United States Department of the Interior
Bureau of Land Management
Environmental Assessment # DOI-BLM-CA-D070-2014-0090
Case File # 49698

Environmental Assessment

Weed Management Plan

Tule Wind Project

San Diego County, California

U.S. Department of the Interior
Bureau of Land Management
El Centro Field Office
1661 South 4th Street
El Centro, CA 92243

August 2015

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ACRONYMS AND ABBREVIATIONS

ACEC	Area of Critical Environmental Concern
APE	area of potential effect
ASM	ASM Affiliates, Inc.
BEE	butoxyethyl ester
BLM	U.S. Department of Interior, Bureau of Land Management
BO	Biological Opinion
Cal-IPC	California Invasive Plant Council
CDFW	California Department of Fish and Wildlife
County	County of San Diego
CPUC	California Public Utilities Commission
EA	Environmental Assessment
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
I-8	Interstate 8
LUST	leaking underground storage tank
mL/g	milliliters per gram
NAHC	Native American Heritage Commission
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
NWNSCP	Noxious Weed and Non-Native Species Control Plan
PEIS	Programmatic Environmental Impact Statement
PEIS for Vegetation Treatments	Final Programmatic Environmental Impact Statement for Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States
Project EIR/EIS	Final Environmental Impact Report/Environmental Impact Statement for the East County Substation, Tule Wind, and Energia Sierra Juarez Gen-Tie Projects
QAC	Qualified Applicator Certificate
QAL	Qualified Applicator License
ROW	right-of-way
RS	Restoration Specialist
SOPs	standard operating procedures
TCPs	traditional cultural properties
TEA	triethyamine salt
USFWS	U.S. Department of Interior, Fish and Wildlife Service
WCM	Weed Control Manager

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CHAPTER 1: INTRODUCTION

This Environmental Assessment (EA) has been prepared to disclose and analyze the environmental effects of the Proposed Action, which would consist of the use of three herbicides (glyphosate, triclopyr, and 2,4-D) for weed management within the Tule Wind project site in southeastern San Diego County, California near the community of Boulevard (Figures 1 through 3). This EA will assist the Bureau of Land Management (BLM) El Centro Field Office in project planning and ensuring compliance with the National Environmental Policy Act (NEPA), and in making a determination as to whether any significant environmental effects could result from the analyzed actions.

1.1 Background

Throughout this EA, the reader is referred to two other environmental documents: (1) *Final Programmatic Environmental Impact Statement (PEIS) for Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States* (PEIS for Vegetation Treatments; BLM 2007) and (2) *Final Environmental Impact Report (EIR)/Environmental Impact Statement (EIS) for the East County Substation, Tule Wind, and Energia Sierra Juarez Gen-Tie Projects* (Project EIR/EIS; BLM and California Public Utilities Commission [CPUC] 2011). The PEIS for Vegetation Treatments analyzes the potential direct, indirect, and cumulative effects associated with the BLM's use of specific chemicals on the human and natural environment, including the following proposed herbicides: glyphosate, triclopyr, and 2,4-D.

The Project EIR/EIS analyzed the effects associated with construction, operations, and maintenance of three projects; however, this EA only covers the use of these herbicides on approximately 459 acres of BLM-administered lands located within the weed management area (the Proposed Action area; refer to Figure 3) of the Tule Wind project. The entire Tule Wind project site is comprised of approximately 12,239 acres in San Diego County. It also should be noted that the proposed action in the EIR/EIS covered a larger project area. The BLM ultimately selected *Tule Wind Alternative 5, Reduction in Turbines, combined with Tule Wind Alternative 2, Gen-Tie Route 2 Underground with Collector Substation/O&M Facility on Rough Acres Ranch (RAR)* as the Preferred Alternative on federal land. The County of San Diego (County) approved project turbines and components proposed on private land under a Major Use Permit (MUP 09-019). The approved Tule Wind project includes the following components:

- Up to 62 turbines and associated generator step-up transformers on BLM-administered land and 5 turbines on private land;
- A 34.5-kilovolt (kV) overhead and underground collector cable system linking each turbine to the next and to the project collector substation;
- A 138-kV transmission line running south from the project collector substation to interconnect with the San Diego Gas & Electric (SDG&E) Rebuilt Boulevard Substation;
- Construction of access roads between turbines, as well as improvements to existing roadways, to accommodate construction and delivery of equipment (roads would be open to the public, except for portions during the construction period or in areas where cultural resources are located);

- A substation, Operation and Maintenance (O&M) facility, and batch plant
- A temporary 10-acre parking area;
- Approximately 12 two-acre temporary laydown areas; and
- Two permanent meteorological towers (plus two alternative locations).

Construction activities resulting in soil disturbance could introduce new or spread existing invasive plant species in the weed management area. Therefore, the Project EIR/EIS included a Mitigation Measure (MM BIO-3a) which requires preparation and review by applicable permitting agencies of a Noxious Weed and Non-Native Species Control Plan (NWNSCP). Implementation of said plan was included as a stipulation to the BLM Right-of-Way (ROW) Grant (Stipulation 19). Accordingly, Tule Wind LLC prepared a draft NWNSCP (2013). The approximately 579-acre weed management area (of which approximately 459 acres are on BLM lands) includes all of the temporary disturbance areas during construction of the Tule Wind project and areas within 30 feet of permanent roads as part of fuel modification requirements (Figure 3).

The integrated pest management[1] method for invasive plant species control analyzed in this EA uses a combination of herbicides and manual removal methods. The herbicides proposed for use on the weed management area would be limited to glyphosate, triclopyr, and 2,4-D.

1.2 Purpose and Need for the Action

The BLM is responding to the request of the project applicant, Ibedrola Renewables, LLC for their proposal to implement physical and chemical management of invasive plant species within the Tule Wind project area. The need for this action is BLM's responsibility through NEPA to analyze the environmental effects of invasive plant management prior to issuance of a Pesticide Use Permit to the project applicant. The purpose of the Proposed Action (i.e., implementation of the NWNSCP) is to reduce and control 19 invasive plant species that were documented on the Tule Wind project site.

The BLM will decide whether or not to approve the Pesticide Use Permit for the allowance of chemical invasive plant management.

These invasive plant species are found on the California Invasive Plant Council (Cal-IPC) list with ratings of High, Moderate, or Limited (refer to Table 1 in Section 2.3 of this EA) and include:

[1] Integrated pest management consists of a sustainable approach to managing pests by combining biological, cultural, physical, and chemical tools in a way that minimizes economic, health, and environmental risks (U.S. Department of Interior 2007).

- Slender wild oat (*Avena barbata*)
- Wild oat (*Avena fatua*)
- Soft brome (*Bromus hordeaceus*)
- Red brome (*Bromus madritensis* ssp. *rubens* [=*B. rubens*])
- Downy brome/cheatgrass (*Bromus tectorum*)
- Malta star-thistle/tocalote (*Centaurea melitensis*)
- Bermuda grass (*Cynodon dactylon*)
- Redstem filaree (*Erodium cicutarium*)
- Short pod mustard/summer mustard (*Hirschfeldia incana*)
- Mediterranean barley/hare barley/wall barley (*Hordeum marinum*)
- Smooth cat's ear (*Hypochaeris glabra*)
- Horehound (*Marubium vulgare*)
- Burclover (*Medicago polymorpha*)
- Olive (*Olea europaea*)
- Prickly Russian thistle/tumbleweed (*Salsola tragus*)
- Mediterranean schismus (*Schismus barbatus*)
- London rocket (*Sisymbrium irio*)
- Tamarisk/salt cedar (*Tamarix ramosissima*)
- Rattail fescue (*Vulpia myuros*)

Although the Cal-IPC rating is not used by BLM, the weeds listed above would be treated. In addition, the following non-native plant species (which are not rated by Cal-IPC) would be treated as part of the Proposed Action:

- Compact brome (*Bromus madritensis* ssp. *madritensis*)
- Long-beak filaree/storksbill (*Erodium botrys*)
- White-stem filaree/storksbill (*Erodium moschatum*)
- Field pepperweed (*Lepidium campestre*)
- Clasping pepperweed (*Lepidium perfoliatum*)
- Field madder (*Sherardia arvensis*)
- Tumble/Jim Hill mustard (*Sisymbrium altissimum*)

The Proposed Action is intended to meet and comply with the PEIS for Vegetation Treatments (BLM 2007) and Stipulation 19 of the BLM Right-of-Way Grant, dated April 10, 2013. Overall, the procedures aim to minimize the introduction of new non-native and/or invasive plant species and limit the spread of target invasive species on the weed management area and adjacent lands.

Integrated management methods for weed control that are analyzed in this EA include the following:

- **Chemical** – Herbicides are chemicals that injure plants. Herbicides can be categorized as selective or non-selective. Selective herbicides control only a specific type of plant, such as broad-leaved plants, while non-selective herbicides control all types of plants.

- **Physical** – Manual removal involves the use of hand tools, hand-operated power tools, and other types of equipment to cut, clear, or prune herbaceous and woody species. Treatments include cutting undesired plants at or above the ground level; pulling, grubbing, or digging out root systems of undesired plants to prevent sprouting and re-growth

1.3 Public Participation, Scoping, and Issues

The CPUC and BLM jointly prepared the Tule Wind Project EIR/EIS; the reader is referred to Chapter I of the Final EIR/EIS for information regarding public involvement (CPUC and BLM 2011: Volume 2, I-1 through I-17). Responses to comments and comment letters also are included in the Final EIR/EIS; refer to Volumes 3 and 4, respectively.

The BLM will also make available this EA for a 30-day public review period, during which time the public can submit comments.

1.4 Relationship to Statutes, Regulations, and Plans

The Proposed Action's relationship to applicable statutes, regulations, and plans is included in the PEIS for Vegetation Treatments (BLM 2007:1-6 through 1-9).

1.5 References

California Public Utilities Commission (CPUC) and U.S. Department of Interior, Bureau of Land Management (BLM)

2011 Final Environmental Impact Report/Environmental Impact Statement for East County Substation, Tule Wind, and Energia Sierra Juarez Gen-Tie Projects. October.

U.S. Department of Interior, Bureau of Land Management (BLM)

2007 Final Programmatic Environmental Impact Statement for Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States. June. Available at: http://www.blm.gov/wo/st/en/prog/more/veg_eis.html.

