



**CWM Kettleman
Hills Facility**

B-18 Landfill

Expansion Project

Section 7 Biological Assessment



Photo by Paul Turek, WM

July 2009
Rev: July 2011



Waste Management

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1.0 INTRODUCTION

1.1 Federal Action and Proposed Project

The purpose of this biological assessment (“BA”), as required pursuant to the Federal Endangered Species Act (“ESA”), is to evaluate the potential effects of the proposed issuance of a federal renewal/expansion permit (“Federal Action”) by the U.S. Environmental Protection Agency (“EPA”) on federally listed endangered and threatened species and whether consultation with the U.S. Fish & Wildlife Service (“USFWS”) is required.

Chemical Waste Management, Inc. (“CWM”) (“Applicant”) has submitted to EPA an application pursuant to the Toxic Substances Control Act (“TSCA”) to renew CWM’s existing permit and allow the expansion of the B-18 landfill for purposes of storing and disposing of polychlorinated biphenyl (PCB) waste at the Kettleman Hills Facility (“KHF”) in Kings County, California (**Figure 1**).¹ The Kettleman Hills Facility is hereinafter referred to as the “Project Site”.

The activities included within the permit application consist of the following basic elements (hereinafter the “Proposed Project”):

- addition of approximately 81 contiguous acres (**Figure 3**) to the existing 474-acre permitted operations area to be enclosed by exclusionary fencing (All project activities that could disturb habitat for threatened and endangered species will occur within this 81 acre area.);
- vertical and lateral expansion of the existing Landfill B-18;
- operation and closure in the expanded areas of the Landfill B-18;
- transport of PCB material within the 555 operational acres; and
- operation of ancillary buildings within the 555 operational acres.

EPA has determined that the loss of 81 acres of habitat resulting from the expansion of landfill B-18, a component of the “Proposed Project”, may affect species listed as threatened or endangered. CWM understands that EPA plans to initiate formal consultation with the USFWS concerning the permit application pursuant to Section 7 of the ESA and has requested CWM to prepare this BA to support that consultation. Conservation measures for minimizing impacts to species for the life of the Proposed Project have been incorporated into the Proposed Project and are detailed in Section 3.2 below.

¹ While discussion of Landfill B-20 is included to describe its eventual overlap with Landfill B-18 operations and closure, Landfill B-20 is not part of the Proposed Project and will, if necessary, be subject to a subsequent consultation with the Landfill B-20 construction and operation.

1.2 Action Area

The Action Area as defined under Section 7 Consultation Regulations (50 CFR §402.02) includes all areas to be affected directly or indirectly by the Federal Action and not merely the immediate area involved in the action. The Action Area analyzed for the Proposed Action is the Kettleman Hills Facility as shown on **Figure 1**.

1.3 Species Covered in this Document

Attachment A provides the USFWS species list of federal endangered and threatened species that may be present in the area of the Proposed Project. Of the species on that list, the Proposed Project may affect the following federally and state listed species.

Species	Critical Habitat	Status	Effects Determination
San Joaquin kit fox (<i>Vulpes macrotis mutica</i>)	None	Federally Endangered, State Threatened	May Affect
Blunt-nosed leopard lizard (<i>Gambelia silus</i>)	None	Federally and State Endangered, State Fully Protected	May Affect

This BA addresses potential effects to these species, taking into consideration both the project-related impacts and conservation measures to be implemented to avoid and minimize these impacts.

The two federally listed species addressed in this document, San Joaquin kit fox and blunt-nosed leopard lizard, are also state listed. Take authorization from the California Department of Fish and Game ("CDFG") is necessary for the San Joaquin kit fox. The blunt-nosed leopard lizard is a state fully protected species and therefore CDFG cannot authorize take of this species.

This BA provides information that CDFG may consider in issuing a consistency determination for take of the kit fox pursuant to section 2080.1 of Fish and Game Code. CDFG has participated and is expected to continue to participate in consultations with USFWS. CDFG's participation ensures that the Biological Opinion issued by USFWS will be consistent with the requirements of the California Endangered Species Act ("CESA"). If CDFG cannot make a consistency determination based upon USFWS's Section 7 Biological Opinion, then CDFG may use the information herein in issuing a permit for take of State-listed species under Section 2081 of Fish and Game Code.

1.4. Other Species Considered but not Addressed Further

Attachment 1 provides a USFWS species list of federal endangered and threatened species that occur or may be affected by the Proposed Project. Species that are included on the USFWS list but not addressed further in this BA are discussed below.

1.4.1. Invertebrates

Vernal pool fairy shrimp (*Branchinecta lynchi*) and valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) are federally listed threatened species. Vernal pool fairy shrimp is restricted to vernal pools and seasonal wetlands. Valley elderberry longhorn beetle occurs in elderberry shrubs in the Central Valley and Sierra foothills up to elevations of 2,200 feet. There are no vernal pools or seasonal wetlands capable of supporting vernal pool fairy shrimp, and no elderberry shrubs present in the Action Area; therefore the Proposed Project would not affect vernal pool fairy shrimp or valley elderberry longhorn beetle.

1.4.2. Fish

Delta smelt (*Hypomesus transpacificus*) is a fish species found only from Suisun Bay upstream through the Delta in Contra Costa, San Joaquin, and Yolo counties. There is no appropriate habitat for this species in the Action Area, and delta smelt would not be affected by the Proposed Project.

1.4.3. Reptiles

The giant garter snake (*Thamnophis gigas*) is a federally threatened species that is dependent upon aquatic habitat capable of supporting fish and amphibian prey between March and October. There is no appropriate aquatic habitat for this species in the Action Area, and therefore giant garter snake would not be affected by the Proposed Project.

1.4.4. Mammals

The giant kangaroo rat (*Dipodomys ingens*) and Tipton kangaroo rat (*Dipodomys nitraoides nitraoides*) are federally listed as endangered. Both these species inhabit arid environments in grasslands and sparse shrubland. Tipton kangaroo rat occurs in isolated clusters west of the towns of Tipton, Pixley and Earlimart and in areas of southern Kern County: they are found in the southeast portion of the Central Valley and are not expected to be present in the Action Area. There is an extant population of giant kangaroo rat in the Kettleman Hills area. However, giant kangaroo rat sign is readily visible when the species is present, and no sign was observed during reconnaissance level surveys in 2002 (Bumgardner 2002), or reconnaissance-level and blunt-nosed leopard lizard surveys, which involved 100% land coverage, in 2004 and 2007 (Bumgardner 2004, 2007). Tipton kangaroo rat and giant kangaroo rat would not be affected by the Proposed Project.

1.4.5. Plants

San Joaquin woolly-threads (*Lambertia congdonii*), a federally listed endangered species, is known to occur in similar habitat to that found in the Action Area. Surveys for this species on the KHF site have resulted in negative findings. The nearest known location for this species is approximately one mile from the Project Site (CNDDDB 2009). Surveys for San Joaquin woolly-threads on the Kettleman Hills Facility were conducted in 1988 (Biosystems 1988), 1991 (Biosystems 1991), 2000 (Uptain et.al 2000), and 2002 (Bumgardner Biological Consulting, 2002). The species was not observed on-site during any of these surveys. These survey results indicate that the species is not present on-site and would not be affected by the Proposed Project.

California jewelflower (*Caulanthus californicus*) is a federally listed endangered species. The nearest known location for this species is 4.25 miles from the Project Site, in the

Kryenhagen Hills area: the species was seen at this location in 1940 and was not observed when the location was resurveyed in 1986 (CDFG 2011). In addition to this nearest occurrence, California jewelflower has been seen at two additional locations in Kings County, but has not been observed at these locations since 1935 and 1941, respectively (CDFG 2011).

Surveys for California jewelflower species on the KHF site have resulted in negative findings (see Section 4.2 for survey details). These surveys were conducted in 1988 (Biosystems 1988), 1991 (Biosystems 1991), 2000 (Uptain et.al 2000), and 2002 (Bumgardner Biological Consulting, 2002). The species was not observed on-site during any of these surveys. These survey results, the distance from the nearest known locality, and the fact that this species has not been observed in Kings County for over 70 years, indicate that the species is not present on-site and would not be affected by the Proposed Project.

