Appendix A
Analytical Data, Disturbed Areas Map, and Various Survey Methodologies/Reports

A1: Analytical Data (*on CD-ROM only*)

A2: Aerial Map of Disturbed Areas

A3: Technical Memorandum for the Ordinary High Water Mark (OHWM) Identification/Mapping (*on CD-ROM only*)

A4: Technical Memoranda on Methodologies of Mature Plant Survey and Floristic Survey and the Mature Plants Survey Report (*on CD-ROM only*)

A5: Topock Groundwater Remediation Project Floristic Survey Report (*on CD-ROM only*)

A6: Instream Habitat Typing Survey Technical Memorandum (*on CD-ROM only*)

A7: Topock Groundwater Remediation Project Ethnobotany Survey Report (*on CD-ROM only*)

A8: Supplemental Baseline Sound Level Measurement Technical Memorandum (*on CD-ROM only*)

Appendix A1
Analytical Data
(*on CD-ROM only*)

This appendix is an Excel file presented on the CD-ROM version of this report.

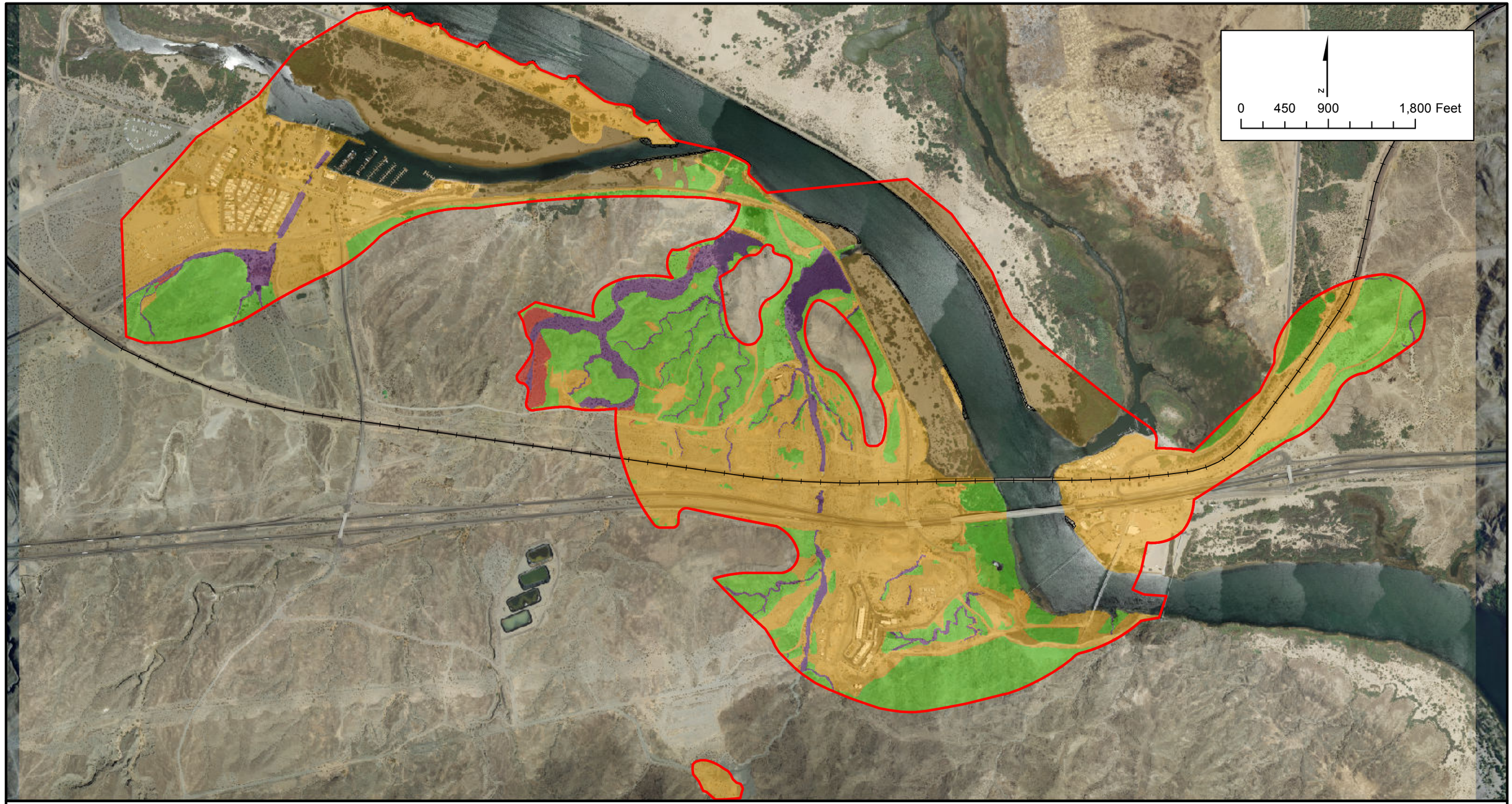
Field Name	Description
EventCode	Event Name
SampleID	Unique Sample ID
LocID	Location Name
LocID_Post	Location Name used in reports and on figures
SampleDate	Date sample was collected
DataSource	Source of the data
SmplResultTypeCode	Sample type code, LS - primary sample, LFD - field duplicate, FS - field measurements
SampleMatrixCode	Sample Matrix; GW - groundwater, Surfacewater - Surface Water
SampleMethodCode	Sample Method Collection Code; G - grab; WV - well volume; LF - low flow; PP - Peristatlic Pump
LabCode	Laboratory that performed the analysis
CategoryCode	Analyte category code; Anions, metals, etc.
AnalyteMethodCode	Analyte code name
PrepMethodCode	analytical extraction (prep) method
AnalyteCode	Database analyte code
AnalyteLC	analyte name
ReportResult	analysis result. Reporting limit listed for nondetect values.
FinalQualifierCode	Validation qualifier. See qualcode tab for lookup.
RL	reporting limit
UnitsCode	units of measure
GWRFI	Data selected for use in GW RFI and Basis of Design y/y1 = Original data used in RFI y3/4 - data used in RFI addendum y5/6 - add for basis of design y7/8 - add for basis of design
ExcludeStats	Y - exclude from statistics. Rejected data and false positives are not used in statistics.

Lab Code Key:

AEN	American Environmental Network
APCL	Applied P&Ch Laboratory
APPF	APPF
AVTS	Advanced Technology Laboratories
DTEK	D-Tek Labs
EMXT	Emax Laboratories, Inc
SERR	SIERRA
STL	SevernTrent Analytical Labs
STL-SEA	TestAmericaSeatle
STLSF	SevernTrent Analytical Labs SF
SVLL	From Arcadis
TLI	Truesdail Laboratories Inc.
UNK	Unknown
XYM	Zymax Envirotechnology Inc.

Appendix A2
Aerial Map of Disturbed Areas (November 2011)

The Draft Aerial Map was prepared in compliance with EIR Mitigation Measure CUL-1a-9.



LEGEND

- Railroad
- EIR Project Area

Surface Condition

Disturbed

- Rip Rap
- Mechanical Soil Surface Damage
- Dredged Sand
- Active Wash Channel
- Inactive Wash Channel

Undistrubed

- Undisturbed and Archaeological/Historical Sites

Notes:

1. Mapping results are shown only within the EIR Project Area.
2. Per "EIR CUL-1a9" disturbed areas are defined as those areas outside documented archaeological site boundaries that have experienced ground disturbance within the last 50 years. Note that it may not be possible to distinguish between disturbance before and after the 50 year time frame, so for the purpose of this mapping, unless it was known that disturbance was limited to that older than 50 years, it has been included as a disturbed area.