Tule Wind LLC

2013 Noxious Weed and Non-Native Species Control Plan – Tule Wind Project, San Diego County, California. October.

CHAPTER 2: PROPOSED ACTION AND ALTERNATIVES

2.1 Project Location

The weed management area within the Tule Wind project site is located in southeastern San Diego County, California (Figure 1), approximately 50 miles east of the City of San Diego and 90 miles west of the California/Arizona state line. The project site extends north from the community of Boulevard and is accessed via Interstate 8 (I-8), State Route 94/Ribbonwood Road, and via Old Highway 80 to McCain Valley Road. The Tule Wind project site is located within McCain Valley and In-Ko-Pah Mountains, adjacent to the Tecate Divide, southeast of the Cleveland National Forest and west of Anza Borrego State Park. The Tule Wind project site is located on lands administered by the BLM, Bureau of Indian Affairs, and the California State Lands Commission, as well as private land under the jurisdiction of the County. The Tule Wind project site is located within two U.S. Geological Survey 7.5-minute quadrangle maps: Sombrero Peak and Live Oak Springs (Figure 2). The topography of the project area is gently to moderately sloping and ranges in elevation from 3,600 to 5,600 feet above mean sea level. The overall project area encompasses a variety of landscape forms, soil types, and elevation/moisture gradients.

2.2 Project Setting

The Tule Wind project site is located in McCain Valley and In-Ko-Pah Mountains north of the community of Boulevard. Rural land uses are generally located between the communities of Jacumba and Boulevard, and tribal lands are located north and south of I-8 near Boulevard. North of I-8, within state park, tribal, and BLM-administered lands, the landscape is a mixture of large-lot rural residences and open space with mountainous terrain consisting of steep slopes, prominent ridgelines, and rock outcroppings. South of I-8, within County lands, the landscape is predominantly rural with vegetation and terrain primarily.

Existing land uses in the project area include a mixture of open general rural uses (large-lot ranches, single-family homes, and small-scale agricultural operations) but predominately undeveloped open space. The existing Kumeyaay Wind Farm is located west of McCain Valley on the Campo Indian Reservation.

A total of 62 turbines, access roads, underground and overhead collection lines, 138-kV transmission line, 2 meteorological towers, construction batch plant (during construction), 11 two-acre construction laydown areas, and a 10-acre construction parking area associated with the Tule Wind project will be located on BLM-administered lands. Turbines will be located on Ewiiaapaayp Band of Kumeyaay Indians tribal lands, under the jurisdiction of the Bureau of Indian Affairs, adjacent to the Sawtooth Mountains Wilderness, as well as east of McCain Valley Road on a discontiguous island of private land located west of the In-Ko-Pah Area of Critical Environmental Concern (ACEC).

The Tule Wind project area is characterized by chaparral- and scrub-covered hills with large granitic rock outcrops. The Tule Wind project site lies in a zone of transition from chaparral vegetation of the coastal mountains in the west, to Sonoran Desert scrub vegetation of the

Colorado Desert in the east. This transition from chaparral to desert has produced a range of natural communities within the Tule Wind project site, including big sagebrush scrub, chamise chaparral, closed coast live oak woodland, open coast live oak woodland, montane buckwheat scrub, mulefat scrub, non-native grassland, northern mixed chaparral, redshank chaparral, scrub oak chaparral, semi-desert chaparral, southern north slope chaparral, southern riparian woodland, southern willow scrub, upper Sonoran manzanita chaparral, and upper Sonoran subshrub scrub (refer to Section 3.4.1 for further discussion).

2.3 Alternative 1 – Proposed Action – Weed Management

The Proposed Action is to implement the Tule Wind project NWNSCP by utilizing three herbicides (glyphosate, triclopyr, and 2,4-D) in combination with physical methods to control on-site weeds and prevent their spread to adjacent lands.

Chemical and physical weed management methods would execute measures to lessen the potential for the dispersal or increased abundance of existing and new non-native and/or invasive plant species. Chemical control is often the most efficient and least labor intensive method of controlling established populations of non-native and/or invasive plants.

Adaptive weed control measures, utilized by the Weed Control Manager (WCM)/Restoration Specialist (RS), would be implemented during the 30-year operations and maintenance phase under this alternative. This would help prevent the spread of non-native and/or invasive plant species that are often intensified by construction-related ground disturbance, operation and maintenance activities, and other authorized uses. These measures would control the spread of existing populations of non-native and/or invasive plant species, and identify and address threats from new non-native and/or invasive species as they occur.

Weed management would be conducted for the life of the project. Weed control would occur throughout the project footprint, including areas temporarily disturbed during construction and fuel management areas, for the first 5 years following construction as part of the habitat revegetation program dictated by the NWNSCP (Tule Wind LLC 2013). For the remainder of the life of the project, weed control would be focused within the permanent footprint and fuel modification areas, which includes removing targeted species from within 200 feet of wind turbines, 50 feet of buildings and structures, and 30 feet of permanent access roads.

Weed control during the first 5 years of the operations and maintenance (O&M) phase (i.e., the habitat revegetation period) would occur typically 3 times per year: mid-winter, following the first few rain events of the rainy season; spring; and summer/early fall to remove plants that establish from summer rains or species adapted to later germination. The proposed schedule would be modified each year based on the timing and amount of rainfall and other environmental conditions, with the basic mandate that target species would be controlled or removed before they produce seed. New weed species observed would be added to the target species list. Weed control for the remainder of the life of the project (following the habitat revegetation period) could occur up to 2 times per year, but is expected to be a single weed control event in the spring of each year. If necessary, a second weed control event would be conducted during the summer if invasive weed species occur within the weed management areas.

The primary target species for weed abatement include the 19 invasive plant species on the Tule Wind project site (refer to Table 1 and Figure 3), as well as other non-native plant species on the Tule Wind project site (refer to Table 2 and Figure 3). As described in detail in Section 2.0 of the NWNSCP (Tule Wind LLC 2013:7), non-native and/or invasive weeds were observed on the Tule Wind project site during biological surveys conducted from 2005 to 2011. The species listed below are described in more detail in Section 2.0 (pages 8 through 15) of the NWNSCP. For the first 5 years of the O&M phase (i.e., the habitat revegetation period), all of the species listed in Tables 1 and 2 would be controlled. Following the habitat revegetation period, weed control efforts would include the species in Tables 1 and 2.

Table 1
INVASIVE PLANT SPECIES OBSERVED WITHIN THE TULE WIND PROJECT AREA DURING 2005-2011 SURVEYS

Species	Federal Weed List	Cal-IPC Inventory Rating
Slender wild oat (*Avena barbata*)	No	Moderate
Wild oat (*Avena fatua*)	No	Moderate
Soft brome (*Bromus hordeaceus*)	No	Limited
Red brome (*Bromus madritensis* ssp. *rubens* [=*B. rubens*])	No	High
Downy brome/cheatgrass (*Bromus tectorum*)	No	High
Malta star-thistle/tocalote (*Centaurea melitensis*)	No	Moderate
Bermuda grass (*Cynodon dactylon*)	No	Moderate
Redstem filaree (*Erodium cicutarium*)	No	Limited
Short pod mustard/summer mustard (*Hirschfeldia incana*)	No	Moderate
Mediterranean barley/hare barley/wall barley (*Hordeum marinum*)	No	Moderate
Smooth cat's ear (*Hypochaeris glabra*)	No	Limited
Horehound (*Marubium vulgare*)	No	Limited
Burclover (*Medicago polymorpha*)	No	Limited
Olive (*Olea europaea*)	No	Limited
Prickly Russian thistle/tumbleweed (*Salsola tragus*)	No	Limited
Mediterranean schismus (*Schismus barbatus*)	No	Limited
London rocket (*Sisymbrium irio*)	No	Moderate
Tamarisk/salt cedar (*Tamarix ramosissima*)	No	High
Rattail fescue (*Vulpia myuros*)	No	Moderate

Table 2 OTHER NON-NATIVE PLANT SPECIES OBSERVED WITHIN THE TULE WIND PROJECT AREA DURING 2005-2011 SURVEYS		
Species	**Federal Weed List**	**Cal-IPC Inventory Rating***
Compact brome (*Bromus madritensis* ssp. *madritensis*)	No	NE/NR
Long-beak filaree/storksbill (*Erodium botrys*)	No	Evaluated but not rated
White-stem filaree/storksbill (*Erodium moschatum*)	No	Evaluated but not rated
Field pepperweed (*Lepidium campestre*)	No	NE/NR
Clasping pepperweed (*Lepidium perfoliatum*)	No	NE/NR
Field madder (*Sherardia arvensis*)	No	NE/NR
Tumble/Jim Hill mustard (*Sisymbrium altissimum*)	No	NE/NR

* Key: NE = not evaluated; NR = not rated/not ranked

Weed Abatement Requirements

Prior to, during, and following construction, Tule Wind LLC would abide by invasive weed control procedures outlined in the NWNSCP, including any modifications determined in future consultation with the BLM.

Weed Removal Methods

Physical

Physical control methods are applicable for removal of non-native species and can include hand pulling and mechanical clearing. Methods employed would depend on the species, size, and extent of the non-native species targeted and the root structure of each plant. Hand pulling is often most effective for localized non-native species control when the plant is large enough that it would not break and leave the root structures in place to resprout. This method is less effective in areas with extensive infestation or with species that spread through underground root systems.

As non-native, invasive plants are identified, physical removal methods such as, hand-pulling, excavating, or cutting can be used through the use of hand tools such as clippers, pruners, shovels, rakes, and hoes, as well as equipment such as weed-whips and dethatchers. Dethatchers remove dead plant material from the soil surface, which has the benefits of (1) removing non-native, invasive seed that may still be attached to the dead vegetation; (2) allowing native seed already present in the soil, or applied to the weed management area, to germinate more easily; and (3) increasing the effectiveness of subsequent herbicide applications. Because it is highly selective, physical removal can minimize damage to existing native vegetation; however, it is the most time-consuming and physically challenging method. Therefore, it is best suited for small areas of infestation or in areas where non-native, invasive plants occur within sensitive habitat.

Physical treatments include cutting undesired plants above ground level; pulling, grubbing, or digging out root systems of undesired plants to prevent sprouting and regrowth; and cutting at the ground level or removing competing plants around desired species.

Chemical

Herbicide application is a widely employed and efficient non-native plant species-control method that is effective for large areas where hand pulling is not practical. Chemicals used on BLM-administered land, including herbicides, would be employed in accordance with BLM requirements (BLM Handbook H-9011-1) and would be U.S. Environmental Protection Agency-registered, as well as approved for use in the State of California.

Pre- and post-emergent herbicides may be applied throughout the weed management area. Pre-emergent herbicides are those that are integrated into the soil before the weed seed germinates and generally require irrigation or rainfall. Application of pre-emergent herbicides would occur in summer/early fall, prior to fall/early winter rain events. Post-emergent herbicides are applied directly to the weed while it is growing and prior to seed set. Post-emergent treatment would occur as necessary based on site conditions.