1.4.6. Other Special Status (not listed) Species

Four other special status plant species have been considered for inclusion in this BA because they are present on the KHF site. They are not addressed further in this document because they are not state or federally listed and the Proposed Project is expected to result in no or negligible effects on these species. These species include Cottony buckwheat (*Eriogonum gossypinum*), San Joaquin blue-curly (*Trichostema ovatum*), gypsum-loving larkspur (*Delphinium gypsophilum* ssp. *gypsophilum*), and Hoover's woollystar (*Eriastrum hooveri*). All four of these species are on the California Native Plant Society List 4.2, a watchlist for species of limited distribution. Cottony buckwheat occurs in two populations along the western border of the property, and this species is not located within the area that would potentially be affected by the Proposed Project. While smaller populations of the San Joaquin blue-curly, gypsum-loving larkspur, and Hoover's woollystar on the KHF would be impacted by the Proposed Project, these effects are anticipated to be negligible to these species as a whole. These species are common in the Kettleman Hills region.

Effects of the Proposed Project on special status species that are not federally or state listed are addressed in more detail in *Draft Subsequent Environmental Impact Report: B-18/B-20 Hazardous Waste Disposal Project, Kettleman Hills Facility (State Clearinghouse No. 2005041064), Volumes I and II* (CH2M HILL, March 2008), and *Revised Project Description and Analysis, Final Subsequent Environmental Impact Report: B-18/B-20 Hazardous Waste Disposal, Kettleman Hills Facility (State Clearinghouse No. 2005041064)* (CH2M HILL, filed with State Clearinghouse 9/17/09), collectively referenced as the *FSEIR* hereafter.

1.5 Critical Habitat

Critical habitat has not been formally designated for the San Joaquin kit fox or the blunt-nosed leopard lizard. No formally designated or proposed critical habitat for any federally listed species is present in the Action Area. Hence, the Proposed Project will not result in adverse modification of critical habitat for any federally listed species.

1.6 Recovery Plans

The *Recovery Plan for Upland Species of the San Joaquin Valley, California* (USFWS, 1998) ("Recovery Plan") addresses the recovery strategy for San Joaquin kit fox and blunt-nosed leopard lizard in San Joaquin Valley. During Section 7 consultation, the USFWS must

consider the impacts of a project on both the survival and recovery of the species. The Recovery Plan serves as guidance for this assessment. However, the Recovery Plan is a guidance document, not a regulatory document. Project proponents are not required to implement the recovery strategy or specific recommended actions in the Recovery Plan or to otherwise comply with the Recovery Plan.

1.7. Literature Reviewed

The literature and information reviewed for the preparation of this Biological Assessment is listed in Section 9.0.

2 HISTORY OF CONSULTATION

When the construction plans were being made for various hazardous waste management units at the KHF in the late 1980s, including the current Landfill B-18, efforts were initiated to obtain formal approvals from the USFWS and CDFG for anticipated impacts to special status species. Three Biological Opinions have been issued by the USFWS.

USFWS Biological Opinion File No. 1-1-89-F-11, *Formal Endangered Species Consultation Concerning Proposed Construction on the Chemical Waste Management, Inc., Kettleman Hills Hazardous Waste Facility, Kings County, February 3, 1989*, covered the proposed construction of two hazardous waste management units and the grading of existing roads and firebreaks. Conservation measures for both direct and indirect effects were addressed in a 1988 Mitigation Plan prepared by BioSystems Analysis, Inc. On January 20, 1989, the KHF submitted \$80,400 to The Nature Conservancy (TNC), in compensation for 26.8 acres of habitat loss. In a May 1, 1989 letter from TNC, the USFWS, CDFG, and KHF were informed of the April 28, 1989 purchase of an 80-acre parcel in the Semitropic Ridge area of Kern County.

The other waste management units, including the current Landfill B-18, of the KHF were covered by the USFWS Biological Opinion File No. 1-1-90-F-18, *Formal Endangered Species Consultation on the Chemical Waste Management, Inc., Kettleman Hills Hazardous Waste Facilities Operations, Kings County, California, May 2, 1991* ("May 1991 Biological Opinion"), and USFWS Biological Opinion File No. 1-1-90-F-18(R), *Reinitiation of Formal Section 7 Consultation on the Operation of Chemical Waste Management's Hazardous Waste Facility in Kettleman Hills, Kings County, California, for a Water Pipeline and Firebreaks, November 22, 1991* ("November 1991 Biological Opinion," collectively the "Biological Opinions"). These Biological Opinions were issued to the EPA and the Bureau of Land Management ("BLM") to address the KHF's expansion in the early 1990s as well as the ongoing operations of the facility. These Biological Opinions established the following original conservation requirements: preserve 876 acres of offsite land in Bakersfield owned by CWM; grant a conservation easement to the CDFG for those lands; and acquire and convey 633 acres to the CDFG, including the establishment of a trust fund for the long-term maintenance of the 633 acres (the 633-acre acquisition and trust fund requirements were later eliminated, as described in the following paragraph).

During the 1993 development of the California Endangered Species Act *Memorandum of Understanding by and between Chemical Waste Management, Inc., and California Department of Fish and Game, Regarding Kettleman Hills Hazardous Waste Facility, Ref. No. 9101*, effective May 6, 1994 ("CDFG CESA MOU") for the same expansion activities, there was a recalculation of the conservation required, eliminating the need to purchase the additional 633 acres. The USFWS was informed of this recalculation in a CWM letter dated January 4, 1994; concurrence with the recalculation of conservation required was obtained from the USFWS in a February 15, 2007 meeting in Sacramento with USFWS, CDFG and KHF representatives. The CDFG CESA MOU required KHF to transfer an easement interest in 876.7 acres of the approved land at the Bakersfield site, fund a capital endowment in the amount of \$328,762.00, and maintain a Letter of Credit for \$250,000 until the first two measures were completed. The capital endowment funds (\$328,762.00) were submitted to the CDFG on June 7, 1994 and received by the CDFG on June 9, 1994. The Conservation

Easement for the 876.7 acres of the CWM property near Bakersfield was finalized through negotiation with USFWS and CDFG, signed by CWM, and submitted to the CDFG on June 27, 2008. The Letter of Credit expired on June 30, 2008. The measures as established in the current Mitigation and Monitoring Plan ("MMP") (initially approved in 1991 and revised in 2008, pending approval) are completed or being implemented.

Prior to July 2007, KHF representatives participated in several meetings with USFWS and CDFG on issues relating to species protection at the KHF, including discussion of the conservation easement for the existing conservation property required by the KHF expansion in the 1990s, and the requested updates to the MMP covering ongoing operations at KHF and at the existing conservation property. During these meetings, KHF representatives informally discussed KHF's intention to ask EPA to act as action agency for Section 7 consultation for potential species impacts resulting from the Proposed Project because of EPA's permitting responsibilities for chemical waste landfill at the KHF. Meetings with USFWS and CDFG regarding ongoing species protection issues at KHF have continued separate from the consultation-related meetings discussed below.

On July 10, 2007, KHF representatives contacted EPA requesting a meeting to discuss the EPA's role in permitting the proposed expansion of Landfill B-18 and new construction of Landfill B-20 at KHF, because of EPA's past authorization for KHF to operate chemical waste landfills and a storage unit for federal TSCA-regulated PCB wastes. KHF representatives specifically requested that EPA consider initiating Section 7 consultation with USFWS, to the extent any impacts to listed species were anticipated.

On July 17, 2007, KHF representatives participated in a conference call with EPA during which KHF representatives briefed EPA on prior PCB permitting at KHF, as well as KHF expansion plans and the status of the coordinated approval. KHF representatives also informed EPA of the ongoing species protection issues being addressed with USFWS and CDFG under the 1991 Biological Opinions, and asked EPA what additional information EPA would need in order for EPA to initiate Section 7 consultation with the USFWS.

On August 13, 2007, KHF representatives provided a background memorandum and additional materials regarding the Proposed Project to EPA, at EPA's request.