Aerial Source:
Toponex Inc. aerial flyover, conducted August 2011

AERIAL MAP OF DISTURBED AREAS NOVEMBER 2011 (EIR MITIGATION MEASURE CUL-1A-9 REQUIREMENT)

Groundwater Remedy Basis of Design Report
Preliminary (30%) Design
PG&E Topock Compressor Station,
Needles, California

CH2MHILL

D:\Projects\Topock\MapFiles\2011\CMS\BOD\Disturbance

Appendix A3
Technical Memorandum for the Ordinary High Water Mark (OHWM) Identification/Mapping (*on CD-ROM only*)

Prepared for Pacific Gas and Electric Company

Prepared by CH2M HILL

Technical Memorandum

Date: November 18, 2011

To: Curt Russell, PG&E

From: Barry Collom and Robert Hernandez

cc: Christina Hong, Jay Piper

Re: Topock Compressor Station Groundwater Remediation Project, Ordinary High Water Mark (OHWM) Identification/Mapping Methodology

---

Introduction

The purpose of this technical memorandum (memo) is to describe the methodology used for identifying, surveying, and documenting the Ordinary High Water Mark (OHWM) in the PG&E Topock Compressor Station Groundwater Remediation Project (project) area. The identification of the OHWM (marking the United States Army Corps of Engineers (USACE) Jurisdictional limits of the California side of the Colorado River) was conducted to comply with the January 2011 Final Environmental Impact Report (EIR) (AECOM 2011) requirements as set forth in Mitigation Measure AES-2a. This Mitigation Measure is from the Aesthetics (AES) portion of the mitigation plan presented in the EIR and is intended to ensure the protection of views from specific vantage points, as discussed in greater detail below.

During the October 19, 2011 Consultative Work Group (CWG) meeting, the Fort Mojave Indian Tribe requested a written copy of the methodology used when performing the identification/ mapping required by the EIR. This technical memo was prepared in response to this request and to document the OHWM identification/mapping effort.

At the request of PG&E, CH2M HILL conducted a field survey to delineate the OHWM along the riverbank in March 2011. The survey included:

- Reviewing available aerial photography and photographs of the area;
- Examining the bank of the Colorado River by foot and by boat to identify the OHWM based on available indicators including vegetation, soil, and hydrology;
- Collecting data points with a Global Positioning System (GPS) device;
- Taking photographs at locations accessible from land; and

- Generating a map showing the OHWM.

The OHWM identification map is provided on Figure 1 and a series of photographs collected of the survey area documenting the OHWM identification is provided in Attachment 1. Figure 1 shows the individual GPS data points collected to define the OHWM and the locations where the photographs were taken. The photographs in Attachment 1 show the identified high water marks at each photographed location.

Survey Area Description

The survey area included the California side of the Colorado River bank, between the mouth of Bat Cave Wash and the BNSF railroad bridge (Figure 1) located within the Project Area. The survey area is located in San Bernardino County, California. The land along the Colorado River where the survey took place is managed by the Bureau of Land Management (BLM).

Methodology

Field Survey Preparation

Pursuant to Mitigation Measure AES-2a,

> *"A minimum setback requirement of 20 feet from the water (ordinary high water mark) shall be enforced, except with regard to any required river intake facilities, to prevent substantial vegetation removal along the riverbank."*

The requirement for the 20-foot setback from the OHWM is relevant to the aesthetic value of the Project Area from Key View 11. A "Key View", according to the EIR, is a vantage point offering a view of some or all of the Project Area from one of eleven specified points. Each Key View vantage point is located and described in Section 4, volume II, of the EIR. Key View 11 is from the Colorado River and looks southwest toward the floodplain, IM-3 Facility, and compressor station (see below).

Key View 11—View west toward the floodplain, IM-3, and compressor station.
(Photograph taken by AECOM in 2009)

The extent of waters of the United States (USACE jurisdictional limits) is generally identified as the limits of the OHWM of a stream or drainage as extended by any adjacent wetlands. To identify the OHWM for the purpose of determining the 20-foot setback requirements, CH2M

HILL reviewed and followed guidelines outlined in both the *Corps of Engineers Wetlands Delineation Manual* (USACE 1987) and *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008). As their names imply, the 1987 USACE document focuses primarily on the delineation of USACE jurisdictional wetlands, and the 2008 USACE document is a guide to delineating OHWMs typically associated with ephemeral/intermittent channel forms that dominate the Arid West landscape (where OHWM delineations can be quite complex). It is important to note that for the most part, the Colorado River in the area of Key View 11 has very definitive incised-cut banks (described in more detail below and on the photographs in Attachment 1), making the OHWM identification relatively straight forward. Aerial photos and photographs of the survey area were used during the field survey and for conducting a preliminary OHWM identification prior to the field survey.

Field Survey

The field survey was conducted in March 2011. The protocol for the survey was developed by Robert Hernandez (CH2M HILL) and the field surveyor was Barry Collom (CH2M HILL). The OHWM identification process (as specified in the USACE guidance documents) involves the visual identification of features associated with high water. Typical items that are checked along a stream or river bank include vegetation and soil types, erosion features, drainage patterns, presence of drift lines (e.g., debris or branches), sediment deposition, watermarks, cut banks, scour lines, etc. (Part IV, Section D, USACE 1987; Section 2.1, USACE 2008) The established protocols were in conformance with the appropriate guidelines (USACE 1987, 2008) and included a preliminary identification based on aerial photo followed by a field investigation using typical OHWM indicators to identify the OHWM. The field work was then re-verified using the aerial photograph.

Significant flexibility is incorporated into the guidance documents because of the variety of different information sources and methods of investigation that may prove helpful to a given OHWM identification. As specified in the guidance, the surveyor is not required to obtain information from all identified sources and indicators (USACE, 1987). Varying degrees of investigations are considered acceptable depending on the complexity of the identification and the quantity and quality of available information.

In dry-land fluvial systems typical of the Arid West (where the Project Area is located), a clear natural scour line impressed on the bank, recent bank erosion, destruction of native terrestrial vegetation, and the presence of litter and debris are the most commonly used physical characteristics to indicate the OHWM (Section 2.1 USACE 2008). Table 5 of the USACE 2008 document summarizes potential common geomorphic OHWM indicators below, at, and above ordinary high water. Several of the indicators from Table 5 in the USACE 2008 document noted in the field survey of the Project Area include: break in bank slope, upper limit of sand sized particles, change in particle size distribution, litter (organic debris, small twigs and leaves), and drift (organic debris, larger than twigs). These were the primary indicators used in the identification of the OHWM. Several of these indicators are visible on the photographs included in Attachment 1.

With two exceptions, most of the survey area has thick vegetative cover that made approach on land impossible. In those areas, the surveyor was able to access land by nosing a boat close enough to shore that he could get out on foot. The two exceptions are the area near the mouth of Bat Cave Wash to the north and the area near MW-27 to the south of the survey area (see Figure 1). Those two areas were accessed from land. The OHWM was identified and tracked during the survey using GPS data collected with a Trimble Geo-XT with sub-meter accuracy. Figure 1 shows the identification of the OHWM based on the aerial photography review and the field survey.

Deliverables

The primary deliverables resulting from the OHWM survey is the OHWM Map (Figure 1) that depicts the location of the OHWM identified and photographs taken of the field survey area (Attachment 1). The locations where the photographs were taken are shown on Figure 1.

References

AECOM. 2011. *Final Environmental Impact Report for the TopockCompressor Station Groundwater Remediation Project*. Prepared for theCalifornia Department of Toxic Substances Control. January.

U.S. Army Corps of Engineers. 1987. *Corps of Engineers Wetland Delineation Manual*. Technical Report Y-87-1. Vicksburg, MS. Wetlands Research Program, Environmental Laboratory.

U.S. Army Corps of Engineers. 2008. *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States. A Delineation Manual*. R.W. Lichvar and S.M. McColley, ed. ERDC/CRRTEL TR-08-12. Hanover, NH. U.S. Army Engineer Research and Development Center.

