ridgecrest, Shafter and Wasco, Taft, and Tehachapi. These landfills serve the Kern County communities and are referred to as sanitary landfills because they dispose of waste materials by burial. Such facilities are generally engineered to isolate trash from the surrounding environment and may include monitoring facilities such as groundwater monitoring stations, storm water drainage, collection systems, etc., to ensure their safe and environmentally friendly operation. While sanitary landfills represent modern method of refuse disposal, prior to their introduction, refuse dumping and incineration were the preferred methods for refuse disposal. In the early 1950s and 1960s several burn disposal sites were in use throughout Kern County. One of those sites was the Ridgecrest Burn Disposal site situated just south of Ridgecrest.

The Ridgecrest Burn Disposal Site was active between 1962 and 1969 and was used by residents of the surrounding area and small commercial users. The site was operated by the County of Kern and after 45 years of inactivity the KCPWD proposes to close the site. The site has been inactive since its closure and it contains mostly household refuse located in three parallel disposal trenches, approximately 60 feet wide and 630 feet long, and approximately 14 feet below ground surface (CEW 1991). Based on data obtained from CEW (1991), no hazardous substances, other than hazardous household waste, have been identified on site, with waste type including mostly household refuse, yard rubbish, commercial refuse, and bottles/cans and metal refuse. In 2017 Ninyo and Moore excavated 10 exploratory test pits to characterize the depth and composition of the refuse within the Ridgecrest Burn Disposal Site. Based on the refuse encountered within test pits, waste was noted to generally consist of broken and melted glass, broken and whole glass bottles, metal debris, concrete and asphalt debris, pieces of drywall, wood, ash and other miscellaneous household items.

Based on the data obtained from Ninyo and More (2017) and previous coordination between the County, BLM, and Cal Recycle, the KCPWD initially proposed two closure alternatives, which included two options: 1) consolidate and cover option, which would cover the entire disposal area with at least 2 feet of clean soil, and 2) removal of all waste and impacted soils from the disposal site.

3.1 Closure Option – Consolidate and Cover

Based on a number of factors, the KCPWD selected the consolidate and cover option for the closure and remediation of the Ridgecrest Burn Disposal Site. This option includes covering the entire extent of disposal trenches with a minimum of 2 feet of clean soil excavated from the adjacent borrow area. This alternative would include initial clearing and grubbing of the disposal site and the borrow area with surficial refuse collected and incorporated into the trench. The final cover will be graded to approximately 3.8% grade, which is similar to existing and surroundings grades. Once graded, the entire area will be covered in soil with storm water trenched excavated to diver run-off water and to prevent erosion. Furthermore, rip rap scour protection and geotextiles will be used on the north side of the proposed closure area to protect the existing drainage channel. Once completed, the entire area would be hydroseeded and restored to pre-disposal conditions (GeoLogic Associates 2017).

4.0 PROJECT LOCATION

The APE is located approximately 3 miles southwest of the City of Ridgecrest, in the northeastern portion of Kern County (Figure 1). Specifically, the APE is located in the West ½ of Section 31, Township 27 South, Range 40 East, as depicted on the Ridgecrest South, CA (1973) USGS 7.5-minute series topographic quadrangle (Figure 2).

5.0 ENVIRONMENTAL BACKGROUND

The Study Area is located in the northwestern portion of the Mojave Desert of southern California, within the Indian Wells Valley and approximately 3 miles southwest of the City of Ridgecrest. The Study Area is bounded by the El Paso Mountains to the south, Owens Valley to the north, and the escarpment of the southern Sierra Nevada to the west. This portion of the Mojave Desert experiences extremes in temperature and topography. The area has an evaporation rate greater than the amount of total rainfall (Schroth 2003). Annual precipitation averages between five and six inches, and usually occurs between November and April and between July and October. Summers are typically hot and dry, while winters are cold and dry. Strong winds are frequent, with gusts up to 70 miles an hour (Schroth 2003).

The abundant wildlife of the Mojave Desert includes mammals, reptiles, and birds (Jameson and Peeters 1988). Most of the mammal species in this region consist of small rodents, the most prominent being kangaroo rats (*Dipodomys* spp.), wood rats (*Neotoma* spp.), pocket gophers (*Thomomys* sp.), antelope ground squirrels (*Ammospermophilus leucurus*), and Mojave ground squirrels (*Spermophilus mojavensis*). Larger mammals include black-tailed hares or jackrabbits (*Lepus californicus*), cottontail rabbits (*Sylvilagus audubonii*), coyotes (*Canis latrans*), skunks (*Mephitis*, *Spilogale putorius*), kit foxes (*Vulpes macrotis*), bobcats (*Felis rufus*), and several species of bats (cf. *Chiroptera* spp.). The mule deer (*Odocoileus hemionus*) is another major resident of the region, although it has witnessed a population decline in the last 100 years. At one time, large numbers of pronghorn (*Antilocapra americana*) roamed the region, although to what extent is not certain. Bighorn sheep (*Ovis canadensis*) were also present in aboriginal times but are now absent. The same is also probably true of the black bear (*Ursus americanus*).

The Mojave Desert is also home to a variety of reptiles and amphibians, such as toads (*Bufo* spp.), lizards (e.g., *Crotaphytus* spp., *Sceloporus* spp.), snakes (e.g., *Crotalus* spp., *Lampropeltis getulus*, *Phyllorrhynchus decurtatus*), and desert tortoise (*Gopherus agassizii*). Bird species include grebes, ducks, geese, coots, vultures, hawks, eagles, owls, roadrunners, quail, and swallows, and others (Cogswell 1977; Robbins et al. 1983).

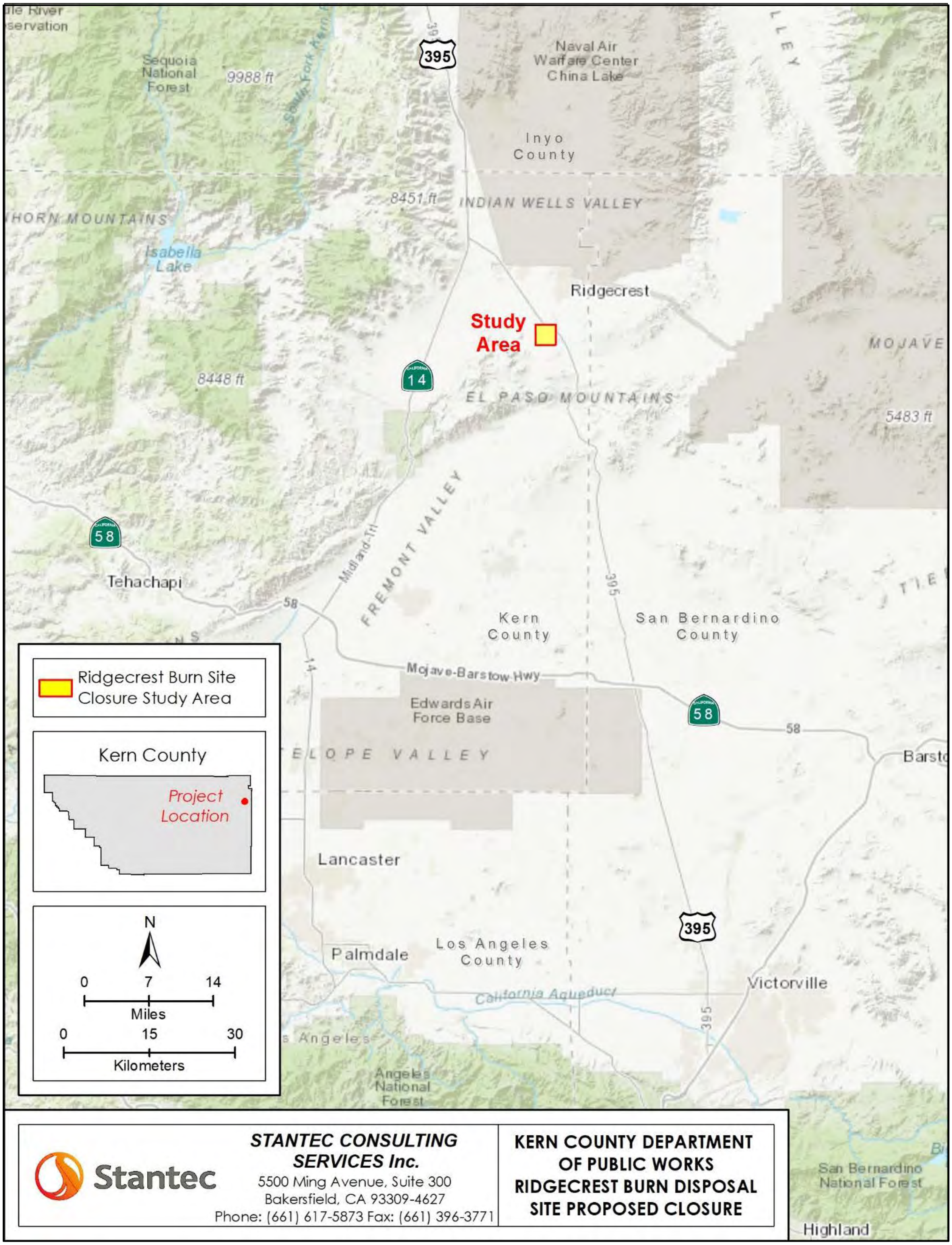

Figure 1. Project location and vicinity map.

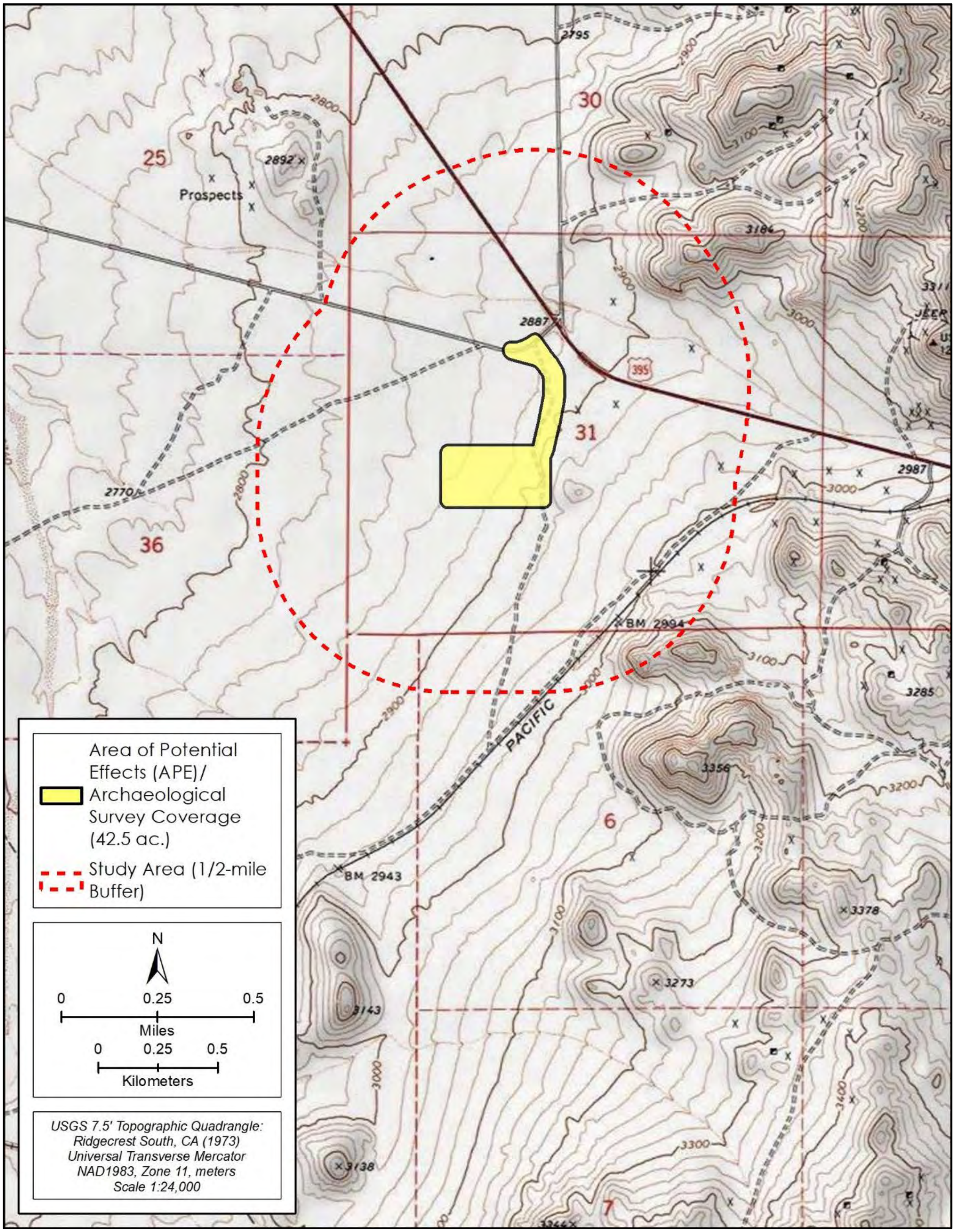

Figure 2. Archaeological survey coverage with the Study Area depicted on the Ridgecrest South, CA (1973) USGS 7.5-minute series topographic quadrangle.

6.0 ARCHAEOLOGICAL BACKGROUND

A number of formal archaeological investigations had been conducted in the western Mojave Desert. General summaries of the prehistory of this region are presented in Warren (1984), Warren and Crabtree (1986), Sutton (1988, 1996), and Sutton et al. (2007). The following general time periods are presented herein to provide a temporal and contextual framework for the general Project Area.

There has been a variety of terms used to classify known and postulated early human occupations in the Mojave Desert and the Arid West. At this point in our understanding of the record, the term Paleoindian is used to refer to materials belonging to the Fluted Point Tradition or earlier, including any remains belonging to a “Pre-projectile Point Period.”

The earliest agreed-upon archaeological culture in the New World is Clovis, typified by a particular type of fluted projectile point (e.g., Chartkoff and Chartkoff 1984; Moratto 1984). Evidence for occupation by people possessing a fluted point technology is limited to relatively few finds of Clovis or Clovis-like projectile points. These finds are widely distributed across the Mojave Desert and are rarely dated other than by typological means. While there are several isolated Clovis points known from the Mojave Desert and the surrounding area, only one major Clovis occupation site is known, at China Lake (Davis 1973).

The following periods are generally defined by marker artifacts, primarily projectile points that are thought to be temporally sensitive. These projectile points represent three major weapons systems: thrusting spears, atlatls, and the bow and arrow. It is clear that thrusting spears remained in the cultural inventory of native peoples until historical times, thus perhaps diminishing their utility as temporal markers. The following traditional view of Holocene chronological periods is presented to provide some background in which to place the materials from the western Mojave Desert.

Following the Paleoindian Period is the Lake Mojave Period, which is characterized by more generalized remains that often fall under the broad designation of the Western Lithic Co-tradition (Davis et al. 1969) or the Western Pluvial Lakes Tradition (Bedwell 1970). The Lake Mojave Period is associated with the Early Holocene occupation of lakeside environments. The hallmark artifacts of this period are Lake Mojave or Silver Lake projectile points found in association with old lakeshores. Hunting and lacustrine resources presumably formed the subsistence base. A number of Lake Mojave Period sites are known from the shore of Pleistocene Lake Mojave and its general vicinity (e.g., Davis 1973).

The Pinto Period follows the Lake Mojave Period and is signified by the presence of Pinto series projectile points (see Basgall 1993; Harrington 1957; Jenkins and Warren 1986). The Pinto Period reflects an occupation of the desert after the desiccation of the Pleistocene lakes and presumably is associated with the use of stream and spring habitats. The Pinto Period appears to be a broadly generalized cultural pattern believed to have developed in response to this desiccation. It is possible that the Pinto Period developed directly from Lake Mojave times at the end of the Pleistocene, ushering in the Archaic in the Mojave Desert.