On August 21, 2007, EPA participated by conference call in a meeting with KHF representatives, USFWS and CDFG, at which both ongoing species protection issues under the 1991 Biological Opinions and the Proposed Project were discussed, in order to educate EPA on species protection issues at KHF and to help EPA determine its role in permitting the Proposed Project at KHF.

On October 23, 2007, KHF representatives sent a follow-up letter to EPA providing additional background information including copies of correspondence with USFWS and CDFG on species protection issues, as requested, and asking EPA what next steps KHF representatives should take in order to facilitate Section 7 consultation.

On November 8, 2007, KHF representatives received a letter from EPA in which EPA agreed to pursue Section 7 consultation with the USFWS and clarified that the TSCA permitting process for PCBs would be "functionally equivalent" to the NEPA review process.

On January 3, 2008, KHF representatives provided draft correspondence to EPA to assist EPA with initiating Section 7 consultation. This draft correspondence was discussed in follow-up conversations between EPA and KHF representatives.

On January 15, 2008, EPA sent a letter to USFWS (with a copy to CDFG) requesting a meeting to informally discuss EPA's intention to undertake ESA Section 7 consultation for anticipated species effects and potential conservation to offset effects associated with the Proposed Project in conjunction with CWM's application for a modified TSCA PCB approval for the Proposed Project. EPA also requested a list of species that may occur in the Kings County, California area.

On April 10, 2008, KHF representatives met with USFWS, EPA and CDFG to begin informal discussion of the Section 7 consultation process and next steps for CWM. At this meeting, KHF representatives presented background on the Proposed Project (a summary background memorandum was provided at the meeting). The TSCA permitting application process and the status of CEQA environmental review, including the DSEIR, were also discussed (copies of the DSEIR were provided at the meeting). A memorandum summarizing this meeting was provided to attendees on May 6, 2008.

On June 26, 2008, KHF representatives participated in a conference call during which informal discussion of the Section 7 consultation process and next steps for CWM continued. KHF representatives provided an update on current operations and ongoing species protection at KHF, as well as an update on the CEQA review process and on the TSCA permitting status. A memorandum summarizing this conference call meeting was provided to call participants on August 19, 2008.

On March 21, 2008, the Kings County Planning Agency made the environmental document, *Draft Subsequent Environmental Impact Report: B-18/B-20 Hazardous Waste Disposal Project, Kettleman Hills Facility* (State Clearinghouse No. 2005041064), Volumes I and II (CH2M HILL, March 2008) ("Draft SEIR"), available for public and agency review. A supplemental document, *Revised Project Description and Analysis, Draft Subsequent Environmental Impact Report: B-18/B-20 Hazardous Waste Disposal, Kettleman Hills Facility* (State Clearinghouse No. 2005041064) (CH2M HILL, May 2008) ("Revised Project Description"), was prepared to inform and provide full disclosure to the decision-makers, other agencies, and the public regarding refinements to the Proposed Project that result from more detailed engineering and design of the Proposed Project, subsequent to the release of the Draft SEIR. The Revised Project Description was made available to the public on May 6, 2008. The information contained in the Revised Project Description was incorporated into and made a part of the Draft SEIR. The public comment period for the Draft SEIR was extended to match the ending date of the public comment period for the Revised Project Description; therefore, the public comment period for both documents, collectively referenced as the *DSEIR*, ended on June 20, 2008.

Recirculated portions of the DSEIR (primarily water and traffic) were prepared and circulated for an additional 45-day public review and comment period on June 1, 2009, after which the County prepared the FSEIR.

On October 19, 2009, the Planning Commission approved the Project and certified the Final SEIR. Petitioners filed a letter appealing the approval of the Project to the Board of Supervisors on October 27, 2009. The Board held a hearing on the appeal of the Planning

Commission's approval of the Project on December 7, 2009. At a second hearing on December 22, 2009, the Board denied Petitioners' appeal and granted the CUP for the project. Petitioners filed a Verified Petition for Writ of Mandate and Complaint for Declaratory and Injunctive Relief on January 21, 2010. The Superior Court for the County of Kings denied Petitioners' Petition for Writ of Mandate and other claims in their entirety, and entered final judgment in favor of the County and Real Party in Interest Chemical Waste Management on January 25, 2011. Petitioners filed a notice of appeal on March 16, 2011.

3 DESCRIPTION OF THE PROPOSED PROJECT

3.1 Proposed Project

The Proposed Project consists of a variety of construction and operational activities. **Figure 2** shows existing and proposed facilities on the KHF. 81 acres will be fenced prior to expansion of Landfill B-18. **Figure 3** indicates where perimeter fences would be relocated for B-18 expansion. Construction includes the activities required to build the Landfill B-18 expansion and to close the modified Landfill B-18 when it reaches capacity. These construction activities would occur periodically over the life of the Proposed Project within the expanded fenced areas.

Operations consist of the disposal of waste into the Landfill B-18 expansion, plus other related on-site activities. These other activities include, but are not limited to, maintenance of landfill B-18 systems, such as leachate collection, monitoring, surface drainage, and control of nuisances, such as dust and litter. All activities will occur within the fenced area.

3.1.1 Construction Activities

Construction of the Landfill B-18 vertical expansion would occur concurrently with ongoing waste disposal operations at other areas of the Landfill B-18. It is expected that construction of the Landfill B-18 expansion would begin in 2011, with operation in 2012.

Proposed Project-related construction traffic would occur during expansion of the Landfill B-18 in 2011. During the various phases of landfill construction, it is estimated there may be up to 100 vehicle round-trips per day including construction workers and deliveries of materials for construction. Other than this construction, the vehicle traffic for operations would not change from current conditions due to the phasing of landfills. (The hazardous waste operations are permitted for 24-hours, 7-days a week.)

3.1.2 Operations

The chain-link fence that currently surrounds the existing permitted operations area (474 acres) will be extended outward to include the B-18 waste operations area (to encompass the 555-acre facility operation area). Landfill construction, operation, and closure will include the use of on-site earthen materials (soil and clay), as well as off-site sources of geosynthetic materials for construction and closure. The excavation and stockpiling of earthen materials, as well as the staging of equipment and materials, will occur within the perimeter of the chain-link fence. All soil stockpile areas are illustrated in **Figure 2**.

After use of the B-18 Stockpile area is completed, the exclusionary fence may be moved inward, and the total permanent impact acreage will be re-calculated. The conservation requirement would then be re-calculated based upon the modified impact acreage, and CWM would receive conservation credit for habitat restored to pre-project conditions, if approved by the USF&WS.

Waste truck traffic is anticipated to remain the same, i.e., no increase or decrease with the Proposed Project. Water will continue to be delivered via pipeline or truck and used in relatively the same amounts (noting a periodic increase in water usage during construction for dust control and compaction). No changes in the type or amount of activity is anticipated compared to existing operations.

3.2 Conservation Measures

A primary goal of CWM with the Proposed Project, for the Kettleman Hills Facility, is to minimize impacts to special status species during all phases of construction and operation of the Proposed Project. The below listed conservation measures are established in the FSEIR conservation measures, as well as the current Mitigation and Monitoring Plan ("MMP").