There are various methods for applying herbicides, including spraying and sponging the herbicide onto foliage. Different herbicides target specific plant types and are designed for use in various environmental conditions. During herbicide application, measures to reduce effects to adjacent or nearby native vegetation and special status species would be implemented in accordance with the NWNSCP. Some of the most relevant measures include the following: (1) spraying herbicides during low-wind conditions (wind velocities are less than 10 miles per hour); (2) using a sponge applicator during higher wind conditions; (3) avoiding herbicide contact with anything other than specified target; (4) not applying when raining or if rain is imminent; (5) not applying within 50 feet of surface water; and (6) keeping vehicles on permanent access roads, during operation activities, to avoid crushing plants and/or vegetation. Standard operating procedures (SOPs) for the use of herbicides have been developed by the BLM in the PEIS for Vegetation Treatments and are incorporated into the Proposed Action (refer to Appendix A of this EA).

The sponge method uses a sponge-like or roller applicator that brushes herbicide onto the target foliage. A controlled flow of herbicide would drip into the sponge/roller, allowing the user to apply an appropriate level of herbicide by swiping the sponge/roller directly onto the target foliage. With this technique, herbicide is transmitted from the application device only through physical contact with the target foliage. This technique essentially eliminates any chance of herbicide drift, which may occur with broadcast spray techniques. The sponge-like application devices would be hand carried and target weeds would be treated individually. The sponge method would be used for larger weeds with more foliar surface area and in locations where non-target vegetation must be avoided in the vicinity of weed species.

The typical application rates of the three herbicides to be used include a 2 percent solution of glyphosate, a 0.75 percent solution of triclopyr, and a 0.25 percent solution of 2,4-D (Table 3).

Table 3
HERBICIDES AND APPLICATION RATES TO BE USED

Chemical (Herbicide)	Typical Application Rate	Maximum Application Rate
Glyphosate	2 gallons active per 100 gallons (2 percent solution)	10 gallons active per 100 gallons (10 percent solution)
Triclopyr	3 quarts active per 100 gallons (0.75 percent solution)	8 quarts active per 100 gallons (2 percent solution)
No Foam A (to be added as a surfactant to triclopyr)	50 ounces per 100 gallons (0.004 percent solution)	50 ounces per 100 gallons (0.004 percent solution)
Marker dye to be added to glyphosate and triclopyr	18 ounces per 100 gallons (0.001 percent solution)	24 ounces per 100 gallons (0.002 percent solution)
2,4-D	1 ounce per gallon (0.25 percent solution)	4 ounces per gallon (1 percent solution)
Phase surfactant – antifoaming agent to be added to 2,4-D	16 ounces per 100 gallons (0.001 percent solution)	64 ounces per 100 gallons (0.005 percent solution)
Hi-Light (dye to be added to 2,4-D)	16 ounces per 100 gallons (0.001 percent solution)	32 ounces per 100 gallons (0.003 percent solution)

Glyphosate would be the primary herbicide used to treat invasive weeds in the weed management area as it has been shown to be effective in controlling the majority of the species listed in Table 4. Triclopyr has shown to be effective in controlling woody perennials (e.g., tamarisk), herbaceous broadleaf weeds (e.g., tocalote), and many of the other species listed in Table 4. 2,4-D would be used to control invasive weed species when glyphosate and triclopyr are determined not to be effective.

Table 4
HERBICIDES TO BE USED FOR EACH WEED SPECIES

Weed Species	Chemical (Herbicide)		
	Glyphosate	Triclopyr	2,4-D
Invasive Species			
Slender wild oat (*Avena barbata*)	X		
Wild oat (*Avena fatua*)	X		
Soft brome (*Bromus hordeaceus*)	X		
Red brome (*Bromus madritensis* ssp. *rubens* [=*B. rubens*])	X		
Downy brome/cheatgrass (*Bromus tectorum*)	X		
Malta star-thistle/tocalote (*Centaurea melitensis*)	X	X	X
Bermuda grass (*Cynodon dactylon*)	X		
Redstem filaree (*Erodium cicutarium*)	X		X
Short pod mustard/summer mustard (*Hirschfeldia incana*)	X	X	
Mediterranean barley/hare barley/wall barley (*Hordeum marinum*)	X		
Smooth cat's ear (*Hypochaeris glabra*)	X	X	X
Horehound (*Marubium vulgare*)	X	X	X

Table 4 (cont.) **HERBICIDES TO BE USED FOR EACH WEED SPECIES**			
Weed Species	**Chemical (Herbicide)**		
	Glyphosate	**Triclopyr**	**2,4-D**
Invasive Species (cont.)			
Burclover (*Medicago polymorpha*)	X		X
Olive (*Olea europaea*)	X	X	
Prickly Russian thistle/tumbleweed (*Salsola tragus*)	X	X	X
Mediterranean schismus (*Schismus barbatus*)	X		
London rocket (*Sisymbrium irio*)	X		X
Tamarisk/salt cedar (*Tamarix ramosissima*)	X	X	
Rattail fescue (*Vulpia myuros*)	X		
Other Non-native Species			
Compact brome (*Bromus madritensis* ssp. *madritensis*)	X		
Long-beak filaree/storksbill (*Erodium botrys*)	X		X
White-stem filaree/storksbill (*Erodium moschatum*)	X		X
Field pepperweed (*Lepidium campestre*)	X		X
Clasping pepperweed (*Lepidium perfoliatum*)	X		X
Field madder (*Sherardia arvensis*)	X		
Tumble/Jim Hill mustard (*Sisymbrium altissimum*)	X	X	X

All herbicides used for the Proposed Action would contain the marker dye Hi-Light to make the herbicide visible wherever it is applied (Table 3). This dye would allow the applicator to identify: (1) which plants have been treated, thereby ensuring coverage of target plants and avoiding accidental re-treatment; (2) if drift is occurring, thereby allowing for cessation of treatment and preventing damage to surrounding native vegetation; and (3) if personal contamination is occurring, thereby facilitating rapid response to correct the situation. Because the dye is combined in solution with the herbicides, the effects of both the dye and the herbicide together are discussed collectively throughout this document.

The surfactant No Foam A would be added to triclopyr as a wetting agent and would help ensure that the herbicide contact is maximized on the weed surface and drift is minimized on adjacent non-target vegetation. A surfactant is not needed for glyphosate because it is included in the formulation of the herbicide. In addition, Phase surfactant – antifoaming agent would be added to 2,4-D to help ensure maximum contact with the weed surface and to minimize drift.

Weed spraying would be conducted on weeds outside of highly sensitive areas (i.e., waters of the U.S., areas containing rare plants, sensitive cultural resources, etc.). Herbicide application typically would occur from December through May to coincide with the germination period of the weeds in the weed management area. Herbicide application may also be needed in summer months if weed species germinate in response to summer rains. Up to three applications may be needed each year; the actual number of applications per year will depend on environmental conditions, most notably being the amount and frequency of rain events and temperature. To be most effective, weeds should be treated with herbicide prior to the development of mature seed.

Backpack sprayers would be used to apply herbicides in situations where plants are small and have not yet formed seed heads and when application to individual or isolated plants is needed. This equipment may be fitted with a hooded or shielded applicator tip. The shield would focus the herbicide application directly over the target, greatly reducing the potential of drift. The use of a shield with this spray technique would allow for increased focus and accuracy. Each target would be treated one at a time, thereby excluding the broadcast application of an herbicide.

Herbicide would be applied by a Pest Control Business or a Maintenance Gardner Pest Control Certification Company under the supervision of a Qualified Applicator License (QAL) or Qualified Applicator Certificate (QAC) holder, as appropriate. In accordance with state and local requirements, the QAL/QAC would train applicators annually and would notify all project personnel when an application takes place. The notification would include the date of the application, location or description of the area to be treated, herbicide name, adjuvant or dye names, when project personnel can re-enter the treated area, and any precautionary statements from the label. Herbicide containers would be returned to the contractor's facilities for disposal in accordance with applicable federal, state, and local codes and regulations.

2.4 Alternative 2 – No Action

The No Action Alternative would preclude the use of herbicides, or physical treatment of non-native and/or invasive plant species in the weed management area.

2.5 Alternatives Considered but Rejected

2.5.1 Physical Treatment Only Alternative

Physical treatment only would involve mechanical and manual methods; no herbicide use would occur under this alternative. Physical treatment would involve the use of vehicles such as wheeled tractors, crawler-type tractors, or specially designed vehicles with attached implements designed to cut, uproot, or chop existing vegetation. Physical treatment would involve the use of hand tools and hand-operated power tools to cut, clear, or prune herbaceous and woody species. Physical treatments include cutting undesired plants above ground level; pulling, grubbing, or digging out root systems of undesired plants to prevent sprouting and regrowth; cutting at the ground level or removing competing plants around desired species; and placing mulch around desired vegetation to limit competitive growth.

Physical methods are not often effective in controlling on-site weed species that can grow and flower very close to ground level. Physical control of non-native species such as short pod mustard (*Hirschfeldia incana*), tocalote, and non-native grass species is a viable option to postpone the seeding process if the vertical growth is cut during flowering and before seed production. However, this strategy is often not successful as a control method because cut weeds can produce new flowers and seed, often closer to the ground than the initial flowering effort. Eventually, the flowering and seeding portion of the plant are very near ground level, limiting the effectiveness of mechanical mowers or line trimmers. This activity is further limited by the potential for ground disturbance, which could be destructive if unknown cultural resources are present in the treatment area, and is also counter-productive to native vegetation restoration

efforts. Therefore, physical treatment is not considered a viable option for use in the weed management area.

Physical treatment methods are also not considered to be a viable option for treating large areas because they are time consuming and labor intensive and would not provide the rapid, consistent, and uniform control necessary to manage germination events and rapidly spreading weeds currently found in the weed management area.

Accordingly, the Physical Treatment Only Alternative was rejected from further analysis due to the fact that this alternative would not be effective as it would be too time-consuming and create unwanted ground disturbance.

2.5.2 Chemical Treatment Only Alternative

This alternative would use three herbicides, as outlined in the NWNSCP, but not treat weeds with mechanical or manual methods. Herbicide utilization would result in greater responsiveness during invasive species management by providing significantly more rapid, consistent, and uniform control over germination events versus mechanical and manual methods alone. Treating weed management areas with only chemicals was rejected as a viable alternative because manual control of weeds is required around highly sensitive areas (i.e., areas in close proximity to rare plants, sensitive cultural resources, waters of the U.S., etc.).

Accordingly, the Chemical Treatment Only Alternative is not analyzed further in this EA.

2.6 References

California Public Utilities Commission (CPUC) and U.S. Department of Interior, Bureau of Land Management (BLM)

2011 Final Environmental Impact Report/Environmental Impact Statement for East County Substation, Tule Wind, and Energia Sierra Juarez Gen-Tie Projects. October.

Tule Wind LLC

2013 Noxious Weed and Non-Native Species Control Plan – Tule Wind Project, San Diego County, California. October.

U.S. Department of Interior, Bureau of Land Management (BLM)

2007 Final Programmatic Environmental Impact Statement for Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States. June. Available at: http://www.blm.gov/wo/st/en/prog/more/veg_eis.html.

