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Flat Top Mesa Wind Energy Testing Site and Monitoring Project

INSTALLATION OF THREE METEOROLOGICAL TOWERS IN CLARK COUNTY, NEVADA ENVIRONMENTAL ASSESSMENT

File Number: NVN-087970

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NATIONAL SYSTEM OF PUBLIC LANDS

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LIST OF ACRONYMS

ACEC	Area of Critical Environmental Concern
BLM	Bureau of Land Management
CESA	cumulative effects study area
DWMA	Desert Wildlife Management Area
EA	Environmental Assessment
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FLPMA	Federal Land Policy and Management Act
MBTA	Migratory Bird Treaty Act
MET	meteorological tower
MTR	Military Training Route
NEPA	National Environmental Policy Act
NDOW	Nevada Department of Wildlife
NNHP	Nevada Natural Heritage Program
ROW	right-of-way
Sodar	sonic detection and ranging system
USFWS	U.S. Fish and Wildlife Service
VRM	visual resource management

CHAPTER 1
INTRODUCTION

1.1 INTRODUCTION

Pacific Wind Development LLC (Pacific Wind), a wholly-owned subsidiary of Iberdrola Renewables, Inc., proposes to install three temporary meteorological towers (METs) (Proposed Action) on public lands under the jurisdiction of the United States Department of the Interior Bureau of Land Management (BLM) (Case File Number NVN–087970) administered by the Las Vegas Field Office (LVFO). The Proposed Action is located in southern Clark County, Nevada (see Figure 1-1). This Environmental Assessment (EA) for the Proposed Action has been prepared by Ecology & Environment, Inc. (E & E) to fulfill the requirements of the National Environmental Policy Act (NEPA) of 1970.

Pacific Wind proposes to collect, log, and transmit data on wind speed and wind direction at various predetermined heights above the ground. The wind data collected from the MET is needed to validate the wind resource for the potential future construction of a commercial wind energy facility, including placement of wind generators, which would generate renewable energy to be sold to public utilities, local municipalities, and possibly large commercial users under medium to long-term purchase agreements.

1.2 PURPOSE OF AND NEED FOR THE PROPOSED ACTION

Purpose and Need

The purpose of the Proposed Action is to provide Pacific Wind access to three MET locations to gather sufficient wind speed, direction and other meteorological data to ascertain whether there is sufficient and sustained wind energy to develop a renewable wind energy project capable of generating marketable electrical energy for commercial purposes.

The need for the Proposed Action is to respond to a Federal Land Policy and Management Act (FLPMA) right-of-way (ROW) request submitted by the proponent to construct and operate three METs on public land administered by the BLM LVFO.

Decision to be made

The decision to be made would be to approve Pacific Wind's application submitted to the LVFO on September 29, 2009 and if so, under what conditions.

The application requested a wind energy site testing and monitoring ROW grant for three METs within a Project area consisting of approximately 4,771 acres of BLM land in eastern Clark County. The METs would occupy an area of 6 acres within the Project area, approximately 2 acres at each tower.

The METs would be located in the following Township, Range, and Sections (TRS).

<u>Mount Diablo Meridian</u>
Township 13 South, Range 70 East,
Sections 11, 15, and 22

Washington Office Instruction Memorandum (IM) No. 2009-043, dated December 19, 2008, addresses Project areas for site testing and monitoring on page 3, under Item #2, Project area Grant for Testing and Monitoring: Acreage. Item #2 states, "The lands involved in the Project area grant will be defined by aliquot legal land descriptions and configured to involve a reasonable amount of land to support a possible ROW application for a wind energy development project in the future. There are no statutory or regulatory limits on the acreage of a site testing and monitoring ROW application; however, the BLM may request additional information from the applicant to determine if the Project area is a reasonable size for a potential wind energy development project in the area." It further states, "The BLM is not required to accept applications that are not in the public interest; however, BLM field offices will not inappropriately limit the size of Project areas that may be needed to evaluate an area for potential wind energy development."

The following legal land description summarizes all public lands currently included in the proposed ROW.

Mount Diablo Meridian
Township 13 South, Range 70 East
Sections
2 All
3 All
9 E/2 E/2
10 All
11 W/2
15 All
16 E/2 and E/2 SW/4
21 E/2 and E/2 W/2
22 W/2 and NE/4
27 NW/4
28 NE/4 and E/2
NW/4

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Figure 1-1 Project area Overview

Figure 1-1 Project Area Overview
Flat Top Mesa
Clark County, Nevada

0 2 4 6 8 10
Miles

1.3 RELATIONSHIP TO PLANNING AND CONFORMANCE WITH LAND USE PLANS

1.3.1 Resource Management Plan

The public lands administered by the BLM in the Project area are managed in accordance with the following land use plan for the LVFO, BLM Southern Nevada District, which are in compliance with the FLPMA of 1976, as amended:

- *The BLM Record of Decision for the Approved Las Vegas Resource Management Plan and Final Environmental Impact Statement,* signed October 1998.

Environmental safeguards adopted in the Resource Management Plan (RMP) are designed to provide effective conservation of cultural resources, riparian areas, desert tortoise, special status species, and fish and wildlife habitat, while at the same time allowing broad opportunity for diverse land uses and resource development where consistent with desert tortoise recovery (BLM 1998). The Proposed Action is not within a designated or proposed utility corridor, according to the 1998 RMP. The Proposed Action is, however, within a designated land disposal area, made available by the BLM for development.

1.3.2 Relationship to Other Statutes, Regulations, Policies, and Plans

The FLPMA of 1976, 90 Stat. 2750, 43 USC 1701, 1713, and 1719, was passed to authorize BLM's management of public lands. The applicant requested the ROW be issued under the authority of FLPMA and in accordance with Title 43 Code of Federal Regulations (CFR) 2800.

- FLPMA Section 501 gives the Bureau of Land Management the authority to grant, issue, or renew rights-of-way over, upon, under, or through such lands…

Title 43 CFR 2800 provides BLM policy and procedures.

- 43 CFR 2802.10, "What lands are available for grants", which states that lands are not available if a statute, regulation, or public land order specifically excludes rights-of-ways; the lands are specifically segregated or withdrawn from ROW uses; or the BLM identifies the area in its land use plans or in the analysis of an application as inappropriate for ROW uses. The BLM may require common use of a ROW. Safety and other considerations may limit the extent to which a ROW may be shared.

- 43 CFR 2805.15, "What rights does the United States retain?" which states that the United States retains and may exercise any rights the grant does not expressly convey. These include the BLM's right to (a) access the lands covered by the grant at any time and enter any facility constructed on the ROW; (b) require common use of the ROW, including subsurface and air space, and authorize use of the ROW for compatible uses.

- Administration of rights-of-way grants is found in Title 43 CFR 2805.11, "What does a grant contain?" 43 CFR 2805.12, "What terms and conditions

must I comply with?", and 43 CFR 2805.14, "What rights does a grant contain?"

- Title 43 CFR 2805.14 discusses the issuance grants subject to the valid existing rights of others, including the United States. As such, a standard stipulation used in the administration of grants, is "This grant is subject to all valid rights existing on the effective date of this grant."

The Proposed Action is consistent with known state and local zoning or planning ordinances. Section 202(c)(9) of the FLPMA governs BLM planning and requires BLM land use plans to be consistent with land use planning and management programs of other federal departments, state agencies, local governments, and Tribes.

The Nevada Statewide Policy Plan for Public Lands developed by the counties and cities of Nevada and the State Land Use Planning Agency of the Division of State Lands, Department of Conservation and Natural Resources, State of Nevada, under authority of Senate Bill 40 of the 1983 Nevada Legislature, does not specifically provide language for wind energy projects, but states in the "Public Lands" section under the heading "Goals of Public Lands" that the State of Nevada will "…manage and utilize public lands on the basis of multiple use and sustained yield concepts, and in a manner that will conserve natural resources; protect and preserve the quality of the environmental, ecological, scientific, historical and archeological values; protect and preserve wildlife habitat and certain lands in their natural condition; and provide for long term benefits to the people of Nevada and future generations." The section continues with statement that Nevada will "ensure the development of the state's natural resources in a manner consistent with state and local goals regarding the environment, economic development and social concerns" (State of Nevada 1985, p. 8).

1.4 PUBLIC SCOPING

A notification letter, accompanied by a figure depicting the proposed MET location sites, was sent to the one ROW holder within the 4,771-acre Project area to inform this ROW holder of the proposed MET installation.

1.5 ISSUES

The BLM interdisciplinary team identified the resources and uses to be addressed in this document as outlined in Chapter 3. Avoidance of cultural resources, sensitive plant and wildlife species, and airspace impacts were identified as specific issues to be addressed in relation to the Proposed Action.

1.6 AUTHORIZING ACTIONS

The BLM's approval of the Proposed Action or possible alternatives associated with the SF-299 and EA is required prior to authorization of the ROW grant and commencement of operations. Pacific Wind would be responsible for obtaining any other necessary permits and approvals from stakeholders including any relevant federal, state, and local agencies.

The lands within the proposed ROW grant area would not be available for other wind energy ROW applications. The holder of the site testing and monitoring ROW grant has established no right to development.