3.2.1 *On-site Conservation Measures*

- A. The following shall be implemented as general conservation measures to reduce impacts to wildlife species and habitat:
- To minimize disturbance to wildlife, lighting at the landfill working faces shall be downcast and shielded to minimize reflection, and shall be directed inward toward the landfill. Night lighting used on the landfills shall be of a low-intensity, low-glare design.
 - No firearms shall be allowed on the Project site, except in the possession of authorized personnel (e.g., sheriff, County agricultural commissioner, and other law enforcement personnel).
 - Upon completion of the Project, areas subject to temporary ground disturbance, including storage and staging areas, temporary roads, pipeline corridors, etc., shall be recontoured and revegetated, if necessary, to promote restoration of the area to pre-Project conditions. An area subject to "temporary" disturbance means any area that is disturbed during the Project, but would not be subject to further disturbance after Project completion and has the potential to be revegetated. Appropriate methods and plant species used to revegetate such areas shall be determined in consultation with the USFWS and California Department of Fish and Game (CDFG).
 - Employees and construction supervising personnel shall be required to attend a Listed Species Education Program. These personnel shall participate in the program prior to initiation of construction activity, and new employees shall receive the training prior to working on the active site. At a minimum, the program shall cover the general behavior and ecology of the pertinent listed species, legal protection, penalties for state and federal law violations, and protective measures. Construction supervisors shall train their respective personnel in this program. A fact sheet conveying this information shall be made available to onsite personnel, construction workers, and anyone else who may enter the disposal site.
 - Permanent and temporary construction disturbances and other types of Project-related disturbance to habitat lands shall be minimized to the extent feasible. To minimize temporary disturbances, Project-related vehicle traffic shall be restricted to established roads, construction areas, and other designated onsite roads. These areas shall also be included in pre-construction surveys and, to the extent practicable, shall be established in locations disturbed by previous activities to prevent further impacts.
 - CWM employees and construction workers shall be instructed to dispose of food-related trash in closed containers or remove the trash from the Project area.
 - Vehicles in active site areas shall observe a 15-mph speed limit except on County roads and state and federal highways; this is particularly important at night when

San Joaquin kit foxes are most active. To the extent practicable, nighttime construction shall be minimized.

- To prevent harassment or mortality of San Joaquin kit fox, or destruction of dens by dogs or cats, no pets shall be permitted on the active areas of KHF. Pets or guide dogs brought to the administrative areas of the site shall be restrained on a leash or otherwise confined.
- B. The Project proponent shall appoint a representative who will be the onsite contact person for any landfill employee or contractor who might inadvertently kill or injure a San Joaquin kit fox, or who finds a dead, injured, or entrapped animal. The representative will be identified during the education program for employees and construction supervising personnel. The representative's name and telephone number shall be provided to the USFWS and CDFG.
- C. Any planned Project disturbance in areas outside the existing 474-acre operational area shall be subject to a pre-construction survey. The survey, conducted by a Qualified Biologist shall occur no more than 30 days prior to the beginning of ground disturbance and/or construction activities. A record of such construction or disturbance events, and the results of the pre-construction surveys, shall be submitted to the USFWS, CDFG, and Kings County annually, or at other frequency approved by the two wildlife agencies. Methods employed during these surveys shall follow the USFWS and CDFG approved techniques:
- Surveys shall evaluate use by kit fox and, if possible, assess potential impacts to the kit fox by the proposed activity. The status of active/inactive dens shall be determined and recorded.

For the purpose of these mitigation measures, a “Trained Biologist” is a person who is either a direct employee of the project proponent or a person retained by the project proponent who is very familiar with the wildlife in the area and who has been trained by a Qualified Biologist. CWMI shall submit the names, credentials and contact information of the Qualified Biologist that will conduct preconstruction surveys, protocol surveys and/or construction monitoring to the USFWS and CDFG. A Trained Biologist may conduct future routine surveys, monitoring and reporting consistent with the final biological analysis completed for the Project under Section 7.

- D. Limited destruction of unoccupied San Joaquin kit fox dens and potential kit fox dens may be allowed if avoidance is infeasible provided the following procedures are observed:
- A Trained Biologist shall monitor the den for a minimum of three (3) days prior to disturbance to determine if the den is actually being used by kit fox. After the first three (3) days of monitoring, the den shall be partially filled a minimum of three (3) additional days to allow the animal to move to another den during its normal activities.
 - After the den is determined to be unoccupied (i.e., no kit fox are inside), it can be destroyed by careful excavation. The den shall be fully excavated, filled with dirt, and compacted to ensure that San Joaquin kit fox cannot use the den during the construction period. USFWS and CDFG encourage hand excavation, but realize

that soil conditions may necessitate the use of excavating equipment. Excavation and compaction efforts shall be conducted or overseen by a Trained Biologist.

- If, at any point, a kit fox is thought to be using the den, the plugging or excavation activity shall stop and USFWS and CDFG shall be contacted immediately.
- Natal or pupping dens that are occupied shall not be destroyed until the pups and adults have vacated, and then only after consultation with the USFWS and CDFG. Therefore, Project activities at some den sites shall be postponed if the dens are occupied.
- If excavation of a den thought to be active (but not a natal or pupping den) is unavoidable, the Qualified Biologist shall notify USFWS and CDFG in writing, before plugging or excavation activities may begin, of the intent to destroy subject dens and of the reasons why alternative courses of action are not possible. If given permission by these agencies, excavation plans may proceed as outlined below under the direction and supervision of the Qualified Biologist. If the animal does not change dens, excavation of the den may have to occur when it is temporarily vacant (e.g., at night). Plugging and excavation activities shall be avoided to the extent feasible during the breeding season (January 15 through June 1), when most active dens are being used as reproductive or pupping dens.
 - The den shall be monitored for at least five (5) consecutive days in addition to the three (3) initial observation times. This time period will allow any resident animal to move to another den during its normal activity. This monitoring shall be conducted by a Trained Biologist.
 - Use of the den can be discouraged during this five-day period by partially plugging the entrance(s) with soil in such a manner that any resident animal can escape easily. This monitoring and plugging shall be conducted by a Trained Biologist.
 - When signs of activity at the den cease and the USFWS and CDFG (or a Qualified Biologist) deem it safe to do so, the den can be dug out by hand tools to a point where it is certain no kit fox is using the den. The den shall be fully excavated and then filled with dirt and compacted to ensure that the kit fox cannot reenter the den during the construction period. USFWS and CDFG encourage hand excavation, but realize that soil conditions may necessitate the use of excavating equipment. This den destruction shall be conducted or overseen by a Trained Biologist. CWMI shall submit the names, credentials and contact information of the Qualified Biologists that will conduct preconstruction protocol surveys and/or construction monitoring other professional biologist work to the USFWS and CDFG. A Trained Biologist may conduct future routine surveys, monitoring and reporting consistent with the final biological analysis completed for the Project under Section 7.
- A Trained Biologist shall document and report den monitoring and plugging activities in writing to USFWS, CDFG, EPA, and Kings County annually, or at other frequency approved by the two wildlife agencies.
- If a take authorization/permit has been obtained from the USFWS and CDFG, active den destruction may proceed consistent with the terms of the incidental take permit. If no take authorization/permit has been issued, then potential dens

shall be monitored in accordance with the procedures included this mitigation measure.

- E. To prevent inadvertent entrapment of San Joaquin kit foxes during the construction phase of the Project, excavated, steep-walled holes or trenches more than two (2) feet deep that are located outside of the chain-link fence shall be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they shall be thoroughly inspected for trapped animals. In the case of trapped animals, escape ramps or structures shall be installed immediately to allow the animals to escape, or the USFWS and/or CDFG shall be contacted for advice. If at any time a trapped or injured San Joaquin kit fox is discovered, the procedures for notifying the proper authorities set forth below in On-site Conservation Measure F shall be followed.
- F. Any Project personnel who inadvertently kills or injures a San Joaquin kit fox or blunt-nosed leopard lizard or other protected wildlife, or who discovers a dead or injured San Joaquin kit fox or blunt-nosed leopard lizard or other protected wildlife, shall immediately report the incident to their representative or designee. This representative or designee shall contact the State Dispatch at (916) 445-0045 for immediate assistance in the case of a dead, injured, or entrapped San Joaquin kit fox or blunt-nosed leopard lizard. The Sacramento office of the USFWS and CDFG must be notified in writing within three (3) working days of the accidental death or injury to a San Joaquin kit fox or blunt-nosed leopard lizard during Project-related activities. Notification shall include the date, time, and location of the incident or the finding of a dead or injured animal, and any other pertinent information. The USFWS Sacramento office contact is the Chief of the Division of Endangered Species, Susan Jones, or her successor, at 2800 Cottage Way, Room W2605, Sacramento, California 95825, (916) 414-6630. The CDFG contact for the written notification is Mr. Ron Schlorff, or his successor, at 1416 9th Street, Sacramento, California 95814, (916) 654-4262.
- G. Construction pipes, culverts, or similar structures with a diameter of four (4) inches or greater that are stored at a construction site at less than two feet aboveground, and that are located outside of the chain-link fence for one or more overnight periods, shall be thoroughly inspected for San Joaquin kit fox before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a San Joaquin kit fox is discovered inside a pipe, that section of pipe shall not be moved until the USFWS or CDFG has been consulted, or the animal has fled. If necessary, and under the direct supervision of a Qualified Biologist, the pipe may be moved once to remove it from the path of construction activity, where it shall remain until the fox has escaped. CWMI shall submit the names, credentials and contact information of the Qualified Biologist that will conduct preconstruction protocol surveys and/or construction monitoring other professional biologist work to the USFWS and CDFG. A Trained Biologist may conduct future routine surveys, monitoring and reporting consistent with the final biological analysis completed for the Project under Section 7.
- H. Use of rodenticides and herbicides in Project areas shall be restricted to those included on a list of acceptable rodenticides and herbicides provided by the USFWS. Use of such compounds shall observe label and other restrictions mandated by EPA, California Department of Food and Agriculture (CDFA), and other state and federal legislation, as well as additional Project-related restrictions deemed necessary by