The Gypsum Period is marked by the presence of Elko series projectile points (dart points), although Humboldt Concave Base points also occur (e.g., Yohe 1992). Very little is known regarding the subsistence or social organization of Gypsum Period populations, as few sites dating to this period have been reported. While the early part of the Gypsum Period represented a somewhat cooler and wetter time in the desert, the latter part of the period became increasingly arid. Thus, the early Gypsum Period seems to have witnessed increased population and sociopolitical complexity, while the later Gypsum Period signaled a downturn in population (Sutton 1990, 1996).

Sites dating to the Rose Spring period are common in the western Mojave Desert (see Wallace and Taylor 1959; Sutton 1988, 1990, 1991). Rose Spring projectile points appear to reflect the emergence of the bow and arrow in the area, replacing dart points used in conjunction with the atlatl. Other common artifacts recovered from Rose Spring sites include knives, drills, stone pipes, bone awls, a wide variety of milling equipment, marine shell artifacts, and large quantities of obsidian (Sutton 1996:237; Warren and Crabtree 1986:191). The Rose Spring Period is thought to represent a return to more mesic conditions, with settlement and subsistence believed to have been focused on lacustrine resources (Sutton 1990, 1991).

The Late Prehistoric Period (Warren's [1984:424] Protohistoric Period) is characterized by Desert series (Desert Side-notched and Cottonwood) projectile points (arrow points). This period presumably reflects the late prehistory of the ethnographic groups inhabiting the region. A number of sites from this time period have been excavated (see Rector et al. 1983; Schneider 1989; Sutton 1988, 1991; Whitley et al. 1988; Yohe 1992). Other than projectile points, Late Prehistoric Period artifact assemblages have consisted of brown ware ceramics, shell and steatite beads, slate pendants, incised stones, and a variety of milling stones (Sutton 1990; Warren and Crabtree 1986).

7.0 ETHNOGRAPHY

The Study Area is located in the eastern portion of Kern County, which most likely was occupied in part by the Kawaiisu and the Western Shoshone. While the Kawaiisu's core territory was located further west, near the present-day Tehachapi, it is very likely that the seasonal range of the Kawaiisu extended as far east as the Amargosa River (Zigmond 1986). Conversely, the core territory of the Western Shoshone was located in central Nevada, however, seasonal trips of the Western Shoshone extended as far west as Little Lake and potentially Indian Wells Valley (Hurst et al. 1986).

Both groups spoke languages in the Numic subfamily of the Uto-Aztecan linguistic family, widespread throughout the Great Basin (Miller 1986). Aboriginally, the Shoshone were hunters and gatherers who practiced a seasonal round during which they collected various plant food resources as they became available throughout their territory. The basic social and economic unit was the family, and kinship was bilateral. Several groups would congregate in winter villages located on the valley floor near a spring or at the mouth of a canyon with a reliable stream for water, or in the pinyon-juniper belt of the mountains. During the winter, people subsisted on stored food such as pine nuts and seed collected the previous season, supplemented by small game.

In the spring when stored food had been exhausted, individual families traveled alone or in small groups over a foraging territory up to 20 miles from the winter village, collecting various seeds and other plant resources as they became available. In April some families moved to Haiwee Springs and Hugwata where they spent 1-2 months finishing up any stored seeds and gathering greens.

The annual round of food gathering varied in different ways. Mountain sheep might be hunted by individuals in the Koso Mountains or the Sierra Nevada and deer in the Sierra Nevada. Fish were taken in Rose Valley and with poison in Little Lake (Steward 1938). In the fall, people moved to mountain encampments to harvest pine nuts, meet with other family members for festivals and ceremonial activities, and conduct communal hunts for larger game, such as pronghorn antelope (Irwin 1980; Steward 1938: 84-85). Pronghorn were available in large numbers and generally were driven by 8 or 10 men into a brush corral built of juniper posts spaced approximately 20 feet apart and covered in brush. The corral had a wide opening but no wings. As the animals gathered around inside, archers stationed between the posts shot them (Steward 1938:82).

As stated above, the Kawaiisu core area during the ethnohistoric period was located in the Tehachapi and Paiute mountains in the Sierra Nevada, along a low mountainous ridge that separates the southern San Joaquin Valley from the Mojave Desert. Ethnographic evidence indicates that the Kawaiisu made trips into the San Joaquin Valley, Mojave Desert, Panamint Valley, and Death Valley. This area encompassed diverse habitats that offered a wide variety of faunal and botanical resources (Zigmond 1986:398).

Kawaiisu subsistence activities included the hunting of animals, the processing of plants, and fishing. Bow and arrows were used for hunting mammals and birds. Bows were often made of juniper wood, while bowstrings were made of sinew. Other methods of hunting included the use of nets, traps, and deadfalls. Plant processing was a primary activity for the Kawaiisu, as they utilized over 233 plant species. Plant processing activities included pounding and grinding, leeching, boiling, drying, and roasting. Bedrock mortars and pestles, along with portable manos and metates, were used to grind foods. Zigmond (1986) stated that that it was not necessary for the Kawaiisu to travel frequently out of their core area due to their reliance on acorns, of which seven species could be found within their territorial area.

8.0 HISTORICAL BACKGROUND

The first documented exploration of the Mojave Desert by nonindigenous peoples took place by at least 1771 with the establishment of Mission San Gabriel, followed in 1772 by Pedro Fages during one of his expeditions (Bean and Smith 1978:573). Early European travelers through the Mojave Desert generally followed existing Indian trails as the native people "had already done the mental and pedal engineering to find the best natural routes" (Haenszel 1972:32). One of the main routes was the Mojave Trail, although by the early nineteenth century the more accessible Cajon Pass corridor was being used (Carrico et al. 1982:4-107).

In the early nineteenth century, fur trappers and caravans crossed the desert. Jedediah Smith led the way in 1826, followed by other mountain men such as Ewing Young in 1829, both of whom followed the Mojave Indian Trail (Warren and Roske 1980:201). Antonio Armijo has been credited with leading the first caravan of pack animals across the Mojave Desert in 1830 (Bureau of Land Management 2005). Traders used the old Spanish Trail in the 1830s, while other groups used the trail during Mexican control of the desert. These included Don Jose Aveita's commercial caravan in 1833-1834, Jacob P. Leese in 1834, William Slover and Isaac Pope in 1837, and Jose Antonio Salazar in 1839-1840 (Bureau of Land Management 2005). John C. Fremont, a lieutenant in the U.S. Army Corps of Topographical Engineers, described his survey and travels in 1844 along a variant route (Warren and Roske 1980:201).

Little archaeological research has been conducted documenting European impacts on the native peoples of this region during the protohistoric and ethnohistoric periods (but see Haenszel 1957; Hicks 1958). Between then and secularization in 1834, many of the native peoples were forcibly removed to the missions (Beattie and Beattie 1939:366), after which too few remained to reestablish their native ways of life. The influx of white settlers was culminated by the annexation of California by the United States in 1848, as well as the discovery of gold in the California hills. From that point on, the gold rush ushered in a massive deluge of white settlers, prospectors, and gold-seekers. The California Gold Rush also contributed to pressure to establish railroad routes throughout the region; thus, railroad surveys began in 1853 with Lieutenant Amiel Weeks Whipple and Lieutenant Robert Stockton conducting surveys in the Mojave Desert (Bureau of Land Management 2005).

As settlers poured into the state, the indigenous populations quickly abandoned their lifeways. Due to this pressure, Native Americans began raiding local settlements and encampments for livestock, food, and other vital supplies. To protect the encroaching settlers against raiding Paiutes, Chemehuevi, Mojave, Shoshone, and other Indian groups, the U.S. Army constructed several military installations throughout the state, including Fort Tejon (1854), Camp Babbit (1862), and Camp Independence (1862) (American Forts Network 2003). In 1859, Fort Piute was built to protect travel routes throughout the desert. In 1860, Fort Cady was established on the Mojave River, approximately 20 miles east of present-day Barstow. The encampment was called Camp Cady after Major Albemarle Cady, 6th Infantry, then in command of Fort Yuma. The fort waged a campaign against the Paiutes and Shoshones and was eventually abandoned on April 24, 1871 (Hart 2005).

8.1 The Early Twentieth Century

Ranching and agricultural operations that began at the turn of the twentieth century, as well as the ever-increasing population in southern California, created a need for more water than the land could provide. In some areas, small irrigation operations and canals were built to supply the necessary water. Between 1908 and 1913, the first Los Angeles Aqueduct was constructed to partially fulfill the need for water. In the early 1920s, the second Los Angeles Aqueduct was built between Owens Valley and Los Angeles to further supplement the need for water resources.

The development of automobile routes in the early part of the twentieth century increased in importance after World War II (Warren and Roske 1980:239), beginning a major transformation of the Mojave Desert. In 1914, a road was constructed that paralleled the Atlantic & Pacific Railroad. This road was the precursor of U.S. Route 66 (Bureau of Land Management 2005), which is located just south of Troy Dry Lake, approximately 40 miles south of the Study Area. As a result, railroads and roads became the lifeline of the desert communities, the main employers, and an indispensable link across the continent.

8.2 Indian Wells Valley

The development within Indian Wells Valley at the turn of the 20-century was relatively slow. In 1912, a small farming community honoring James and Robert Crum, was formed, and the first local post office opened in 1941. By 1941, the farming community had grown to 115 homes and 196 residents. Two years later, in November 1943, Naval Ordnance Test Station, a pre-cursor to the present Naval Air Weapons Station at China Lake was established. In 1963 Ridgecrest was incorporated and with the steady flow of jobs and military tech industries flourished through the 1970s and 1980s. Currently, Ridgecrest is the third largest city in Kern County with a population of 28,880 (US Census Bureau 2017).

8.3 Refuse Disposal and Incineration in Kern County

Burning solid waste under controlled conditions is not a modern idea. In the 1700s waste paper was used for heating and cooking and used vegetable oils were used in lamps for illumination. However, refuse was not a problem for centuries, at least not until the urban growth of the late 19th and early 20th century. Gia (2016) in his article on refuse disposal in Bakersfield and Kern County between 1872 and 1992 cites an excerpt from the Bakersfield Californian from June 10, 1913 that reads “a village may find a dumping place for its garbage, and though it is an unsightly and the practice unsanitary, it all passes with little criticism, but a city of 20,000 inhabitants situated in the center of a rich and populous section can hardly be disposing its refuse in that manner without offending both sight and smell, and certainly the danger to health is always a pressing question when the garbage of a city is left charred and uncovered by the roadside.”

At the turn of the 20th century as the US cities experienced its first surge of urban growth, disposal of refuse became an issue. In Bakersfield, municipal control over refuse disposal came with Bakersfield’s incorporation in 1898, where all garbage, trash and debris were to be hauled off to a nearby Reeder’s Lake (Gia 2016). However, as the cities grew, nearby disposal sites were being displaced, which resulted in longer hauling distance to more distant disposal sites. With the lack of transfer technology and non-compacting collection vehicles, long distance hauling was not practical, therefore another method was needed. Refuse incineration filled that need (Hickman 2001). In 1915 in Bakersfield, the City Council suggested that a garbage crematory be installed to address "one of the crying needs of Bakersfield" (Gia 2016). However, in the same year complaints about "not the dumping of the filth, but the smoke from burning the filth" were prevalent. In the same year, A.J. Busby wrote an article in the Bakersfield Californian and was convinced that the high-temperature burning of waste was in Bakersfield's future and proposed that a suitable place for garbage disposal be found far enough away that its subsequent burning will not be a nuisance to the public (Gia 2016).

Not surprisingly burning of refuse became a standard practice of disposal in municipal incinerators and open pits, generally located on the outskirts of a city or community. In Los Angeles for instance, homeowners and landlords had been allowed to burn their refuse since they turn of the century; however, by 1940s an ordinance was passed limiting burning of refuse between 6 am and 9 am only (Holland 2014). However, by 1950s, all backyard incinerators were prohibited from use due to smell and increasing smog in the Los Angeles.

By the 1950s, the County of Kern operated three dumps near Bakersfield: 1) the Greenfield Dump, 2) the Rosedale Dump, and 3) the China Grade Dump, and while they were located outside of town, prevailing breezes usually blew smoke, odor and flies away from town, but when the winds changed the local residents suffered. Gia (2016) stated that in 1961 the City of Bakersfield operated a sanitary landfill; however, all county dumps burned refuse. By 1969 Kern County residents threw away an average of 4.6 pounds of refuse a day, which equaled about one ton per person per year, for a total of 1,250,000 cubic yards of burning garbage. The repeated burning of garbage not only in Kern County but throughout the US created an ad-hoc movement geared at improving air quality and eventually prompted the state to create a framework for local air-pollution control districts. That summer the Kern County Air Quality Committee was established and one of its first proposals was the closure of all burn dumps in Kern County.

9.0 METHODOLOGY

Archaeological investigations reported herein consisted of a Class III archaeological study, which included an archival records search, and an intensive pedestrian survey of the entire 42.5-acre APE. Provided below is the methodology used during the current study.

9.1 Records Search

A records search of the Study Area was conducted by Stantec archaeologist Sandra Speas at the SSJVIC on August 31, 2018. The search entailed a review of all previously recorded prehistoric and historic archaeological sites, as well as a review of all known cultural resources survey reports, excavation reports, and regional overviews within the Study Area.

Results of the records search indicated that one positive cultural resources survey (Wickstrom 2006) was previously conducted within portions of the current APE. Additionally, two negative (Laylander 1995; Young 1977) and four positive (Berg 1993; Burke 1998; Oxendine 1989; Hall 1992) cultural resource surveys have been previously conducted within the Study Area, but outside the APE (Table 1). Summary of cultural resource studies previously conducted within the APE is provided below.

Wickstrom (2006) conducted an archaeological survey as part of the environmental studies for the proposed Inyokern Four Lane Project in eastern Kern County. The project intended to provide congestion relief and improve operational safety along portion of US Highway 395 (US 395) by increasing the highway capacity from two to four traffic lane. The survey was conducted along an 8-mile long segment of US 395 and resulted in the identification and recordation of nine historic period resources. While none of the resources documented by Wickstrom (2006) are within the current APE, two of those resources were documented within the Study Area and one resource was documented immediately adjacent to the current APE and is discussed in the text below.

TABLE 1
SUMMARY OF CULTURAL RESOURCE STUDIES PREVIOUSLY CONDUCTED WITHIN THE STUDY AREA.

Author	Year	Level of Investigation	Results	Report Reference No.
Berg, J.	1993	Survey	Positive	KE-00289
Burke, T.	1998	Survey	Positive	KE-02553
Laylander, D.	1995	Survey	Negative	KE-00572
Oxendine, J.	1989	Survey	Positive	KE-01868
Hall, M.	1992	Survey	Positive	KE-02188
Wickstrom, B.	2006	Survey	Positive	KE-03497
Young, D.	1977	Survey	Negative	KE-01762

**study conducted within portions of the current APE*

The results of the records search indicated that one historic period resource was previously documented immediately adjacent to the current APE, and eight resources (all historic), including an isolated find, were previously recorded within the Study Area (Table 2).

TABLE 2
KNOWN CULTURAL RESOURCES PREVIOUSLY DOCUMENTED WITHIN THE CURRENT STUDY AREA.