CHAPTER 2.0
PROPOSED ACTIONS AND ALTERNATIVES

2.1 PROPOSED ACTION

Under the Proposed Action, Pacific Wind would construct three temporary METs within the proposed ROW (Case File Number NVN–087970) to determine the potential for wind energy generation in the area. The METs would be approximately 197 feet in height, with a series of guy wires extending from the top of the tower to the ground approximately 167 feet from the base. Construction of each MET is expected to require two to six personnel working approximately two 8-hour work days. The METs would remain in continuous operation until sufficient data was collected to determine the suitability of a wind energy project or until the three-year ROW authorization expired.

2.1.1 Location and Access

The proposed locations for the METs are identified in Table 2-1 and Figure 2-1. Table 2-1 includes UTM 11N coordinates for each MET and their respective TRS locations.

Table 2-1 MET Locations

MET ID	Coordinates		Mount Diablo Meridian TRS Aliquot
	Easting	Northing	
2	4079299.949	754938.542	013S 070E 011
3	4077301.050	754173.306	013S 070E 015
4	4075386.406	753234.392	013S 070E 022

Although the authorization would be for a larger project area, the use would be limited to a five-acre area around each of the three METs. The Project area would consist of a 167-foot radius area extending from the base of the MET (approximately two acres at each tower for a total of 6 acres), within which all ground-disturbing activities would occur. Pacific Wind has conducted biological and cultural resources surveys over a five-acre area for each MET site to allow for minor changes to the location due to engineering and/or environmental constraints. The five-acre survey areas are within the 4,771 acres of the project area. The area disturbed by installation of the MET will be kept to a minimum.

Vehicle access to the proposed MET locations would be restricted to existing roads and those roads would not be improved for the purposes of construction or operation of the METs. Access to the Project area would be gained by traveling from Interstate 15 and then using existing dirt roads. Any off-road access to each tower from existing roads or two-tracks would be covered within the five-acre site which was surveyed for T & E species presence. Existing roads within the Project area were included in the survey for sensitive plant and animal species, and prudent speed limits would be used to minimize airborne dust, noise generation, and potential impacts to local wildlife.

Figure 2-1 Project area

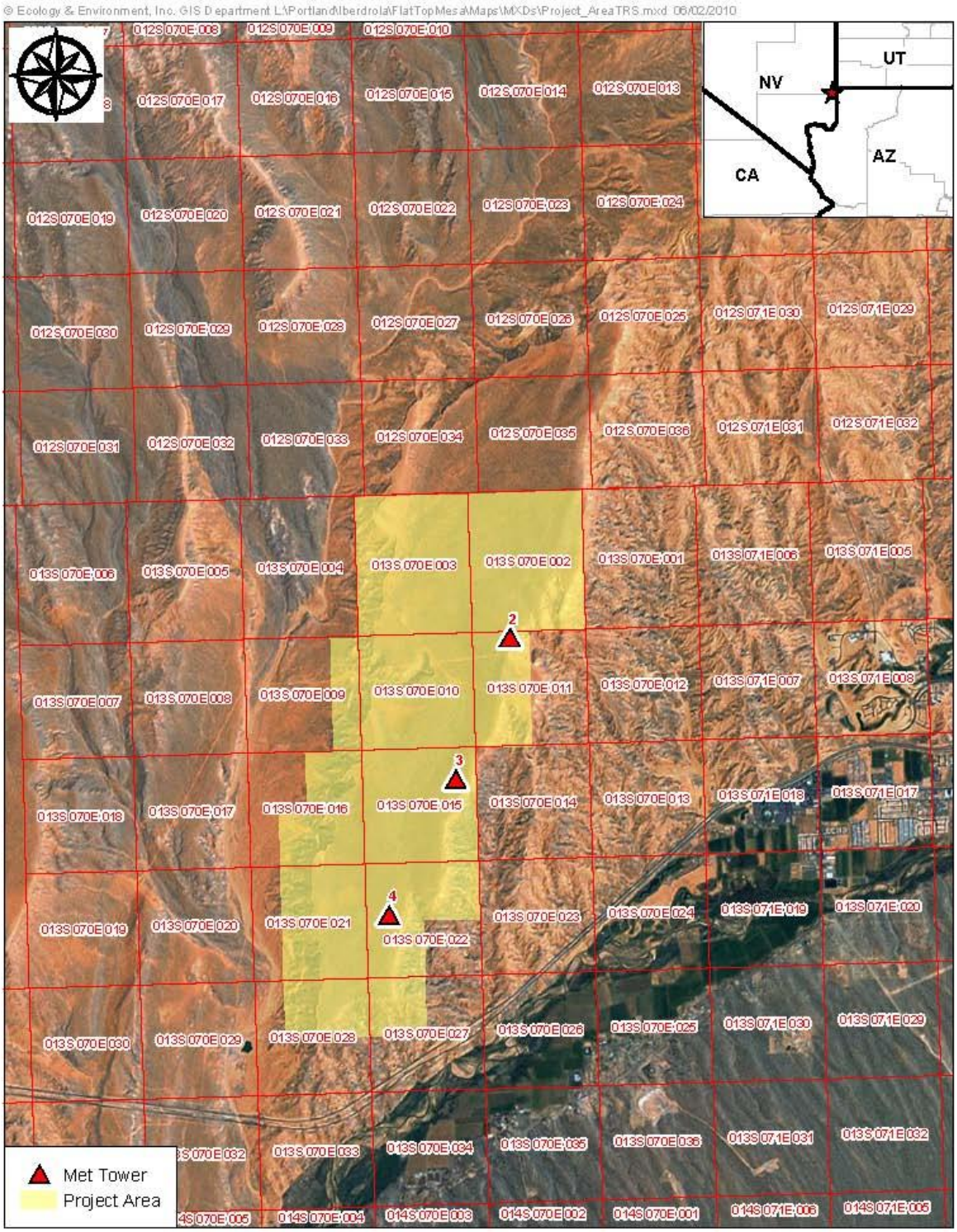

Figure 2-1 Proposed Action Area
Flat Top Mesa
Clark County, Nevada

0 0.5 1 2
Miles

2.1.2 Equipment

The METs would be delivered to the Project area in multiple 33-foot sections on pickup trucks equipped with trailers. Two to three pickup trucks and potentially one or two all-terrain vehicles (ATVs) would be used to transport equipment and crew. The METs would consist of a 197-foot tower, a 7.7 square foot foundation plate, and 28 guy wires extending a maximum of 167 feet from the base of the tower. To ensure safety and reliability of the METs, construction would follow all manufacturers' guidelines.

2.1.3 Construction and Staging Area

The Project area (includes construction and staging) for the METs would be contained within a 167-foot radius area extending from the base of the METs (see Figure 2-1) and accessed by way of existing roads and two-tracks. The area, equal to approximately two acres for each MET, aligns with the total lay-down area needed for MET construction. The towers would be held in place by a set of guy wires attached to four anchors arranged in a square pattern. Each anchor must be sunk to a depth of 3 to 4 feet into the soil. The type of anchoring devices will be determined by the installation crew upon inspection of the soils present at the site. The METs would be placed on a flat 3-foot by 3-foot metal pad. The ground would be graded level and the pad would be positioned directly on bare ground. Due to the sparse nature of the vegetative community in the project area, Pacific Wind does not anticipate the need for vegetation removal during construction or maintenance.

2.1.4 Clean-up Operations

Any waste or debris associated with constructing the METs would be removed and properly disposed of at an approved off-site location.

2.1.5 Meteorological Tower Operations

The METs would remain in continuous operation until sufficient data was collected to determine the suitability of a wind energy project or until the three-year ROW authorization expired. During operation, a two-person crew would typically visit the METs once every twelve months or as directed by a staff meteorologist to perform periodic maintenance, which would be completed in approximately four hours. If non-routine maintenance such as lowering a MET to replace malfunctioning equipment were required, a two- to six-person crew would be required for approximately two 8-hour work days. Specific frequency and duration of the work will be determined by the condition of the MET. The METs would include a data logger, cell phone or satellite link, solar cell, and battery attached to the tower near the base. The tower system is designed to automatically store data and periodically transmit the data via the cell phone or satellite link, thus minimizing the need for on-site visits.

2.1.6 Decommissioning

At the end of the three-year ROW authorization, should Pacific Wind determine the Project area to be commercially unviable, the METs would be removed in their entirety. Two to three pickup trucks and potentially one or two ATVs would be used to transport equipment and crews. Access would use the same existing roads and two-tracks. The three sites would be restored to their previous condition.

2.2 ENVIRONMENTAL PROTECTION MEASURES

2.2.1 Vegetation and Wildlife

The Proposed Action may require trimming existing brush or other desert vegetation to approximately 6 inches above the ground surface, although not anticipated. Trimming in this manner would allow the vegetation to remain viable after construction was completed. Where possible and if needed, topsoil would be conserved during excavation and reused as cover on disturbed areas to facilitate regrowth of vegetation. The BLM would be consulted about acceptable weed control methods within the Project area.

At the request of the BLM and as recommended by the Nevada Department of Wildlife (NDOW), industry-recognized bird flight diverters would be appropriately attached to the MET guy wires and bat detection equipment (brackets) would be attached to the MET itself, in an effort to ensure avian and bat species were not impacted by the Proposed Action (NDOW 2009). Additionally, if surface-disturbing construction activities were to take place during the March 1 to July 31 nesting season, a qualified wildlife biologist would conduct a systematic survey a maximum of 10 days prior to disturbance to identify any breeding or nesting sites of migratory birds, and then would develop appropriate mitigation such as delaying or relocating the activity to avoid such sites. NDOW has recommended that fencing being installed around the MET and guy wire anchors to prevent other wildlife issues, as well as public safety concerns (NDOW 2009).