USFWS or CDFG. If rodent control must be conducted, zinc phosphide, or other rodenticide approved by the USFWS and CDFG at that time, may be used because of proven lower risk to San Joaquin kit fox (USFWS, 1999).

- I. Flashing 24-inches in height, with at least 18-inches aboveground and 3-inches belowground, shall be installed around the area of the B-20 Landfill to deter blunt-nosed leopard lizards from entering that part of the Project area in future years. This flashing shall be inspected annually to ensure its integrity remains in place.
- J. If blunt-nosed leopard lizards are observed at the work site during construction, construction shall cease within a 100-foot radius and the USFWS and CDFG shall be consulted to ensure no take will occur. After the USFWS and CDFG determine that no take will occur, construction will be allowed to resume in that area.
- K. To minimize potential nesting/breeding disturbance to the loggerhead shrike during construction, dense stands of saltbush or other shrubs shall be removed prior to the nesting/breeding season (February 1 through September 1). This removal process shall include areas in and within 50 feet of the construction zone.

3.2.2 Off-site Conservation Measures

The Applicant shall acquire San Joaquin kit fox conservation credits at the Kreyenhagen Hills Conservation Bank, or other conservation bank mutually acceptable to the Applicant, EPA, USFWS, and CDFG. The amount of habitat credit purchased (243 acres) will be at a ratio of 3:1 (3 acres of conservation credits acquired for each 1 acre of habitat loss) for permanent disturbances or 243 acres for 81 acres comprising the B-18 landfill extension. The applicant will provide proof of purchase of credits in accordance with the ratio for affected area prior to impacting any habitat, including by fencing, grading, or other land disturbance. (See Attachment 2 for documents on Kreyenhagen Hills Conservation Bank.).

4 STATUS OF THE SPECIES

The following section describes pertinent information related to life history, habitat requirements, and distribution of the species addressed in this BA.

4.1 Biological Setting

The KHF is located in the Kettleman Hills region along the western edge of the California Central Valley. The Kettleman Hills region is dominated by a low, discontinuous, northwest trending ridge. A flat apron of Pleistocene nonmarine sediments and recent alluvial fan deposits, referred to as Kettleman Plain and Pleasant Valley, have formed around Kettleman Hills. The predominant vegetation community in this region is annual grassland. Shrublands are also common in the Kettleman Hills area, often dominated by saltbush, shadescale, or California sagebrush. The region is very arid, runoff is rapid, and local streams are dry before summer. The annual precipitation in the Kettleman Hills area is 6 to 12 inches, and the annual mean temperature is approximately 62° to 65° F (US Forest Service 2008). Elevations in the region range from approximately 600 feet above mean sea level (msl) on the fans up to 1200 feet msl on the hills.

Terrain in the Action Area is highly dissected with a diversity of microhabitats including steep badlands, fine particle alkaline deposits, sand and rocky outcrops, and ephemeral drainages and washes (CH2M HILL 2008a). Vegetation in the Action Area consists primarily of non-native annual grassland with scattered saltbush scrub. The site was used historically for grazing. The 81 acres proposed to be impacted are mostly undisturbed, although there are existing roads and wells, and a stockpile near the existing Landfill B-18.

4.2 Studies Conducted

A list of biological surveys conducted on the KHF is provided in Attachment 3. The biological studies conducted on the KHF are summarized below. Protocol-level surveys were not conducted for San Joaquin kit fox because it had already been determined based upon the earlier reconnaissance-level surveys that this species is present on the KHF.

- 1988 Biosystems Analysis. Rare plant surveys were conducted on the KHF in 1988, consistent with CDFG guidelines. The surveys covered the entire approximately 1,400 undeveloped acres of the KHF, which includes the Proposed Project area. Surveys were conducted March, April, May and June of 1988, during the blooming period for target plant species. State and federally listed species targeted during the survey included San Joaquin woolly-threads and California jewelflower. No state or federally listed plant species were observed during these surveys.
- 1991 Biosystems Analysis. Rare plant surveys were conducted on the KHF in 1991 consistent with CDFG protocol. The surveys encompassed the entire KHF, including the Proposed Project area, plus a strip of road where a prepared water pipeline installation was anticipated. The surveys were conducted during mid-to late May, in order to observe plants during the height of the flowering period for target species. 1991 was a high rainfall year, therefore the chance of observing rare species was high, if present. State and federally listed species targeted during the survey included

San Joaquin woolly-threads and California jewelflower. No state or federally listed plant species were observed during the 1991 survey.

- 2000 CWESA. Plant and wildlife surveys were conducted during April through June, 2001, within a 50-acre proposed borrow site that is on the KHF (Area B-17) but not within the Proposed Project Area. State and federally listed species targeted during the survey included San Joaquin woolly-threads, California jewelflower, blunt-nosed leopard lizard, and San Joaquin kit fox. No state or federally listed species were detected during these surveys.
- 2002 Bumgardner Biological Consulting and TRC. Plant and wildlife surveys were conducted within Area B-20. This survey did not include the Proposed Project Area. State and federally listed species targeted during the survey included San Joaquin woolly-threads, San Joaquin kit fox, giant kangaroo rat, and blunt-nosed leopard lizard. No state or federally listed species were detected during this survey.
- 2004 Bumgardner Biological Consulting. Focused blunt-nosed leopard lizard surveys consistent with CDFG-approved protocol were conducted on appropriate habitat throughout the Project Site (including the Proposed Project Area) in June, August, and September, 2003. No blunt-nosed leopard lizards were observed during the surveys.
- 2004 Bumgardner Biological Consulting and TRC. Supplemental plant and wildlife surveys were conducted within an expanded Area B-20. This survey did not include the Proposed Project Area. No state or federally listed species were detected during this survey.
- 2007 Bumgardner Biological Consulting. Focused blunt-nosed leopard lizard surveys consistent with CDFG-approved protocol were conducted on appropriate habitat throughout the Project Site (including the Proposed Project area) in April through August, 2007. No blunt-nosed leopard lizards were observed during the surveys.

4.3 Species Accounts/Status

4.3.1 San Joaquin Kit Fox

The San Joaquin kit fox (*Vulpes macrotis mutica*) is a federally listed endangered and state listed threatened species. Detailed information on its distribution, life history, and habitat can be found in the Recovery Plan. No critical habitat for the San Joaquin kit fox has been designated by the USFWS. The USFWS recently conducted a five-year review of this species' status and recommended no change in the federally endangered status of the San Joaquin kit fox (USFWS 2010a).

As part of its Recovery Plan, the USFWS has developed a recovery strategy for the San Joaquin kit fox. The focus of the recovery strategy is conservation of the three following core populations of the San Joaquin kit fox: Carrizo Plain Natural Area in San Luis Obispo

County; natural lands in western Kern County (i.e., Elk Hills, Buena Vista Hills, and the Buena Vista Valley, Lokern Natural Area); and Ciervo-Panoche Natural Area of western Fresno and eastern San Benito counties. In addition to these three core population areas, the Recovery Plan emphasizes the importance of conserving satellite populations and key linkage areas between these three core populations.