Quad	Primary No.	Trinomial	Component	Description
Ridgecrest South	15-002050	CA-KER-2050H	Historic	Southern Pacific Railroad
Ridgecrest South	15-012067	CA-KER6834H	Historic	Refuse deposit
Ridgecrest South	15-012069	CA-KER-6836H	Historic	Refuse deposit
Ridgecrest South	15-012070	CA-KER-6837H	Historic	Brown Road with associated refuse scatter
Ridgecrest South	15-014442	CA-KER-8076H	Historic	Refuse deposit
Ridgecrest South	15-014443	CA-KER-8077H	Historic	Refuse deposit
Ridgecrest South	15-014558[1]	CA-KER-8142H	Historic	Historic road alignment
Ridgecrest South	15-014854*	-	Historic	5-gallon drum
Ridgecrest South	15-019666	CA-KER-10757H	Historic	Mining prospects

*isolated find; [1]*adjacent to the current APE*

Resource CA-KER-6837H (P15-012070) is a historic period road alignment (Brown Road) first depicted on the 1915 Searles Lake, CA 60-minute topographic quadrangle. This particular resource provides a route between Inyokern and Rademacher Siding on the Mojave-Owenyo Line of the Southern Pacific Railroad. The resource was initially documented by Wickstrom (2006) and was subsequently updated by Millett and Glover (2010) to include a small refuse deposit identified along Brown Road and possibly associated with the construction of the Mojave-Owenyo Line, which passes to the west. The refuse deposit associated with Brown Road was documented approximately 2 miles west of the current APE.

As part of the archival research at the SSJVIC, the following sources were consulted: the California Archaeological Inventory Records, NRHP, California Historic Landmark Registry, California Points of Historical Interest, Inventory of Historic Structures, and Historical Landmarks for Kern County.

Additionally, the following topographic quadrangles were examined for the presence of historic period features within the current APE: Searles Lake, CA (1915), Trona, CA (1948), Ridgecrest, CA (1953) 60-minutes USGS topographic quadrangles, and the Ridgecrest South, CA (1973) 7.5-minutes USGS topographic quadrangle.

9.2 Native American Notification/Sacred Lands File Search

The 1992 Amendments to the NHPA require all Federal agencies to consult with Indian Tribes or Native Hawaiian organizations for undertakings which may affect properties of traditional religious and cultural significance on or off Tribal lands. The Section 106 regulations (36 CFR 800) implementing the NHPA were revised on January 11, 2001 to reflect this change. Section 36 CFR 800.2(c)(2)(ii)(A) states that "the agency official shall ensure that consultation in the Section 106 process provides the Indian Tribe or Native Hawaiian organization a reasonable opportunity to identify its concerns about historic properties, including those of traditional religious and cultural importance, articulate its views on the undertaking's effects on such properties, and participate in the resolution of adverse effects." Additionally, California Public Resources Code Sections 5097.94(a) and 5097.96 authorize the NAHC in Sacramento to hold records of Native American (NA) sacred sites and burial sites. The NAHC also holds records of individuals that have particular expertise and knowledge in Native American resources.

However, per stipulations and requirements listed in Stantec's BLM Permit CA-18-23 and directions from the BLM on previous projects, Stantec did not consult with NA groups and individuals, nor did Stantec request Sacred Land Files search with the NAHC as part of this project. Results from any NA consultation that may pertain to this particular project may be available from the Ridgecrest BLM in Ridgecrest, California.

9.3 Field Methods

A pedestrian survey of the entire 42.5-acre APE was conducted on September 6, 2018, by Stantec archaeologist Hubert Switalski. The survey was conducted by walking east-west transects spaced between 10 and 15 meters apart. Stantec examined surface and subsurface exposures such as rodent burrows, cut banks, road cuts, and erosional features for physical manifestations of human activity greater than 45 years in age. Documentation and inventory standards followed BLM guidelines for documenting cultural resources listed in Stantec's BLM Permit.

The extent of the survey coverage was recorded with a Trimble Juno 5, hand-held GPS unit, with 2 to 4-meter horizontal accuracy, with the Universal Transverse Mercator (UTM), North American Datum of 1983 (NAD 83), Zone 10, meters, as the spatial reference. Photographs were taken with a Canon PowerShot A530 digital camera and Nexus 5X cellular phone to document the environment within the APE and surrounding areas. The extent of the survey coverage was also drawn on the Ridgecrest South, CA (1973) USGS 7.5-minute series topographic quadrangle (see Figure 2).

10.0 SURVEY RESULTS

Stantec conducted an intensive pedestrian survey of the entire 42.5-acre APE on September 6, 2018. The survey was conducted on a bright and sunny day, with excellent visibility and temperature of approximately 85°F, which reached high 90s at midday. The survey started along the existing fence line delineating the disposal site's northernmost boundary and proceeded in the east-west direction (Figure 3). The initial transects followed the 30-meter wide buffer around the perimeter of the disposal facility and once completed, east-west transects spaced 10-15 meters apart were walked within the disposal facility. Extreme care was taken crossing existing berms and trenches with exposed household refuse as the ground surface was littered with highly fragments glass fragments, and associated household refuse (Figure 4). As the survey continued, three large berms were observed in the western portion of the disposal facility with numerous pot holes of various sizes and depths suggesting recent scavenging activities. The ground surface between the three trenches was littered with fragmented glass of various colors and sizes, broken and whole glass bottles, metal debris, fragments of concrete, drywall, wood, and ash. As anticipated, the majority of the glass and refuse identified within the disposal facility exhibited evidence of burning with a large number of glass heavily deformed and discolored (Figure 5).

Figure 3. Overview of the APE taken within the Ridgecrest Burn Disposal Site, view southwest (Stantec IMG_5509). Photo taken on September 6, 2018.

Figure 4. Overview of the APE with Berm 1 in foreground, view northwest (Stantec IMG_5523). Photo taken on September 6, 2018.

Once the disposal facility and the surrounding area was examined for cultural resources, the survey continued on the east side of an existing access road, between US 395 to the north and the disposal facility to the south. This portion of the APE was surveyed to account for possible road widening or other maintenance work that may be performed and require prior to the closure of the disposal facility. Once the east side of the access road was examined for cultural resources, the survey continued on the west side, towards the disposal facility.

The ground visibility, especially around the disposal facility and along the existing access road was excellent with 80-90% ground visibility. Ground visibility within the disposal facility was excellent, especially in the eastern portion and within the area identified as potential borrow pit for soil that will be used to cover the burned refuse. Vegetation within the APE consisted mostly of saltbush (*Atriplex* sp.) and creosote bush (*Larrea tridentate*) and slope of less than 3°. The survey did not identify any additional resources; however, as the Ridgecrest Burn Disposal Site was an active refuse disposal facility in operation between 1962 and 1969 it was recorded as a historic period dump site. The reason for documentation was two-fold: 1) to document a known disposal site which is more than 50 years of age; and 2) to provide data regarding its location and extent in relation to other refuse deposit previously recorded in the vicinity or refuse deposits that could be identified and recorded in the future, which may represent eroding refuse from the Ridgecrest Burn Disposal Site, or isolated and unauthorized dumping events that may have occurred and subsequently may have eroded away from the disposal site.

Figure 5. Overview of surface material identified along the easternmost refuse berm, view northeast (Stantec IMG_4539). Photo taken on September 6, 2018.

11.0 NEW RESOURCES

As a result of archaeological investigations presented herein, one new resource was identified and documented (Table 3). The newly identified resource was recorded on California Department of Parks and Recreation Historical Resource Record forms (series DPR 523 1/95), including Primary and/or Archaeological Site Record forms appropriate for all such resources. Recordation adhered to the *Instructions for Recording Historical Resources* (Office of Historic Preservation 1995). A brief summary of the newly documented resource identified during the current study is provided below.

TABLE 3
SUMMARY OF CULTURAL RESOURCES IDENTIFIED WITHIN THE CURRENT APE.

Quad	Temp. No.	Primary No.	Trinomial	Description
Ridgecrest South	Ridgecrest Burn Disposal Site	-	-	Ridgecrest Burn Disposal Site (1962-1969)

11.1 Resource Ridgecrest Burn Disposal Site

Ridgecrest Burn Disposal Site is a historic period burn dump maintained and operated by the KCPWD and was open to the public and small commercial businesses between 1962 and 1969. The resource measures approximately 320 meters (E-W) by 200 meters (N-S) and it is confined to parcel APN 511-020-03. Based on data gathered in the field it appears that the waste was dumped into three parallel disposal trenches trending northeast to northwest, which were covered in soil creating three elongated berms or mounds, with each berm measuring approximately 20 meters (60 feet) wide and (200 meters) 630 feet long. An existing access road (currently BLM open route EP0237) connects the disposal site with the nearby Brown Road and US 395. Portions of paved roadway are still visible in the northeast portion of the disposal site. Aside from the three berms, light to moderate refuse can be found within the fenced off portion of the disposal site and along the site's northernmost boundary, which appears to be intersected by an ephemeral drainage. A light refuse deposit most likely associated with the disposal site, and representing a single dumping event, was identified approximately 100 meters (350 feet) north of the site and west of the access road.

Artifacts within the Ridgecrest Dump site are predominantly glass of various sizes and colors representing domestic or household refuse from the 1960s. Disposal data for the Ridgecrest Burn Dump suggests that household items accounted for 39.8% of the overall refuse, with yard rubbish at 30.9%, commercial refuse at 10.4%, bottles/cans/metals at 13.6%, and other refuse at 5.3% (CEW 1991). As the primary method for refuse disposal and reduction included incineration, most of the artifacts identified on surface include highly fragmented household glass items of various colors and sizes, most of which also exhibit high discoloration and deformation due to high heat. Very few items appear to retain their original shape and size; however, several large pot holes and shovel excavated pits suggest that this is a popular destination for local bottle collectors.

12.0 DISCUSSION AND HISTORICAL CONTEXT

Domestic refuse deposits are commonly encountered type of historic-era archaeological features particularly in an environment exhibiting a prolonged occupation by Euro-Americans since the late 19th century. The scale and extent of refuse deposits can vary, and in many cases depend on the length of human use at any given locality. In particular, such features are common in areas inhabited prior to the advent of municipal garbage collection in the late 19th century, when the residents would often dispose of garbage in pits or as sheet refuse on or near their properties. This is particularly characteristic of refuse deposits associated with emerging towns and cities, construction camps, historic homesteads, and short-lived mining boom-towns. Generally, the artifacts recovered from the refuse deposit features broadly date the site, however, the artifacts themselves can reveal very little about the people who discarded them or the historical character of the individual or the cultural, ethnic, or economic status within a larger community. This is most likely due to the fact that any context and relationship between an individual and any discarded items is lost, and only general hypotheses and statements can be drawn at best.

The newly documented Ridgecrest Burn Disposal Site represents a County operated disposal facility, where the main method for refuse reduction was incineration. This method of refuse reduction was very typical during the 1950 and 1960s; however, concerns with air pollution and the smell, led to their closure in the late 1960s. The documented resource appears to represent very typical refuse disposal site; however, aside from its operation period from 1962 to 1969, very little in terms of archaeological knowledge or research potential can be further extracted. Waste characterization of the Ridgecrest Burn Dump suggests that almost 40% of the refuse included household items and 13.6% included bottles, cans, and metals, items from which general hypothesis regarding some aspects of human behavior could be drawn. However, aside from the statement that the site was used by residents of the surrounding area and small commercial users, it is unknown, where the majority of the refuse came from. More importantly, majority of the refuse was incinerated, therefore, further diminishing its research potential. While the Ridgecrest Burn Dump represents past human activity, which occurred more than 50 years ago, it appears to be a typical refuse burn site lacking any substantial context or integrity that could contribute to our understanding of human lifeways or human occupation in Kern County, Ridgecrest, and/or the surrounding desert areas of the early 1950s and 60s.

13.0 RECOMMENDATIONS

As part of the current archaeological study 42.5 acres of land were inventoried to identify cultural resources within the current APE. The survey resulted in the documentation of a historic period burn disposal site that was operated by the County of Kern between 1962 and 1969. Based on archival research and data gathered in the field, it appears that the newly documented resource had lost most of its integrity and did not retain sufficient research potential to individually qualify for the inclusion to the NHRP.

While the resource is more than 50 years old, it is not eligible under Criterion A, as it is not associated with any events that have made a significant contribution to the broad patterns of our history, nor does it qualify under Criterion B, as it is not associated with the lives of persons significant in our past. Furthermore, the resource does not qualify under Criterion C as it represents a very typical refuse burn disposal site and it does not embody any distinctive characteristics of a type or period, nor does it qualify under Criterion D, as it is unlikely to yield any information important to our history. Thus, based on the analysis of this study it is recommended that a determination of “No Historic Properties Affected” (36 CFR §800.4) for the proposed undertaking be made.

The methods and techniques used by Stantec are considered sufficient for the identification and evaluation of cultural resources visible at the ground surface. However, there is always a possibility that buried archaeological deposits could be found during construction and earth disturbing activities. In the event that cultural resources are encountered during construction activities, all work must stop, and the BLM archaeologist(s) shall be contacted immediately. Further, in the event that any human remains are encountered, or in the event that unassociated funerary objects or grave goods are discovered, work in the immediate (within 200 ft.) vicinity of the discovery shall cease other than non-disturbing documentation. The BLM archaeologist(s) shall be contacted immediately in order to comply with applicable State laws, NAGPRA as outlined at 43 CFR 10, and ARPA 43 CFR 7, and to determine the appropriate course of action as outlined in the BLM CA guidelines for discovery of human remains (BLM CA 2012).

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APPENDIX A – SITE RECORDS (DPR FORM 523)

Stantec

State of California — The Resources Agency DEPARTMENT OF PARKS AND RECREATION **PRIMARY RECORD**		Primary # HRI # Trinomial NRHP Status Code
Other Listings Review Code	Reviewer	Date

 ***Resource Name or #:** Ridgecrest Burn Disposal Site

P1. Other Identifier:

***P2. Location:** ■**Not for Publication** ☐ **Unrestricted** ***a. County:** Kern
and (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** Ridgecrest South, CA **Date:** 1973 W½ of **Section** 31, **Township**: 27 South, **Range**: 40 East**; S.B.B.M.**

c. Address: City: Zip:

d. UTM: NAD83 CONUS, Zone: 11S; (N) 435100mE / 3933828mN; (S) 435100mE / 3933626mN; (W) 434853mE / 3933731mN; (E) 435250mE / 3933728mN.

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) From the intersection of Ridgecrest Blvd. and South China Lake Blvd. in Ridgcrest proceed south on China Lake Blvd for approximately 6.0 miles. At the intersection of Highway 395, continue south onto Brown Road for approximately 500 feet, and turn left (southeast) onto BLM open route EP0237 and follow this unpaved route for approximately 0.25 miles. The Ridgecrest Burn Disposal Site is located west of the BLM Route EP0237 and it is surrounded by recently installed chain link fence.

***P3a. Description:** Ridgecrest Burn Disposal Site is a historic period burn dump maintained and operated by the KCPWD and was open to the public and small commercial businesses between 1962 and 1969. The resource measures approximately 320 meters (E-W) by 200 meters (N-S) and it is confined to parcel APN 511-020-03. Based on data gathered in the field it appears that the waste was dumped into three parallel disposal trenches trending northeast to northwest, which were covered in soil creating three elongated berms or mounds, with each berm measuring approximately 60 feet (20 meters) wide and 630 feet (200 meters) long. An existing access road (currently BLM open route EP0237) connects the disposal site with the nearby Brown Road and US 395. Portions of paved roadway are still visible in the northeast portion of the disposal site. Aside from the three berms, light to moderate refuse can be found within the fenced off portion of the disposal site and along the site's northernmost boundary, which appears to be intersected by an ephemeral drainage. A light refuse deposit most likely associated with the disposal site, and representing a single dumping event, was identified approximately 100 meters (350 feet) north of the site and west of the access road.

***P3b. Resource Attributes:** AH4 Dump/Refuse scatter

***P4. Resources Present:** ☐Building ☐Structure ☐Object ■Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5b. Description of Photo: Overview of the Ridgecrest Burn Disposal Site taken from the NW corner of the dump (Stantec IMG_2352).