2.2.2 Air Quality

The Proposed Action would require minimal ground disturbance during the construction phase and therefore would not create large amounts of fugitive dust. To reduce fugitive dust from pickup trucks, drivers would be required to observe a speed limit of 25 miles per hour. No watering or other dust palliatives are planned to be used.

2.3 ALTERNATIVES TO THE PROPOSED ACTION

2.3.1 Alternatives Considered But Eliminated From Further Analysis

Alternatives included on the SF 299 application and considered by Pacific Wind included the following:

MET Alternative 1: 4083576.116 Easting, 755771.316 Northing, Township 12 South, Range 70 East, Section 26.

This alternative MET location was eliminated due to its location outside of Pacific Wind's reduced ROW area.

MET Alternative 2: 4082818.255 Easting, 754540.153 Northing, Township 12 South, Range 70 East, Section 35.

This alternative MET location was eliminated due to its location outside of Pacific Wind's reduced ROW area.

2.3.2 No-Action Alternative

Under the No-Action Alternative, METs would not be constructed and meteorological data would not be gathered.

CHAPTER 3.0
AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 INTRODUCTION

This section describes elements of the existing environment that could be affected by the Proposed Action or the No-Action Alternative. The BLM is required to address specific elements of the environment that are subject to requirements specified in statute or regulation or by executive order (BLM 2008). Table 3-1 outlines the elements that must be addressed in all environmental analyses, as well as other resources deemed appropriate for evaluation by the BLM, and denotes if the Proposed Action affects those elements.

Table 3-1 Supplemental Authorities of the Human Environment and Rationale for Detailed Analysis

	Not Present	Present/ Not Affected	Present/May be Affected	Rationale
Supplemental Authority				
Air Quality	X			The Proposed Action is located within an EPA National Ambient Air Quality Standards attainment area.
Areas of Critical Environmental Concern (ACECs)	X			Project area is not located in an ACEC.
Cultural/Historical	X			See Section 3.3.2 for description.
Environmental Justice	X			The Proposed Action would not disproportionately affect minority or low-income populations.
Prime or Unique Farmlands	X			No prime or unique farmlands are present in the vicinity of the Project area.
Noxious Weeds/Invasive Non-native Species		X		The Project area has already been disturbed and non-native species have already been introduced. No species from the Nevada noxious weed list are known to occur on the site. The Proposed Action would not further contribute to the noxious weeds and/or non-native species in the Project area.
Native American Concerns	X			Resource not present in the vicinity of the Project area.
Floodplains	X			There are no Federal Emergency Management Agency-mapped floodplains in the Project area (Federal Emergency Management Agency 2007)
Riparian and Wetland Zones	X			Resource not present in the Project area.

Table 3-1 Supplemental Authorities of the Human Environment and Rationale for Detailed Analysis

	Not Present	Present/ Not Affected	Present/May be Affected	Rationale
Special Status Species			X	See Section 3.3.1.1 for description.
Migratory Birds			X	See Section 3.3.1.2 for description.
Waste – Hazardous/Solid		X		No hazardous waste would be generated by the Proposed Action. Any solid waste or debris associated with constructing the met tower would be removed and properly disposed of at an approved off-site location.
Water Resources/Quality		X		The Proposed Action would not cause any changes in the runoff characteristics of the site and would not use or discharge water resources.
Wild and Scenic Rivers	X			Resource not present in the vicinity of the Project area.
Fish Habitat	X			There are no surface water bodies that provide fish habitat in the vicinity of the Project area.
Wilderness	X			There are no designated BLM Wilderness Areas in the vicinity of the Project area.
Forests and Rangelands (Healthy Forest Restoration Act land only)	X			Resource not present in the vicinity of the Project area.
Human Health and Safety	X			There are no hazardous wastes or active mining claims in the Project area.
Other Resources				
Grazing Management			X	The Project area is within the Flat Top Mesa open grazing allotment, however, there is currently no active livestock grazing.
Lands and Realty		X		See Section 3.3.4 for description.
Minerals		X		The Proposed Action would not involve excavation or other major ground disturbing activities; therefore, it would not affect local mineral resources.
Paleontological Resources		X		The Proposed Action would not involve excavation or other major ground disturbing activities and, therefore, would not affect local paleontological resources.
Recreation			X	See Section 3.3.3 for description.
Socio-Economic Values		X		The Proposed Action takes place in a rural area and would not significantly affect local socio-economic values.

Table 3-1 Supplemental Authorities of the Human Environment and Rationale for Detailed Analysis

	Not Present	Present/ Not Affected	Present/May be Affected	Rationale
Soils		X		The Proposed Action would not involve excavation or other major ground disturbing activities and, therefore, would not affect local soil resources.
Vegetation			X	See Section 3.3.1.3 for description.
Visual Resources			X	See Section 3.3.5 for description.
Wild Horses and Burros	X			The Project area is not within any wild horse or burro management areas.
Wildlife			X	See Section 3.3.1.4 for description.
Airspace		X		See Section 3.3.6 for description.

3.2 RESOURCES NOT EVALUATED FURTHER

Based on the preliminary evaluation for each resource area described in Table 3-1, the following elements of the human environment are either not present in or near the Project area, or are present but would not be affected by the Proposed Action: Air Quality; ACECs; Environmental Justice; Prime or Unique Farmlands; Noxious Weeds and Invasive Non-Native Species; Native American Concerns; Floodplains; Riparian and Wetlands Zones; Solid and Hazardous Waste; Water Resources/Quality; Wild and Scenic Rivers; Fish Habitat; Wilderness; Forests and Rangelands; Health and Human Safety; Grazing Management; Minerals; Paleontological Resources; Socio-Economic Values; Soils; Wild Horses and Burros; and Airspace. These elements will not be analyzed further in this document.

3.3 RESOURCES CARRIED FORWARD FOR FURTHER ANALYSIS

The following resources presented in Table 3-1 have been determined to be present and potentially affected by the Proposed Action: Cultural and Historical Resources; Special Status Species; Migratory Birds; Lands and Realty; Recreation; Vegetation; Visual Resources; and Wildlife.

This EA includes a description of the affected physical, biological, and human environment in the Project area. This information was derived from data gathered during literature searches and field surveys for sensitive plant and animal species in April 2010 and consultation with other federal, state and local agencies. Cumulative impacts are discussed in Chapter 4.

3.3.1 Biological Resources

3.3.1.1 Special Status Species

Special status species include all species that are United States Fish and Wildlife Service (USFWS) listed, proposed, or candidates for listing, all state-protected species, and all species designated as sensitive by the Nevada BLM State Office.

3.3.1.1.1 Affected Environment

Prior to initiating field surveys to determine the potential presence or absence of sensitive animal and plant species inside the proposed MET sites, E & E contacted BLM, NNHP, NDOW, and USFWS personnel and reviewed publicly available data to develop a list of special status species that may be present in the Project area.

No at-risk taxa has been recorded within the Project area; however, agency responses indicated that habitat may be available for the species depicted in Table 3-2, including the federally threatened desert tortoise. No special status wildlife species were observed during surveys; however, focused avian and bat surveys were not conducted so there exists the potential that one or more special status avian and/or bat species forage over the proposed MET sites. Therefore, this does not negate the potential for special status wildlife species to occur in the vicinity of the Project area. Details of the survey methodology and results are included in the Biological Survey Report which is available in Appendix A.

Table 3-2 Special Status Species with Potential to Occur in the Project area

Common Name	Scientific Name	Status	Potential for Occurrence[1]
Plants			
Beaver Dam breadroot	*Pediomelum castoreum*	NNHP-Vulnerable USFWS-Species of Concern	Possible/Not observed
Las Vegas bearpoppy	*Arctomecon californica*	BLM-Special Status USFWS-Species of Concern NV-Fully Protected	Possible/Not observed
Sticky buckwheat	*Eriogonum viscidulum*	BLM-Special Status in NV USFWS-Species of Concern NV-Critically endangered	Likely/Not observed
Straw milkvetch	*Astragalus lentiginosus* var. *stramineus*	NNHP-Critically Imperiled	Possible/Not observed
Threecorner milkvetch	*Astragalus geyeri* var. *triquetrus*	NV-Critically endangered	Possible/Not observed
Reptiles			
Banded Gila Monster	*Heloderma suspectum cinctum*	BLM-Special Status USFWS-Species of Concern	Possible/Not observed
Chuckwalla	*Sauromalus ater*	BLM-Sensitive	Possible/Not observed
Desert Tortoise	*Gopherus agassizii*	NDOW-Threatened/SCC USFWS-Threatened	Possible/Not observed
Avian			
Burrowing Owl	*Athene cunicularia hypugea*	NNHP-Rare	Likely/Not observed

Common Name	Scientific Name	Status	Potential for Occurrence[1]
Mammals			
Allen's Big-eared Bat	*Idionycteris phyllotis*	BLM-Sensitive	Possible-foraging/Not observed

[1]Potential For Occurrence:
Unlikely = A species would not be expected to occur because of lack of suitable habitat. May only occur as a rare transient.
Possible = A species may occur there in low density. Habitat may be marginally suitable.
Likely/Present= Known to occur or it may reasonably be expected for a species to occur there on a regular basis.
Not observed = Not observed during April 5-6, 2010 field surveys.