The criterion for downlisting the San Joaquin kit fox from Endangered to Threatened, as outlined in the Recovery Plan, is to have stable or increasing populations in the three core areas through one precipitation cycle, and to have population interchange between one or more core populations and the three satellite populations. Sufficient habitat must be protected in the three core populations and three satellite populations in order to achieve this goal, and habitat connectivity between the core and satellite populations must be maintained. To de-list the species, the Recovery Plan indicates that “several” additional satellite populations must be protected sufficiently to allow for stable and increasing populations and population interchange. The Recovery Plan states that the number of additional satellite populations necessary to de-list the species would depend upon results of subsequent research. The USFWS is currently conducting a review of the recovery status of this species to determine whether the downlisting criteria and requirements are being met. One of the recovery requirements outlined in the Recovery Plan is pertinent to the project area: 80% preservation of existing potential habitat within the Kettleman Hills area, which includes both the Pleasant Valley and Kettleman Hills satellite populations (USFWS 1998). As shown on **Figures 4 and 5**, the KHF is within the Kettleman Hills kit fox satellite population, approximately halfway between the Carrizo Plain and Western Kern County core populations, to the south, and the Ciervo Panoche core population, to the north. The Kettleman Hills and Pleasant Valley satellite populations occupy a large block of habitat approximately 16 to 22 miles wide and 40 to 42 miles in length, with a total area of approximately 480,883 acres.

While no occupied kit fox dens were found in the Action Area, potential dens of the San Joaquin kit fox were observed during the 2002 and 2003 biological surveys of the Proposed Project area and later-scheduled portions of the KHF (Bumgardner 2002; 2004b), and San Joaquin kit fox scat and tracks were observed during the 2007 blunt-nosed leopard lizard survey (CH2M HILL, 2008a) in the area proposed for Landfill B-20. Given the presence of suitable habitat at the KHF, the records of kit fox in the region, the size of the kit fox home range, the mobility of the kit fox, and the observation of kit fox scat and tracks in the proposed Landfill B-18 area, there is a moderate potential for kit fox to occur in the Action Area.

4.3.2 Blunt-Nosed Leopard Lizard

The blunt-nosed leopard lizard (*Gambelia silus*) is a federal and state endangered species, as well as a California fully protected species. Detailed information on its distribution, life history, and habitat can be found in the Recovery Plan. No critical habitat for the blunt-nosed leopard lizard has been designated by the USFWS. The USFWS recently conducted a five-year review of this species’ status and recommended no change in the federally endangered status of the blunt-nosed leopard lizard (USFWS 2010b).

The current range of the species includes undeveloped parcels in the southernmost portion of the San Joaquin Valley (Tulare and Kings Counties south to Kern County), valley floor in the vicinity of western Madera County, and along the western edge of the valley from Merced

County south to Ventura County. Its range also extends into the Carrizo Plain and Cuyama Valley west of the southwestern end of the San Joaquin Valley (in Santa Barbara and San Luis Obispo Counties) (Bumgardner 2002). The recovery strategy established by the USFWS for the blunt-nosed leopard lizard is focused on addressing questions on how to preserve and enhance the populations on existing habitat before purchase of land or conservation easements (USFWS 1998). The only Kings County land mentioned in the Recovery Plan is the portion of natural lands west of Highway 33, about six miles from the KHF.

The criterion for downlisting the blunt-nosed leopard lizard from Endangered to Threatened, as outlined in the Recovery Plan, is to protect five or more areas, each of about 5,997 acres or more of contiguous, occupied habitat, including one of each on: Valley floor in Merced or Madera Counties; Valley floor in Tulare or Kern Counties; foothills of the Ciervo-Panoche Natural Area, foothills of western Kern County, and the Carrizo Plain Natural Area. De-listing the species, based on the Recovery Plan, would require protection of three additional areas with about 5,997 acres or more of contiguous, occupied habitat, one on the Valley floor, one along the western Valley edge in Kings or Fresno Counties, and one in Upper Cuyama Valley. One of the recovery requirements outlined in the Recovery Plan is preservation of at least 6,000 acres of contiguous, occupied habitat along the western-central edge of the Central Valley in Kings and Fresno Counties (USFWS 1998).

The blunt-nosed leopard lizard was previously recorded near the administration building at the KHF in the early 1990s. The 2002, 2003 and 2007 biological surveys (Bumgardner 2002; 2004a; 2007) did not record blunt-nosed leopard lizard in the survey area, and each survey strengthened the conclusion that there is no evidence of this species inhabiting the Action Area. During the life of the Proposed Project, conditions could change (e.g., increased disturbance and the opportunity for burrow-digging, low rainfall and the resulting reduction in vegetation). Proposed Project's disturbance or a drought may provide the opportunity for blunt-nosed leopard lizard habitat to become available in the future Landfill B-18 area. These changes could create suitable habitat and increase the potential for blunt-nosed leopard lizard to occur within the Proposed Project area. Several conservation measures detailed in Section 3.3.

5 ENVIRONMENTAL BASELINE

5.1 Definition

Under the federal implementing regulations for Section 7 of the ESA, the USFWS is responsible for evaluating project-related effects that will be added to the species' environmental baseline (50 CFR §402.02). As specified in the USFWS's Section 7 Handbook (USFWS 1998), the environmental baseline section of the USFWS's Biological Opinion is an analysis of the effects of past and ongoing human and natural factors leading to the current status of the species and its habitat within the Action Area. The federal regulations define "environmental baseline" to include the following:

The past and present impacts of all Federal, State, or private actions and other human activities in an action area, the anticipated impacts of all proposed Federal projects in an action area that have already undergone formal or early Section 7 consultation, and the impact of State or private actions that are contemporaneous with the consultation in process. [50 CFR §402.02]

5.2 Past and Present Activities, and Proposed Federal Projects, in the Action Area

An environmental assessment for the KHF was conducted in 1985 (CH2M Hill 1985), with biological surveys conducted periodically since 1988. There has been little change in the Action Area and surrounding lands since the initial assessment, with the exception of the curtailment of off-road vehicles from the property northeast of the KHF and west of Interstate-5 in the early 1990s. The KHF receives wastes by truck and treats, stores, and/or disposes of those wastes in landfills, surface impoundments, tanks, and/or containers. As a land disposal facility, environmental monitoring systems, e.g., groundwater and gas monitoring wells, are installed at various locations within and outside of the chain-link fence perimeter. These environmental monitoring systems require periodic vehicle traffic and some equipment. The KHF has been in operation since around 1972. When the construction plans were being made for various units in the late 1980s, including the current Landfill B-18, efforts were initiated to obtain formal approvals from the USFWS and CDFG. Conservation and monitoring requirements were established with the Biological Opinions, discussed in Section 2.0. These Biological Opinions were issued to the EPA and BLM to address KHF's expansion in the early 1990s as well as the ongoing operations of the facility. The proposed water pipeline project was withdrawn from consideration, but Landfill B-18 was constructed and is currently operating. The measures as established in the current MMP (initially approved in 1991 and revised in 2008, pending agency approval) are completed or being implemented on an ongoing basis.

There is no evidence that past or ongoing activities in the Action Area have affected the current status of San Joaquin kit fox or blunt-nosed leopard lizard. Natural factors have likely contributed to the current status of blunt-nosed leopard lizard on the site. As indicated in the 2007 blunt-nosed leopard lizard survey report (Bumgardner 2008), non-native grasses on the site as of 2007 were considerably denser than they were in prior years. Studies have shown that thick cover of non-native grasses degrades the habitat for blunt-nosed leopard lizard in some years and locations (Germano and Williams 2005). The density of non-native grasses during 2007 could have been a factor in the negative survey results. However, blunt-

nosed leopard lizard populations fluctuate greatly with environmental conditions, and it is possible that conditions in the Action Area could improve in the future with grass densities declining due to natural factors such as drought or fire.