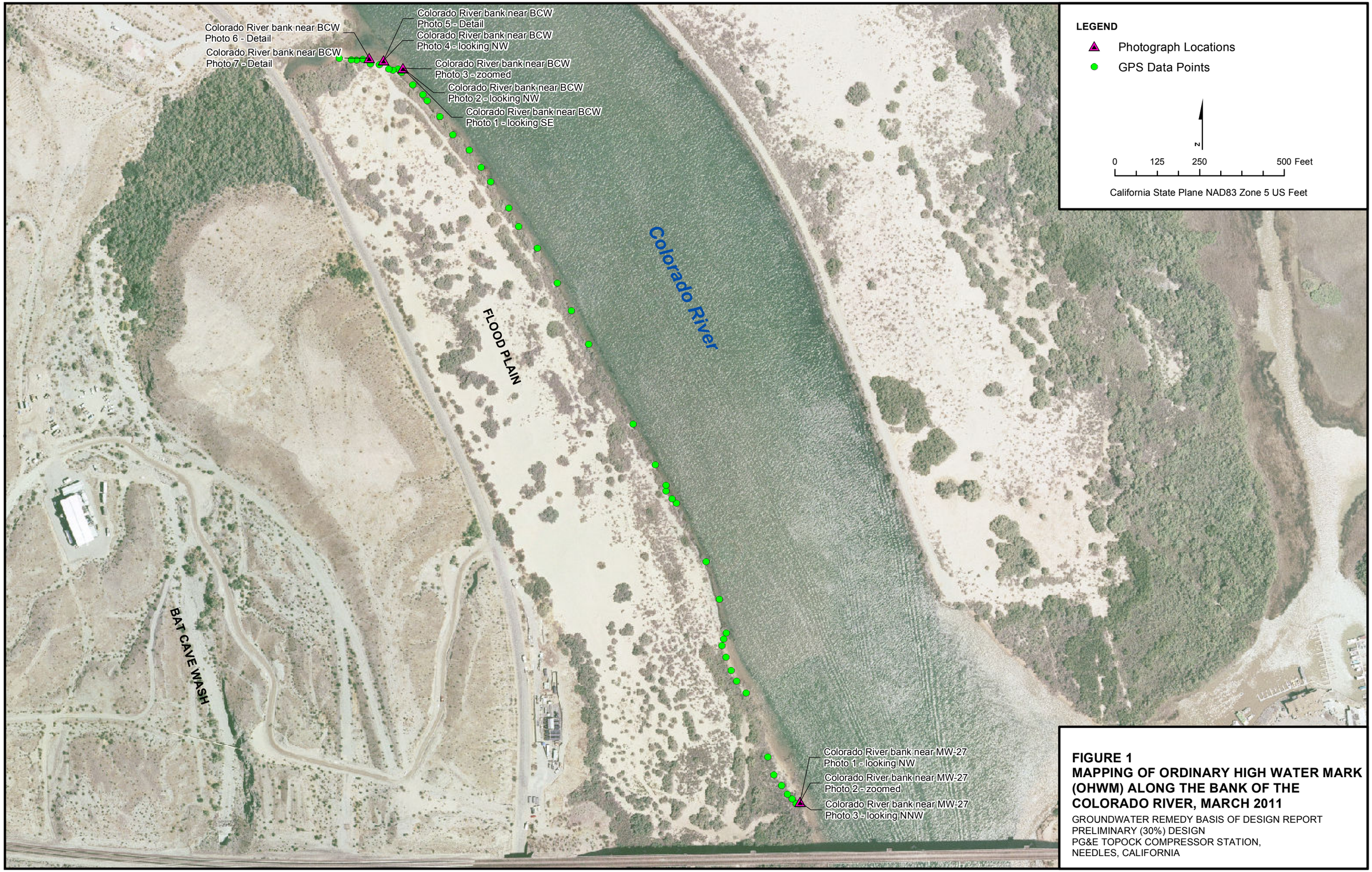
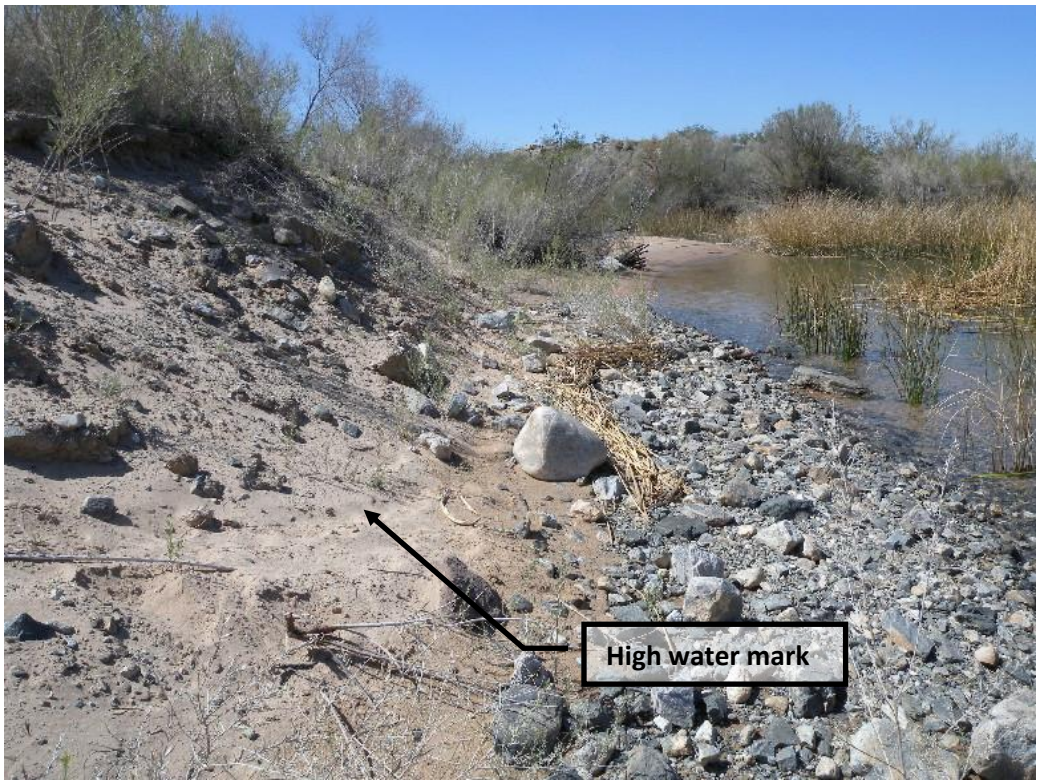


FIGURE 1
MAPPING OF ORDINARY HIGH WATER MARK (OHWM) ALONG THE BANK OF THE COLORADO RIVER, MARCH 2011

GROUNDWATER REMEDY BASIS OF DESIGN REPORT
PRELIMINARY (30%) DESIGN
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

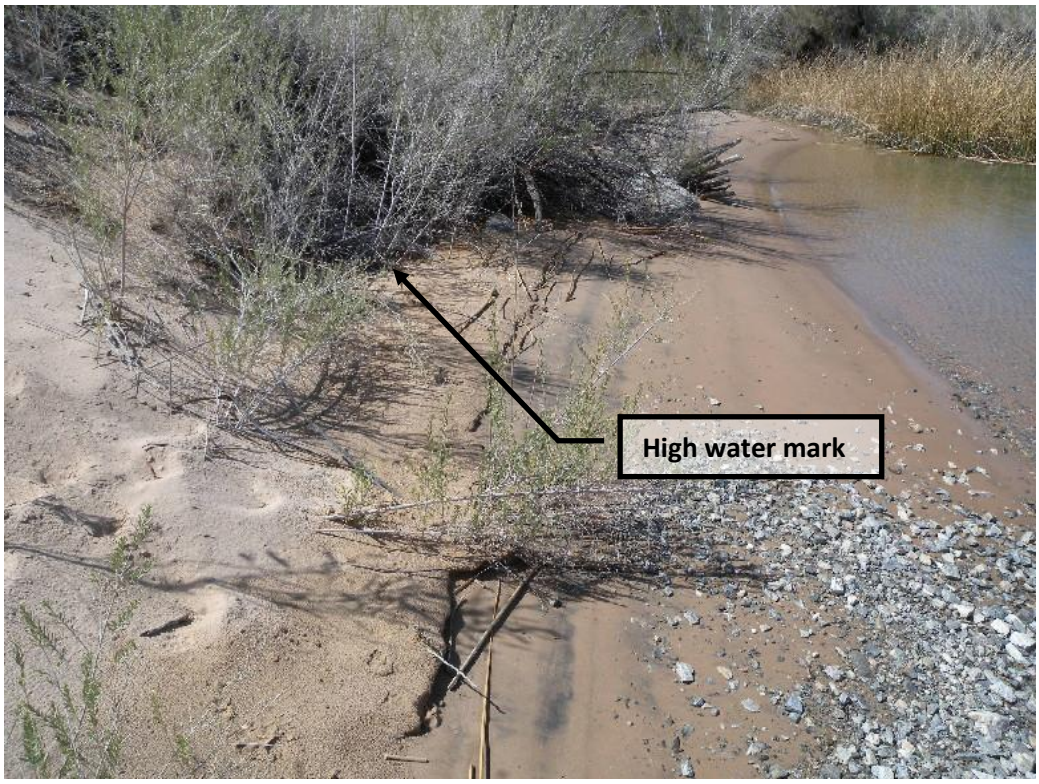
D:\Projects\Topock\MapFiles\2011\CMS\HighwaterLine_Photo