Sources: NDOW 2009, NNHP 2009, USFWS 2009.

Desert Tortoise

The Project area is adjacent to designated critical habitat for the desert tortoise, a species listed as threatened under the Endangered Species Act (USFWS 2009). The *Draft Revised Recovery Plan for the Mojave Population of the Desert Tortoise* (USFWS 2008) designates Critical Habitat Units (CHU), which are defined as "areas that are essential for the conservation of the desert tortoise, that support physical and biological features essential for desert tortoise survival, and that may require special management considerations or protection" (USFWS 2008). The Mojave desert tortoise population has been grouped into evolutionarily significant units or population segments called "recovery units." The Project area is located adjacent to the Mormon Mesa Area of Critical Environmental Concern (ACEC), which is located in the Northeastern Mojave Recovery Unit.

Desert tortoise surveys of the Project area were conducted on April 5 and 6, 2010, in accordance with the 2010 USFWS *Pre-project Field Survey for Potential Desert Tortoise Habitats*. Surveyors conducted line-transect surveys for desert tortoise and burrows in 5-acre survey areas surrounding the proposed METs. No desert tortoise or signs of desert tortoise were observed. Survey results are detailed in the Biological Survey Report, Appendix A.

Western Burrowing Owl

The burrowing owl breeds throughout Nevada (UCDC 2010) in salt desert scrub, Mojave shrub, and some sagebrush habitat, as well as in grasslands, prairies, farmland, and a variety of man-made environments including airfields, golf courses, and cemeteries (Kaufman 1996; Haug *et al.* 1993). It winters most frequently in the southern half of Nevada, but has been recorded throughout the state during all months (Herron et al. 1985). There is a probability of occurrence of burrowing owl in nearly every county in Nevada. The breeding season occurs from early April to August (Haug *et al.* 1993).

Burrowing owls are state protected in Nevada. Loss of native components and invasion of exotics in Nevada's shrub habitats may have negative implications for burrowing owls (USFWS 2003). Burrowing owls in southern Nevada may use desert tortoise burrows for nesting and shelter. Wildlife surveys were conducted during the breeding season and

appropriate survey period for this species. Although not observed during surveys, burrowing owls may be present within the site.

3.3.1.1.2 Environmental Consequences

It is unlikely that construction and maintenance activities would impact special status species as none of the species potentially occurring in habitat within the Project area were documented on site. Habitat disturbance will be temporary and minimized to the greatest extent feasible. Although no individuals or sign was found within the Project area, the surrounding area contains a large amount of undisturbed suitable habitat for desert tortoise, burrowing owl, and Gila monster. The METs could provide potential perches, although unlikely, where perches do not otherwise exist which may increase potential of predation on desert tortoise and Gila monster by raptors, should they occur in the area. Adhering to mitigation measures as outlined in section 2.2.1 would minimize potential impacts to special status species.

3.3.1.2 Migratory Birds

Migratory birds are protected under the USFWS Migratory Bird Treaty Act (MBTA) of 1918 and includes 836 species of short- and long-distance migrants and resident birds.

3.3.1.2.1 Affected Environment

Several migratory bird species were observed foraging, using, passing over, and performing courtship displays in the vicinity of the Project area. Species observed passing through the area included the black-throated sparrow (*Amphispiza bilineata*), horned lark (*Eremophila alpestris*), and common raven (*Corvus corax*). In addition, turkey vulture (*Cathartes aura*), northern harrier (*Circus cyaneus*), American kestrel (*Falco sparverius*), red-tailed hawk (*Buteo jamaicensis*), Swainson's hawk (*Buteo swainsoni*), and Cooper's hawk (*Accipiter cooperii*) were observed soaring in the vicinity of the Project area during a non-survey period.

3.3.1.2.2 Environmental Consequences

Potential impacts to individual migratory birds and/or their nests could result from disturbance during nesting season, which extends from approximately March 1 through July 31. Installation of the METs is expected to occur subsequent to the nesting season. However, if installation falls within the nesting season, field surveys would be conducted to document migratory birds, their nests, eggs, and young prior to any planned disturbance. If any nests, eggs, or young are found, the Proposed Action should be delayed until the birds have completed their nesting and brood-rearing activities, or the Proposed Action would be redesigned so as not to negatively affect the migratory birds, their nests, eggs, or young.

Collisions with guy wires also could contribute to injuries or mortalities of individuals. In addition, the presence of METs could provide potential perches, although unlikely, where perches do not otherwise exist, which could increase predation on smaller migratory bird species. Adhering to the mitigation measures outlined in Section 2.2.1 would minimize potential impacts to migratory bird populations.

3.3.1.3 Vegetation

3.3.1.3.1 Affected Environment

The dominant vegetation community in the Project area is Mojave desert shrub, consisting primarily of creosote bush (*Larrea tridentate*), fourwing white bursage (*Ambrosia dumosa*), and saltbush (*Atriplex canescens*). Various other species were found interspersed within the dominant vegetation and are depicted in Table 3-3.

Table 3-3 Plant Species Observed During Spring 2010 Biological Surveys

Common Name	Scientific Name	Status
arabian schismus	*Schismus arabicus*	Invasive
beavertail	*Opuntia basilaris*	Native
blackbush	*Coleogyne ramoissima*	Native
cholla	*Opuntia acanthocarpa*	Native
creosote bush	*Larrea tridentata*	Native
desert chicory	*Rafinesquia neomexicana*	Native
desert trumpet	*Eriogonum inflatum*	Native
devil's spineflower	*Chorizanthe rigida*	Native
Moapa bladderpod	*Lesquerella tenella*	Native
morman tea	*Ephedra nevadaensis*	Native
red-brome	*Bromus rubens*	Invasive
red-stem stork's bill	*Erodium cicutarium*	Invasive
saltbush	*Atriplex canescens*	Native
shadscale saltbush	*Atriplex confertifolia*	Native
spiny hopsage	*grayia spinosa*	Native
turpintine broom	*Thamnosma montana*	Native
white bursage	*Ambrosia dumosa*	Native

3.3.1.3.2 Environmental Consequences

Short-term impacts to local vegetative communities could likely occur from construction of the METs; however, these impacts would be limited to minor soil disturbance and vegetation trimming during the construction of the METs, if applicable. If it is determined that vegetation will requiring trimming during MET installation, it would be trimmed as described in Section 2.2.1, allowing the vegetation to remain viable and minimizing or eliminating long-term impacts.

3.3.1.4 Wildlife

This section addresses all wildlife species not addressed in the Special Status Species and Migratory Birds sections (3.3.1.1 and 3.3.1.2, respectively).

3.3.1.4.1 Affected Environment

One additional wildlife species, the Western fence lizard (*Sceloporus occidentalis*), was observed during biological surveys of the Project area. Other species which may occur in the area but were not observed include, but not limited to, desert horned lizard (*Phyrnosoma platyrhinos*), Mojave rattlesnake (*Crotalus cerastes*), desert kangaroo rat (*Dipodomys deserti*), black-tailed jackrabbit (*Lepus* californicus), mule deer (*Odocoileus hemionus hemionus*), coyote (*Canis latrans*), and gray fox (*Urocyon cinereoargenteus*).

3.3.1.4.2 Environmental Consequences

Construction and maintenance disturbance associated with the Proposed Action would be temporary and would not cause additional wildlife displacement beyond that caused by the existing recreational use of the area. Habitat loss would be minor, if at all, and adhering to the mitigation measures outlined in section 2.2.1 would minimize disturbance.

3.3.2 Cultural/Historical Resources

3.3.2.1 Affected Environment

HRA, Inc., conducted archaeological surveys on three five-acre parcels encompassing the proposed MET locations, in April 2010. No cultural sites were found during the survey and there are no known cultural sites within one mile of the Project area.

3.3.2.2 Environmental Consequences

The Proposed Action will not impact archaeological resources in or near the Project area.

3.3.3 Recreation

3.3.3.1 Affected Environment

The Project area and vicinity, for off-highway vehicles (OHV), are designated as limited to existing roads, trails, and dry washes (BLM 1998). Observations made during site surveys indicated that there is a moderate level of OHV activity. The recreation opportunity spectrum is classified as "roaded natural" (BLM 1998).

3.3.2.2 Environmental Consequences

The Proposed Action would result in minor impacts to recreation. The Proposed Action would result in a temporary reduction in the amount of land available for recreational use and may slightly diminish the users' recreational experience due to construction noise, the temporary loss of access, and a semi-permanent loss of the space occupied by the METs and guy wire anchors. The METs would occupy less then a two-acre area each, which represents less than 0.01 percent of land designated for Limited Use recreational opportunities within the Southern Nevada District.

3.3.4 Lands and Realty

3.3.4.1 Affected Environment

The Proposed Action is regulated under land use policies set forth by the BLM. Section 202(c)(9) of the FLPMA governs BLM planning and requires that BLM land use plans be consistent with state and local land use plans to the extent possible. The Proposed Action would take place entirely on BLM land within the proposed ROW (Casefile No. NVN-087970); however it does not fall within a designated utility corridor. The Proposed Action is located within the 14,460-acre Mesquite/Bunkerville designated land disposal area. Land disposal areas in the BLM Las Vegas RMP, "are potentially available for disposal through sale, exchange, or Recreation and Public Purpose patent to provide for the orderly expansion and development of southern Nevada" (BLM 1998).