***P6. Date Constructed/Age and Sources:** ■Historic ☐Prehistoric ☐Both

***P7. Owner and Address:**
Bureau of Land Management
Ridgecrest Field Office
300 South Richmond Road
Ridgecrest, CA 93555

***P8. Recorded by:**
Hubert Switalski
Stantec Consulting Services, Inc.
5500 Ming Ave., Suite 300
Bakersfield, CA 93309-4627

***P9. Date Recorded:** 9/6/2018

***P10. Survey Type:** Class III archaeological survey.

***P11. Report Citation:** Switalski, H., and V. Harvey. 2018. *A Class III Archaeological Survey of 42.5 Acres of Land for the Proposed Closure of the Ridgecrest Burn Disposal Site, Near Ridgecrest, Kern County, California.*

***Attachments:** ☐NONE ■Location Map ■Sketch Map ■Continuation Sheet ☐Building, Structure, and Object Record ■Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

***A1. Dimensions: a. Length** 1,050 feet (E-W) **b. Width** 660 feet (N-S)

Method of Measurement: ☐ Paced ☐ Taped ☐ Visual estimate ■ Other: Parcel data was captured with Trimble Juno 5 hand-held GPS unit and aerial imagery

Method of Determination (Check any that apply.): ■Artifacts ■Features ☐ Soil ☐ Vegetation ☐ Topography ☐ Cut bank ☐ Animal burrow ☐ Excavation ■Property boundary ☐ Other (Explain):

Reliability of Determination: ■ High ☐Medium ☐ Low Explain: Excellent ground visibility around the site and aerial imagery were used to delineate the site's boundary.

Limitations (Check any that apply): ☐ Restricted access ☐ Paved/built over ☐ Site limits incompletely defined ☐ Disturbances ☐ Vegetation ■ Other (Explain): None

A2. Depth: Based on data obtained from Converse Environmental West (CEW) (1991) the depth of the buried refuse deposit is approximately 14 feet.

***A3. Human Remains:** ☐ Present ☐ Absent ☐ Possible ■ Unknown (Explain): Unlikely given the site type and function

***A4. Features:** Based on archival research and field observations it appears that the waste was dumped into three parallel disposal trenches trending northeast to southwest, which were covered with soil creating three elongated berms or mounds. Each berm is approximately 60 feet wide and approximately 630 feet long.

***A5. Cultural Constituents:** Artifacts within the Ridgecrest Dump site are predominantly glass of various sizes and colors representing domestic or household refuse from the 1960s. Disposal data for the Ridgecrest Burn Dump suggests that household items accounted for 39.8% of the overall refuse, with yard rubbish at 30.9%, commercial refuse at 10.4%, bottles/cans/metals at 13.6%, and other refuse at 5.3% (CEW 1991). As the primary method for refuse disposal and reduction included incineration, most of the artifacts identified on surface include highly fragmented household glass items of various colors and sizes, most of which also exhibit high discoloration and deformation due to high heat.

***A6. Were Specimens Collected?** ■ No ☐ Yes

***A7. Site Condition:** ☐ Good ☐Fair ■Poor: The primary method of refuse reduction at the Ridgecrest Burn Disposal Site was incineration; therefore, the majority of artifacts encountered on site have been extensively burned and as a result are either fragmented, burned, or the combination of both. Additionally, several large pits excavated with hand tools suggest the site is known to local bottle/artifacts collectors.

***A8. Nearest Water:** An unnamed intermittent drainage/wash is located approximately 1.1 miles west of the site.

***A9. Elevation:** 2,850 to 2,900 feet

A10. Environmental Setting: The site is located in the Indian Wells Valley on the northern slopes of the El Paso Mountains. Vegetation within the Study Area and surrounding the site is very typical of the Mojave Desert and predominantly includes saltbush (*Atriplex* sp.) and creosote bush (*Larrea tridentate*). Slope < 3°. Aspect: N with open exposure.

A11. Historical Information: The Ridgecrest Burn Disposal Site was an active refuse disposal site between 1962 and 1969. The disposal site was predominantly used by residents of the surrounding area and some small commercial users. As stated above the refuse contained at the Ridgecrest Burn Disposal Site contains primarily household waste with glass items accounting for almost 40% of its assemblage. As the primary refuse reduction method was incineration, which was one of the standard practice of refuse disposal in the 1950s and 1960s in Kern County and in the US in general, the majority of the artifacts observed on site are highly fragmented, burned, or exhibit evidence of both. As refuse burn sites generally created a lot of smoke and stench associated with burning of refuse, by the late 1960s, an effort led at improving air quality prompted their closure.

***A12. Age:** ☐Prehistoric ☐ Protohistoric ☐ 1542-1769 ☐ 1769-1848 ☐ 1848-1880 ☐1880-1914 ☐1914-1945

A13. Interpretations: See (A14) Remarks.

***Resource Name or #:** Ridgecrest Burn Disposal Site

A14. Remarks: As indicated before the Ridgecrest Burn Disposal Site was active between 1962 and 1969 and was operated by the County of Kern Public Works Department (Waste Management) under a long term lease from the BLM. After its closure in 1969, a chain link fence was installed along the property to prohibit any additional dumping of refuse. However, during the survey surrounding the property several light refuse scatters were observed, most likely a single dumping events, with refuse dumped along the access road most likely after the site's closure. Additionally, some light refuse was observed along the northern and western boundary of the site, suggesting that run-off and erosion may have carried some of the deposits west and away from the site. Furthermore, it is plausible that some of the previously documented refuse deposits in close proximity to the Ridgecrest Burn Disposal Site (near the junction of present day US 395, Brown Road, and China Lake Blvd.) may represent single dumping events post-1969 that may have occurred after the disposal site was closed with local residents dumping refuse in close proximity to known disposal site.

A15. References:

Converse Environmental West (CEW)
1991. *Solid Waste Assessment Questionnaire, Ridgecrest Burning Dump.* Report on file at the Kern County Public Works Department, Bakersfield, California.

A16. Photographs: Original Media/Negatives Kept at: Digital files kept at Stantec Consulting Services, Inc., Bakersfield, CA

***A17. Form Prepared by:** Hubert Switalski **Date:** September 20, 2018
Affiliation and Address: Stantec Consulting Services, 5500 Ming Avenue, Suite 300, Bakersfield, CA 93309

Primary #
HRI#
Trinomial

 ***Resource Name or #** Ridgecrest Burn Disposal Site

***Recorded by:** Hubert Switalski ***Date:** 9/6/18 ■ Continuation □ Update

1. Overview of the northernmost berm (Berm 1) with household glass refuse exposed on surface, view southwest (Stantec IMG_0253).

2. Overview of glass refuse observed along Berm 1. Note the highly fragmented and burned glass items. (Stantec IMG_0436).

***Resource Name or #** Ridgecrest Burn Disposal Site

***Recorded by:** Hubert Switalski ***Date:** 9/6/18 ■ Continuation ☐ Update

3. Overview of the northernmost berm (Berm 1) with evidence of pot hunting as suggested by the recently excavated shovel pits, view northeast (Stantec IMG_2231).

4. Overview of glass refuse within a recently excavated shovel pit. Note the approximately 2-ft. deep layer of soil covering the burned refuse. (Stantec IMG_5242).

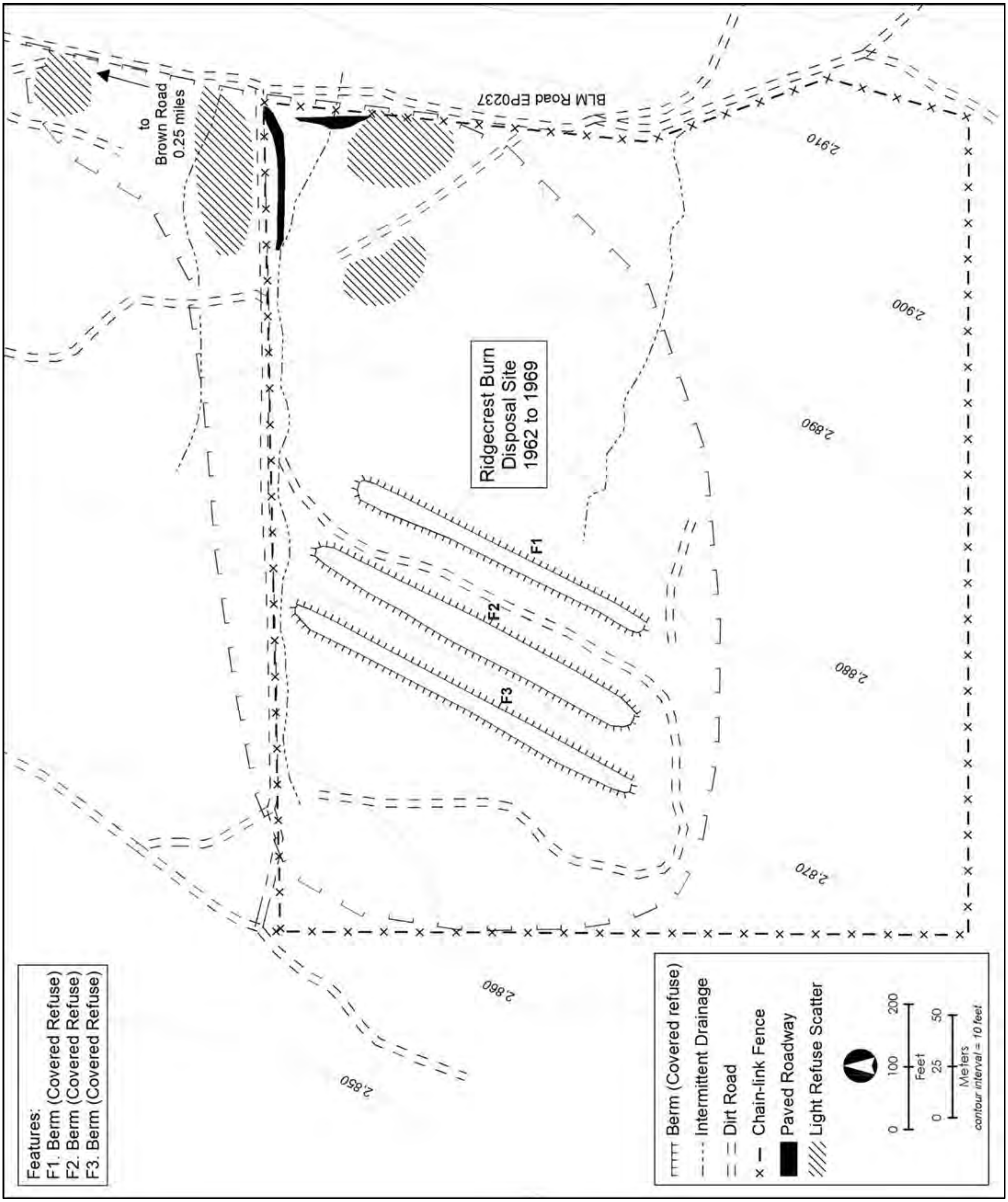
State of California— The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
SITE MAP

Primary #
HRI#
Trinomial

***Resource Name or #** Ridgecrest Burn Disposal Site

***Drawn By:** Hubert Switalski

***Date:** 9/6/18



*Required information

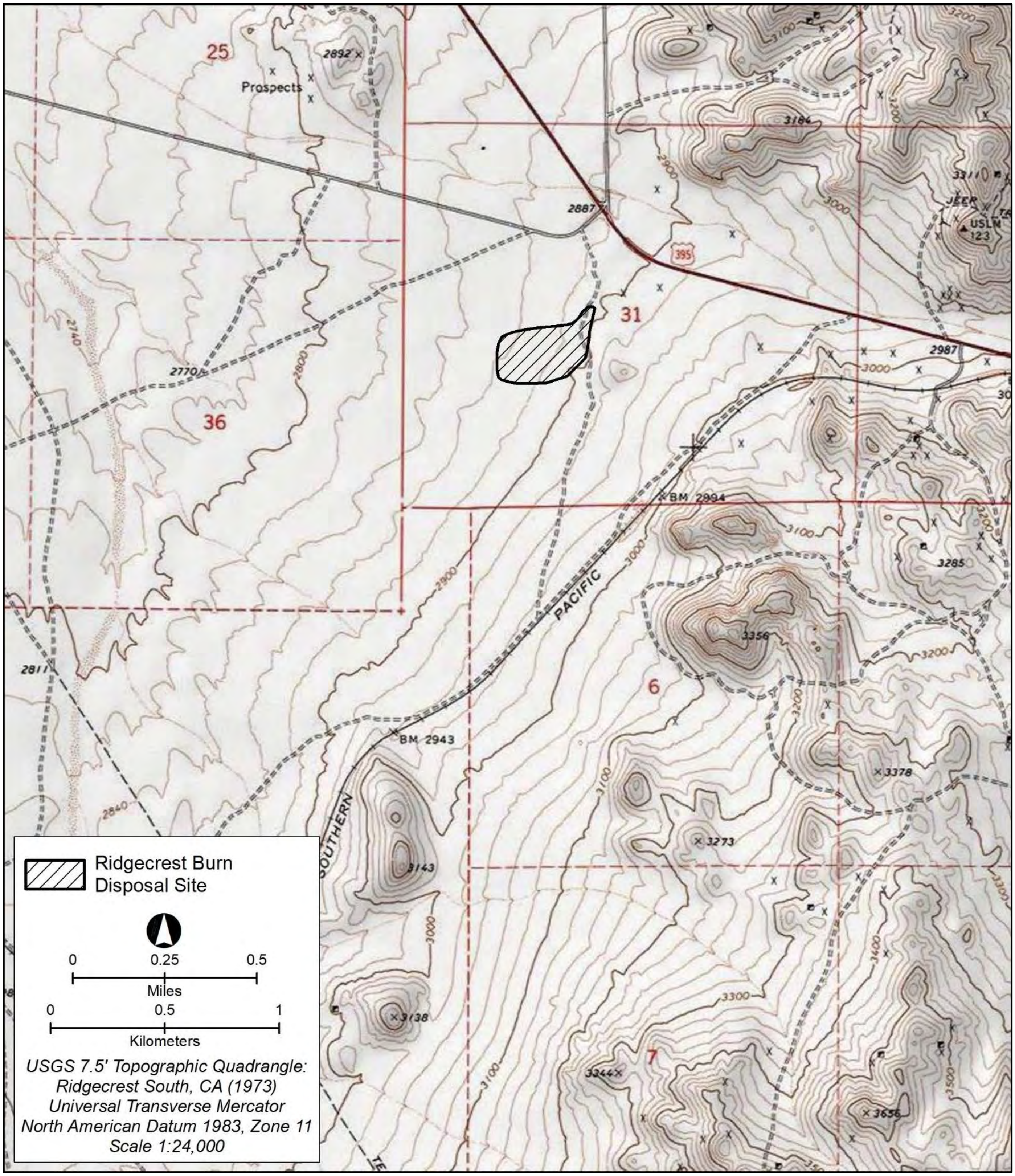
State Of California—The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

Primary #

Trinomial

***Resource Name or #:** Ridgecrest Burn Disposal Site

***Map Name:** Ridgecrest South ***Scale:** 1:24,000 ***Date of Map:** 1973



*Required information

APPENDIX F

Hydrology Study – Ridgecrest Burn Dump

Hydrology Study
Ridgecrest Burn Dump

South of the intersection of Highway 395 & Brown Road
Ridgecrest, Kern County, CA

Prepared By:
Cris Rosete
August 28th, 2018
Kern County Public Works Department
2700 “M” Street, Suite 500,
Bakersfield, California, 93301

Reviewed By:
Samuel D. Lux
Kern County Public Works Department
2700 “M” Street, Suite 500,
Bakersfield, California, 93301

TABLE OF CONTENTS

SECTION 1.0

INTRODUCTION

This calculation package was prepared to document the hydrologic analysis performed for the 100-year, 24-hour storm event for the Ridgecrest Burn Dump located in Ridgecrest California. This study was developed for the purpose of providing the Kern County Public Works Department staff with a guidance document that identifies adequate hydrologic design associated with the Ridgecrest Burn Dump. The contents of this study include descriptions of existing site conditions, future site development, hydrologic methods, and design criteria. Also provided are calculations and maps that graphically illustrate the drainage areas with respect to the final layout of the Ridgecrest Burn Dump. In general, this study will be used by the Kern County Public Works Department to coordinate and schedule the construction of drainage facilities. The hydrology analysis and sump design for the burn dump was based on the proper storm event per California Code of regulations Title 27 requirements. This study will also analyze the storage volume needed for the 100-year 24-hour rainfall off-site runoff that drains into the project site as well as any on-site runoff produced. Drainage maps can be found in the attached appendices. All on-site runoff produced by the final design that is leaving the project site will not negatively impact the natural surroundings.