Colorado River Bank near BCW. Photo 1 (looking SE)

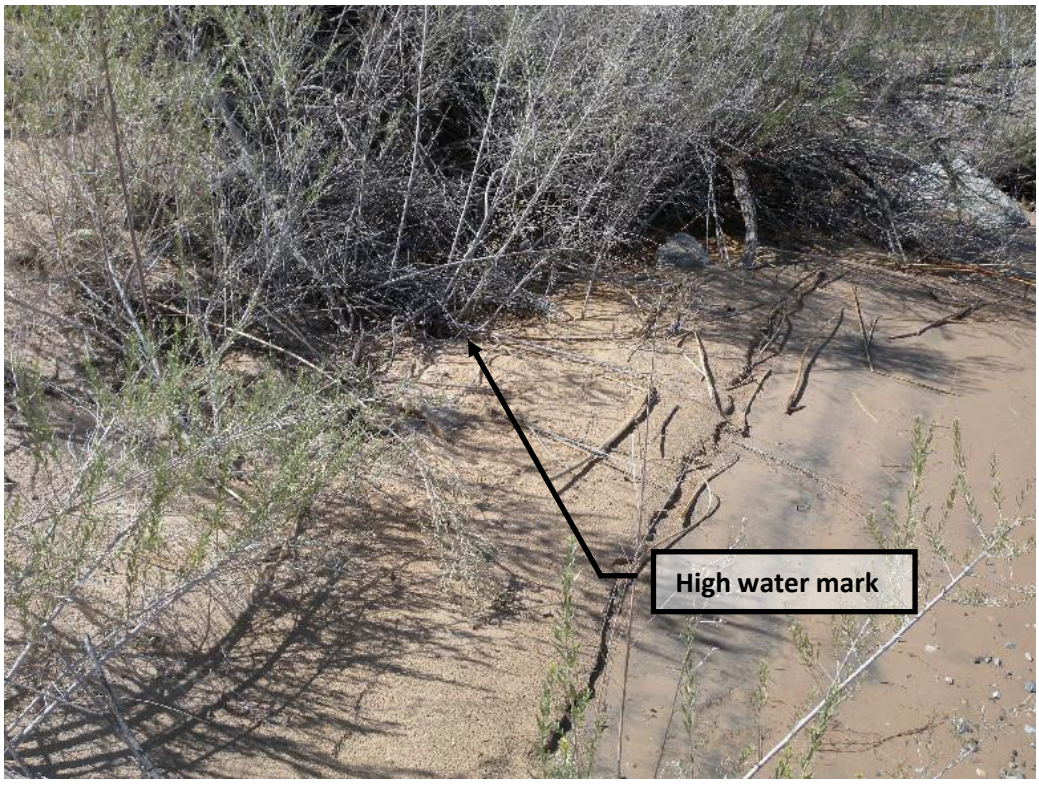


Colorado River Bank near BCW. Photo 2 (looking NW)

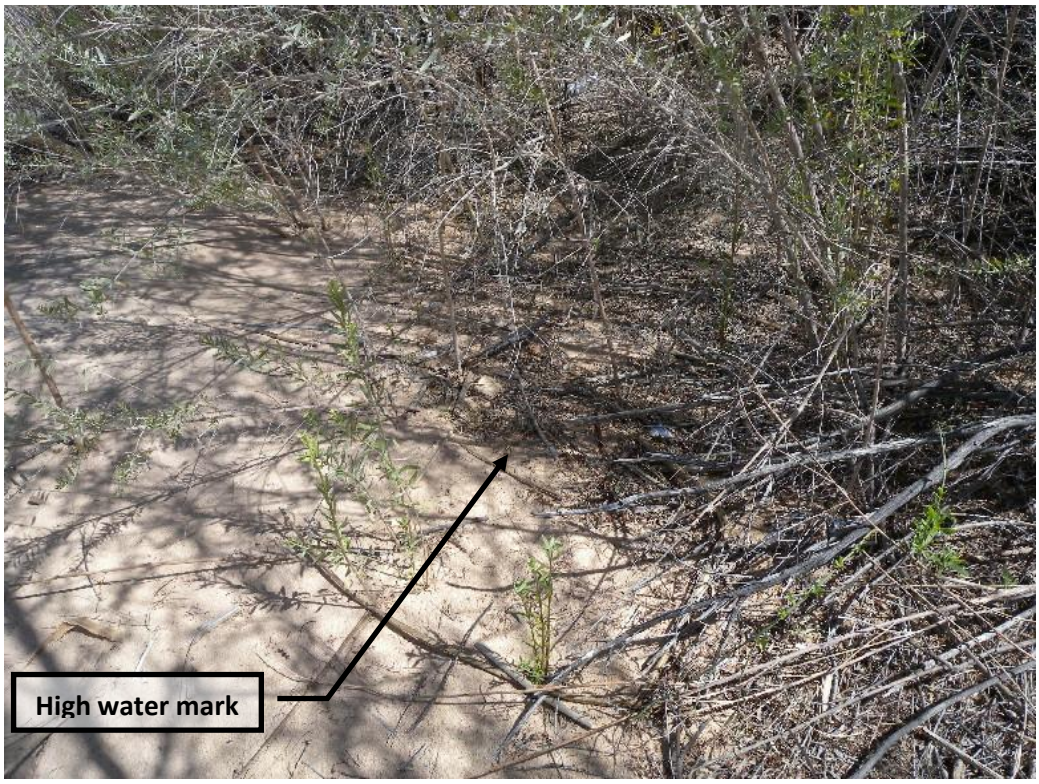
Colorado River Bank near BCW. Photo 3 (zoomed)



Colorado River Bank near BCW. Photo 4 (looking NW)

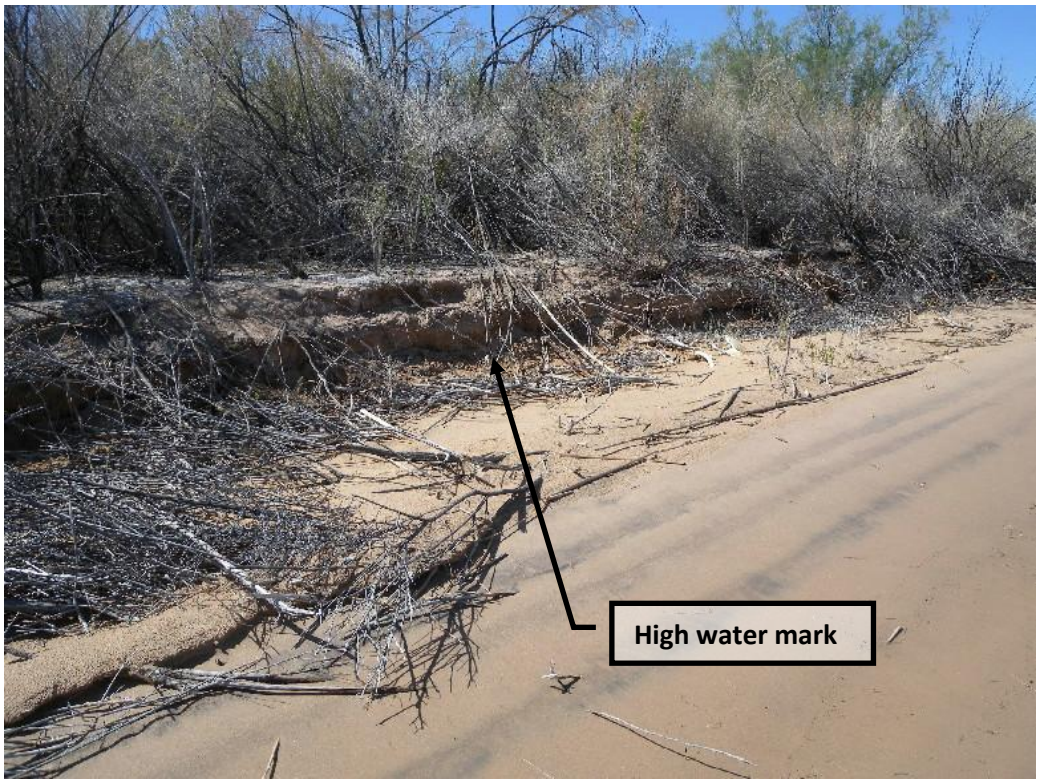


Colorado River Bank near BCW. Photo 5 (detail)