6 EFFECTS

6.1 San Joaquin Kit Fox

6.1.1 *Habitat Loss*

The Proposed Project would remove 81 acres of habitat that could potentially be occupied by the San Joaquin kit fox. Because of that habitat loss, the proposed project also includes the purchase, from a conservation bank, of credits accounting for 243 acres of kit fox habitat. This constitutes 3 acres of conservation habitat for each acre of habitat lost.

Whereas the land to be lost under the Proposed Project is unprotected and currently neither managed nor monitored, the conservation land will be preserved from development in perpetuity and managed and monitored for the express purpose of sustaining habitat viability for the San Joaquin kit fox.

6.1.2 *Habitat Fragmentation*

The Proposed Project would not substantially reduce or restrict the range of the San Joaquin kit fox through habitat fragmentation. The Action Area is within the Kettleman Hills satellite kit fox population, and is not within any pinch points for kit fox habitat connectivity. Large, unfragmented blocks of kit fox habitat would remain on the KHF site outside of the fence, and surrounding lands. Furthermore, the proposed conservation measures would provide preservation and management of unfragmented suitable habitat for the purpose of sustaining values for kit fox in perpetuity.

6.1.3 *Construction and Operation Related Effects*

Potential effects to kit fox resulting from Proposed Project construction and operation within the Action Area, absent the proposed conservation measures, include harm or injury due to vehicles strikes or entrapment by construction equipment; harm or injury due to unanticipated exposure to contaminants; or disruption of normal activities due to disturbance from noise, human activity, or lighting. With the conservation measures incorporated as described in section 3.3, kit foxes would not be adversely affected by construction and operation related activities. Effects to kit foxes during construction and operation would be avoided and minimized through the implementation of preconstruction surveys, avoidance of impact to active natal pupping dens, monitoring, fencing, employee education, adhering to speed limits on construction sites, restricting construction to daylight hours to the extent practicable, limiting the use of rodenticides and herbicides, prohibiting traffic in protected areas, posting signs to warn visitors of the potential of encountering kit fox, and inspecting pipes, culverts, and similar structures prior to installation, as described in section 3.3.

6.1.4 *PCB Releases to the Environment*

PCBs may be released to the environment as vapor emissions or in contaminated soil transported as windblown particulate. EPA requested CWM to collect soil, vegetation, and air samples at the perimeter of the facility (Action Area boundary) and analyze them for PCB congeners to assess risk to human health and the environment from PCB operations at the CWM Facility (Wenck Associates, Inc. November 2010. *Final Dioxin-Like Polychlorinated Biphenyl (PCB) Congeners Study Report, Chemical Waste Management, Inc. Kettleman Hills Facility (KHF), Kings County, California.*). Based on the completed Ecological Risk

Assessment, EPA concluded that the PCB congeners concentrations measured at the perimeter of the CWM Facility would have no ecological effects. Accordingly, no additions were made to the Action Area to account for such releases.

6.1.5 Effects with Respect to Recovery

As described in section 4.3.1, the recovery plan for San Joaquin kit fox calls for protection of 80% of the potential kit fox habitat within the Kettleman Hills area, and retention of sufficient habitat connectivity to allow for adequate dispersal between core and satellite kit fox populations. Figure 72 of the Recovery Plan shows the location of the Kettleman Hills linkage area, which corresponds to the Kettleman Hills and Pleasant Valley satellite populations mapped by USFWS and shown on **Figures 4** and **5**. The proposed project would remove 81 acres of kit fox habitat, which constitutes approximately 0.02 percent of the potential habitat within the Kettleman Hills and Pleasant Valley satellite populations. The project would also result in acquisition to 243 conservation credits at the Kreyenhagen Hills Conservation Bank or other conservation bank mutually acceptable to the Applicant, EPA, USFWS, and CDFG. Both the KHF facility and the Kreyenhagen Hills Conservation Bank are within a linkage area between the Carrizo Plain and Western Kern County core populations to the south, and the Ciervo Panoche core population to the north. As shown on **Figures 4** and **5**, the Proposed Project will not preclude connectivity between these core populations. Moreover, preservation and management of the Kreyenhagen Hills Conservation Bank contributes to the connectivity between these core populations, as called for in the recovery plan and will not preclude implementation of the recovery plan.

6.2 Blunt-Nosed Leopard Lizard

6.2.1 Construction and Operation Related Effects

The 2002, 2003, and 2007 focused, protocol-level surveys for blunt-nosed leopard lizard did not record any signs of this species in the Action Area, and blunt-nosed leopard lizards have not been detected by a qualified biologist at the KHF for over 14 years. There is, therefore, no evidence that blunt-nosed leopard lizard currently inhabits the Action Area, and the project is unlikely to affect this species. However, the distribution of the species is dynamic throughout its range and is highly dependent upon local climatic conditions and the resultant density of vegetation. The non-native grasses throughout most of the Action Area are currently too dense to be suitable for this species, but grass densities on this site have been known to fluctuate and conditions could change in the future, once again providing suitable habitat for blunt-nosed leopard lizard.

Conservation measures to avoid and minimize impacts to San Joaquin kit fox at the Proposed Project site (see section 6.1), will also benefit the blunt-nosed leopard lizard if this species should re-occupy the site in the future. As described in section 3.3.1, biological monitoring will be implemented to ensure that take of this species does not occur.

Acquisition of San Joaquin kit fox habitat conservation credits at the Kreyenhagen Hills Conservation Bank will also benefit the blunt-nosed leopard lizard. No blunt-nosed leopard lizards have been observed at the Kreyenhagen Hills Conservation Bank; however, the site has numerous washes that provide suitable habitat for the species, and there is a record for the species approximately one mile from the conservation bank (USFWS 2010b). The

Keyenhagen Hills Conservation Bank has higher quality habitat for blunt-nosed leopard lizard than the Proposed Project area, based on the abundance of washes at the Keyenhagen Hills site and grazing practices designed specifically to keep the grasses low (blunt-nosed leopard lizard cannot persist in habitat dominated by high grasses).

6.2.2 Effects with Respect to Recovery

As described in section 4.3.2, the Recovery Plan outlines criteria for species recovery which involve preservation of large, contiguous blocks of occupied habitat in specified areas. The Recovery Plan calls for the preservation of at least 6,000 acres of contiguous, occupied habitat along the western-central edge of the Central Valley in Kings and Fresno Counties (USFWS 1998). The loss of up to 81 acres of currently un-occupied, marginally suitable habitat resulting from the Proposed Project will not preclude the implementation of this recovery criterion. Furthermore, acquisition of credits at the 1,295 Keyenhagen Hills Conservation Bank will contribute to the preservation of a large, contiguous block of suitable habitat in proximity to known occupied habitat along the western-central edge of the Central Valley in Fresno County, consistent with recovery goals for this species.

7 CUMULATIVE EFFECTS

Cumulative effects as defined under Section 7 of the ESA and implementing regulations include the effects of future state, local or private actions that are reasonably certain to occur in the Action Area. Future federal actions are not addressed as cumulative effects under Section 7 of the ESA.

Factors potentially affecting kit fox populations in the Action Area include past habitat loss, road kills, illegal shooting, trapping, pest control, predation by coyotes, competition with or predation by introduced red foxes, and prolonged drought. Developments throughout the range of the San Joaquin kit fox and blunt-nosed leopard lizard, including urban and agricultural development, aqueducts, irrigation canals, surface mining, road networks, petroleum fields, other industrial projects, power lines, and wind farms, cumulatively constrict these species into fragmented areas, varying in size and quality. The isolation of subpopulations can lead to increased rates of extinction due to the effects of inbreeding, genetic drift, Allee effects, competition, and catastrophic occurrences in the local environment (Clark *et al* 2007). The Proposed Project will contribute to the cumulative loss and fragmentation of San Joaquin kit fox and blunt-nosed leopard lizard habitat throughout the subspecies' range. However, the proposed conservation measures would minimize these cumulative effects.

Section 3.4.4 of the FSEIR provided an evaluation of cumulative impacts to biological resources. Cumulative impacts are defined differently under the California Environmental Quality Act (CEQA) than under Section 7 of the Endangered Species Act, and the projects addressed in the Draft SEIR cumulative impacts analysis that would impact listed species would likely require future federal take authorizations, therefore would not be considered cumulative under Section 7. However, the SEIR analysis is summarized herein to provide USFWS with additional information.