Development of this study was accomplished through the acquisition and research of available rainfall data provided by the National Oceanic and Atmospheric Administration (NOAA) and available data provided by the Kern County Public Works Department.

The text is divided into three (3) primary sections (Sections 2.0 through 4.0). In general, Sections 2.0 and 3.0 provide existing site information and details regarding hydrologic design for Ridgecrest Burn Dump. Section 4.0 provides a listing of references used to develop this hydrologic study. Section 4.0 is followed by appendices that include the following: rainfall data, sump design criteria, soil loss calculation and information and drainage maps.

SECTION 2.0

SITE INFORMATION

2.1 SITE LOCATION

The Ridgecrest Burn Dump is identified by Kern County's Assessor's Parcel Number (APN) 511-020-03 and is located approximately 0.28 miles south of the intersection of Brown Road and Highway 395 near the community of Ridgecrest.

2.2 BURN DUMP INFORMATION

The property is owned by the US Bureau of Land Management (BLM). The site was open to the public for disposal of non-hazardous household waste from 1962 to 1969 according to the Solid Waste Assessment Questionnaire (SWAQ) prepared by Converse Environmental West for the County of Kern Department of Public Works dated January 8, 1991. Based on an investigation conducted at that time, Converse Environmental West estimated that the site contained no more than 15, 912 cubic yards of waste within a 2.7-Acre footprint divided among three, parallel northeast trending waste disposal trenches approximately 60 feet wide and 630 feet long. A recent study was completed by Ninyo & Moore under contract to CalRecycle and was dated on July 12, 2017. Based on the studies and report done by Ninyo & Moore it was noticed that:

- Waste at the site appeared to be located within three generally parallel, northeast trending waste disposal trenches.
- Waste disposal trenches are generally about 60 feet wide and 630 feet long, but some potential variability in trench width was noted.
- Exposed waste and evidence of scavenging was apparent and waste was scattered on the ground surface in some areas and on disturbed lands immediately to the east of the disposal trenches.
- Existing soil cover varied across the trenches and ranged from essentially no soil cover to as much as 10 inches thick.
- Waste materials encountered consisted of broken and melted glass, broken and whole glass bottles, metal debris, concrete and asphalt debris, drywall, wood, ash, and other miscellaneous materials; no hazardous waste was encountered or is anticipated.

Based off the data collected and summarized in the report completed by Ninyo & Moore, Kern County Public Works has chosen to cover the Entire Burn Dump area to meet state regulations and remediate any hazardous waste that has been exposed.

2.3 EXISTING DRAINAGE CONDITIONS

The Ridgecrest Burn Dump location currently consists of a watershed of approximately 154 acres that currently conveys water in the northwest direction through sheet flow and existing dirt channels. The watershed as shown in the attached appendices are divided into twelve sub-areas. Flows begin from the southeast mountains and are divided as it enters the project site from the east/southeast. The flows from the mountain side coming from the southeast is divided as it enters the project site. The northern half of the watershed draining into the project site flows through a natural dirt channel and continues to convey flow northwesterly until it is runs off-site. The channel runs diagonally and does not currently affect the existing burn dump area. The southern half of the watershed draining into the project site flows in the northwesterly direction and continues to sheet flow across the entire site until it leaves the site. All existing drainage that currently drains towards the Ridgecrest Burn Dump project site continues to flow in a northwesterly manner into existing drainage channels located off-site and nearby. The project site consists of mild brush throughout the site. Drainage from all other watersheds located southeast of the Ridgecrest Burn Dump drain around and away from the project limits.

SECTION 3.0

DESCRIPTION OF STUDY

3.1 METHODOLOGY

The hydrology analysis described herein were performed in accordance with the Kern County Hydrology Manual (Kern County, 1995), as modified by Engineering Bulletin 11-01 (Kern County, 2011). Specifically, the Rational and SCS methods described in the Kern County Hydrology Manual were used to estimate the peak flow rates for the 100-year, 24-hour storm event. Where applicable, values for hydrologic parameters (e.g., watershed curve number, Manning's n value, etc.) were applied for the design of the sump and drainage channel for the Ridgecrest Burn Dump. In accordance with Engineering Bulletin 11-01 (Kern County, 2011), point precipitation frequency estimates were based on National and Atmospheric Administration (NOAA) Atlas 14, Volume 6, Version 2 data. The SCS methodology was used in determining rainfall runoff values for the calculation of the sump capacity design. The rational method was used to calculate runoff and channel flow. Curve numbers and soil information played a controlling factor in calculating the 24-hour storm, rainfall runoff. The calculated rainfall runoff value was use to calculate the storage volume for the on-site sump. The rational method was referenced from the Kern County Hydrology Manual and values for the time of concentration, rainfall intensity, and "C" coefficient were all determined by the soil type, undeveloped cover "K", and longest drainage path. The downstream time of concentration was calculated using the initial time of concentration with the addition of the travel time to the following concentration point downstream. Rainfall intensities were determined using the rainfall intensity-duration chart for the Ridgecrest Burn Dump Location. The intensity-duration chart was updated to reflect the new 100-year storm which was based on the rainfall values obtained from NOAA. The on-site drainage channel was calculated using the Hydraflow Express toolkit from AutoCad Civil 3D 2018. All soil information was obtained through the Kern County Hydrology Manual. Existing site topography was referenced from USGS Quad Map. The soil information and reference maps can be found in the attached appendices.

3.2 DESIGN CRITERIA AND ASSUMPTIONS

- Proposed Ridgecrest Burn Dump grading design plan shown in Appendix A.
- Flow from southern sub-area will sheet flow and will be stored on-site.

- Flow from norther sub-area will flow through existing channel on-site and will not be altered. Channel from flow currently drains around burn-dump.
- Channel on-site will drain to the north.
- On-site flow developed from Ridgecrest Burn Dump Design will sheet flow westerly until it is off-site.
- Coast Range NOAA Atlas equation.
- 100-year, 1-hour storm event = 0.892 inches (per NOAA Atlas 14 - See Appendix B)
- 100-year, 24-hour storm event = 3.49 inches. (per NOAA Atlas 14 - See Appendix B)
- Curve Number (CN) for final cover soil = 72. (See Appendix G)
- Existing drainage channels conveying flow from watershed assumed with 10:1 sides for velocity calculation. This allowed for calculation of travel time for time of concentration.
- Existing on-site drainage channel will not be negatively impacted with design and will be not be altered.
- 14 ft wide channel on site with 2 ft bottom width and 3:1 side slopes.
- Longest path approximated using Autocad Civil 3D.
- Q(flowrate calculated using manning's equation-excel spread sheets)
- Manning's "n" value used:
    - Natural dirt: 0.045
- 2018 Hydraflow Express used for channel capacity - (See Appendix H)
- Initial Time of concentration calculated using Kern County "Initial Tc Equation" (Spreadsheet incorporated). K(Soil Erodibility Factor) = 0.24-Ransburg Area
- Downstream Time of Concentration calculated using (Initial Tc + Time of Travel)
- Soil loss calculations-(See appendices)

3.3 SUB-AREA DISCHARGE

The hydrology analysis described herein was performed in accordance with the Kern County Hydrology Manual per the grading plan for the Ridgecrest Burn Dump and the USGS quad map. Watersheds were divided and labeled A through G. Watersheds B through G will not affect the project site per the USGS quad map. Illustrations and watershed boundaries are illustrated in the attached appendices. Watershed A is the only area that drains in the direction of the Ridgecrest Burn Dump and is accounted for in the design of this study. Watershed A is broken up into sub-areas A1 through A-12, which are shown in the attached appendices. Sub-areas were created to visualize the different areas of drainage and were delineated by boundaries to show the total tributary area contributing. Sub-areas were determined by drainage patterns and grade breaks shown in the attached maps. Approximately 7.57 Ac-ft of runoff volume will be produced from sub-areas A1 through A4 and will drain via sheet flow northwesterly towards the Ridgecrest Burn Dump site. An on-site sump will be constructed to capture all runoff from sub-areas A1 through A4 and will detain approximately 8.05 Ac-ft with 1 ft of freeboard. Sub-area A5 will create on-site runoff and will sheet flow westerly and northwesterly off-site and will not negatively impact the surrounding area. Sub-area A6 will drain to the proposed on-site channel and will drain northerly off-site and will not negatively impact the surrounding area. Sub-areas A7 through A11 will convey flow northwesterly from off-site onto on-site and will convey flow via sheet flow and through existing dirt channels. Flow from the channels will not be altered and will drain around the burn dump and continue to convey flow northwesterly off-site. Sub-area A12 will not be altered and will sheet flow to off-site to the north. All runoff produced from the grading design will continue to convey flow via sheet flow off-site to match existing conditions. Existing drainage patterns determined the final location of the on-site sump. The existing drainage patterns conveyed flow northwesterly in which it affected the burn dump area. With the final location of the sump, this will allow for no flow coming into the site to negatively affect the burn dump. All other drainage not being stored will be diverted away from the burn dump area and will continue to drain off-site to match existing conditions. Fiber rolls will be placed for erosion control purposes around the site as shown in the erosion control plan.

3.4 SUMP DESIGN & ANALYSIS

The Kern County SCS method was used in determining the Peak 24-hour storm rainfall runoff. The runoff value, was then used to calculate the drainage volume produced by the watershed. This was used to determine the amount of storage volume need for the design of the sump. The volume of the sump was determined with the use of Autocad Civil 3D 2018. The proposed sump was designed to adequately store all off-site runoff draining towards the burn dump location. Approximately 1 foot of freeboard was included with the design of the sump.

3.5 SUMMARY

Runoff for the Ridgecrest Burn Dump final was calculated using the updated intensity values provided by NOAA Atlas 14. All surface flows from watershed "A" drain north westerly and will not affect the grading design of the burn dump. Run-off from the watershed draining in the direction of the burn dump will be stored so the grading design is not altered. All other flow will flow off-site to match existing conditions. Run-off volume produced by the watershed conveying flow into the site will be approximately **7.57 ac-ft (329,653 cf).** The on-site sump with be designed to adequately store approximately **8.05 ac-ft (350,658 cf).** Soil loss is approximately **0.05 in/year.**

SECTION 4.0

REFERENCES

NOAA Atlas 14, Volume 6, Version 2, “Point Precipitation Frequency Estimates”.

AutoCad Civil 3D, Hydraflow Express Extension, Version 12.

AutoCad Civil 3d, Version 2018.

Kern County Engineering Bulletin 11-01, Subject: Precipitation Data, December 21, 2011.

Kern County Hydrology manual, 1995.

Protocol for Burn Dump Site Investigation and Characterization June 30, 2003.

USGS.Gov Quad maps, August 21, 2016.