CHAPTER 3: AFFECTED ENVIRONMENT AND ENVIRONMENTAL EFFECTS

3.1 Cultural Resources

3.1.1 Affected Environment

Two records searches for the Tule Wind project were conducted at the South Coastal Information Center located at San Diego State University in 2008 and 2009. The 2008 records search identified at least 30 previous studies conducted within one mile of the Tule Wind project right-of-way (ROW). A total of 165 archaeological sites were previously recorded within the one-mile buffer, including 47 previously recorded archaeological sites within the Tule Wind project ROW (CPUC and BLM 2011:D.7-26 and D.7-27).

A BLM Class III intensive archaeological survey was conducted in the APE by ASM Affiliates, Inc. (ASM) in 2010. A BLM Class II intensive inventory was also conducted in portions of the non-APE project ROW by ASM in 2010. A supplemental BLM Class III intensive survey to cover additional APE associated with project footprint revisions was conducted by ASM in 2011. Intensive surveys were used to methodically inventory these areas and to record the archaeological resources identified therein. A total of 203 cultural sites have been recorded in the Tule Wind project APE, and 43 additional cultural sites have been recorded in the non-APE project ROW. Of the 203 archaeological sites documented within the Tule Wind project APE, 24 sites are recommended eligible for inclusion in the National Register of Historic Places (NRHP) and 179 are recommended not eligible for inclusion in the NRHP or are sites with uncertain eligibility (CPUC and BLM 2011:D.7-26 through D.7-45).

In addition, a historic built environment survey was conducted to identify indirect effects to the historic built environment resources within 0.5 mile of the Tule Wind project site. A total of 50 historic buildings over 50 years of age were identified and documented during this survey. Two of these buildings or structures (Tule-TQ-46/Structure ID 2 and Tule-TQ-51/Structure ID 7) are located within or near the APE for direct effects and could be either directly or indirectly affected by the Tule Wind project. It was recommended that Tule-TQ-46/Structure ID 2 is not eligible for the NRHP, and Tule-TQ-51/Structure ID 7 is recommended eligible as a contributing element to a potential historic district (CPUC and BLM 2011:D.7-45).

Native American Values

A request for a Sacred Lands File search was sent to the Native American Heritage Commission (NAHC) in September 2009. The NAHC indicated that numerous Native American cultural resources are located within a 0.5-mile radius of the Tule Wind project site.

While there is not complete agreement between the Kumeyaay Bands (tribes), some have expressed to the BLM during government-to-government consultation, the general sensitivity, and sacredness of the overall project area, and that the McCain Valley should be viewed as a cultural landscape. One tribe has informed the BLM that they have direct ancestral ties to the McCain Valley. Within the Tule Wind project area, the BLM has heard through its consultations with two tribes that the large granite boulder known as "Lost Valley Rock" (or by its Kumeyaay

name "*Wekatoekush*") is considered an important geological feature that served as a guidepost for the Kumeyaay people traveling between the desert and the coast during prehistoric or ethnographic times. Archaeological sites with known cremation or funerary items are also considered very sensitive by contemporary Native Americans (CPUC and BLM 2011:D.7-50) and are covered by the Native American Graves Protection and Repatriation Act of 1990.

3.1.2 Environmental Effects

Alternative 1 – Proposed Action – Weed Management

The effect of herbicide treatments on cultural resources would depend on the method of application and the herbicide used. Glyphosate, triclopyr, and 2,4-D can deteriorate cultural artifacts as a result of causing higher soil acidity, altering the surface of exposed artifacts, and altering or obscuring the surfaces of organic materials. The proposed surfactants can interfere with the radiocarbon or Carbon 14 dating of a site (BLM 1991). The cultural resources on the Tule Wind project site have been extensively studied as part of the analysis conducted for the Project EIR/EIS. Environmentally Sensitive Areas (ESAs) would be established prior to project construction to protect the cultural resources documented on the Tule Wind project site. In addition, all project personnel would complete Worker Education Awareness Training, which would include training on what measures to take if potential cultural resources are found during weed management activities. In an effort to avoid adverse effects to cultural resources, herbicide would not be used in ESAs.

Effects to National Register-eligible cultural resources would be avoided by following SOPs defined in the PEIS for Vegetation Treatments (refer to Appendix A of this EA). If National Register-eligible cultural resources were discovered during vegetation treatments, appropriate actions would be taken to protect these resources in accordance with Appendix F of the Memorandum of Agreement for the project (BLM et al. 2011; see http://www.cpuc.ca.gov/environment/info/dudek/ECOSUB/Final_EIR/Appx10_DraftMOAs.pdf).

Although physical treatment of invasive plants could also cause harm to cultural resources, because all cultural resources known on the Tule Wind project site would be included within ESAs, personnel conducting weed treatments would avoid ESAs, and would halt treatment procedures if cultural resources are newly discovered in treatment areas. Accordingly, no adverse effects to cultural resources would occur from physical treatment.

In addition to the effects stated above, the Proposed Action could also result in beneficial effects to cultural resources, because invasive plants may have long-term negative effects on cultural resource sites by displacing native vegetation and increasing the potential for soil erosion, potentially leading to the loss of cultural resources. In addition to limiting these effects, removal of invasive vegetation could contribute to the restoration and maintenance of historic and ethnographic cultural landscapes (U.S. Department of the Interior, National Park Service 2003).

In conclusion, weed management has the potential to have both beneficial and negative effects on cultural resources; however, effects would not be adverse due to the implementation of SOPs

defined in the PEIS for Vegetation Treatments (refer to Appendix A of this EA) during treatment of non-native and/or invasive plants.

Alternative 2 – No Action

The No Action Alternative would not result in the negative effects to cultural resources that would potentially occur under the Proposed Action; however, no beneficial effects would occur under the No Action Alternative. No adverse or beneficial effects to cultural resources would be associated with this alternative.

3.1.3 Cumulative Effects

Alternative 1 – Proposed Action – Weed Management

Because no direct or indirect adverse effects to cultural resources are anticipated, the Proposed Action would not contribute to cumulatively adverse effects.

Alternative 2 – No Action

The No Action Alternative would not result in adverse effects to cultural resources because herbicides would not be used in the weed management area nor would physical methods of invasive species removal occur. As no action would occur, this alternative would not contribute to cumulatively adverse effects.

3.1.4 References

California Public Utilities Commission (CPUC) and U.S. Department of Interior, Bureau of Land Management (BLM)

2011 Final Environmental Impact Report/Environmental Impact Statement for East County Substation, Tule Wind, and Energia Sierra Juarez Gen-Tie Projects. October.

U.S. Department of Interior, Bureau of Land Management (BLM)

2007 Final Programmatic Environmental Impact Statement for Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States. June. Available at: http://www.blm.gov/wo/st/en/prog/more/veg_eis.html.

1991 Final Environmental Impact Statement Vegetation Treatment on BLM Lands in Thirteen Western States. BLM Wyoming State Office. Casper, Wyoming.

U.S. Department of Interior, Bureau of Land Management (BLM); U.S. Army Corps of Engineers, Los Angeles District; Department of Energy; Bureau of Indian Affairs; California State Historic Preservation Officer; Advisory Council on Historic Preservation; and Ewiiaapaayp Band of Kumeyaay Indians

2011 Memorandum of Agreement Among the Bureau of Land Management – California, the Department of Energy, the Bureau of Indian Affairs, the United

States Army Corps of Engineers, the Ewiiaapaayp Band of Kumeyaay Indians, Tule Wind LLC, the California State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding the Tule Wind Energy Project, San Diego County, California. November 16. Available at: http://www.cpuc.ca.gov/environment/info/dudek/ECOSUB/Final_EIR/Appx10_DraftMOAs.pdf.

U.S. Department of the Interior, National Park Service
2003 Invasive Exotic Plant Management Plan and Environmental Assessment. Rocky Mountain National Park, Colorado.

3.2 Human Health and Safety

3.2.1 Affected Environment

Agricultural lands and recreational areas represent the primary land uses occurring in the vicinity of the Tule Wind project site. The project vicinity is largely vacant or developed with low-density residential homes and ranches, recreational and rural uses, with access roads running through and adjacent to the Tule Wind project site.

The closest sensitive receptors to the proposed weed management areas are the houses located along and immediately off McCain Valley Road.

A governmental Environmental Data Resources database records search was conducted for the project construction area. In addition, a hazardous materials records search was conducted with the County and the State of California Water Resources Control Board GeoTracker database within a 0.5-mile radius of the project boundary. The following six sites were identified (CPUC and BLM 2011:D.10-7):

- McCain Valley Adult Conservation Camp, located at 2550 McCain Valley Road, is identified as containing a leaking underground storage tank (LUST), with a potentially affected aquifer. The site is currently in open status. Although the amount of dissolved methyl tertiary butyl ether detected in the groundwater has decreased, levels remain higher than the cleanup level established for this site; therefore, monitoring continues.

- A historical site identified as the U.S. Navy La Posta Test Facility was previously located on La Posta Road and identified as a small quantity generator for hazardous wastes. This site is currently occupied by the La Posta Tribe of Native Americans and is registered with the Integrated Compliance Information System, with no findings identified.

- The Caltrans/Boulevard maintenance facility located at 40945 Old Highway 80 is identified with a LUST and is monitored semi-annually for a potential affected aquifer.

- The Mountain Top Market location had the potential for affected soil with a closed case status.

- Rough Acres Ranch, adjacent to McCain Valley Road, is listed as containing an underground storage tank (UST) for storage of diesel.

- The historical site of the Boulevard Transfer Station, located at 41097 Old Highway 80, was identified as a large and small hazardous waste generator with a closed status.

3.2.2 Environmental Effects

Alternative 1 – Proposed Action – Weed Management

A Pest Control Business or a Maintenance Gardner Pest Control Certification Company, under the supervision of a QAL or QAC, would treat invasive plants with glyphosate (with marker dye), triclopyr (with No Foam A and marker dye), and 2,4-D (with Phase surfactant and Hi-Light dye) in accordance with product label requirements and federal, state, and local requirements. All herbicide applicators would be properly trained prior to applying herbicides in the weed management area. This training would help ensure resource protection and the health and safety of occupational receptors (i.e., personnel). Accordingly, effects to personnel would not be adverse. In addition, the implementation of the SOPs defined in the PEIS for Vegetation Treatments and included as part of the Proposed Action would ensure that public receptors would not be adversely affected by herbicide use. Such SOPs include posting of signs for the public in areas where herbicide use has occurred (refer to Appendix A of this EA).