One ROW currently exists within the proposed ROW (Casefile No. NVN-087970). The ROW is a transmission line, held by Overton Power District under Serial No. NVN-055066. There are also two reservoirs, three fences, and a corral located within the proposed ROW.

3.3.4.2 Environmental Consequences

The Proposed Action would not infringe upon or affect any ROWs in the area or have any impact on local land use patterns.

3.3.5 Visual Resources

3.3.5.1 Affected Environment

BLM assigns Visual Resource Management (VRM) classifications for all public land that it manages in an effort to preserve scenic vistas and the overall visual quality of the landscape. VRM classifications range from Class I, highest scenic value with the most protection for scenic values of the landscape, to Class IV, lowest scenic value with the least emphasis on preserving overall scenery. The Project area is in a VRM Class III Zone (BLM 1998).

3.3.5.2 Environmental Consequences

Authorized actions in VRM Class III Zones allow a moderate level of change that may attract attention but should not dominate the view of a casual observer. The vertical tower structure of the proposed MET is slim and unobtrusive. The METs would be temporary structures that would not modify the existing landscape nor attract the attention of casual observers, given the visibility conditions from sensitive viewpoints, and current level of disturbance in the vicinity of the Project area.

3.3.6 Airspace

3.3.6.1 Affected Environment

MET 2 lies within five miles of the Mesquite Airport, and was subject to an aeronautical study by the Federal Aviation Administration (FAA) under provision 49 U.S.C. Section 44718 and Title 14 of CFR part 77. The FAA issued a Determination of No Hazard to Air Navigation provided the MET be lighted and/or marked. The other two METs are not within five miles of an airport.

The Project area lies within the boundary of Military Training Route (MTR) IR 166/266, which is 200 feet above ground-level. All of the proposed METs are below this threshold.

3.3.6.2 Environmental Consequences

The Proposed Action would not likely impact local airspace. The height of the METs does not exceed obstruction standards for low-flying aircraft and MTRs, and will be lighted and/or marked according to FAA regulations. Additionally, there are no Long Range Use Radar Sites within 75 miles of the Project area, which makes impacts to Air Defense and Homeland Security radars unlikely.

3.3.7 No-Action Alternative

Under the No-Action Alternative the METs would not be constructed within the Project area to gather meteorological data which could lead to future wind energy development. Existing BLM management activities and land uses would continue.

CHAPTER 4.0
CUMULATIVE IMPACTS

4.1 INTRODUCTION

For the purposes of this EA, cumulative impacts are analyzed as the sum of all past and present actions, the Proposed Action, and reasonably foreseeable future actions resulting primarily from public uses within the defined cumulative assessment area. A cumulative impact is defined as "the impact which results from the incremental impact of the action, decision, or project when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR 1508.7).

As required by NEPA and its implementing regulations, this chapter addresses the cumulative effects on the environmental resources in the cumulative effects study area (CESA) that could result from the implementation of the Proposed Action in combination with the past actions, present actions, and reasonably foreseeable future actions. The CESA for the specific resources is described below. The length of time considered for cumulative effects analysis varies according to the duration of impacts from the Proposed Action on each resource. For the purposes of this analysis and under federal regulations, "impacts" and "effects" are assumed to have the same meaning and are used interchangeably.

The environmental consequences of the Proposed Action for each resource analyzed in this EA were evaluated in Chapter 3. The following sections discuss the resources identified to be potentially impacted by the Proposed Action within their identified CESA.

4.2 CUMULATIVE EFFECTS STUDY AREA

The CESA for the affected resources is the proposed BLM ROW (NVN-087970 [Figure 1-1]) which encompasses the Project area and currently comprises the possible area for wind energy development by Pacific Wind. Due to its relatively small footprint and minimal alteration to the surrounding environment, the Proposed Action would not contribute to cumulative impacts beyond the CESA boundary.

4.3 PAST AND PRESENT ACTIONS

Past and present actions within the CESA consist primarily of OHV recreation, grazing, and establishment of utility lines.

4.4 REASONABLY FORESEEABLE FUTURE ACTIONS

As outlined in the BLM Wind Energy Development Policy (IM 2009-043), the scope of the environmental analysis required for either a site-specific application or a Project area application such as this EA, includes direct, indirect, and cumulative effects of the proposed site testing and monitoring-related facilities only. The site testing and monitoring ROW authorization is for a limited term (3 years). This application includes only one wind monitoring tower with instruments attached to measure various

meteorological parameters such as wind speed, wind direction, and temperature at various heights above the ground. The footprint for the monitoring tower is small and the need for site clearances is limited to the areas of proposed surface disturbance and associated areas of potential effect.

The environmental review should not address wind energy development facilities, as the installation of wind turbines are not proposed during site testing and monitoring. The environmental review of wind energy development facilities will occur at the point in time when a wind energy development application is submitted. A separate application for wind energy development would require a separate analysis, review, and decision.

If the Proposed Action is approved, a ROW grant for the Project area would be issued for an initial term of three years from the date of issuance. This term could be renewed (43 CFR 2807.22) for a term not to exceed three years if a separate ROW application and Plan of Development is submitted for a wind energy development project prior to the end of the initial term of the site testing and monitoring grant.

Typically, only a small number of wind energy site testing and monitoring authorizations ever lead to actual wind energy development projects. Therefore, the reasonably foreseeable development discussion does not focus on uncertain future development scenarios.

4.5 CUMULATIVE IMPACTS

4.5.1 Wildlife (Including Migratory Birds and Special Status Species)

The proposed construction of the METs is not expected to cause cumulative impacts to local wildlife communities, migratory birds, or special status species as long as mitigation measures are adhered to. Current potential land uses, such as OHV use and livestock grazing, would be much more likely to cause impacts to wildlife than the proposed MET construction. Cumulative impacts to wildlife could result from the reasonably foreseeable future action of the proposed Flat Top Mesa Wind Project, or any other future wind power development within the CESA, but actual impacts are unknown until a plan of development and environmental analysis are performed for those actions.

4.5.2 Vegetation

The proposed construction of the METs is not expected to cause long-term impacts to local vegetative communities as long as requirements, such as avoiding sensitive species, are met. Current potential land uses, such as OHV use and livestock grazing, would be much more likely to cause impacts to vegetation than the Proposed Action. Although ground and vegetation disturbance would affect a relatively small area, the Proposed Action could facilitate the spread of non-native invasive plants, if encountered. To address this concern, appropriate preventive measures, such as examining the undercarriage of construction vehicles and removing trapped vegetation prior to departing the site could be implemented. Cumulative impacts to vegetation could result from the reasonably foreseeable future action of the proposed Flat Top Mesa Wind Project, or any other future wind power development within the CESA, but actual impacts could not be addressed until specific plans (e.g., area to be cleared and graded) were created and separate environmental analyses were performed.

4.5.3 Visual Resources

The Proposed Action is expected to have negligible impacts on local visual resources. The Proposed Action meets the VRM objectives of a Class III designation, primarily because the METs are a slender, non-reflective structure. Impacts to visual resources resulting from the reasonably foreseeable future action of the proposed Flat Top Mesa Wind Project, or any other future wind power development within the CESA, could occur. Although it is assumed that wind turbines would cause noticeable alteration to viewsheds in and around the CESA, actual impacts could not be addressed until specific plans (e.g., wind turbine placement in reference to roadways, recreation areas, and historic landmarks) were created and separate environmental analyses were performed.

4.6 NO-ACTION ALTERNATIVE

Under the No-Action Alternative, the BLM would not approve the Proposed Action and the potential cumulative impacts analyzed above would not occur. Present activities would continue in the CESA and current BLM management practices would be used for past, present, and reasonably foreseeable future actions.

CHAPTER 5.0
MITIGATION AND MONITORING

5.1 MITIGATION

Mitigation measures are designed to avoid or reduce the impacts associated with the Proposed Action and would be implemented where applicable and if requested by the BLM.

Migratory Birds

- Conduct all land clearing or other surface disturbance associated with the Proposed Action outside the avian breeding season to avoid potential destruction of bird nests or young, or birds that breed in the area. If this is not feasible, a qualified biologist shall survey the area no more than 10 days prior to land clearing. If nests are located or other evidence of nesting (i.e., mated pairs, territorial defense, carrying nesting material, transporting food) is observed, a protective buffer (the size depending on the habitat requirements of the species) should be delineated and the entire area avoided to prevent destruction or disturbance to nests until they are no longer active.

Raptors

- Install bird flight diverters on the tower guy wires to reduce the likelihood of collisions with tower guy wires.

Wildlife

- Install fencing around the MET base and guy wire anchors to prevent possible interference with wildlife or the public.

CHAPTER 6.0
LIST OF PREPARERS AND SOURCES

6.1 LIST OF PREPARERS

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CHAPTER 7.0
REFERENCES

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APPENDIX A

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Biological Survey Report in Support of Three Meteorological Towers at Flat Top Mesa, Clark and Lincoln Counties, Nevada

Prepared for Iberdrola Renewables
Portland, Oregon

Prepared by Ecology and Environment, Inc.

April 2011

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List of Abbreviations and Acronyms

Term	Definition
Iberdrola	Iberdrola Renewables
BLM	Bureau of Land Management
E & E	Ecology and Environment, Inc.
MET	meteorological
mph	miles per hour

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1.0 Introduction

At the request of Iberdrola Renewables (Iberdrola) and in accordance with current Bureau of Land Management (BLM) Las Vegas Field Office Rare Plant and Sensitive Species Survey Protocols, Ecology and Environment, Inc. (E & E), conducted an environmental review of three 5-acre meteorological (MET) tower sites on Flat Top Mesa on April 5 and 6, 2010, in Clark and Lincoln Counties, Nevada. The MET tower location UTM coordinates (NAD 83 Zone 11 North) were provided to E & E by Iberdrola prior to initiation of field surveys.