Colorado River Bank near BCW. Photo 6 (detail)

Colorado River Bank near BCW. Photo 7 (detail)



Colorado River Bank near MW-27. Photo 1 (looking NW)

Colorado River Bank near MW-27. Photo 2 (zoomed)

Colorado River Bank near MW-27. Photo 3 (looking NNW)

Appendix A4
Technical Memoranda on Methodologies of Mature Plant Survey and Floristic Survey and the Mature Plants Survey Report
(*on CD-ROM only*)

Prepared for Pacific Gas and Electric Company

Prepared by CH2M HILL and Garcia and Associates (GANDA)

Technical Memorandum

Date: October 31, 2011

To: Melanie Day and Curt Russell, PG&E

From: Kim Steiner and Jay Piper

cc: Morgan King, Gary Santolo, Marjorie Eisert, Christina Hong

Re: Topock Compressor Station Groundwater Remediation Project, Mature Plants Survey Methodology

---

Introduction

The purpose of this technical memorandum (memo) is to describe the methodology used for surveying, mapping, and documenting the Mature Plants that occur in the PG&E Topock Compressor Station Groundwater Remediation Project (project) area. A Mature Plants survey was conducted to comply with the January 2011 Final Environmental Impact Report (EIR) requirements as set forth in Mitigation Measures AES-1a and AES-2b. These Mitigation Measures are from the Aesthetics (AES) portion of the mitigation plan presented in the EIR and are intended to ensure the protection of views from specific vantage points, as discussed in greater detail below.

On August 18, 2011 the methodology described in this memo was presented by PG&E and CH2M HILL at a plant survey kickoff meeting to stakeholder representatives from the Colorado River Indian Tribes, Fort Mojave Indian Tribe, Hualapai Tribe, and the PG&E cultural/archeological resources contractor, Applied Earthworks. During the kickoff meeting, the Tribes requested that the entire Project Area, as defined by the EIR, be the subject of the Mature Plants survey, instead of only the eastern portion of the site on and near the Colorado River Floodplain as is identified in the EIR Mitigation Measures AES-1a and AES-2b. The stated purpose of this request was to ensure the protection of other vantage points of cultural significance that may be present within the Project Area. The Tribes also requested a written copy of the survey methodology, and this technical memo was prepared to meet this request and as part of a Mature Plants survey report that will be prepared to document the survey effort.

At the request of PG&E, Garcia and Associates (GANDA) Senior Botanist Kim Steiner and assisting CH2M HILL Biologist Morgan King conducted botanical field surveys on August 18-26, 2011 in the Project Area. The surveys included data collection in preparation for the following four deliverables:

1) A Mature Plants Map and Species List for the Project Area. Mature Plants were defined as living: trees, large or prominent shrubs, and tall predominantly herbaceous plants (a more detailed description of Mature Plants is included in the Methodology section below). A list of Mature Plant species will accompany the Mature Plants Map in addition to a report documenting the survey effort.

2) An updated Vegetation Communities Map. The 2007 Programmatic Biological Assessment (PBA) for the project included a Vegetation Communities Map for the Area of Potential Effect, prepared from 2004-2005 field mapping. The Project Area largely, though not completely, overlaps with the Area of Potential Effect previously mapped under the PBA. Figure 1 depicts the extent of the Project Area. To facilitate survey logistics and track daily survey progress, the Project Area was divided into twelve segments which are labeled A through L.

3) A map of the ethnobotanically significant plants, which are identified in the EIR Appendix PLA: Ethnobotany Plant List. This survey is also being conducted to facilitate compliance with the EIR requirements described in Mitigation Measure CUL-1a-5, which requires the protection of culturally significant plants. Similarly to the Mature Plants survey described above, the extent of this survey area was increased at stakeholder request to include the Project Area. Future floristic surveys, for purposes other than Mature Plant mapping (as described in item 4 below) will collect additional data about ethnobotanically significant plants in the Project Area.

4) A preliminary species checklist in support of upcoming comprehensive floristic surveys. This checklist was developed using the Mature Plants survey as an opportunity to perform reconnaissance for upcoming fall, winter and/or spring Floristic and Rare Plant surveys. The checklist will serve as the starting point for these future surveys and will be updated and augmented with each upcoming survey. The checklist and botanical surveying and mapping efforts will ultimately result in a master plant list that can be sorted into subset lists including rare species or culturally significant species. This master plant list will be an important tool that will support plant protection during construction and design planning for the project.

Survey Area Description

The survey area encompasses the Project Area, totals approximately 780 acres, and varies in elevation from approximately 400 to 700 feet above sea level.[1] The survey team arbitrarily divided the Project Area into twelve sections (A—L) as described above. Nine of the sections (A, B, C, D, E, H, I, K, and L) are located in San Bernardino County, California. The remaining three sections (F, J, and G) are located in Mohave County, Arizona. Sections of the survey area within California are primarily on land managed by the Bureau of Land Management (BLM) or U.S. Fish and Wildlife Service (USFWS); with the exception of a portion of sections C and D, which is owned by the Fort Mojave Indian Tribe; and a portion of section H, which is owned by PG&E. On the Arizona side of the Colorado River, sections F and most of G are also part of the

[1] The Burlington Northern Santa Fe railroad and Interstate 40 rights-of-way are within the boundaries of the Project Area; however, they were not included in the Floristic Survey because the project is not anticipated to impact these areas.

USFWS Havasu National Wildlife Refuge, and land in section J and a portion of section G is privately owned.

The most common and widespread plant community in the Project Area is Creosote Bush Scrub. As the name implies, this plant community is dominated by creosote bush (*Larrea tridentata*) and is one of the most extensive plant communities found within the California Deserts (Sawyer et al. 2009). Creosote Bush Scrub is present in all upland areas of the Project Area. In the valleys and dry washes that dissect the upland areas, the most common plant community is the Palo Verde/Ironwood alliance that is dominated by blue palo verde (*Parkinsonia florida*) and various associates including catclaw acacia (*Acacia greggii*) (Sawyer et al. 2009). This alliance takes many forms and in the Project Area it is form that lacks ironwood (*Olneya tesota*). Along the floodplain of the Colorado River, the primary vegetation type is salt cedar (*Tamarix* ssp. semi-natural shrubland) which often forms impenetrable thickets (e.g. under the railroad and Interstate I-40 bridges) of single species, *Tamarix ramosissima*, or mixtures with other species; for example honey mesquite (*Prosopis glandulosa* var. *torreyana*) (Sawyer et al. 2009). Salt cedar often interdigitates with arrow weed (*Pluchea sericea*) thickets and Mesquite Bosque on the flood plain as well. Scattered throughout the project area on the flood plain or in broad washes near the flood plain are smaller patches of shadscale and all scale scrub (*Atriplex* spp.) which grow on alkaline or saline soils (Sawyer et al. 2009). Along the Colorado River and its inlets are patches of wetlands with various marsh plants forming associations in the water such as cattail (*Typha latifolia*) and California bulrush (*Scirpus californicus*) marshes, whereas on the adjacent shores and flood plain common reed (*Phragmites australis*) marshes and occasionally great reed (*Arundo donax*) breaks are present.