The use of herbicides could involve potential risk or the perception of risk to workers and members of the public engaging in activities in or near herbicide treatment areas. There are no risks associated with nearly all human exposures to glyphosate at the typical or maximum application rate. There is low risk to children in the general public associated with accidental exposure to consumption of glyphosate-contaminated water (BLM 2007:4-184); however, this exposure scenario is highly arbitrary (U.S. Department of Agriculture, Forest Service 2006). The use of marker dye as part of glyphosate application also poses a low risk to workers and the general public through irritation if it is swallowed, enters the eyes, or is inhaled (Kendon 2004).

Workers face low risk from directed and broadcast ground spray applications at the upper ranges of exposures for both evaluated formulations of triclopyr (triethyamine salt [TEA] and butoxyethyl ester [BEE]) at the maximum application rate. Therefore, for workers who may apply triclopyr repeatedly over a period of several weeks or longer, it is important to ensure that work practices involve reasonably protective procedures. There is low to moderate risk to the general public from triclopyr applications under direct and indirect (consumption) exposure (BLM 2007:4-189). The use of No Foam A as part of triclopyr application poses a low risk to workers and the general public through nausea if it is swallowed and irritation if it enters the eyes or is inhaled (Creative Marketing and Research 2001). The use of marker dye as part of the triclopyr application also poses a low risk to workers and the general public through irritation if it is swallowed, enters the eyes, or is inhaled (Kendon 2004).

Workers involved in ground application of 2,4-D may face low to moderate risks based on upper limits of exposure and low risks based on central estimates of exposure. At the typical and maximum application rates, workers involved in directed ground spray, broadcast spray, and

aquatic application face low to moderate risk from 2,4-D exposure. The general public faces low to moderate risk from most modeled scenarios at typical and maximum application rates. It should be noted that the U.S. Department of Agriculture, Forest Service's 2,4-D Human Health and Ecological Risk Assessment (2006) asserts that (when applied at the typical application rate) there should not be unacceptable risks to the general public associated with the exposure to 2,4-D, but that accidental exposures could pose a higher risk. Consumption of contaminated fish would present a moderate risk to the general public and a high risk to subsistence populations; however, no stock ponds, lakes, or reservoirs exist within the weed management area. The major concern for members of the general public involves the consumption of contaminated vegetation (fruit) over a period of several months, a scenario that is not likely to occur (BLM 2007:4-184) due to the posting of signs for the public in areas where herbicide use has occurred as specified in the SOPs defined in the PEIS for Vegetation Treatments (BLM 2007; see Appendix A of this EA). The use of Phase surfactant as part of 2,4-D application poses a low risk to workers and the general public through irritation if it is swallowed, enters the eyes, or is inhaled (Loveland Products 2010). The use of Hi-Light as part of 2,4-D application also poses a low risk to workers and the general public through upset to the gastrointestinal tract if it is swallowed and irritation if it enters the eyes or is inhaled (Becker Underwood 2009).

To help minimize both environmental and personal risk, all herbicide use must be conducted under the supervision of a professional pesticide applicator with either a QAL or QAC. Physical treatment methods may require the use of equipment that could involve potential injuries; however, personnel would be trained to use equipment safely and would be supervised to ensure safety.

Alternative 2 – No Action

Project personnel and the public would not be exposed to potential harm under the No Action Alternative, because no herbicides or physical methods to remove non-native and/or invasive species from the weed management area would be used.

3.2.3 Cumulative Effects

Alternative 1 – Proposed Action – Weed Management

Because no direct or indirect adverse effects to human health and safety are anticipated, the Proposed Action would not contribute to cumulatively adverse effects.

Alternative 2 – No Action

The No Action Alternative would not result in negative effects to human health or safety as herbicides or physical methods for non-native and/or invasive species control would not occur. Therefore, this alternative would not contribute to cumulatively adverse effects.

3.2.4 References

Becker Underwood, Inc.
2009. Material Safety Data Sheet for Hi-Light® Blue Liquid. March 24.

California Public Utilities Commission (CPUC) and U.S. Department of Interior, Bureau of Land Management (BLM)
2011 Final Environmental Impact Report/Environmental Impact Statement for East County Substation, Tule Wind, and Energia Sierra Juarez Gen-Tie Projects. October.

Creative Marketing and Research.
2001. Material Safety Data Sheet for No Foam® A. January.

Kendon Chemical & MNFG. Co. Pty LLC.
2004. Material Safety Data Sheet for Herbicide Marker Dye. July.

Loveland Products, Inc.
2010. Material Safety Data Sheet for Phase. July 20.

U.S. Department of Interior, Bureau of Land Management (BLM)
2007 Final Programmatic Environmental Impact Statement for Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States. June. Available at: http://www.blm.gov/wo/st/en/prog/more/veg_eis.html.

U.S. Department of Agriculture, Forest Service
2006 2,4-D Human Health and Ecological Risk Assessment – Final Report. September 30. Available at: http://www.fs.fed.us/foresthealth/pesticide/pdfs/093006_24d.pdf.

3.3 Soils

3.3.1 Affected Environment

The Tule Wind project site is undeveloped and contains a variety of chaparral and scrub communities. The majority of the Tule Wind project site has sandy soils over granitic rocks (CPUC and BLM 2011:D.13-2). The La Posta tonalite, a granitic unit of early and late Cretaceous age, underlies 90 percent of the Tule Wind project site; the remaining 10 percent, along the western edge of the Tule Wind project site, is underlain by metamorphic rocks from the Triassic and Jurassic ages (CPUC and BLM 2011:D.13-10). Surface soils consist primarily of rocky loamy coarse sand, loamy coarse sand, rocky coarse sandy loam, rocky fine sandy loam, and stony fine sandy loam. Most of the soils on the Tule Wind project site have a "severe" erodibility classification (CPUC and BLM 2011:D.13-3 and D.134).

3.3.2 Environmental Effects

Alternative 1 – Proposed Action – Weed Management

The Proposed Action would be beneficial to soil. Noxious weeds and other invasive vegetation can effect soil function and reduce soil biodiversity. Noxious and invasive weeds may alter soil nutrient availability for native species, alter soil constituents (e.g., soil fungi and bacteria), and slow the rate of natural plant succession (BLM 2007:4-13). These conditions can lead to reduced native plant establishment and low native cover.

However, negative effects to soils can occur from removal of invasive plant species. Herbicide treatments can affect soil fertility and function, and can harm soil organisms. Herbicide applications inevitably result in contact with soils, either intentionally for systemic treatments, or unintentionally as spills, overspray, or spray drift. In addition to direct application, transmission to soil may occur when an herbicide is transported through the plant from sprayed above-ground portions to roots, where it may be released into soil. Some herbicides also can remain active in plant tissue and can be released into the soil during plant decay and result in residual herbicide activity.

Glyphosate is a polar compound that works to control target plant material by disrupting a plant enzyme, which is not present in humans or animals. Product that is not absorbed by plant material is generally inactivated by soil adsorption (Monsanto 2005). Glyphosate is water soluble, but it has a high affinity to bind to soil particles. Adsorption of glyphosate increases with increasing clay content and cation exchange capacity, and decreasing soil pH and phosphorous content (de Jonge et al. 2001; Monsanto Company 2011; Tu et al. 2001). Typically, the glyphosate mobility is limited to approximately 6 inches deep in soils when applied in accordance with the label; some data suggests that mobility may extend to 18-24 inches in depth in certain situations, but this is rare (EPA Glyphosate Red 1994). The active ingredients in glyphosate are biodegraded to aminomethyl phosphoric acid and then to carbon dioxide by soil organisms (BLM 2007:4-19). Glyphosate has a typical soil half-life of 47 days and a soil adsorption of 24,000 milliliters per gram (mL/g; BLM 2007:4-15).

Both formulations of triclopyr (TEA and BEE) degrade to triclopyr acid in soil. The average half-life of triclopyr acid in soil is 30 days; however, triclopyr can be persistent in plants. When plants treated with triclopyr die and biodegrade, they may release triclopyr into the soil, where it can then be taken up by other plants. Triclopyr has a soil adsorption of 20 and 780 mL/g for TEA and BEE, respectively (BLM 2007:4-15).

Inactivation rates of 2,4-D are largely dependent on soil pH. In alkaline soils, 2,4-D is rapidly converted to a form that does not readily adsorb into soil particles. In acidic soils, 2,4-D resists degradation. The half-life of 2,4-D averages 10 days in moist soils, but can be longer in cold or dry soils, or where the microbial community is not present to facilitate degradation (BLM 2007:4-18 and 4-19). The soil adsorption of 2,4-D is 20 and 100 mL/g for the acid/salt and ester forms, respectively (BLM 2007:4-15).

Wind and water can transport glyphosate, triclopyr, and 2,4-D that have adsorbed to soil particles. The potential for wind and water transport depends on timing of the application, amount of herbicide applied, adsorption rates of the soil, wind speeds (for windblown transport), and amount and intensity of rain events (for water transport). Fine sand or silty textured soils, low soil stability, soil disturbance, and dryness all increase the risk for wind erosion of herbicide-laden particles (BLM 2007:4-14). To reduce the risk of wind transport, glyphosate, triclopyr, and 2,4-D would be applied during low wind (less than 10 miles per hour) conditions, as localized applications (using either a backpack sprayer or a sponge applicator), and at the minimum volume necessary to treat the invasive weeds present. To reduce the risk of water transport, glyphosate, triclopyr, and 2,4-D would not be applied prior to forecasted rain events.

Physical treatment methods could disturb soil, leading to soil erosion and loss of soil structure. However, as previously stated, the use of herbicide and physical methods to treat weeds would improve overall ecosystem function and health, including soil health. Accordingly, the Proposed Action would not result in adverse effects to soil.

Alternative 2 – No Action

Under the No Action Alternative, the use of herbicides and physical methods to remove invasive plants would not be used. Invasive plants could continue to spread on the Tule Wind project site, which could result in potentially irreversible effects on soil quality through changes in organic matter content, diversity and abundance of soil organisms, and nutrient and water availability.

3.3.3 Cumulative Effects

Alternative 1 – Proposed Action – Weed Management

Because no direct or indirect adverse effects to soils are anticipated, the Proposed Action would not contribute to cumulatively adverse effects.

Alternative 2 – No Action

As no action would occur, this alternative would not contribute to cumulatively adverse impacts.

3.3.4 References

California Public Utilities Commission (CPUC) and U.S. Department of Interior, Bureau of Land Management (BLM)
2011 Final Environmental Impact Report/Environmental Impact Statement for East County Substation, Tule Wind, and Energia Sierra Juarez Gen-Tie Projects. October.

de Jonge, H., L.W. de Jonge, O.H. Jacobsen, T. Yamaguchi, and P. Moldrup
2001 Glyphosate sorption in soils of different pH and phosphorous content. Soil Science: 166(4), p 230-238.