Limited Site Investigation-Ridgecrest Burn Dump, Nino & Moore, July 2017

APPENDIX A:
GRADING/CONSTRUCTION PLAN, EXISTING DRAINAGE MAP, HYDROLOGY MAP

CONTRACT #	PROJECT #	SHEET NO.	TOTAL SHEETS
–	–	3	6

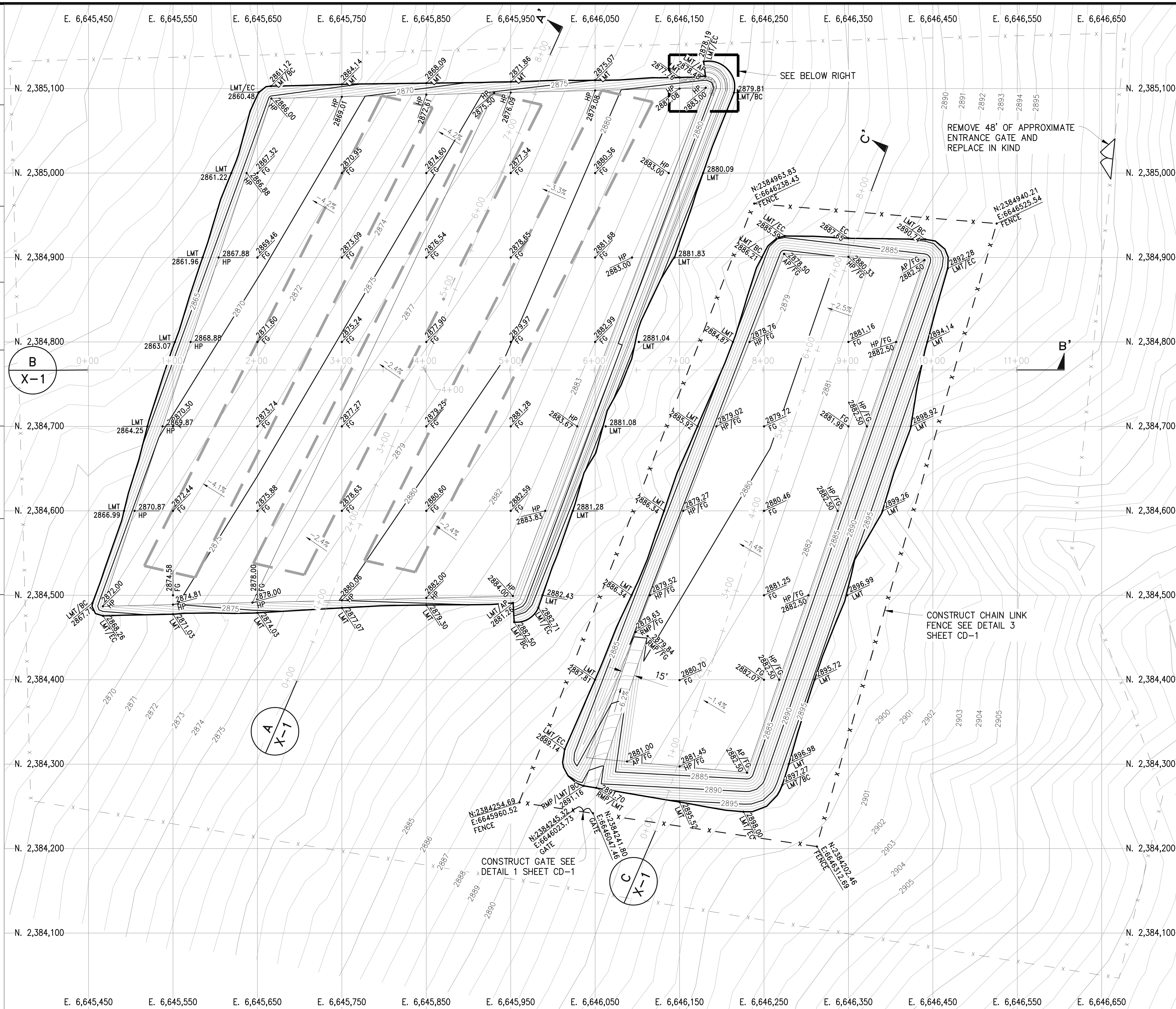
NORTH

REGISTERED CIVIL ENGINEER

Month XX, XXXX
APPROVAL DATE

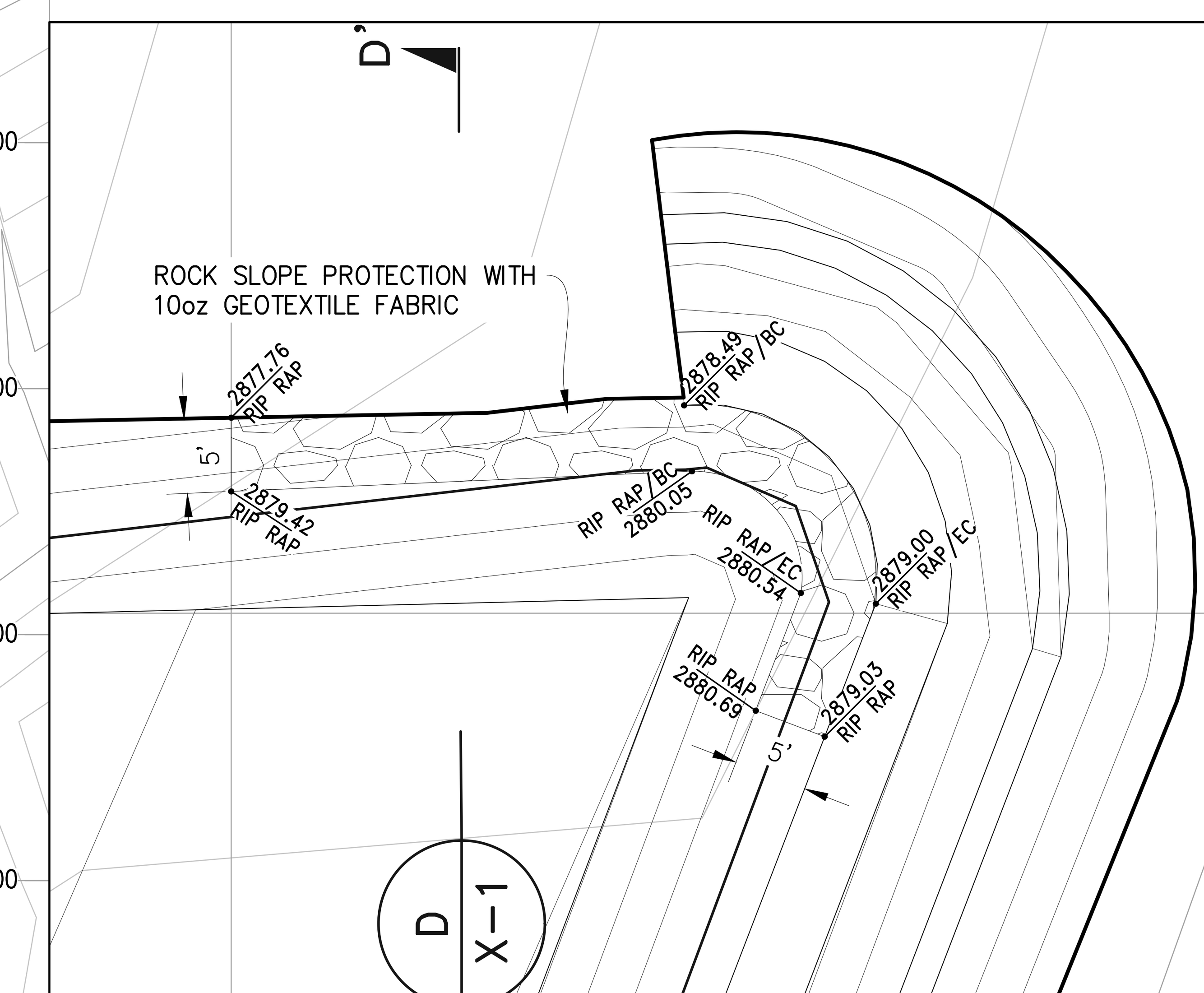
REGISTERED PROFESSIONAL ENGINEER
SAMUEL DAVID LUX
No. 77460
Exp. 6-30-19
CIVIL
STATE OF CALIFORNIA

THE COUNTY OF KERN OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.



LEGEND

(gray dashed)	APPROXIMATE BURN DUMP LOCATION
2890	INDEX CONTOURS – 5' INTERVAL
2891	INTERMEDIATE CONTOURS – 1' INTERVAL
2870	PROPOSED INDEX CONTOURS – 5' INTERVAL
2883	PROPOSED INTERMEDIATE CONTOURS – 1' INTERVAL
x	FENCE
AP	ANGLE POINT
FG	FINISH GRADE
LMT	LIMIT
RMP	RAMP
BC	BEGINNING CURVE
EC	END CURVE
B / X–1	FRAME / SHEET NUMBER



RIP RAP SCALE: 1"=10'

CONSTRUCTION PLANS
SCALE: 1"=60'
C-1

COUNTY OF KERN – PUBLIC WORKS DEPARTMENT
REMEDIATION OF RIDGECREST BURN DUMP # 1

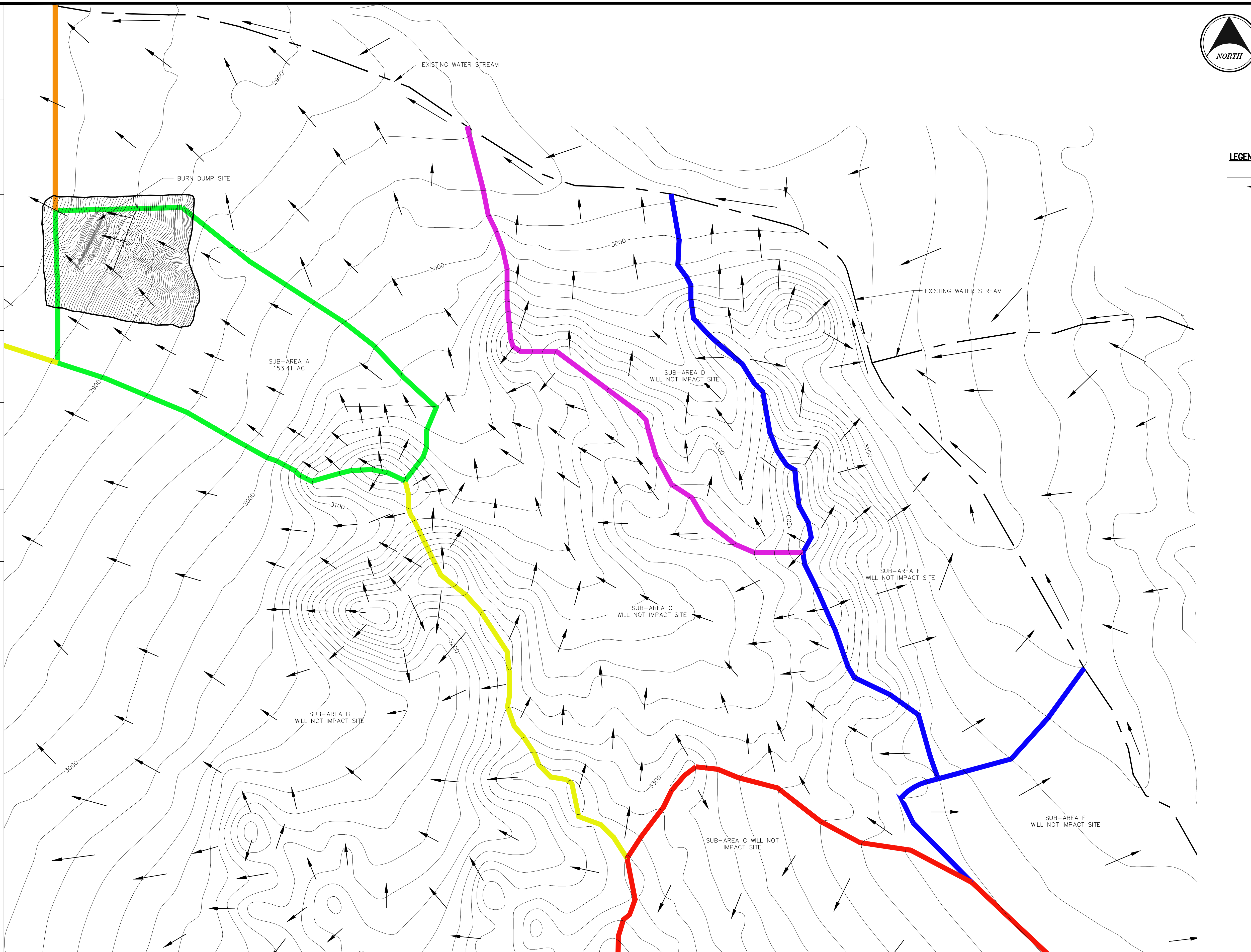
CALCULATED-DESIGNED BY	D. QU	DRAFTED BY	V. RUBIO	REVISION DATE/ REVISION #
CHECKED BY	S. LUX	DATE DRAFTED	9/12/2018	REVISED BY

DWG FILE: K:\ENGINEERING\DESIGN ENGINEERING\PROJECTS\SOLID WASTE\SW 18-19\RIDGECREST #1 BURN DUMP\DRAFTING

USERNAME: VRUBIO

BORDER LAST REVISED:

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3



LEGEND

2900	CONTOUR MAJOR
	CONTOUR MINOR
	EXISTING DRAINAGE DIRECTION

DRAINAGE MAP
D-1

SCALE: 1"=500'

COUNTY OF KERN – PUBLIC WORKS DEPARTMENT

RIDGECREST BURN DUMP
EXISTING HYDROLOGY MAP

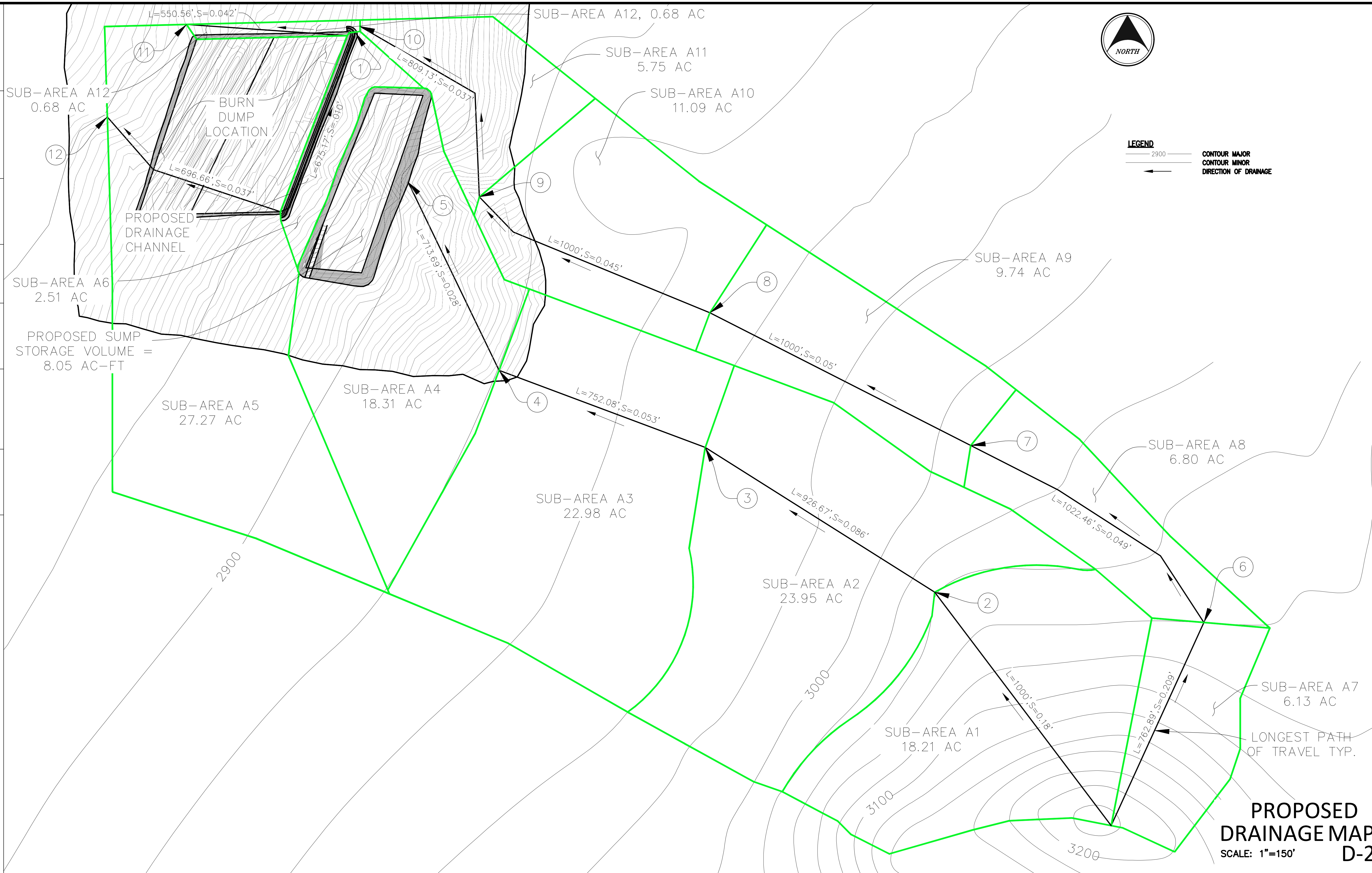
CALCULATED-DESIGNED BY	C. ROSETE	DRAFTED BY	-	REVISION DATE/ REVISION #
CHECKED BY	-	DATE DRAFTED	8/28/2018	REVISED BY ?

DWG FILE: K:\ENGINEERING\DESIGN ENGINEERING\PROJECTS\SOLID WASTE\SW 18-19\RIDGECREST #1 BURN DUMP\ENGINEERING\HYDROLOGY

USERNAME: ROSETEC

BORDER LAST REVISED: 8/20/15

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3



PROPOSED DRAINAGE MAP

SCALE: 1"=150'

D-2

USERNAME: ROSETEC

DWG FILE: K:\ENGINEERING\DESIGN ENGINEERING\PROJECTS\SOLID WASTE\SW 18-19\RIDGECREST #1 BURN DUMP\ENGINEERING\HYDROLOGY

COUNTY OF KERN – PUBLIC WORKS DEPARTMENT

RIDGECREST BURN DUMP
PROPOSED DRAINAGE MAP

CALCULATED-DESIGNED BY	DRAFTED BY	REVISION DATE/REVISION #
-	C. ROSETE	-
CHECKED BY	DATE DRAFTED	REVISED BY
-	8/28/2018	?