The following sections describe the Project background, as well as E & E's survey methodologies and findings.

2.0 Background

Iberdrola is proposing to install three 60-meter tall MET towers on public land located on Flat Top Mesa in the northeastern Mojave Desert, approximately 4–5 miles west of the City of Mesquite, Nevada. E & E conducted surveys for sensitive plant and wildlife species at three 5-acre sites; each 5-acre survey area was centered on the proposed MET tower locations.

Flat Top Mesa rises above the Mesquite Valley onto a mesa that occupies approximately 4,600 acres, with more than two-thirds of the mesa located in Clark County, Nevada and the remainder in Lincoln County, Nevada. Nearly the entire mesa overlooks a rim that has vertical drops of 10–60 feet followed by slopes that are 45 degrees or greater, which finally drop to over 100 feet into washes and valleys several hundred feet below the mesa rim. Flat Top Mesa itself is in all appearances extremely flat throughout. Moderate to small rises are located along the northern portion, undulating into moderate to small washes, or drainages leading off the mesa at this end. The southern portion of the mesa has little to no change in slope and is generally void of wash features. Two access roads enter onto the mesa following a transmission corridor nearing the middle of the mesa and are part of two washes draining either sides of the entire mesa.

The entire mesa is relatively isolated and flanked by the Toquop Wash along the western portion. Several unnamed washes drain the eastern slopes of the mesa into other, larger drainages below. All of these wash features flow south and drain into the Virgin River, southwest and north of Mesquite.

All surveys were conducted by E & E biologists David Schultz and Lucas Meek. Both are experienced wildlife biologists with knowledge of desert ecology. David Schultz has an

extensive background working with desert tortoises and is an authorized desert tortoise handler. Both biologists are proficient in plant and other desert wildlife identification.

Each MET tower would be installed according to the manufactures' guidelines. Typically, the tower parts are transported to the erection site with the use of rubber-tired pickup trucks and trailers. Each tower sits upon a flat metal platform placed in contact with the ground surface. Once the base-plate is in position, the tower sections are then telescoped" together on the ground. The tower is then raised using a truck-mounted winch and secured by guy wires. The guy wires, typically anchored approximately 50 meters out from the tower base, are screw-anchored to a maximum depth of 48-inches below ground level. Total temporary land disturbance is anticipated to be approximately 1.0 acre per site.

3.0 Pre-Survey Documentation

Prior to initiating field surveys, E & E contacted BLM and U.S. Fish and Wildlife Service personnel and reviewed publically available data to develop a "target species" survey list. Public data sources used to develop the species list included the following:

- Nevada Natural Heritage Program: Clark/Lincoln County Rare Species List; and
- BLM: Las Vegas Resource Management Plan and Final Environmental Impact Statement.

4.0 Survey Methodology

Prior to initiating the field surveys, biologists established the outside boundary at each 5-acre survey area using a hand-held Trimble Geo XH GPS unit. Survey flags were placed at each corner of the 5-acre parcels. After the corners were marked, E & E laid out parallel transects, at approximately 10-meter intervals, using high-visibility survey flagging. Once the transects were established, E & E followed the *Complete Survey* protocols for 100 percent visual exam of the Project site, as described in the following BLM and U.S. Fish and Wildlife Service fact sheets:

- *BLM Las Vegas Field Office Rare Plant Survey Protocols*
- *Sensitive Species Survey Requirements*;
- *Migratory Birds*;
- *Desert Tortoise Standard Scope of Work Language*; and
- *Preparing for Any Action that may occur within the range of the Mojave Desert Tortoise* (Gopherus agassizii), 2010 Field Season

In addition, E & E utilized a Data Dictionary provided by the BLM to ensure compatibility with the BLM corporate data base. E & E did not modify established survey protocols or methods during the field effort.

In instances where a "target species" was identified during surveys, biologists were to log all pertinent information regarding its location, habitat, and condition using the Trimble GPS unit. In addition, E & E noted approximate locations on a 1:24,000 scale U.S. Geological Society quadrangle map, recorded each occurrence as UTM coordinates, and photographed the species and surrounding community.

5.0 Findings

On April 5 and 6, 2010, E & E conducted surveys for sensitive plant and animal species at all three of the 5-acre MET tower study sites on Flat Top Mesa. No adverse circumstances were encountered at the time of surveys. Weather during the survey period on April 5 was characterized by light rain, 50 degrees Fahrenheit, partly to mostly cloudy skies, and strong southwesterly winds reaching 10–20 miles per hour (mph) and gusting to 30 mph. On April 6, skies were clear with a light westerly breeze of 3–8 mph, with gusts up to 10 mph, and temperatures ranging from 50 to 63 degrees Fahrenheit (F) throughout the morning and early afternoon, respectively. Findings at each MET tower location are discussed separately below.

The proposed MET tower locations will occupy non-sloping to gently sloping lands underlain by sand and gravel alluvial soils typical within this part of the Mojave Desert. The vegetation community on the mesa is dominated by creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), saltbush (*Atriplex canescens*), and red-brome (*Bromus rubens*).

Other plant species encountered include: turpentine broom (*Thamnosma montana*); *Phacelia* species; Mormon tea (*Ephedranevadaensis)*; shadscale saltbush (*Atriplex confertifolia*); red-stem stork's bill (*Erodium cicutarium*); desert trumpet (*Eriogonum inflatum*); desert chicory (*Rafinesquia neomexicana*); blackbush (*Coleogyne ramosissima*); and scattered individuals of cholla (*Opuntia acanthocarpa*) and beavertail (*Opuntia basilaris*).

5.1 Overall Appearance of Flat Top Mesa as Desert Tortoise Habitat

The Flat Top Mesa surface appears to be isolated from access points, not allowing many animal species to enter the mesa's surface. This is due in part to steep walls and steep slopes that drop to the valley floor and washes below. The mesa has two points of access where roads have been built to reach this nearly flat mesa. These access points may allow some species to access the area; however, observations indicated that animal presence is limited in the area (no rabbit droppings, no rodent dropping around small burrows, and very

few animal tracks). The entire mesa is rich in plant life, with little evidence of grazing activities identified during the site visit (the only grazing identified near MET towers were those of horses browsing on yucca and cactus root).

Although the habitat appeared suitable for desert tortoise activity, no tortoises were identified within the three MET tower 5-acre survey areas, nor was there any indication that tortoises occupy the mesa. No burrows characteristic of desert tortoises were identified while conducting additional reconnaissance of the outlying mesa area. Typically, burrows with steep interior slopes are associated with jack-rabbits, foxes, or badgers. Several burrows with relatively steep inclines were detected during surveys, and all were found at least partially excavated, which is a sign of carnivore predation. None of these burrows had the typical desert tortoise shape, nor was any additional tortoise sign observed nearby.

The site surveyed are numbered 2, 3, and 4. During initial planning site, site 1 was dropped from consideration. The numbering convention has been retained for consistency with the Environmental Assessment.

5.2 Meteorological Tower 2

The MET 2 site was surveyed on April 5^{t}, 2010 from 16:00 until 19:00. It is located along the middle, eastern edge of the mesa. The MET tower site is accessible via a single access road passing through the mid-section of the mesa. The proposed MET tower 2 location gently slopes towards eastern rim from the centerline of the access road. The western portion of the 5-acre area was flatter with little to no slope direction toward the west.

5.2.1 Wildlife Survey

E & E conducted a 100-percent coverage presence/absence survey of the 5-acre MET tower site along the pre-established belt-transects in accordance with the accepted protocols. Each transect was walked in a north to south or south to north direction at a very deliberate pace in accordance with the established protocol. In addition, E & E conducted a perimeter search outside the survey boundary limits as well that included up to 20 meters beyond the 5-acre perimeter. These additional searches included areas of access roads into the proposed 5-acre space. Based on this effort, E & E found the site devoid of desert tortoise.

E & E did note, however, atypical burrows within the Project Area. These burrows are considered to be associated with other reptile activity (specifically lizards), as the largest of them had an entrance more rounded than typical desert tortoise burrows, and many had openings to small for desert tortoises (no aprons, no dome shapes, no depth <10”, inter-connecting with other holes, and larger entrances tapering to rounded holes within 6 inches of entrance). Searches of each burrow were conducted using a hand-held mirror to illuminate the inner compartment. No burrow was recorded greater than 8 inches in depth.

5.2.2 Plant Survey

E & E conducted a search of the 5-acre study site along pre-established belt-transects and found no indication of sensitive "target species."

5.3 Meteorological Tower 3

The MET 3 site was surveyed on April 6, 2010 from 09:00 until 12:00. This site is located south of the main access road and along the eastern rim of the mesa. The MET tower is accessible via a single access road passing along the eastern edge of the five-acre area. The proposed MET Tower 3 location gently slopes towards the southwest and has a very small drainage developing along the center portion that flows south.