Methodology

Field Survey Preparation

Pursuant to Mitigation Measure AES-1a and AES-2b,

> *"The identification of plant specimens that are determined to be mature and retained shall occur as part of the design phase and mapped/identified by a qualified plant ecologist or biologist and integrated into the final design and project implementation."*

In order to identify potential Mature Plants that occur in the Project Area, Botanist Steiner, Biologist King, and PG&E Biologist Melanie Day reviewed existing documentation of vegetation types that occur in the Project Area; for example: the EIR, previous biological surveys in preparation for the PBA, incidental species lists from Protocol Desert Tortoise and Southwest Willow Flycatcher surveys, and the PBA Vegetation Communities Map. In addition, a brief pre-survey reconnaissance of the Project Area was conducted by Botanist Steiner, Biologist King, and Biologist Day on August 18, 2011. A Mature Plant was defined as a living:

- tree,
- large or prominent shrub, or
- tall predominately herbaceous plant

that could add to the aesthetic value of the Project Area from Key Views 5 and 11, and other potential culturally significant views in the Project Area.

A “Key View”, according to the EIR, is a vantage point offering a view of some or all of the Project Area from one of eleven specified points. Each Key View vantage point is located and described in Section 4, volume II, of the EIR. Two of the Key Views specified in the EIR are incorporated in the Aesthetic Mitigation Measures related to botanical surveys. Based on interpreting the PBA Plant Communities Map, these two Key Views 5 and 11 are described as follows: The “view corridor” from Key View 11 looking west from boats on the Colorado River consists of several overlapping areas of plant growth including: wetlands along the river, riparian vegetation on the banks and floodplain, and upland shrubs and trees on the slopes up to the next plateau and beyond (i.e. the edge of National Trails Highway and farther west). Key View 5 looks in the opposite direction (i.e. eastward) from a higher vantage point at the eastern edge of Maze Locus B outwards over the vegetated flood plain of the Colorado River.

Also included as Mature Plants were those used for landscaping around Park Moabi and the Topock Compressor Station; for example: eucalyptus (*Eucalyptus* sp.), fan palm (*Washingtonia* sp.), athel tamarisk (*Tamarix aphylla*), Fremont’s cottonwood (*Populus fremontii*), and oleander (*Nerium oleander*.). Shrubs were included if they occurred in a large or prominent form; for example, the widespread creosote bush was included where it was observed in a large or prominent form; however, it was not included where it more typically occurred as a small shrub.

Twenty-one species were considered appropriate to categorize and map as Mature Plants (Table 1). More than half of these (N=12) are trees, with the remainder split between shrubs (N= 5) and herbaceous perennials (N= 4).

Current high-resolution aerial photographs of the Project Area were prepared as base maps for Global Positioning System (GPS) and field notation to be used during the surveys. Although the aerial photographs are of sufficient quality and resolution that some Mature Plants can be identified, it is not feasible to identify all Mature Plants through the use of the photographs alone. The aerial photographs have been incorporated into project Geographic Information System data files and may also be used as a base map for the deliverables described in the *Introduction* section of this memo.

Field Survey

The field survey was conducted on August 18-26, 2011 in clear, calm, and hot summer weather. The list of Mature Plants described in Table 1, aerial photographs, and the Vegetation Communities Map were used as reference documents. Though surveyors were prepared to identify and record all observed species that may be considered to be a Mature Plant, and not just those listed is Table 1, no other species that would meet these criteria were observed. The field mapping was conducted using GPS data collection and surveyor notations were recorded on the aforementioned aerial photographs.

The protocol for the survey was developed expressly for Mitigation Measures AES-1a and AES-2b and designed to ensure that all Mature Plants were identified and recorded. The protocol was a mix of focused and transect-based surveys for Mature Plants based on terrain and the inherent visibility of Mature Plants. Surveyors were able to walk or scan the entire Project Area at a distance that guaranteed complete coverage for Mature Plants; therefore, surveyors were able to identify all of the Mature Plants in the Project Area. Trees and shrubs of interest were not distributed evenly across the Project Area; therefore, survey efforts were concentrated in dry riverbeds and washes in the upland areas, and along river banks and floodplains in the lower

areas on both sides of the Colorado River. To ensure that surveyors did not overlook any Mature Plants in the Project Area, hilltops and ridges were used as vantage points to locate all Mature Plants in the washes and ravines below.

Vegetative sampling of individual plants was minimized during the survey in response to a request from the Tribes and because it was not necessary for accurate identification of the majority of the Mature Plants. In some cases, identifications were facilitated by taking photographs in the field.

GPS data was collected for each Mature Plant encountered during the survey using a Trimble GeoXH 6000 with decimeter accuracy. In areas where individual plants were numerous and closely clustered together, it was not feasible to GPS each plant individually (e.g. salt cedar and mesquite in sections C and D near National Trails Highway, see Fig. 1). This was especially true along the Colorado River floodplain where salt cedar often formed impenetrable thickets with other shrubs and trees (e.g. honey mesquite and arrow weed). In such situations, the clusters of mature plants were represented as polygon centroids.

For each Mature Plant or cluster of Mature Plants, surveyors recorded the height and health of the plant with the GPS device. Four height categories were used as follows:

- short (< 6 feet),
- medium (≥ 6 and < 12 feet),
- tall (≥ 12 and < 20 feet), or
- very tall (≥ 20 feet).

Plant health was also assessed using three categories as follows:

- good (plants with no dead or damaged branches or other signs of branch senescence),
- fair (plants with a few dead or senescent branches), or
- poor (plants with more than half of the branches dead or damaged).

All of the Mature Plants recorded and mapped on the flood plain of the Colorado River, with the exception of eucalyptus, fan palms, and athel tamarisk, were assumed to have established themselves naturally (i.e. not planted); however, not all naturally established plants were indigenous. For example, salt cedar and giant reed are native to eastern Asia and Europe, respectively; and the common reed, at least under the railroad bridge, is the invasive form from the eastern U.S. and not the native form from California (J. Andre, personal communication). Salt cedar and giant reed are also considered highly invasive in many parts of the arid Southwest, including California and Arizona (California Invasive Plant Council, 2011). In some landscaped areas, plants had clearly been planted; however, these occasionally impacted the view corridor of the Colorado River and were therefore included.

Deliverables

The primary deliverable resulting from the Mature Plant survey will be a detailed Mature Plants Map that depicts the location and distribution of all Mature Plants that occur within the Project Area. This map will also provide information on the height and general health of each Mature Plant (or cluster). These data will also be presented in a tabular/list form that will enable any

user to find, for example, the largest concentration of honey mesquite trees, the tallest blue palo verde trees, the largest desert smoke tree, all clusters of arrow weed, or the only known locations for Goodding's willow and Fremont's cottonwood in the Project Area. A report summarizing the survey effort, including the methodology described herein, will also be prepared. The target completion date of these deliverables is December 30, 2011.

Table 1. List of Mature Plants in the Project Area

Species	Common name	Plant habit
TREES		
Athel tamarisk	*Tamarix aphylla*	Tall to very tall tree
Blue palo verde	*Parkinsonia florida*	Shrub to tree
California fan palm	*Washingtonia filifera*	Medium to tall tree
Catclaw acacia	*Acacia greggii*	Shrub to small tree
Desert smoke tree	*Psorothamnus spinosus*	Medium to tall tree
Eucalyptus[1]	*Eucalyptus* sp.	Tall tree
Fremont's cottonwood	*Populus fremontii*	Tall tree
Goodding's willow	*Salix gooddingii*	Medium to tall tree
Honey mesquite	*Prosopis glandulosa* var. *torreyana*	Medium to tall tree
Narrow-leaved willow	*Salix exigua*	Medium tree
Salt cedar	*Tamarix ramosissima*	Shrub to large tree
Screwbean mesquite	*Prosopis pubescens*	Medium to tall tree
SHRUBS		
Arrow weed	*Pluchea sericea*	Medium to tall shrub
Creosote bush	*Larrea tridentata*	Shrub
Ocotillo	*Fouquieria splendens*	Tall shrub
Oleander[2]	*Nerium oleander*	Medium to tall shrub
Shadscale saltbush	*Atriplex confertifolia*	Shrub
HERBACEOUS PLANTS		
Broad-leaved cattail	*Typha latifolia*	Tall herb
California bulrush	*Scirpus californicus*	Tall sedge
Common reed	*Phragmites australis*	Tall perennial grass
Giant reed	*Arundo donax*	Tall perennial grass

[1]Cultivated trees used in landscaping in Moabi Park
[2]Cultivated horticultural plants around the Compressor Station

References

California Department of Fish and Game (CDFG). 2009. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities. Sacramento, CA. Available at: http://www.dfg.ca.gov/bdb/pdfs/guideplt.pdf.