BORDER LAST REVISED: 8/20/15

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

APPENDIX B:
INTENSITIES
NOAA ATLAS 14, VOLUME 6 PRECIPITATION

NOAA Atlas 14, Volume 6, Version 2
Location name: Ridgecrest, California, USA*
Latitude: 35.5451°, Longitude: -117.7163°
Elevation: 2879.87 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	**2**	**5**	**10**	**25**	**50**	**100**	**200**	**500**	**1000**
5-min	**0.065** (0.053-0.081)	**0.089** (0.072-0.110)	**0.123** (0.099-0.153)	**0.152** (0.122-0.191)	**0.196** (0.153-0.254)	**0.232** (0.178-0.307)	**0.272** (0.203-0.367)	**0.315** (0.230-0.437)	**0.379** (0.266-0.547)	**0.433** (0.294-0.645)
10-min	**0.093** (0.076-0.116)	**0.127** (0.103-0.158)	**0.176** (0.143-0.219)	**0.218** (0.176-0.274)	**0.281** (0.219-0.364)	**0.333** (0.255-0.440)	**0.390** (0.291-0.526)	**0.452** (0.329-0.627)	**0.544** (0.381-0.784)	**0.621** (0.422-0.925)
15-min	**0.112** (0.091-0.140)	**0.154** (0.125-0.192)	**0.213** (0.172-0.265)	**0.264** (0.212-0.332)	**0.340** (0.265-0.440)	**0.403** (0.308-0.532)	**0.471** (0.352-0.636)	**0.547** (0.398-0.758)	**0.658** (0.461-0.948)	**0.751** (0.510-1.12)
30-min	**0.154** (0.125-0.191)	**0.211** (0.171-0.262)	**0.291** (0.236-0.363)	**0.361** (0.290-0.454)	**0.465** (0.362-0.602)	**0.551** (0.421-0.728)	**0.645** (0.482-0.871)	**0.748** (0.545-1.04)	**0.900** (0.631-1.30)	**1.03** (0.698-1.53)
60-min	**0.213** (0.173-0.265)	**0.291** (0.237-0.363)	**0.403** (0.326-0.502)	**0.500** (0.402-0.628)	**0.643** (0.501-0.833)	**0.762** (0.583-1.01)	**0.892** (0.666-1.21)	**1.03** (0.754-1.43)	**1.25** (0.872-1.79)	**1.42** (0.965-2.12)
2-hr	**0.312** (0.254-0.388)	**0.417** (0.339-0.519)	**0.563** (0.456-0.703)	**0.690** (0.554-0.867)	**0.873** (0.680-1.13)	**1.02** (0.782-1.35)	**1.18** (0.885-1.60)	**1.36** (0.990-1.89)	**1.61** (1.13-2.32)	**1.82** (1.24-2.71)
3-hr	**0.383** (0.311-0.475)	**0.508** (0.412-0.632)	**0.681** (0.552-0.849)	**0.830** (0.667-1.04)	**1.04** (0.814-1.35)	**1.22** (0.932-1.61)	**1.41** (1.05-1.90)	**1.61** (1.17-2.23)	**1.90** (1.33-2.73)	**2.13** (1.45-3.18)
6-hr	**0.521** (0.423-0.647)	**0.691** (0.561-0.859)	**0.924** (0.748-1.15)	**1.12** (0.902-1.41)	**1.41** (1.10-1.82)	**1.64** (1.25-2.16)	**1.88** (1.40-2.54)	**2.14** (1.56-2.97)	**2.51** (1.76-3.62)	**2.81** (1.91-4.18)
12-hr	**0.667** (0.542-0.829)	**0.898** (0.729-1.12)	**1.22** (0.984-1.52)	**1.48** (1.19-1.86)	**1.86** (1.45-2.42)	**2.17** (1.66-2.87)	**2.49** (1.86-3.37)	**2.84** (2.07-3.94)	**3.32** (2.33-4.79)	**3.72** (2.52-5.53)
24-hr	**0.873** (0.775-1.00)	**1.20** (1.07-1.38)	**1.65** (1.46-1.90)	**2.03** (1.78-2.36)	**2.56** (2.17-3.09)	**2.99** (2.49-3.68)	**3.45** (2.79-4.34)	**3.93** (3.09-5.09)	**4.61** (3.48-6.23)	**5.16** (3.76-7.22)
2-day	**1.03** (0.913-1.18)	**1.44** (1.28-1.66)	**2.01** (1.78-2.31)	**2.48** (2.18-2.89)	**3.15** (2.68-3.79)	**3.69** (3.06-4.54)	**4.25** (3.45-5.36)	**4.86** (3.82-6.29)	**5.70** (4.30-7.71)	**6.38** (4.65-8.93)
3-day	**1.11** (0.983-1.27)	**1.57** (1.39-1.80)	**2.20** (1.94-2.54)	**2.73** (2.39-3.17)	**3.48** (2.95-4.18)	**4.07** (3.38-5.00)	**4.70** (3.80-5.92)	**5.36** (4.22-6.95)	**6.30** (4.75-8.52)	**7.05** (5.14-9.87)
4-day	**1.17** (1.04-1.35)	**1.67** (1.48-1.92)	**2.35** (2.08-2.71)	**2.92** (2.56-3.39)	**3.72** (3.16-4.48)	**4.36** (3.62-5.36)	**5.03** (4.08-6.34)	**5.75** (4.53-7.45)	**6.75** (5.10-9.13)	**7.56** (5.51-10.6)
7-day	**1.26** (1.12-1.45)	**1.80** (1.59-2.07)	**2.53** (2.24-2.92)	**3.15** (2.76-3.66)	**4.02** (3.41-4.84)	**4.72** (3.92-5.80)	**5.45** (4.41-6.86)	**6.22** (4.90-8.07)	**7.32** (5.52-9.90)	**8.20** (5.97-11.5)
10-day	**1.31** (1.16-1.50)	**1.86** (1.65-2.14)	**2.62** (2.31-3.02)	**3.26** (2.86-3.79)	**4.17** (3.54-5.01)	**4.90** (4.07-6.02)	**5.66** (4.59-7.13)	**6.48** (5.10-8.40)	**7.63** (5.76-10.3)	**8.56** (6.24-12.0)
20-day	**1.48** (1.31-1.70)	**2.11** (1.87-2.43)	**2.99** (2.64-3.45)	**3.73** (3.27-4.34)	**4.80** (4.07-5.77)	**5.66** (4.70-6.95)	**6.57** (5.32-8.27)	**7.54** (5.94-9.77)	**8.92** (6.73-12.1)	**10.0** (7.32-14.1)
30-day	**1.67** (1.49-1.92)	**2.40** (2.13-2.75)	**3.40** (3.01-3.92)	**4.26** (3.73-4.95)	**5.49** (4.65-6.60)	**6.48** (5.38-7.97)	**7.54** (6.11-9.50)	**8.68** (6.83-11.2)	**10.3** (7.77-13.9)	**11.6** (8.46-16.3)
45-day	**1.92** (1.71-2.21)	**2.76** (2.44-3.17)	**3.92** (3.47-4.52)	**4.93** (4.32-5.73)	**6.37** (5.41-7.67)	**7.55** (6.27-9.28)	**8.80** (7.13-11.1)	**10.2** (7.99-13.2)	**12.1** (9.11-16.3)	**13.6** (9.94-19.1)
60-day	**2.14** (1.90-2.45)	**3.05** (2.71-3.51)	**4.33** (3.83-5.00)	**5.44** (4.77-6.32)	**7.03** (5.96-8.46)	**8.33** (6.92-10.2)	**9.72** (7.87-12.2)	**11.2** (8.83-14.5)	**13.4** (10.1-18.1)	**15.1** (11.0-21.2)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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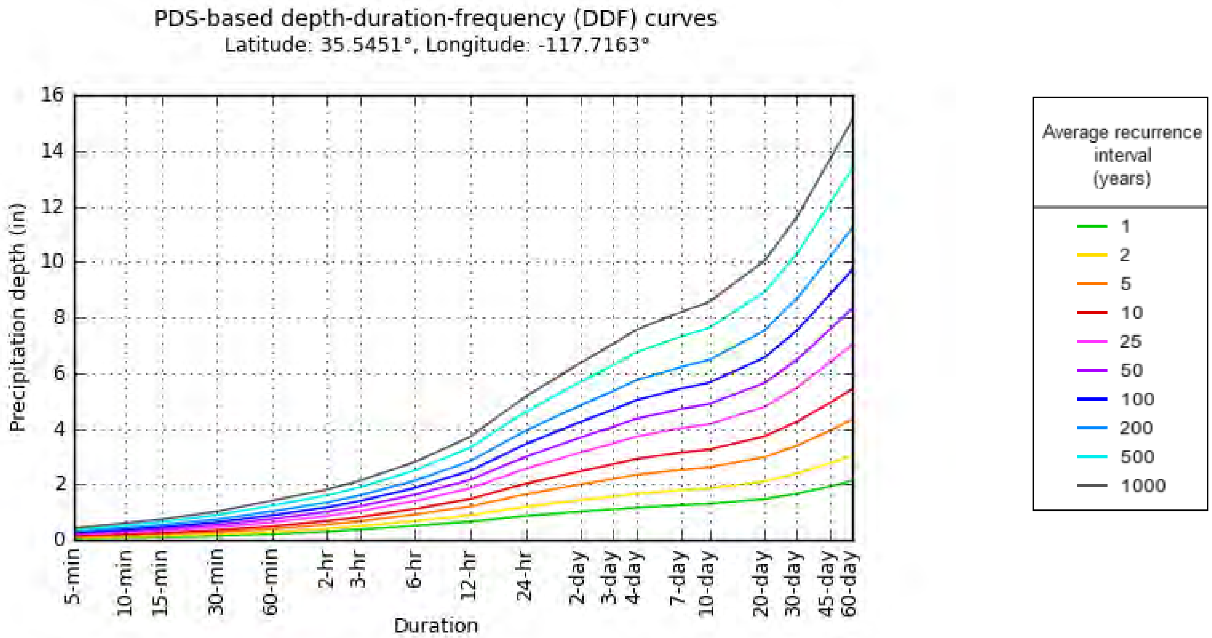
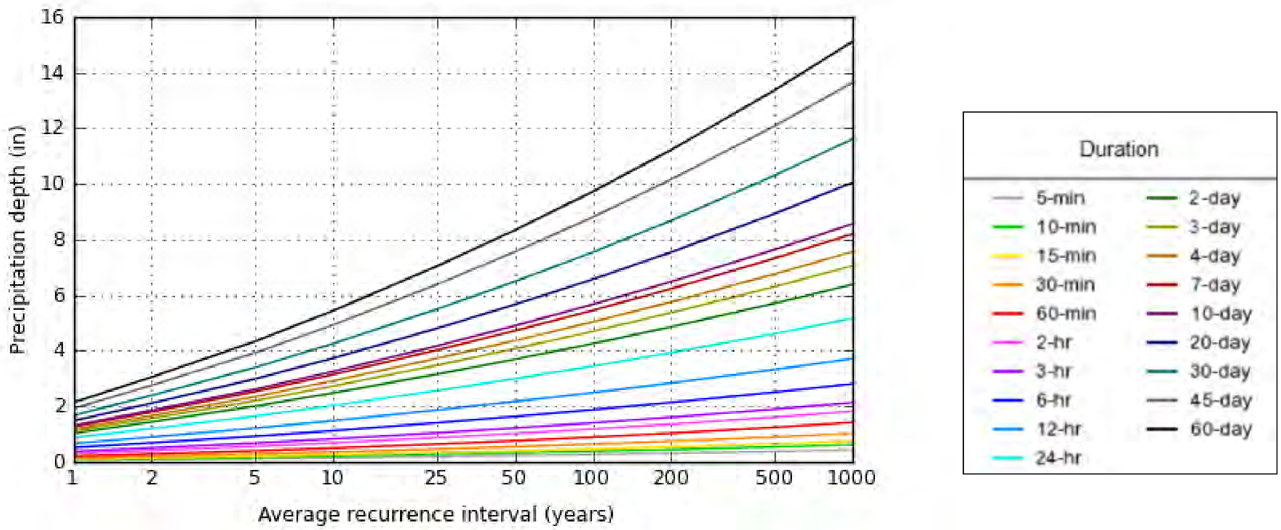
PF graphical





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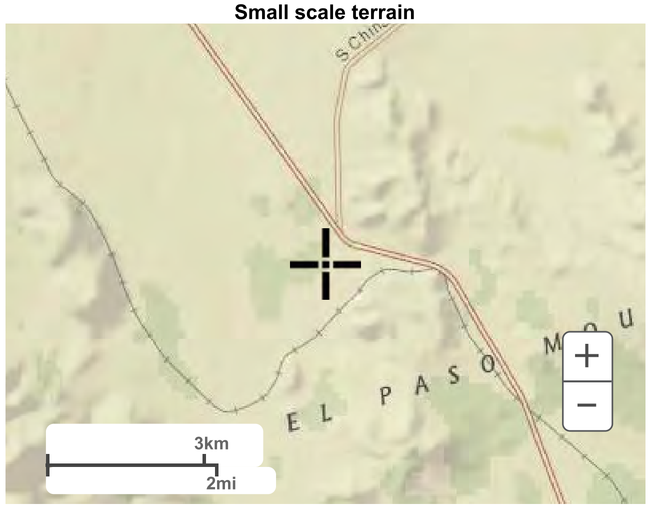
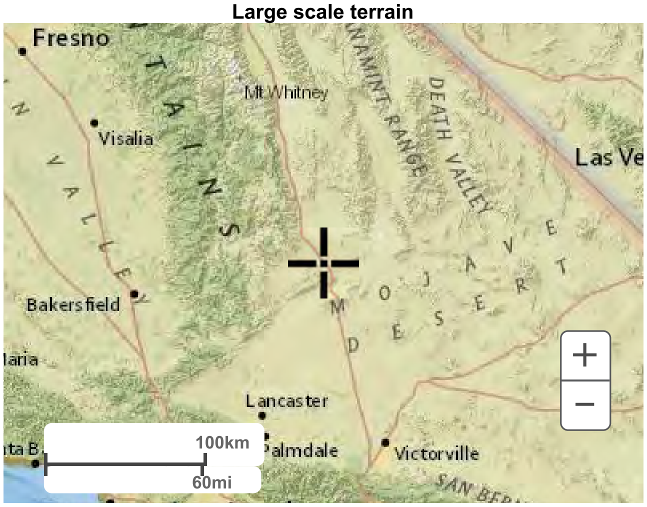
Maps & aerials

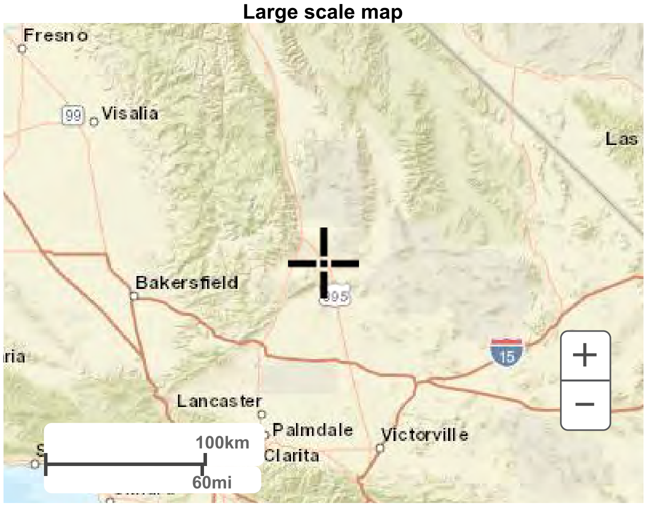
Small scale terrain



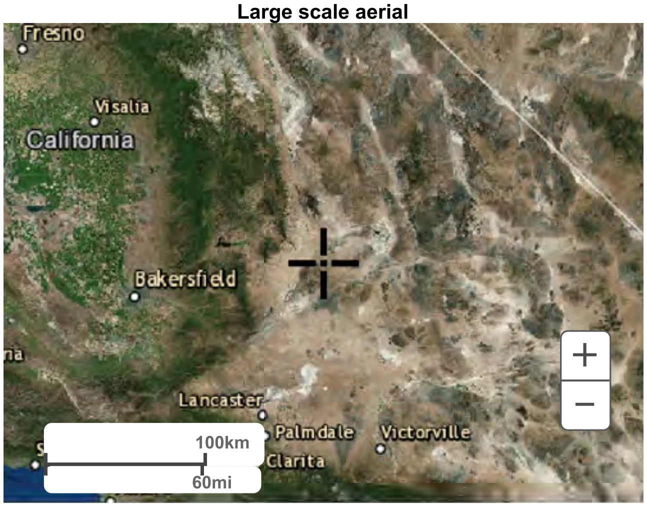
Large scale terrain



Large scale map



Large scale aerial



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APPENDIX C:
SUB-AREA ACREAGES

WATERSHED "A" ACREAGE		
SUB-AREA	**DRAINAGE AREA (sf)**	**DRAINAGE AREA (ac)**
A1	793,068.55	18.21
A2	1,043,174.63	23.95
A3	1,000,911.18	22.98
A4	797,563.49	18.31
A5	1,188,061.86	27.27
A6	109,349.98	2.51
A7	267,091.04	6.13
A8	296,298.44	6.80
A9	424,097.96	9.74
A10	482,887.47	11.09
A11	250,606.14	5.75
A12	29,486.04	0.68
	TOTAL =	**153.41**

Note: Sump design to only include Sub-areas A1-A4.