5.3.1 Wildlife Survey

E & E conducted a 100-percent coverage presence/absence survey of this 5-acre MET tower site along the pre-established belt-transects in accordance with the accepted protocols. Each transect was walked in a north-to-south or south-to-north direction at a very deliberate pace in accordance with the established protocol. In addition, E & E conducted a perimeter search outside the survey boundary limits as well that included up to 20 meters beyond the 5-acre perimeter. These additional searches included areas of access roads into the proposed 5-acre space. Based on this effort, E & E found the site devoid of desert tortoises.

E & E did note, however, atypical burrows within the Project Area. These burrows are considered to be associated with other reptile activity (specifically lizards), as the largest of them had an entrance more rounded than typical desert tortoise burrows, and many had significantly small openings, not suitable for desert tortoise burrow entrances (no apron, no dome shapes, no depth <10", inter-connecting with other holes, and larger entrances tapering to rounded holes within 6 inches of entrance). Searches of burrows were conducted using a hand-held mirror to illuminate the inner compartment. No burrow was recorded greater than 6 inches in depth.

5.3.2 Plant Survey

E & E conducted a search of the 5-acre study site along pre-established belt-transects and found no indication of sensitive "target species."

5.4 Meteorological Tower 4

The MET 4 site was surveyed on April 5, 2010, from 13:00 until 16:00. It is located at the southern end of the Project Area, along the eastern edge of the mesa. This MET tower site is accessible via a single access road that follows the rim of the entire mesa. The proposed MET Tower 4 location has no slope, nor any visible drainage of the 5 acres. The southwestern portion of the 5-acre area was used by two horses, with minor disturbances of

horse trails leading towards a water source (disturbances included a dug out water tank and salt lick).

5.4.1 Wildlife Survey

E & E conducted a 100-percent coverage presence/absence survey of the 5-acre MET tower site along the pre-established belt-transects in accordance with the accepted protocols. Each transect was walked in a north-to-south or south-to-north direction at a very deliberate pace in accordance with the established protocol. In addition, E & E conducted a perimeter search outside the survey boundary limits as well that included up to 20 meters beyond the 5-acre perimeter. These additional searches included areas of access roads into the proposed five-acre space. Based on this effort, E & E found the site void of desert tortoise usage.

E & E did note, however, atypical burrows within the Project Area. These burrows are considered to be associated with other reptile activity (specifically lizards), as the largest of them had an entrance more rounded than typical desert tortoise burrows, and many had openings too small for desert tortoises (no apron, no dome shapes, no depth less than 10 inches, interconnecting with other holes, and larger entrances tapering to rounded holes within 6 inches of entrance). Searches of each burrow were conducted using a hand-held mirror to illuminate the inner compartment. No burrow was recorded greater than 6 inches in depth.

5.4.2 Plant Survey

E & E conducted a search of the 5-acre study site along pre-established belt-transects and found no indication of sensitive ‘target species’.

5.5 Migratory and Breeding Birds

E & E conducted a general search for both migratory and resident breeding birds within and around the Project site (three 5-acre MET tower sites) during both site visits. Poor weather conditions likely reduced bird activity on April 5. On April 6, several raptors were observed soaring on the updrafts along the mesa’s cliffs. This was a general species observation, with no formal avian survey conducted along any of the three 5-acre areas or while driving the entire mesa area.

While passing through the study site, surveyors observed the following avian species foraging, using, passing over, and performing courtship displays in the Project Area: Black-throated Sparrow (*Amphispiza bilineata*); Horned Lark (*Eremophila alpestris*); and Common Raven (*Corvus corax*). In addition, Turkey Vulture (*Cathartes aura*); Northern Harrier (*Circus cyaneus*); American Kestrel (*Falco sparverius*); Red-tailed Hawk (*Buteo jamaicensis*); Swainson’s Hawk (*Buteo swainsoni*); and Cooper’s Hawk (*Accipiter cooperii*) were observed soaring in the vicinity of the Project Area during a non-survey period.

A Figures

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Flat Top Mesa

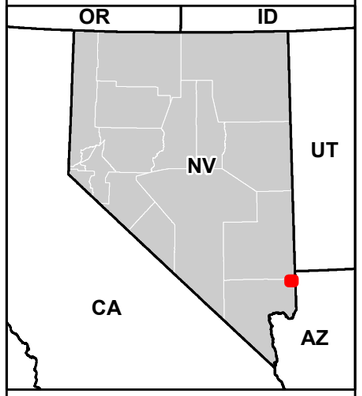
Figure A-1 Meteorological Tower Project Area
Clark & Lincoln County, Nevada