Impacts to biological resources as a result of on-site cumulative projects were found to be less than significant under CEQA, because these projects occur mostly within the existing operations area of the facility. The impacts to biological resources as a result of off-site cumulative projects are as follow:

- The Avenal Landfill Expansion, a project about 10 miles from the facility, will impact previously undisturbed areas. The project's loss of 40 acres of habitat for the San Joaquin kit fox, burrowing owl, and San Joaquin antelope squirrel will be addressed by land dedication.
- The Westlake Farms Co-Composting Facility, a project about six miles from the facility, will not result in habitat loss because the project will occur in previously disturbed areas. The project could result in disturbance to nesting western snowy plover and burrowing owl. These impacts were found to be less than significant after conservation.
- The California Department of Transportation's State Route 41 Rehabilitation Project will not result in habitat loss because the project will occur in previously disturbed areas. The project area is adjacent to a state highway, which is subject to ongoing

disturbance from daily traffic. Project-related impacts were found to be less than significant. [The portion of this rehabilitation project that travels past the facility, i.e., the portion between Quail Avenue and Utica Avenue, was completed prior to 2008.]

- The proposed Quay Valley Ranch Planned Community Development will contain both farmland and natural vegetation. The site is potential habitat for several listed state and federal plant and animal species and could contain wetlands and other waters of the United States. Biological surveys and jurisdictional delineations are in progress and the environmental document for this proposed project is being prepared.
- The proposed Avenal Energy Project site is located on agricultural land. This land has marginal wildlife habitat value and provides only low-quality foraging opportunities for local wildlife species. The removal of row crops at the site will incrementally reduce the amount of agricultural habitat available to common and special-status wildlife species throughout the region. California Energy Commission ("CEC") staff is currently unable to: 1) identify the habitat compensation bank to be used; 2) obtain an agreement between the applicant, agencies, and staff regarding the width of the setback from the canal and the United States Bureau of Reclamation ("USBR") right-of-way; 3) finalize the exact acreage amounts that will be impacted by the project, and 4) determine if the potable water pipeline route would be located in wildlife habitat. Currently the applicant, USFWS, CDFG, and CEC staff disagrees on the setback that the project facilities should have from the adjacent USBR right-of-way and the California Aqueduct San Luis Canal. The setback is important to preserve a larger area for foraging and movement for San Joaquin kit fox and other species such as the Tulare grasshopper mouse and the San Joaquin pocket mouse. CEC staff does anticipate that these issues will be resolved. For this reason, staff has proposed conditions of certification that, if adopted, will address the impacts to less than significant (CEC 2009).

The Avenal Landfill, Westlake Farms, and Caltrans projects have been determined to have less than significant impacts to biological resources with mitigation, and the Avenal Energy Project is anticipated to have less than significant impacts. At the time of the Draft SEIR issuance, biological surveys had not yet been completed for the Quay Valley project and therefore its biological impacts and associated conservation measures were not known.

8 CONCLUSIONS

8.1 San Joaquin Kit Fox

The Proposed Project may affect the the San Joaquin kit fox through loss of up to 81 acres of habitat. However, after reviewing the current status of the San Joaquin kit fox, the environmental baseline for the Action Area, the direct and indirect effects for the Proposed Project, and the cumulative effects, the Proposed Project is not expected to appreciably reduce the numbers, reproduction, or distribution of this species, and is not likely to appreciably reduce the likelihood of the species' survival or recovery in the wild. This conclusion has been reached because:

1. On-site conservation measures proposed as part of the project description will minimize impacts to the San Joaquin kit fox during construction, and operation activity is not likely to kill or harm any San Joaquin kit fox.
2. Only approximately 0.02 percent of the potential habitat within the satellite population would be impacted, and large, unfragmented blocks of kit fox habitat would remain on the 1,600 acre KHF site outside of the fence, as well as on surrounding lands. Futhermore, the proposed conservation measures provide preservation and management of a relatively large, unfragmented block of suitable kit fox habitat in the nearby area in perpetuity, at a ratio of 3:1, which will offset any adverse impacts from the Proposed Project.
3. The Action Area is not within any pinch points for kit fox habitat connectivity.
4. The Proposed Project will not preclude the implementation of any measures outlined in the Recovery Plan as necessary for the recovery of this species.

The Proposed Project will not adversely modify critical habitat for the San Joaquin kit fox because critical habitat has not been formally designated for this species.

8.2 Blunt-Nosed Leopard Lizard

The Proposed Project may affect blunt-nosed leopard lizard.

However, after reviewing the current status of the blunt-nosed leopard lizard, the environmental baseline for the Action Area, the direct and indirect effects for the Proposed Project, and the cumulative effects, the Proposed Project is not expected to appreciably reduce the numbers, reproduction, or distribution of this species, and is not likely to appreciably reduce the likelihood of the species' survival and recovery in the wild. This conclusion has been reached because:

1. To avoid any take of the species through harm or harassment if the on-site habitat were to become suitable and occupied, the Proposed Project will implement the conservation measures described in section 3.3 designed to discourage establishment of the species in the potential impact area.

2. Acquiring conservation credits at the Kreyenhagen Hills Conservation Bank, which provides suitable habitat for blunt-nosed leopard lizard, will offset any adverse impacts to the blunt-nosed leopard lizard from the Proposed Project.
3. The Proposed Project will not preclude the implementation of any measures outlined in the Recovery Plan as necessary for the recovery of this species.

The Proposed Project will not adversely modify critical habitat for the blunt-nosed leopard lizard because critical habitat has not been formally designated for this species.

8.3 Proposed Project Consistency with Recovery Plan

The Proposed Project is consistent with the Recovery Plan. As described in section 0, the Proposed Project is consistent with recovery goals for the San Joaquin kit fox or the blunt nosed leopard lizard.

The Proposed Project would not preclude habitat connectivity or exceed the preservation specified threshold for the Kettleman Hills satellite population. Furthermore, dedication of conservation bank land in the Pleasant Valley San Joaquin kit fox satellite population that provides habitat values for the kit fox is the first element of the "Ecosystem-Level Strategy" outlined in the Recovery Plan.

9 LITERATURE REVIEWED

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Figure 1 – Project Location Map

Figure 2–Proposed Project

Figure 3 Proposed Project Area

Figure 4 - San Joaquin Kit Fox Populations

Figure 5 Rangewide San Joaquin Kit Fox Map

Attachment 1

ENDANGERED, THREATENED, OR SPECIAL STATUS SPECIES LIKELY TO OCCUR IN THE PROJECT AREA

NOTE: The source of this list is Table 2 in the 2002 Survey (Bumgardner 2002), except that only listed species are included, and blunt-nosed leopard lizard status had been added². Hoover's eriastrum has been de-listed³ and is therefore not included.

Genus/Species	Common Name	Status	Likelihood of Occurrence on the Project Area
PLANTS			
<i>Monolopia congdonii</i>	San Joaquin woollythreads	FE/CNPS 1b	Moderate Potential
REPTILES			
<i>Gambelia sila</i>	Blunt-nosed leopard lizard	FE/SE/CFP	Low Potential
MAMMALS			
<i>Dipodomys ingens</i>	Giant kangaroo rat	FE/SE	No Potential
<i>Vulpes macrotis mutica</i>	San Joaquin kit fox	FE/ST	Moderate Potential

FE Federally listed as Endangered

FT Federally listed as Threatened

SE State listed as Endangered

ST State listed as Threatened

CFP CDFG designated as "Fully Protected"

CNPS 1b Plants that are rare, threatened, or endangered in California and elsewhere

² www.fws.gov/sacramento/es/animal_spp_acct/blunt-nosed_lizard.pdf

³ Federal Register, Volume 68, # 194, pp. 57829-57837

Attachment 2

Kreyenhagen Hills Conservation Bank Agreement

Attachment 3

BIOLOGICAL SURVEYS

1. BioSystems Analysis, Inc. July 1988. *Rare Plant Survey of the Kettleman Hills Hazardous Waste Disposal Facility.*
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