California Invasive Plant Council (Cal-IPC). 2011. California Invasive Plant Inventory. Cal-IPC Publication 2006-02. California Invasive Plant Council: Berkeley, CA. Available at: http://www.cal-ipc.org/ip/inventory/weedlist.php

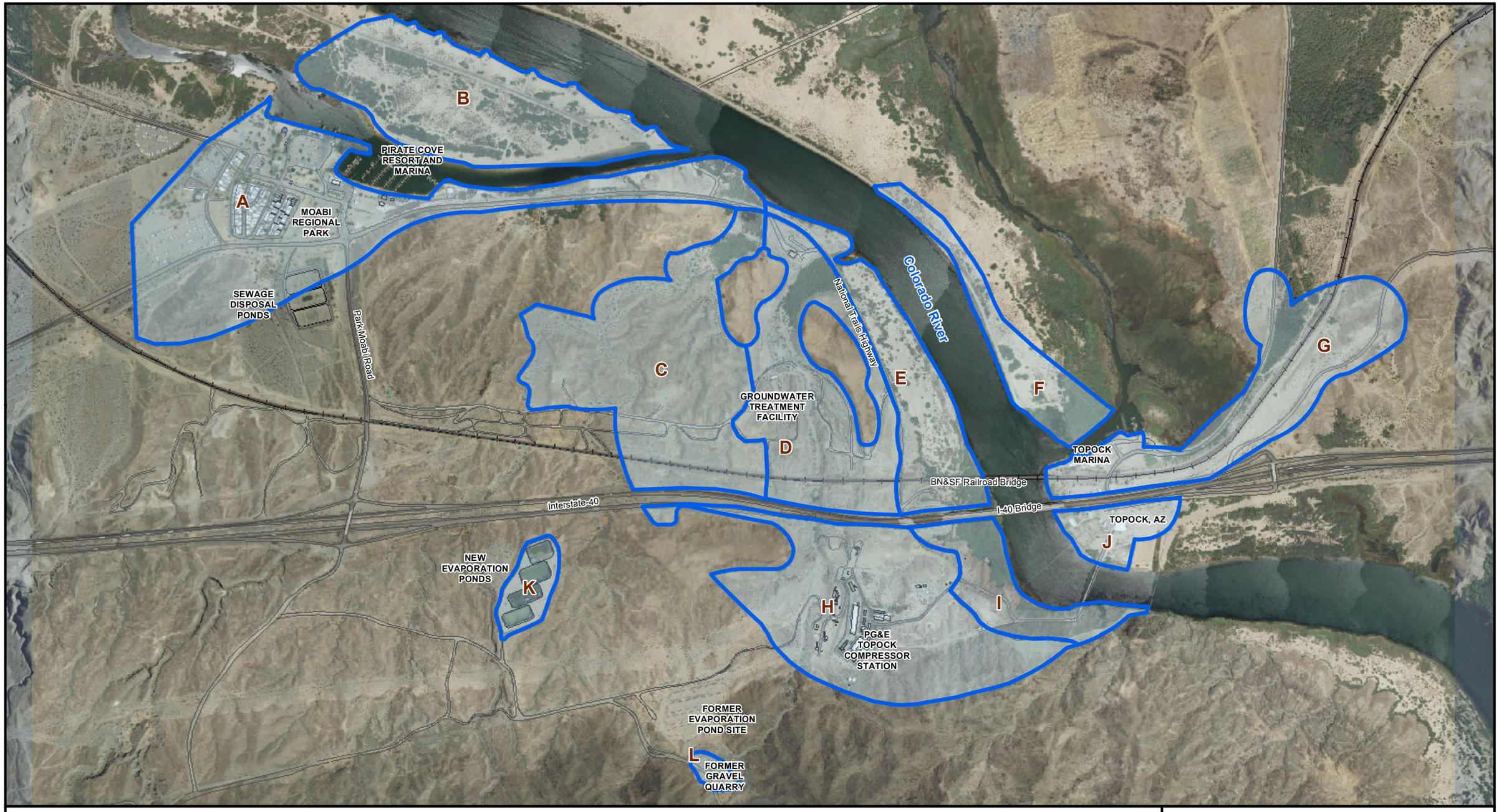
CH2M HILL. 2005. Biological Resources Survey Report for the Area of Potential Effect (APE), Topock Compressor Station Expanded Groundwater Extraction and Treatment System, Needles, California.

Holland, R. F. 1986. Preliminary descriptions of the terrestrial natural communities of California.

Jepson Flora Project. 2010. Jepson Online Interchange for California Floristics. Accessed at: http://ucjeps.berkeley.edu/interchange.html

EIR California Invasive Plant Council (Cal-IPC). 2011. California Invasive Plant Inventory. Cal-IPC Publication 2006-02. California Invasive Plant Council: Berkeley, CA. Available at: http://www.cal-ipc.org/ip/inventory/weedlist.php

Sawyer, J. O., T. Keeler-Wolf, and J. M. Evens. 2009. A manual of California vegetation, 2nd ed. California Native Plant Society, Sacramento, CA.



LEGEND

Survey Segments

N

0 500 1,000 2,000 Feet

FIGURE 1
EIR PROJECT AREA WITH VEGETATION SURVEY SEGMENTS

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

CH2MHILL

D:\Projects\Topock\MapFiles\2011\CMS\BioSurveySegements

Prepared for Pacific Gas and Electric Company

Prepared by CH2M HILL and Garcia and Associates (GANDA)

Technical Memorandum

Date: October 31, 2011

To: Melanie Day and Curt Russell, PG&E

From: Kim Steiner and Jay Piper

cc: Morgan King, Gary Santolo, Marjorie Eisert, Christina Hong

Re: Topock Compressor Station Groundwater Remediation Project, Floristic Survey Methodology

---

Introduction

The purpose of this technical memorandum (memo) is to describe the methodology that will be used for surveying, mapping, and documenting the plant species that occur in the PG&E Topock Compressor Station Groundwater Remediation Project (project) area. A Floristic survey will be conducted to establish a comprehensive inventory of plant species that occur in the Project Area, identify any plants species that are considered to be sensitive as defined in the *Methodology* section below, and to comply with the requirements of the January 2011 Final Environmental Impact Report (EIR) Mitigation Measure CUL-1a-5, which requires PG&E to avoid, protect, and encourage the regeneration of ethnobotanically significant plants listed in Appendix PLA of the EIR. The Project Area is defined in the EIR and depicted in Figure 1.

On August 18, 2011 the methodology for plant surveys in the Project Area was presented by PG&E and CH2M HILL at a plant survey kickoff meeting to stakeholder representatives from the Colorado River Indian Tribes, Fort Mojave Indian Tribe, Hualapai Tribe, and the PG&E cultural/archeological resources contractor, Applied Earthworks. During the kickoff meeting, The Tribes requested a written copy of the survey methodology for the Mature Plants survey and the Floristic survey, and this technical memo was prepared to meet this request and as part of a Floristic survey report that will be prepared to document the survey effort. The Mature Plants survey methodology was separately prepared.

At the request of PG&E, Garcia and Associates (GANDA) Senior Botanist Kim Steiner and assisting CH2M HILL Biologist Morgan King conducted botanical field surveys on August 18-26, 2011 in the Project Area. The primary purpose of the survey was the identification and mapping of Mature Plants, as required by EIR Mitigation Measures AES-1a and AES-2b. The Mature Plants survey was extended to cover the entire Project Area at the request of the Tribes during plant survey kickoff meeting. This survey also included incidental data collection in

support of the Floristic survey as follows:

1) A preliminary plant species checklist was developed using the Mature Plants survey as an opportunity to perform reconnaissance for fall, winter and/or spring Floristic surveys. The checklist will serve as the starting point for the Floristic surveys and will be updated and augmented with each seasonal survey. The checklist and botanical surveying and mapping efforts will ultimately result in a comprehensive inventory of plant species (or master plant list) that can be sorted into subset lists including rare species or ethnobotanically significant species. This master plant list will be an important tool that will support plant protection during construction and design planning for the project.