Met Tower Location

Access Roads

N

0 0.5 1 Miles



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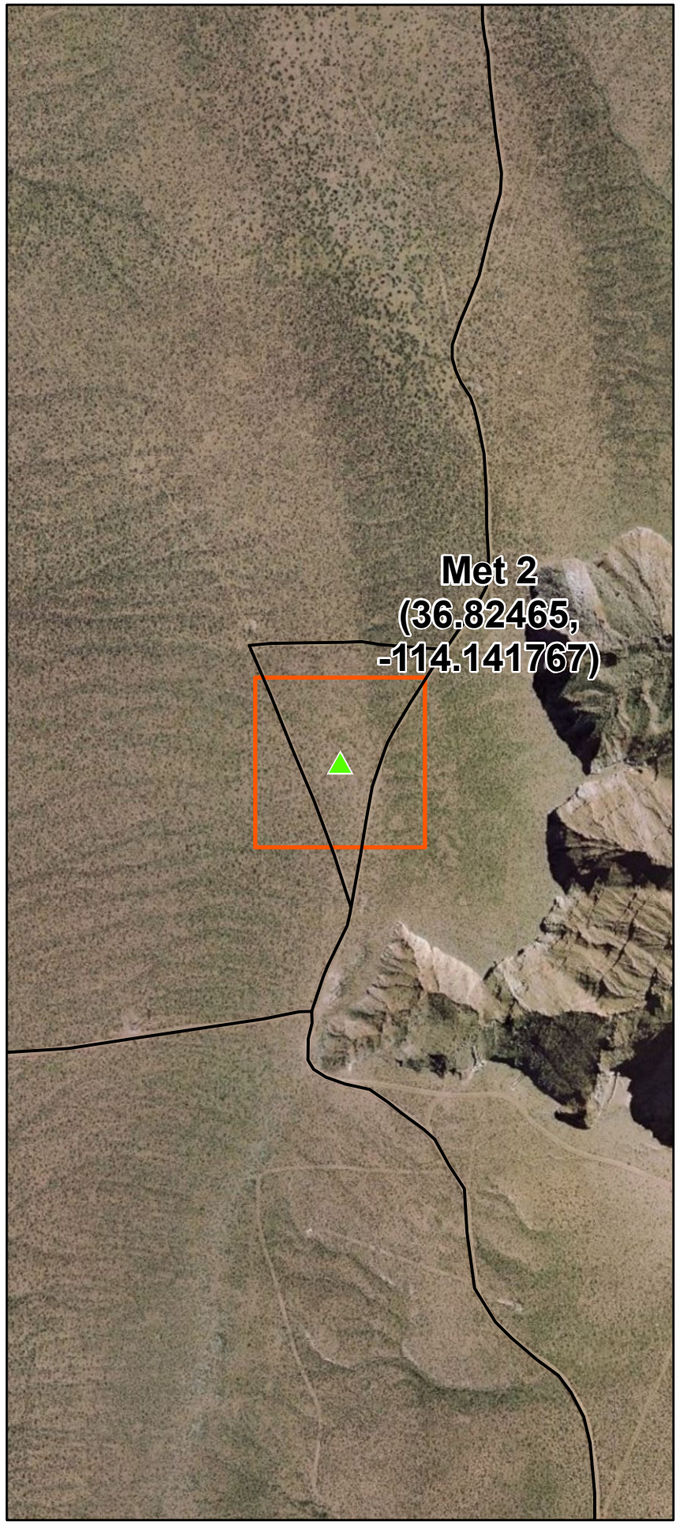
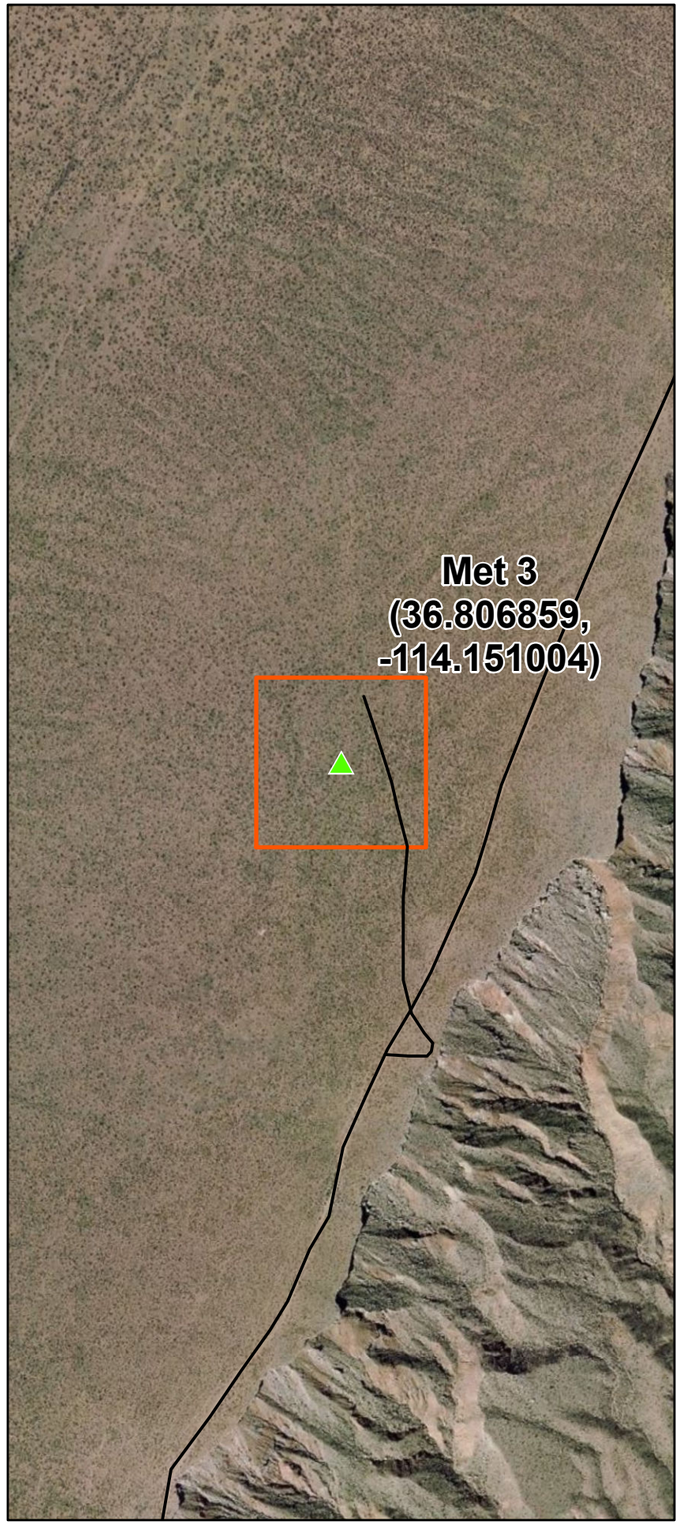
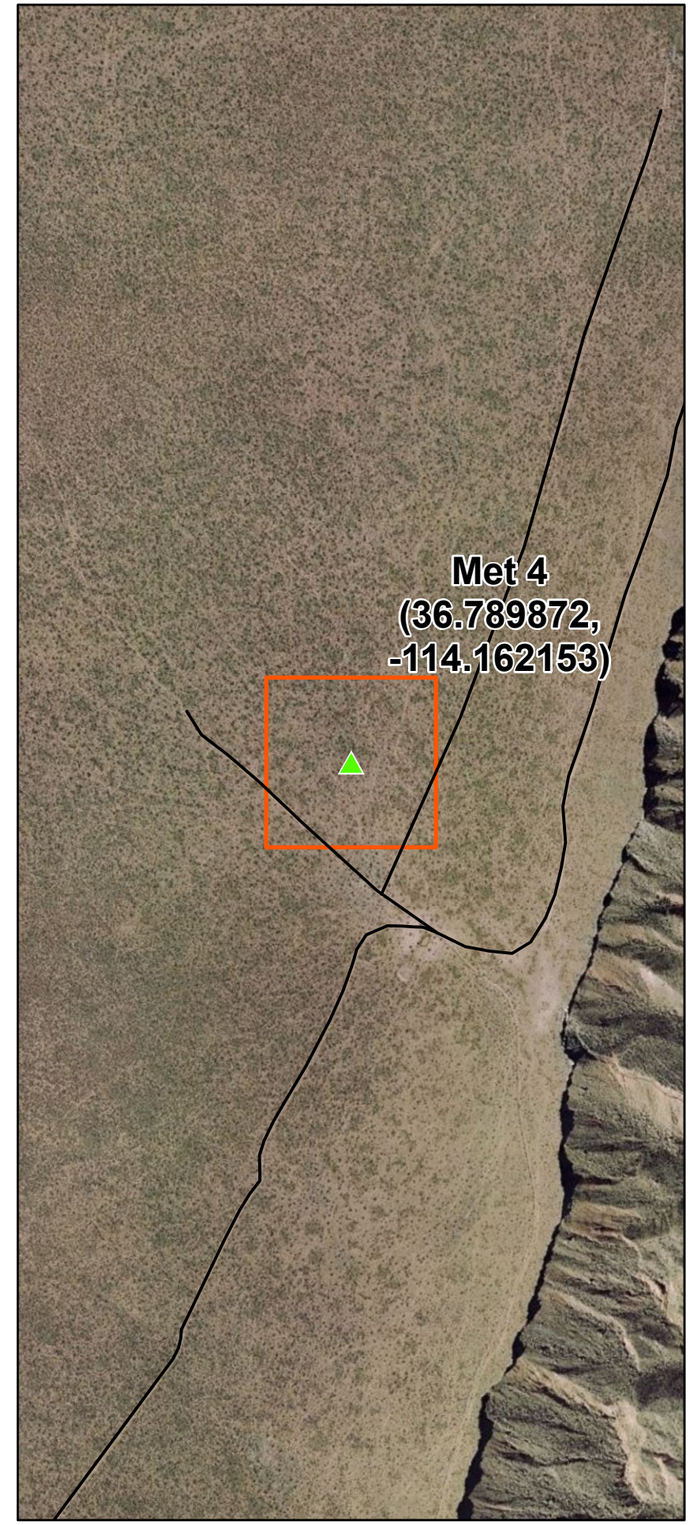




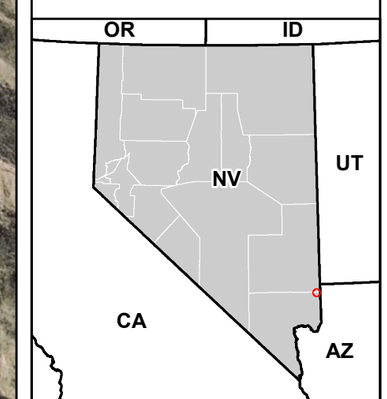


Flat Top Mesa

Figure A-2 Meteorological Tower Survey Area
Clark & Lincoln County, Nevada

Met Tower Location
Access Roads
5 Acre Study Area

N



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B Desert Tortoise Data Sheets

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USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion

Date of survey: 5.5.2010 (day, month, year) Survey biologist(s): DAVE Schultz, DSchultz@ene.com (801)561-1036 (name, email, and phone number)

Site description: FLAT TOP MESA METS, 5-ACRE BLOCKS, ADJACENT TO GRAVEL ROAD (project name and size; general location)

County: CLARK & LINCOLN Quad: FLAT TOP MESA Location: Lat 36.789872 Long -114.162153 (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: 5ac. Transect #: 1-5 Transect length: 142.2 m

GPS Start-point: E 753294.2351 N 4075391.1558 (easting, northing, elevation in meters) Start time: 1:00 am/pm

GPS End-point: E 753151.9877 N 4075391.1558, 668m (easting, northing, elevation in meters) End time: 4:00 am/pm

Start Temp: 50 °C End Temp: 50 °C South MET Location (4)

Live Tortoises

Detection number	GPS location Easting	GPS location Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL >160-mm? (Yes, No or Unknown)	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1				
2				
3				
4				
5				
6				
7				
8				

2010 Field Season

Page: 1 of 1

~~Transect number:~~ _____

USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion

Date of survey: 5, 5, 2010 (day, month, year) Survey biologist(s): DAVID SCHMITZ, DSCHMITZ@ENE.COM (801) 561-1036 (name, email, and phone number)

Site description: FLAT TOP MESA METS, 3 5-ACRE BLOCKS, ADJACENT TO GRAVEL RD (project name and size; general location)

County: CLARK & LINCOLN Quad: FLAT TOP MESA Location: LAT 36.82465 LONG -114.141767 (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: 5 ac Transect #: 1-15 Transect length: 142.2m

GPS Start-point: 754998.3067, 4079304.5948, 703m (easting, northing, elevation in meters) Start time: 4:00 am/pm

GPS End-point: 754856.0592, 4079304.5948, 704m (easting, northing, elevation in meters) End time: 7:00 am/pm

Start Temp: 50 °C End Temp: 50 °C NORTHERN MET LOCATION (2)

Live Tortoises

Detection number	GPS location Easting	GPS location Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL >160-mm? (Yes, No, or Unknown)	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1				
2				
3				
4				
5				
6				
7				
8				

2010 Field Season

~~Transect number: ____~~

USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion

Date of survey: 6, 5, 2010 (day, month, year) Survey biologist(s): DAVID SCHULTZ, DSCHULTZ@ENE.COM (801) 561-1036 (name, email, and phone number)

Site description: FLAT TOP MESA METS, 3 5-ACRE BLOCKS, ADJACENT TO GRAVEL RD (project name and size; general location)

County: CLARK & LINCOLN Quad: FLAT TOP MESA Location: LAT 36.806859 LONG -114.151004 (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: 5 ac Transect #: 1-15 Transect length: 142.2 m

GPS Start-point: 754233.1068, 4077305.7489, 686m (easting, northing, elevation in meters) Start time: 9:00 am/pm

GPS End-point: 754090.8593, 4077305.7489, 685m (easting, northing, elevation in meters) End time: 12:00 am/pm

Start Temp: 50 °C End Temp: 63 °C CENTRAL MET LOCATION (3)

Live Tortoises

Detection number	GPS location Easting	GPS location Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL >160-mm? (Yes, No or Unknown)	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1				
2				
3				
4				
5				
6				
7				
8				

2010 Field Season

Page: 1 of 1

~~Transect number:~~ ____