APPENDIX D:
SUMP VOLUME CALCULATIONS

SUMP VOLUME

DATE:	08/24/2018	**JOB DESCRIPTION:**	Ridgecrest Burn Dumps
FREQ.:	100 yr -24 hr	**STUDY OF:**	Sump Volume Capacity

SUMP	WATERSHED AREA	SUB-AREA (SF)	SUB-AREA (AC)	R (in)	R (FT)	DRAINAGE VOLUME (CF)	DRAINAGE VOLUME (CY)	DRAINAGE VOLUME (AC-FT)
A	A1-A$	3,634,717.85	83.44	1.08835	0.09	329,653.13	12209.38	7.57

P_{24} (inches) =	3.45
CN =	72.0
S =	3.89
Ia =	0.778

$$S = \frac{1000}{CN} - 10 \qquad Ia = 0.2(S)$$

24 - Hour Storm, Rainfall Runoff, R (in)

$$R = \frac{(P24 - Ia)^2}{(P24 - Ia + S)}$$

$R =$ **1.0883**

$VOLUME = (AREA)\ X\ (R)$

Note:

CN value from KC Hydrology Manual and based of Soil properties from WEB SOIL SURVEY.

SCS mehtod used to calculate R vaules

APPENDIX E:
RATIONAL METHOD CALCULATIONS

Undeveloped Fair Cover (K) = 0.24

Study Name: Ridgecrest Burn Dumps

Storm Return Interval: 100

1-Hour Rainfall (inches) = 0.892

24-Hour Rainfall (inches) = 3.5

Slope =

K(T) =

Calculated by: C.Rosete   Date: 8/25/2018

Checked by: E.Hadad   Date:

	Initial Watershed? (Y/N)	Confluence (Y/N)	Confluence Pt 1	Confluence Pt 2	Area (ft^2)	Concen-tration Point	Area (Acres) Subarea	Area (Acres) Total	Soil Type	Develop-ment Type	Fraction Imperv. a_i	Fraction Imperv. a_i avg	Pervious CN	Pervious F_p value	T(t) min	T_c min	I in/hr	F_m in/hr	F_m average	Y in/hr	Y average	Q minimum	Q calc'd	Q Total	Flow Path Length ft.	Elevation Difference ft.	Slope ft/ft	Velocity ft/s	Hydraulics and Notes
																									675.1687	7	0.0104		
1	Y	N			109349.9831	1	2.51	2.51					72	0.52		8.11	0.89	0.52	0.52	0.32	0.32	0.64	0.84	0.84					
																									1000	180	0.1800		
2	Y	N			793068.5549	2	18.21	18.21					72	0.52		5.36	0.89	0.52	0.52	0.32	0.32	4.61	6.13	6.13					
															4.48										926.67	80.0	0.0863	3.4484	Assumed Channel for Velocity Calc
3	N	N			1043174.631	3	23.95	42.15					72	0.52		9.84	0.89	0.52	0.52	0.32	0.32	10.68	14.19	14.19					
															3.53										752.08	40.00	0.0532	3.5462	Assumed Channel for Velocity Calc
4	N	N			1000911.179	4	22.98	65.13					72	0.52		13.37	0.89	0.52	0.52	0.32	0.32	16.49	21.92	21.92					
															3.83										713.69	20.00	0.0280	3.1086	Assumed Channel for Velocity Calc
5	N	N			797563.4904	5	18.31	83.44					72	0.52		17.20	0.89	0.52	0.52	0.32	0.32	21.13	28.09	28.09					
																									762.89	160.00	0.2097		
6	Y	N			267091.0407	6	6.13	6.13					72	0.52		4.67	0.89	0.52	0.52	0.32	0.32	1.55	2.06	2.06					
															8.03										1022.46	50.00	0.0489	2.1231	Assumed Channel for Velocity Calc
7	N	N			296298.4404	7	6.80	12.93					72	0.52		12.69	0.89	0.52	0.52	0.32	0.32	3.28	4.35	4.35					
															6.46										1000.00	50.00	0.0500	2.5796	Assumed Channel for Velocity Calc
8	N	N			424097.9614	8	9.74	22.67					72	0.52		19.15	0.89	0.52	0.52	0.32	0.32	5.74	7.63	7.63					
															5.23										892.94	40.00	0.0448	2.8478	Assumed Channel for Velocity Calc
9	N	N			482887.4714	9	11.09	33.76					72	0.52		24.38	0.89	0.52	0.52	0.32	0.32	8.55	11.36	11.36					
															4.60										809.13	30.00	0.0371	2.9301	Assumed Channel for Velocity Calc
10	N	N			250606.1423	10	5.75	39.51					72	0.52		28.98	0.89	0.52	0.52	0.32	0.32	10.01	13.30	13.30					
																									550.56	22.88	0.0416		
11	Y	N			29486.04	11	0.68	0.68					72	0.52		5.66	0.89	0.52	0.52	0.32	0.32	0.17	0.23	0.23					
																									696.66	25.66	0.0368		
12	Y	N			1188061.855	12	27.27	27.27					72	0.52		6.37	0.89	0.52	0.52	0.32	0.32	6.91	9.18	9.18					

APPENDIX F:
SOIL INFORMATION

soil water, resulting from infiltration, may be consumptively used by vegetation, percolate further downward to groundwater storage, or exit the soil surface as seeps or springs. Seepage from stream bank storage is the primary source of baseflow which is derived from prior precipitation events. For modeling purposes, watershed losses are grouped into two components: namely, (i) ***infiltration***, and (ii) ***initial abstraction***.

Volume losses due to channel routing are only applicable after the rainfall event has ceased. During rainfall the initial abstraction accounts for these volume losses. Attenuation of flood hydrographs should be performed in accordance with Section H, Streamflow Routing.

C.3. HYDROLOGIC SOIL GROUPS

The major factor affecting loss rates is the nature of the soil itself. The soil surface characteristics, its ability to transmit water to subsurface layers, and total storage capacity, are all major factors in controlling the infiltration rate and initial abstraction parameter values of a particular soil. Soils are classified into four hydrologic soil groups as follows (refs. 2, 3):

Group A: ***Low runoff potential.*** Soils having high infiltration rates even when thoroughly wetted and consisting chiefly of deep, well-drained sands or gravels. These soils have a high rate of water transmission

Group B: Soils having ***moderate infiltration*** rates when thoroughly wetted and consisting chiefly of moderately deep to deep, moderately well to well-drained sandy-loam soils with moderately fine to moderately coarse textures. These soils have a moderate rate of water transmission.

Group C: Soils having ***slow infiltration*** rates when thoroughly wetted and consisting chiefly of silty-loam soils with a layer that impedes downward movement of water, or soils with moderately fine to fine texture. These soils have a slow rate of water transmission.

Group D: ***High runoff potential***. Soils having very slow infiltration rates when thoroughly wetted and consisting chiefly of clay soils with a high swelling potential, soils with a permanent high water table, soils with a claypan or clay layer at or near the surface, and shallow soils over nearly impervious material. These soils have a very slow rate of water transmission.

C.3.1. Soil Maps

Detailed soil surveys have been prepared by the Soil Conservation Service for some areas of Kern County. An approximate soil survey has been prepared for the entire County. These soil surveys are available for review from the County.

C.4. SOIL COVER AND HYDROLOGIC CONDITIONS

The types of vegetation or ground cover on a watershed, and the quality or density of that cover, have a major impact on the infiltration capacity of a given soil. Definitions of specific cover types are provided in Figure C-1. Further refinement in the cover type descriptions is provided by the definition of cover quality as follows:

POOR: Heavily grazed or regularly burned areas. Less than 50 percent of the ground surface is protected by plant cover or brush and tree canopy.

FAIR: Moderate cover with 50 percent to 75 percent of the ground surface protected by vegetation.

GOOD: Heavy or dense cover with more than 75 percent of the ground surface protected by vegetation.

In most cases, watershed existing conditions cover type and quality can be readily determined by a field review of a watershed. Figure C-2 provides the CN values for various types and quality of ground cover. Impervious areas shall be assigned a CN of 98. It is noted that for ultimately developed conditions, the CN for urban landscaping (turf) is provided in Figure C-2.

C.5. WATERSHED DEVELOPMENT CONDITIONS

Ultimate development of the watershed should normally be assumed since watershed urbanization is reasonably likely within the expected life of most hydraulic facilities. Long range master plans for the County and incorporated cities should be reviewed to ensure that reasonable land use assumptions are made for the ultimate development of the watershed. A field review shall also be made to confirm existing use and drainage patterns. Particular attention shall be paid to existing and proposed landscape practices, as it is common in some areas to use ornamental gravels underlain by impervious plastic materials in place of lawns and shrubs. Appropriate actual impervious percentages can then be selected from Figure C-3. It should be noted that the recommended values from these figures are for average conditions and, therefore, some adjustment for particular applications may be required.

C.6. ANTECEDENT MOISTURE CONDITION (AMC)

The Soil Conservation Service (SCS) does not recommend the use of differing AMC in its recent release of TR-55. Therefore, this manual does not consider the use of AMC I or III. All curve numbers are based upon a moderate runoff potential, AMC II.

C.7. ESTIMATION OF LOSS RATES

In estimating loss rates for design hydrology, a watershed ***curve number*** **(CN)** is determined for each soil-cover complex within the watershed using Figure C-2. The working range of CN values is between 0 and 98, where a low CN indicates low runoff

C.8.1. Hydrologic Soil-Cover Complex

A determination of vegetative cover types, hydrologic condition of cover types, and hydrologic soil group must be made for the drainage area. Ordinarily only broad categories of soils and cover types are delineated. Hydrologic soil cover complexes most commonly encountered in desert areas are given in Figure C-7 together with the associated curve numbers (CN). Curve numbers and, consequently, direct runoff varies with vegetation type, vegetative cover density, and hydrologic soil group.

C.8.2. Hydrologic Cover Types

Vegetative types are divided into the following groups:

Desert Brush:	Includes such plants as mesquite, creosote bush, black bush, catclaw, cactus, etc. - desert brush is typical of lower elevations and low annual rainfall.
Herbaceous:	Includes short desert grasses with some brush - herbaceous is typical of intermediate elevations and higher annual rainfall than desert areas.
Mountain Brush:	Mountain brush mixtures of oak, aspen, mountain mahogany, manzanita, bitter brush, maple, etc. - mountain brush is typical of intermediate elevations and generally higher annual rainfall than herbaceous areas.
Juniper-Grass:	Juniper areas mixed with varying grass cover that is generally heavier than desert grasses due to higher annual precipitation - typical of higher elevations.
Ponderosa Pine:	Ponderosa pine forests typical of high elevations and high annual precipitation.

C.8.3. Hydrologic Cover Density

Hydrologic cover density is defined as the percent of the ground surface covered by the crown canopy of live plants and litter.

Three broad ranges of vegetative cover density have been established:

Poor:	0% - 20% Vegetative cover
Fair:	20% - 40% Vegetative cover
Good:	Over 40% Vegetative cover

Curve[1] Numbers of Hydrologic Soil-Cover Complexes For Pervious Areas-AMC II

Cover Type (3)	Quality of Cover (2)	Soil Group A	B	C	D
NATURAL COVERS -					
Barren					
(Rockland, eroded and graded land)		77	86	91	94
Chaparral, Broadleaf	Poor	53	70	80	85
(Manzonita, ceanothus and scrub oak)	Fair	40	63	75	81
	Good	31	57	71	78
Chaparral, Narrowleaf	Poor	71	82	88	91
(Chamise and Redskank)	Fair	55	72	81	86
Grass, Annual or Perennial	Poor	68	79	86	89
	Fair	49	69	79	84
	Good	39	61	74	80
Meadows or Cienagas	Poor	63	77	85	88
(Areas with seasonally high water	Fair	51	70	80	84
table, principal vegatation is sod	Good	30	58	71	78
forming grass)					
Open Brush	Poor	62	76	84	88
(Soft wood shrubs-buckwheat,sage,etc.)	Fair	46	66	77	83
	Good	41	63	75	81
Woodland (4)	Poor	45	66	77	83
(Coniferous or broadleaf trees	Fair	36	60	73	79
predominate. Canopy density is at	Good	30	55	70	77
least 50 percent)					
Woodland, Grass	Poor	57	73	82	86
(Coniferous or broadleaf trees with	Fair	43	65	76	82
canopy density from 20 to 50 percent)	Good	32	58	72	79
URBAN COVERS -					
Residential or Commercial Landscaping	Good	39	61	74	80
(Lawns, shrubs, etc.)					
Turf	Poor	68	79	86	89
(Irrigated and mowed grass)	Fair	49	69	79	84
	Good	39	61	74	80

KERN COUNTY
Hydrology Manual

CURVE NUMBERS FOR PERVIOUS AREAS

APPENDIX G:
SOIL LOSS CALCULATION

SOIL LOSS ESTIMATES (PRESCRIPTIVE TITLE 27 DESIGN)
RIDGECREST BURN DUMP

AREA #	L "ft"	SLOPE "%"	SLOPE (FT/FT)	AREA "ac"	m	Ls	R	K	C	P	SOIL LOSS tons/acre/year	SOIL LOSS (tons/year)	SOIL LOSS (CY/year)	SOIL LOSS (inches/year)
A1	1000.0	18.00	0.1800	18.21	0.50	9.56					2.29	41.76	25.78	0.01
A2	926.7	8.63	0.0863	23.95	0.50	3.35					0.81	19.28	11.90	0.00
A3	752.1	5.32	0.0532	22.98	0.50	1.58					0.38	8.72	5.39	0.00
A4	713.7	2.80	0.0280	18.31	0.30	0.48					0.12	2.13	1.31	0.00
A5	696.7	3.68	0.0368	27.27	0.40	0.79					0.19	5.19	3.20	0.00
A6	675.2	1.04	0.0104	2.51	0.30	0.23					0.06	0.14	0.09	0.00
A7	762.9	20.97	0.2097	6.13	0.50	10.23	10	0.24	0.1	1	2.45	15.05	9.29	0.01
A8	1022.5	4.89	0.0489	6.80	0.50	1.66					0.40	2.72	1.68	0.00
A9	1000.0	5.00	0.0500	9.74	0.50	1.69					0.41	3.95	2.44	0.00
A10	1000.0	4.00	0.0400	11.09	0.40	1.00					0.24	2.67	1.65	0.00
A11	809.1	3.71	0.0371	5.75	0.40	0.85					0.20	1.17	0.72	0.00
A12	550.6	22.88	0.2288	0.68	0.50	9.74					2.34	1.59	0.98	0.01
				153.42								**104.3732**	**64.4279**	**0.0454**

APPENDIX H:
CHANNEL CACULATIONS

Channel Report

SUB-AREA A6 DRAINAGE CHANNEL

User-defined		**Highlighted**	
Invert Elev (ft)	= 2879.50	Depth (ft)	= 0.37
Slope (%)	= 0.34	Q (cfs)	= 0.870
N-Value	= 0.045	Area (sqft)	= 1.15
		Velocity (ft/s)	= 0.76
Calculations		Wetted Perim (ft)	= 4.34
Compute by:	Known Q	Crit Depth, Yc (ft)	= 0.17
Known Q (cfs)	= 0.87	Top Width (ft)	= 4.22
		EGL (ft)	= 0.38

(Sta, El, n)-(Sta, El, n)...
(0.00, 2881.00)-(4.50, 2879.50, 0.045)-(6.50, 2879.50, 0.045)-(14.00, 2882.00, 0.045)