Monsanto Company
2011 Part II – The fate of glyphosate: translocation and exudation in the soil. Available at: http://www.monsanto.com/products/Documents/glyphosate-background-materials/RRPlus%20II%20-%20The%20Fate%20of%20Glyphosate%20-%20Translocation%20and%20Exudation%20in%20the%20Soil%20-%20FINAL%2010-4-11.pdf.

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1994 Registration Eligibility Decision (RED) Glyphosate. Available at: http://www.epa.gov/oppsrrd1/REDs/old_reds/glyphosate.pdf.

Tu, M., C. Hurd, and J.M. Randall
2001 Glyphosate. Pages 7e.1-7e.10 of the Weed Control Methods Handbook: Tools and Techniques for Use in Natural Areas. April.

U.S. Department of Interior, Bureau of Land Management (BLM)
2007 Final Programmatic Environmental Impact Statement for Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States. June. Available at: http://www.blm.gov/wo/st/en/prog/more/veg_eis.html.

3.4 Vegetation/Special Status Species/Threatened and Endangered Species

3.4.1 Affected Environment

A total of 20 vegetation communities/landforms were mapped on the Tule Wind project site, based on the National Vegetation Classification System. Of these vegetation communities/landforms, big sagebrush scrub, chamise chaparral, closed coast live oak woodland, open coast live oak woodland, montane buckwheat scrub, mulefat scrub, non-native grassland, non-vegetated channel, northern mixed chaparral, redshank chaparral, scrub oak chaparral, semi-desert chaparral, southern north slope chaparral, southern riparian woodland, southern willow scrub, upper Sonoran manzanita chaparral, and upper Sonoran subshrub scrub are considered sensitive (i.e., highly imperiled) by the California Department of Fish and Wildlife (CPUC and BLM 2011:D.2-66).

A total of 14 special status plant species were observed on the Tule Wind project site, including Jacumba milk-vetch (*Astragalus douglasii* var. *perstrictus*), Payson's jewel-flower (*Caulanthus simulans*), Tecate tarplant (*Deinandra* [=*Hemizonia*] *floribunda*), Colorado Desert larkspur (*Delphinium parishii* ssp. *subglobosum*), sticky geraea (*Geraea viscida*), Laguna Mountains alumroot (*Heuchera brevistaminea*), San Diego sunflower (*Hulsea californica*), desert beauty (*Linanthus bellus*), Mountain Springs bush lupine (*Lupinus excubitus* var. *medius*), Jacumba monkeyflower (*Mimulus aridus*), Palmer's monkeyflower (*Mimulus palmeri*), southern jewel-flower (*Streptanthus campestris*), desert prickly pear (*Opuntia phaeacantha*), and Gander's buckhorn cholla (*Cylindropuntia ganderi* var. *ganderi*) (CPUC and BLM 2011:D.2-66 through D.2-72). Of these species, Jacumba milk-vetch, Tecate tarplant, Mountain Springs bush lupine,

and southern jewel-flower are BLM sensitive species. None of these species are federal- or state-listed as threatened or endangered.

3.4.2 Environmental Effects

Alternative 1 – Proposed Action – Weed Management

The Proposed Action would be beneficial to non-target native species, as well as vegetation communities, by the removal of invasive plant species, because it would allow native species to reestablish in areas cleared of invasive plants. This also would be beneficial to species composition and species diversity, which are equally important contributors to ecosystem function (BLM 2007:4-47). However, negative effects to species could occur from accidental application of herbicides or inadvertent removal of non-target native plant species.

Glyphosate is a non-selective systemic herbicide that can damage all groups or families of target and non-target plants to varying degrees. Glyphosate inhibits the production of aromatic amino acids and certain phenolic compounds. This leads to a variety of toxic effects in plants, which can result in cellular disruption, decreased growth, and death at sufficiently high levels of exposure. Because of its non-selective nature, glyphosate may be highly effective in spot applications (as proposed in the Proposed Action) or in areas where invasive species dominate and where very few non-target plants exist. Glyphosate has low residual activity, so it would not be effective for an extended period of time (BLM 2007:4-58). The use of marker dye as part of glyphosate application does not pose additional risk to vegetation or plant species when used in accordance with the product label and when used with glyphosate (Kendon 2004).

Triclopyr is a selective, systemic herbicide used on broadleaf and woody species. Triclopyr mimics auxin, a plant growth hormone, thus disrupting the normal growth and viability of plants. Direct spray of both formulations poses a high risk to plants (BLM 2007:4-62). The use of No Foam A and marker dye as part of triclopyr application does not pose additional risk to vegetation or plant species when used in accordance with the product label (Creative Marketing and Research 2001; Kendon 2004).

Broad-leaved plants are more susceptible to the effects of 2,4-D than narrow-leaved plants, such as grasses. Plant community diversity studies have shown that 2,4-D can be effectively used in invasive species management without significantly affecting species diversity. Non-target plants that are accidentally sprayed at normal application rates are likely to be damaged (BLM 2007:4-56). The use of Phase surfactant and Hi-Light as part of 2,4-D application does not pose additional risk to vegetation or plant species when used in accordance with the product label (Loveland Products 2010; Becker Underwood 2009).

Risk to non-target plants from spray drift would be relatively low, because the Proposed Action would not include aerial application of glyphosate, triclopyr, and 2,4-D. As previously stated, personnel treating invasive plants with these herbicides would be properly trained prior to applying herbicides in the weed management area. Because personnel would apply no more than required to effectively control target species, the risk of surface runoff of herbicide residues would be low. Personnel would be trained to immediately clean up any spills of chemicals

reducing the risk of effecting nearby non-target vegetation, and identify non-target (in addition to target) species to reduce the risk of accidental direct spraying of non-target species. The training would include on-site orientation with the RS for all personnel who would each receive a field guide depicting the native and non-native, invasive species in the weed management area. The WCM would provide additional oversight to personnel. Risk assessments predicted no risk to plant receptors from wind transport of herbicide particles under all of the evaluated scenarios (BLM 2007:4-47). Application rate is a major factor in determining risk, with higher rate application associated with greater risk to plants under various exposure scenarios. Personnel would be trained in the appropriate application rate of glyphosate, triclopyr, and 2,4-D, so as to minimize effects to non-target plant species. Accordingly, through proper training of personnel, the effect of the Proposed Action on non-target plant species would not be adverse.

The potential negative effects to non-target plants from manual treatment methods are expected to be lower than those from chemical treatments. There would still be the potential of accidental removal of non-target plants; however, as stated above, personnel would be trained to recognize and avoid the removal of non-target species.

Alternative 2 – No Action

Under the No Action Alternative, no herbicide treatment or physical removal methods of invasive plant species would occur. Therefore, no direct effects to non-target plants would occur. However, this alternative could result in an indirect effect on native plant species composition and diversity, due to increased competition from non-native plant species.

3.4.3 Cumulative Effects

Alternative 1 – Proposed Action – Weed Management

Because no direct or indirect adverse effects to non-target plant species are anticipated, the Proposed Action would not contribute to cumulatively adverse effects.

Alternative 2 – No Action

The No Action Alternative would not result in any direct effects to native plant species, non-native invasive plant species because no herbicide treatment or physical method of removing invasive plant species would be used. As no action would occur, this alternative would not contribute to cumulative effects.

3.4.4 References

Becker Underwood, Inc.
2009. Material Safety Data Sheet for Hi-Light® Blue Liquid. March 24.

California Public Utilities Commission (CPUC) and U.S. Department of Interior, Bureau of Land Management (BLM)

2011 Final Environmental Impact Report/Environmental Impact Statement for East County Substation, Tule Wind, and Energia Sierra Juarez Gen-Tie Projects. October.

Creative Marketing and Research.
2001. Material Safety Data Sheet for No Foam® A. January.

Kendon Chemical & MNFG. Co. Pty LLC.
2004. Material Safety Data Sheet for Herbicide Marker Dye. July.

Loveland Products, Inc.
2010. Material Safety Data Sheet for Phase. July 20.

U.S. Department of Interior, Bureau of Land Management (BLM)
2007 Final Programmatic Environmental Impact Statement for Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States. June. Available at: http://www.blm.gov/wo/st/en/prog/more/veg_eis.html.

3.5 Wildlife/Special Status Species/Threatened and Endangered Species

3.5.1 Affected Environment

A total of 21 Federal, State, County, and/or BLM sensitive animal species were detected on the Tule Wind project site during biological resource surveys (CPUC and BLM 2011). These species include Quino checkerspot butterfly (*Euphydryas editha quino*; federally listed as endangered), rosy boa (*Charina trivirgata*; BLM sensitive), northern red-diamond rattlesnake (*Crotalus ruber ruber*; California Species of Special Concern), Blainville's horned lizard (*Phrynosoma blainvillei*, previously coast horned lizard; California Species of Special Concern), coast patch-nosed snake (*Salvadora hexalepis virgultea*; California Species of Special Concern), common chuckwalla (*Sauromalus ater*; County Group 2 species), western spadefoot toad (tadpoles; *Spea hammondii*; CDFG California Species of Special Concern and BLM sensitive), Cooper's hawk (*Accipiter cooperii*; California Department of Fish and Wildlife [CDFW] Watch List), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*; CDFW Watch List), golden eagle (*Aquila chrysaetos*; CDFW Watch List and state Fully Protected), long-eared owl (*Asio otus*; California Species of Special Concern), turkey vulture (*Cathartes aura meridionalis*; County Group 1 species), Vaux's swift (*Chaetura vauxi*; California Species of Special Concern), northern harrier (*Circus cyaneus*; California Species of Special Concern), olive-sided flycatcher (*Contopus cooperi*; CDFW Watch List and U.S. Department of Interior, Fish and Wildlife Service [USFWS] Bird of Conservation Concern), yellow warbler (*Dendroica petechia*; California Species of Special Concern), California horned lark (*Eremophila alpestris actia*; CDFW Watch List), prairie falcon (*Falco mexicanus*; CDFW Watch List and USFWS Bird of Conservation Concern), loggerhead shrike (*Lanius ludovicianus*; California Species of Special Concern and USFWS Bird of Conservation Concern), mountain lion (*Felis concolor*; County Group 2 species), and San Diego black-tailed jackrabbit (*Lepus californicus bennettii*; California Species of Special Concern) (CPUC and BLM 2011:D.2-72 through D.2-83).

3.5.2 Environmental Effects

Alternative 1 – Proposed Action – Weed Management

The Proposed Action would include the incorporation of the specific SOPs defined in the PEIS for Vegetation Treatments (BLM 2007; see Appendix A of this EA). In addition, personnel would be trained to avoid animals while applying herbicides or disrupting them when using manual removal methods. Through diligent efforts of trained personnel, effects are not anticipated to adversely affect the ability of species to occupy the Proposed Action area.

Glyphosate applications pose low to moderate risk to terrestrial wildlife receptors under multiple exposure scenarios involving applications at the typical and maximum application rates (Monsanto Corporation 2011). Direct spray of small mammals and insects, assuming 100 percent absorption, poses a low risk at the typical application rate and a moderate risk at the maximum application rate. Consumption of vegetation sprayed with glyphosate poses a low risk to small mammals for scenarios involving the maximum application rate only. A large mammal consuming vegetation sprayed with glyphosate would face low acute risk for scenarios involving the typical application rate, and moderate acute/low chronic risk, for scenarios involving the maximum application rate (BLM 2007:4-106); however, each of these scenarios assumes the large mammal would consume the sprayed weed species, which would not be typical because those species that have potential to occur in the weed management area (e.g., mule deer) typically graze on native vegetation or the fruits of native vegetation. A bird that consumes vegetation sprayed with glyphosate would face a low acute and chronic risk (BLM 2007:4-106). Consumption of contaminated insects would pose a low risk to both small mammals and small birds if the herbicide was applied at the typical application rate. The herbicide would pose a moderate risk if applied at the maximum rate. Acute risks from glyphosate exposure are low at the typical application rate under all scenarios, and there are low chronic risks. Exposure scenarios with the greatest risk are direct spray and acute consumption of contaminated vegetation and insects. Glyphosate is non-selective and the most appropriate use of this herbicide is spot applications, which would be the typical application method in the weed management area. Spot applications would have lower risks associated with consumption of contaminated vegetation and insects than broadcast applications, as fewer non-target areas would be affected by direct spray or spray drift (BLM 2007:4-106). The use of marker dye as part of glyphosate application does not pose additional risk to vegetation or plant species when used in accordance with the product label (Kendon 2004).

Application of the two evaluated formulations of triclopyr (TEA and BEE) poses a risk to insects, mammals, and birds under several exposure scenarios (Alligare, LLC 2010). Because risks calculated for these two formulas are the same (BLM 2007:4-109), no differentiation is made between TEA and BEE in this section. The following scenarios pose a low risk for applications at the typical rate and a moderate risk for applications at the maximum rate: first-order and 100 percent absorption of direct spray by small mammals, 100 percent absorption of direct spray by insects, acute consumption of contaminated vegetation by large mammals and large birds, acute consumption of contaminated insects by small birds and small mammals, and chronic consumption of contaminated vegetation by large mammals and large birds. In addition, for the maximum application rate, there would be low risk associated with acute consumption of

contaminated vegetation by small mammals following an accidental spill, acute consumption of contaminated small mammals by carnivorous mammals, and chronic consumption of contaminated vegetation by large mammals. No risk is predicted for small mammals as a result of acute or chronic consumption of contaminated vegetation or water, or for predatory birds as a result of consumption of contaminated fish. In summary, acute or accidental direct spray scenarios would pose a low to moderate risk to terrestrial mammals and insects, consumption of contaminated vegetation would pose a low to moderate risk to large mammals and large birds, and consumption of contaminated insects would pose a low to moderate risk to small birds (BLM 2007:4-108 and 4-109). The use of No Foam A and marker dye as part of triclopyr application does not pose additional risks to vegetation or plant species when used in accordance with the product label (Creative Marketing and Research 2001; Kendon 2004).

The herbicide 2,4-D poses a risk to some terrestrial wildlife under direct spray, as well as ingestion of contaminated food. Direct spray of 2,4-D at both the typical and maximum application rates poses a moderate risk to insects and small mammals, assuming 100 percent absorption. Small mammals face low risk from direct spray if first order dermal absorption is assumed. Large mammals and large birds would be at moderate acute and chronic risk for ingestion scenarios involving both the typical and maximum application rates, except that large birds face high acute risk for ingestion scenarios involving the maximum application rate. Small mammals face low acute risk for ingestion scenarios involving the typical and maximum application rates. Long-term consumption of contaminated vegetation would be unlikely if the vegetation were to show signs of damage. In other acute scenarios, small mammals face low risk from consumption of water contaminated by an accidental spill; small mammals face moderate to high risk and small birds face high risk from consumption of contaminated insects; and carnivorous mammals and birds face low risk from the consumption of small mammals contaminated by direct spray of 2,4-D (BLM 2007:4-106). The use of Phase surfactant and Hi-Light as part of 2,4-D application does not pose additional risk to vegetation or plant species when used in accordance with the product label (Loveland Products 2010; Becker Underwood 2009).

Spot applications of glyphosate, triclopyr, and 2,4-D would have lower risks associated with consumption of contaminated vegetation and insects than broadcast applications, as fewer non-target areas would be affected by direct spray or spray drift.

Invasive weed species have the potential to out-compete native species and change the overall quality of the habitat. Habitat degradation could occur through the spread of existing invasive weed species within the weed management area, as well as the Tule Wind project site. By removing invasive plant species, the Proposed Action would result in long-term beneficial effects on wildlife by improving habitat and ecosystem function.

The potential negative effects to animals from physical treatment methods are expected to be lower than those from chemical treatments. There would still be the potential of accidental death or injury to animals; however, as stated above, personnel would be trained to avoid such accidents.

For the reasons presented above, the Proposed Action is not expected to adversely affect the ability of animal species (including special status species) to occupy habitat in an area.

Alternative 2 – No Action

Under the No Action Alternative, no herbicides or physical removal methods for invasive plants species would be used; therefore, invasive plant species would continue to proliferate, causing degradation of habitat used by federal, state, County, and/or BLM sensitive animal species.

3.5.3 Cumulative Effects

Alternative 1 – Proposed Action – Weed Management

Because no direct or indirect adverse effects to non-target wildlife species are anticipated, the Proposed Action would not contribute to cumulatively adverse effects.

Alternative 2 – No Action

The No Action Alternative could result in effects to federal, state, County, and/or BLM sensitive animal species by allowing weed proliferation that would cause degradation of habitat that supports these species. However, as no action would occur, this alternative would not contribute to cumulative effects.

3.5.4 References

Alligare, LLC
2010 Triclopyr 4 Material Safety Data Sheet. January 26.

Becker Underwood, Inc.
2009. Material Safety Data Sheet for Hi-Light® Blue Liquid. March 24.

California Public Utilities Commission (CPUC) and U.S. Department of Interior, Bureau of Land Management (BLM)
2011 Final Environmental Impact Report/Environmental Impact Statement for East County Substation, Tule Wind, and Energia Sierra Juarez Gen-Tie Projects. October.

Creative Marketing and Research.
2001. Material Safety Data Sheet for No Foam® A. January.

Eason, C.T. and E. Murphy
2001 Recognizing and reducing secondary and tertiary risks associated with brodifacoum. Pages 157-163 in J. J. Johnston (ed.), Pesticides and Wildlife. American Chemical Society Symposium Series 771.

Eason, C.T., G.R. Wright, L. Meikle, and P. Elder
1996 The persistence and secondary poisoning risks of sodium monofluoroacetate (1080), brodifacoum, and cholecalciferol in possums. Proc. Vertebr. Pest Conf. 17:54-58.

Kendon Chemical & MNFG. Co. Pty LLC.
2004. Material Safety Data Sheet for Herbicide Marker Dye. July.

Loveland Products, Inc.
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Marsh, R.E. and A.E. Koehler
1991 Potential secondary hazards of cholecalciferol. Unpublished report submitted to U.S. Environmental Protection Agency by Bell Laboratories, Inc., Madison, WI.

Monsanto Corporation
2011 Roundup Pro Herbicide Material Safety Data Sheet. February 11.

U.S. Department of Interior, Bureau of Land Management (BLM)
2007 Final Programmatic Environmental Impact Statement for Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States. June. Available at: http://www.blm.gov/wo/st/en/prog/more/veg_eis.html.

3.6 Other Environmental Topics

Environmental topics other than those discussed above were not analyzed in this EA.

Areas of critical environmental concern, essential fish habitat, farmlands, livestock grazing, wild and scenic rivers, wild horses and burros, and wilderness/wilderness study areas/lands with wilderness characteristics are not applicable to the Proposed Action or any alternative because these resources do not exist in the weed management area or within its immediate vicinity.

Air quality (BLM 2007:4-5 through 4-13), floodplains (BLM 2007:4-24 through 4-36), paleontological resources (BLM 2007:4-146 through 4-152), recreation (BLM 2007:4-159 through 4-163), and visual resources (BLM 2007:4-152 through 4-155) were found to not be adversely affected in the PEIS for Vegetation Treatments, and thus, would not be adversely affected by the Proposed Action.

Environmental justice and social and economic values also are not applicable because no residences or businesses are located within or immediately adjacent to weed management areas; therefore no effect would occur.

CHAPTER 4: CONSULTATION AND COORDINATION

4.1 Summary of Public Participation

Public review and comments on the Project EIR/EIS were extensive. Public scoping and frequent agency meetings were completed as described in the Final EIR/EIS for the Tule Wind project, Section ES.4, Areas of Controversy/Issues, and Chapter I, Public Participation (CPUC and BLM 2011). All public comments received on the Draft EIS/EIR were carefully analyzed and agency responses are included in the Final EIR/EIS. Volume 4 (Comment Letters) and Volume 3 (Response to Comments) include all of the written comment letters received by the CPUC and BLM in response to the Notice of Availability and the responses to these comment letters.

This EA and associated Finding of No Significant Impact will be made available on the BLM El Centro website for a 30-day public review and comment period. Any comments received will be considered and addressed prior to a decision being made on this action.

4.2 Section 7 Consultation

A Section 7 consultation process was completed with the USFWS for the Tule Wind project in 2011. A Biological Opinion (BO) was issued on September 2, 2011 for the Tule Wind project. The BO considered invasive weeds and the associated potential effects to the two listed species that were analyzed (Quino checkerspot butterfly and Peninsular bighorn sheep [*Ovis canadensis nelsoni*]). The O&M Conservation Measure No. 14 of the BO included a requirement to control invasive plant species for the life of the Tule Wind project (USFWS 2011:6).

4.3 Section 106 Consultation

Section 106 consultation under the National Historic Preservation Act (NHPA) for the Tule Wind project was completed with the execution of the Memorandum of Agreement on November 16, 2011 (BLM et al. 2011). The BLM finds that the activities covered by the Proposed Action will take place within the defined APE for the Tule Wind project and that there will be no additional adverse effects to historic properties by its implementation. Therefore, the Proposed Action is covered by the prior consultations for the Tule Wind project and no further consultation is required pursuant to the NHPA.

4.4 List of Preparers

Bureau of Land Management, California Desert District (CDD) and El Centro Field Office (ECFO)

Kim Marsden, Natural Resource Specialist (CDD)
Nicollee Gaddis, Planning & Environmental Coordinator (ECFO)
Andrew Trouette, Botanist (ECFO)
Carrie Simmons, Resources Branch Supervisor (ECFO)

HELIX Environmental Planning, Inc.

Shelby Howard, Project Manager
Andrea Bitterling, Quality Assurance/Quality Control
Melissa Whittemore, Primary EA Preparer
Vanessa Brice, EA Preparer
Jason Kurnow, Biologist
Justin Palmer, Senior GIS Specialist
Rebecca Kress, GIS Specialist

HELIX Environmental Construction Group

Justin Fischbeck, President
Zach Goedker, Qualified Applicator License Holder
Erik McCracken, Project Coordinator/Assistant Project Manager

4.5 References

California Public Utilities Commission (CPUC) and U.S. Department of Interior, Bureau of Land Management (BLM)

2011 Final Environmental Impact Report/Environmental Impact Statement for East County Substation, Tule Wind, and Energia Sierra Juarez Gen-Tie Projects. October.

U.S. Department of Interior, Bureau of Land Management (BLM); U.S. Army Corps of Engineers, Los Angeles District; Department of Energy; Bureau of Indian Affairs; California State Historic Preservation Officer; Advisory Council on Historic Preservation; and Ewiiaapaayp Band of Kumeyaay Indians

2011 Memorandum of Agreement Among the Bureau of Land Management – California, the Department of Energy, the Bureau of Indian Affairs, the United States Army Corps of Engineers, the Ewiiaapaayp Band of Kumeyaay Indians, Tule Wind LLC, the California State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding the Tule Wind Energy Project, San Diego County, California. November 16.

U.S. Fish and Wildlife Service (USFWS)

2011 Biological Opinion for the Tule Wind Project. September 2.

Appendix A
APPLICABLE PREVENTION MEASURES AND STANDARD OPERATING PROCEDURES FOR APPLYING HERBICIDES

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Table A-1
APPLICABLE PREVENTION MEASURES

BLM Activity	Prevention Measures
Project Development	• Minimize soil disturbance to the extent practical, consistent with project objectives. • Locate and use weed-free project staging areas. Avoid or minimize all types of travel through weed-infested areas, or restrict travel to periods when the spread of seeds or propagules is least likely. • Prevent the introduction and spread of weeds caused by moving weed-infested sand, gravel, borrow, and fill material. • Inspect material sources on site, and ensure that they are weed-free before use and transport. Treat weed-infested sources to eradicate weed seed and plant parts, and strip and stockpile contaminated material before use. • Prevent weed establishment by not driving through weed-infested areas. • Inspect and document weed establishment at access roads, and all disturbed areas; control infestations to prevent weed spread within the project area. • Identify sites where equipment can be cleaned. Clean equipment before entering public lands. • Clean all equipment before leaving the project site if operating in areas infested with weeds. • Inspect and treat weeds that establish at equipment cleaning sites. • Ensure that rental equipment is free of weed seed.
Revegetation	• Revegetate disturbed soil (except travel ways on surfaced projects) in a manner that optimizes plant establishment for each specific project site. For each project, define what constitutes disturbed soil and objectives for plant cover revegetation. Revegetation may include topsoil replacement, planting, seeding, fertilization, liming, and weed-free mulching, as necessary. • Where practical, stockpile weed-seed-free topsoil and replace it on disturbed areas (e.g., road embankments or landings). • Inspect seed and straw mulch to be used for site rehabilitation (for wattles, straw bales, dams, etc.) and certify that they are free of weed seed and propagules. • Inspect and document all limited term ground-disturbing operations in noxious weed infested areas for at least three growing seasons following completion of the project. • Use native material where appropriate and feasible. Use certified weed-free or weed-seed-free hay or straw where certified materials are required and/or are reasonably available. • Provide briefings that identify operational practices to reduce weed spread. • Evaluate options, including closure, to regulate the flow of traffic on sites where desired vegetation needs to be established.

Table A-2
APPLICABLE STANDARD OPERATING PROCEDURES FOR APPLYING HERBICIDES

Resource Element	Standard Operating Procedures
Guidance Documents	• BLM Handbook H-9011-1 (Chemical Pest Control); and Manuals 1112 (Safety), 9011 (Chemical Pest Control), 9012 (Expenditure of Rangeland Insect Pest Control Funds), 9015 (Integrated Weed Management), and 9220 (Integrated Pest Management).
General	• Prepare operational and spill contingency plan in advance of treatment. • Conduct a pretreatment survey before applying herbicides. • Select herbicides that are least damaging to the environment while providing the desired results. • Select herbicide products carefully to minimize additional impacts from degradates, adjuvants, inert ingredients, and tank mixtures. • Apply the least amount of herbicide needed to achieve the desired result. • Follow herbicide product label for use and storage. • Have licensed applicators apply herbicides. • Use only U.S. Environmental Protection Agency (USEPA)-approved herbicides and follow product label directions and "advisory" statements. • Review, understand, and conform to the "Environmental Hazards" section on the herbicide product label. This section warns of known herbicide risks to the environment and provides practical ways to avoid harm to organisms or to the environment. • Minimize the size of application area, when feasible. • Keep a copy of Material Safety Data Sheets (MSDSs) at work sites. MSDSs are available for review at: http://www.cdms.net/. • Keep records of each application, including the active ingredient, formulation, application rate, date, time, and location. • Avoid accidental direct spray and spill conditions to minimize risks to resources. • Take precautions to minimize drift by not applying herbicides when winds exceed 6 mph, or a serious rainfall event is imminent. • Use drift control agents and low volatile formulations. • Consider site characteristics, environmental conditions, and application equipment in order to minimize damage to non-target vegetation. • Use drift reduction agents, as appropriate, to reduce the drift hazard to non-target species. • Turn off applied treatments at the completion of spray runs and during turns to start another spray run. • Refer to the herbicide product label when planning revegetation to ensure that subsequent vegetation would not be injured following application of the herbicide.

Table A-2 (cont.)
APPLICABLE STANDARD OPERATING PROCEDURES FOR APPLYING HERBICIDES

Resource Element	Standard Operating Procedures
Air Quality (see Manual 7000 [Soil, Water, and Air Management])	• Consider the effects of wind, humidity, temperature inversions, and heavy rainfall on herbicide effectiveness and risks. • Apply herbicides in favorable weather conditions to minimize drift. For example, do not treat when winds exceed 10 mph or rainfall is imminent. • Use drift reduction agents, as appropriate, to reduce the drift hazard. • Select proper application equipment (e.g., spray equipment that produces 200- to 800-micron diameter droplets [spray droplets of 100 microns and less are most prone to drift]). • Select proper application methods (e.g., set maximum spray heights, use appropriate buffer distances between spray sites and non-target resources).
Soil (see Manual 7000 [Soil, Water, and Air Management])	• Minimize treatments in areas where herbicide runoff is likely, such as steep slopes when heavy rainfall is expected. • Minimize use of herbicides that have high soil mobility, particularly in areas where soil properties increase the potential for mobility.
Water Resources (see Manual 7000 [Soil, Water, and Air Management])	• Consider climate, soil type, slope, and vegetation type when developing herbicide treatment programs. • Select herbicide products to minimize impacts to water. This is especially important for application scenarios that involve risk from active ingredients in a particular herbicide, as predicted by risk assessments. • Plan to treat at appropriate time of day to avoid high winds. • Conduct mixing and loading operations in an area where an accidental spill would not contaminate a waterway. • Do not rinse spray tanks in or near waterways.
Wetlands and Riparian Areas	• Use appropriate herbicide-free buffer zones for herbicides not labeled for aquatic use based on risk assessment guidance, with minimum widths of 25 feet for vehicle and 10 feet for hand spray applications.
Vegetation (see Handbook H-4410-1 [National Range Handbook], Manual 5000 [Forest Management], and Manual 9015 [Integrated Weed Management])	• Refer to the herbicide label when planning revegetation to ensure that subsequent vegetation would not be injured following application of the herbicide. • Use native or sterile species for revegetation and restoration projects to compete with invasive species until desired vegetation establishes. • Use weed-free straw and mulch for revegetation and other activities.
Wildlife (see Manual 6500 [Wildlife and Fisheries Management] and Manual 6780 [Habitat Management Plans])	• Use herbicides of low toxicity to wildlife, where feasible. • Use spot applications or low-boom broadcast operations where possible to limit the probability of contaminating non-target food and water sources, especially non-target vegetation over areas larger than the treatment area.

Table A-2 (cont.)
APPLICABLE STANDARD OPERATING PROCEDURES FOR APPLYING HERBICIDES

Resource Element	Standard Operating Procedures
Threatened, Endangered, and Sensitive Species (see Manual 6840 [Special Status Species])	• Use a wick or backpack sprayer to minimize risks to special status plants.
Cultural Resources and Paleontological Resources (see Handbook H-8120-1 [Guidelines for Conducting Tribal Consultation] and Handbook H-8270-1 [General Procedural Guidance for Paleontological Resource Management], Manual 8100 [The Foundations for Managing Cultural Resources], Manual 8120 [Tribal Consultation Under Cultural Resource Authorities], and Manual 8270 [Paleontological Resource Management]) (see also the Programmatic Agreement among the BLM, Advisory Council on Historic Preservation, and National Conference of State Historic Preservation Officers Regarding the Manner in which BLM will Meet its Responsibilities Under the National Historic Preservation Act)	• Follow standard procedures for compliance with Section 106 of the National Historic Preservation Act as implemented through the Programmatic Agreement among the Bureau of Land Management, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers Regarding the Manner in which BLM will Meet its Responsibilities Under the National Historic Preservation Act and state protocols or 36 Code of Federal Regulations Part 800, including necessary consultations with State Historic Preservation Officers and interested tribes. • Follow BLM Handbook H-8270-1 (General Procedural Guidance for Paleontological Resource Management) to determine known Condition 1 and Condition 2 paleontological areas, or collect information through inventory to establish Condition 1 and Condition 2 areas, determine resource types at risk from the proposed treatment, and develop appropriate measures to minimize or mitigate adverse impacts. • Follow guidance under Human Health and Safety in the PEIS in areas that may be visited by Native peoples after treatments.
Recreation (see Handbook H-1601-1 [Land Use Planning Handbook], Appendix C)	• Schedule treatments to avoid peak recreational use times, while taking into account the optimum management period for the targeted species. • Use herbicides during periods of low human use, where feasible.
Rights-of-way	• Coordinate vegetation management activities where joint or multiple use of a ROW exists. • Use only herbicides that are approved for use in ROW areas.

Table A-2 (cont.)
APPLICABLE STANDARD OPERATING PROCEDURES FOR APPLYING HERBICIDES

Resource Element	Standard Operating Procedures
Human Health and Safety	• Use protective equipment as directed by the pesticide product label. • Have a copy of MSDSs at work site. • Contain and clean up spills and request help as needed. • Secure containers during transport. • Follow label directions for use and storage. • Dispose of unused herbicides promptly and correctly.

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