2) Information to prepare a map and list of the ethnobotanically significant plants was collected. The Floristic survey will collect additional data about ethnobotanically significant plants in the Project Area.

In addition, information to prepare an updated Vegetation Communities Map was collected. The 2007 Programmatic Biological Assessment (PBA) for the project included a Vegetation Communities Map for the Area of Potential Effect, prepared from 2004-2005 field mapping. The Project Area largely, though not completely, overlaps with the Area of Potential Effect previously mapped under the PBA. To facilitate botanical survey logistics and track daily survey progress, the Project Area was divided into twelve sections which are labeled A through L (Figure 1).

Survey Area Description

The survey area encompasses the Project Area, totals approximately 780 acres, and varies in elevation from approximately 400 to 700 feet above sea level.[1] The survey team arbitrarily divided the Project Area into twelve sections (A—L) as described above. Nine of the sections (A, B, C, D, E, H, I, K, and L) are located in San Bernardino County, California. The remaining three sections (F, J, and G) are located in Mohave County, Arizona. Sections of the survey area within California are primarily on land managed by the Bureau of Land Management (BLM) or U.S. Fish and Wildlife Service (USFWS); with the exception of a portion of sections C and D, which is owned by the Fort Mojave Indian Tribe; and a portion of section H, which is owned by PG&E. On the Arizona side of the Colorado River, sections F and most of G are also part of the USFWS Havasu National Wildlife Refuge, and land in section J and a portion of section G is privately owned.

The most common and widespread plant community in the Project Area is Creosote Bush Scrub. As the name implies, this plant community is dominated by creosote bush (*Larrea tridentata*) and is one of the most extensive plant communities found within the California Deserts (Sawyer et al. 2009). Creosote Bush Scrub is present in all upland areas of the Project Area. In the valleys and dry washes that dissect the upland areas, the most common plant community is the Palo Verde/Ironwood alliance that is dominated by blue palo verde (*Parkinsonia florida*) and

[1] The Burlington Northern Santa Fe railroad and Interstate 40 rights-of-way are within the boundaries of the Project Area; however, they were not included in the Floristic Survey because the project is not anticipated to impact these areas.

various associates including catclaw acacia (*Acacia greggii*) (Sawyer et al. 2009). This alliance takes many forms and in the Project Area it is form that lacks ironwood (*Olneya tesota*). Along the floodplain of the Colorado River, the primary vegetation type is salt cedar (*Tamarix* ssp. semi-natural shrubland) which often forms impenetrable thickets (e.g. under the railroad and Interstate I-40 bridges) of single species, *Tamarix ramosissima*, or mixtures with other species; for example honey mesquite (*Prosopis glandulosa* var. *torreyana*) (Sawyer et al. 2009). Salt cedar often interdigitates with arrow weed (*Pluchea sericea*) thickets and Mesquite Bosque on the flood plain as well. Scattered throughout the project area on the flood plain or in broad washes near the flood plain are smaller patches of shadscale and all scale scrub (*Atriplex* spp.) which grow on alkaline or saline soils (Sawyer et al. 2009). Along the Colorado River and its inlets are patches of wetlands with various marsh plants forming associations in the water such as cattail (*Typha latifolia*) and California bulrush (*Scirpus californicus*) marshes, whereas on the adjacent shores and flood plain common reed (*Phragmites australis*) marshes and occasionally great reed (*Arundo donax*) breaks are present. The common reed is likely a non-indigenous and invasive species (this will be verified during the Floristic survey).

Methodology

Research and Literature Review

Pursuant to Mitigation Measure CUL-1a-5,

> *"Should any indigenous plants of traditional cultural significance and listed in Appendix PLA of this FEIR be identified within the project area, PG&E shall avoid, protect, and encourage the natural regeneration of the identified plants when developing the remediation design, final restoration plan, and IM-3 decommission plan…."*

The purpose of the Floristic survey is to comply with Mitigation Measure CUL-1a-5, obtain a comprehensive inventory of plant species that occur in the Topock Project survey area, and to ensure that sensitive plants (i.e. special-status and ethnobotanically significant plant species as described below) are detected and mapped or recorded. Therefore, prior to conducting the survey, research was conducted to: 1) determine the appropriate times to conduct surveys to maximize the potential for identifying plants that occur in the East Mojave Desert, and 2) identify special-status and ethnobotanically significant plant species with a potential to occur in the survey area.

Research included consideration of rain patterns in the East Mojave Desert, and specifically, timing of a fall survey to ensure fall blooming species are identified. Rainfall in the East Mojave Desert exhibits a bimodal pattern, with most rainfall occurring in the winter and a significant proportion of annual rainfall occurring in the late-summer (Brooks et al. 2001). Rains in September and October 2011 produced a fall bloom in wash floors, where runoff concentrates, and may have triggered a bloom in upland and floodplain areas. Therefore, an early November survey is currently planned that will allow for identification of plants emerging from late-summer rains. To further refine survey plans, a regional botanical expert and curator of the University of California Riverside, Granite Mountains Research Center, Jim Andre, Ph.D., was contracted to review survey planning to optimize timing, check target plant lists, and join the

field survey team for a pre-survey reconnaissance and orientation towards locally occurring sensitive plants. Dr. Andre related that surveys from mid-November to mid-January are typically non-productive. The timing for a spring survey might advance if winter weather is wetter and milder than normal; however, the typically most productive timing for a spring survey is mid- to late- March. A follow-up survey may occur in late spring 2012 in wetlands or other areas as needed. Unusual weather might trigger surveys at other times of the year; for example, in late winter. Accordingly, the survey timing will maximize the number of plants detected and identified.

Sensitive Plants

Sensitive plants are defined as special-status plants and ethnobotanically significant plants. A plant species was considered to be special-status if it met one or more of the following criteria:

- Listed, proposed, or candidate for listing, as rare, threatened or endangered under the Federal or State Endangered Species Acts or California Native Plant Protection Act (USFWS 1996b, 2006, 2011; CNDDB 2011a)
- Special Plant as defined by the California Natural Diversity Database (CNDDB 2011b)
- California Rare Plant Ranked (CRPR) 1, 2, 3, or 4 by the California Native Plant Society (CNPS) in its Online Inventory of Rare and Endangered Plants of California (CNPS 2011)
- Listed by the BLM as a Special Status Plant (BLM 2011)
- Listed by the Arizona Rare Plant Committee (2001)
- Listed under the California Desert Native Plants Act (CDNPA)

A preliminary list of potentially occurring special-status plants (target list) was derived from several sources. Quadrangle-based searches of the CNPS Inventory and the CNDDB RareFind3 database (2011a) were conducted to identify potentially occurring special-status plants. The 7.5-minute United States Geological Survey (USGS) quadrangles containing the Project Area (i.e. Whale Mountain and Topock Quadrangles) and 11 surrounding USGS 7.5-minute quadrangles (i.e. Needles NW, Needles SW, Needles, Monumental Pass, Snaggle Tooth, Chemehuevi Peak, Castle Rock, Savahia Peak NW, Savahia Peak NE, Havasu Lake, and Lake Havasu City South) were included in the CNPS and CNDDB RareFine3 database searches. The CNDDB Quickviewer online database (CNDDB 2011c) was searched to identify potentially occurring plant species (CRPR 3 or 4) that are not recorded on a quadrangle basis in other databases. Since part of the project area occurs in Arizona and special-status plants in that state are not available in a database that can be queried by USGS quadrangle, each rare plant species listed for Mohave County (Arizona Rare Plant Committee 2001) was individually checked against data in the Southwest Environmental Information Network (SEI Net) to determine the likelihood of any of these plants occurring in the survey area. Special status plants not found in any of the aforementioned sources; however, known to have the potential to occur in the Project Area based on a list produced by Dr. Andre, were also included in the target list.

If a species distribution, habitat, or elevation range precluded its possible occurrence in the Project Area or vicinity, it was not considered further. A species was determined to have potential to occur within the Project Area if its known or expected geographic range included the Project Area or vicinity, and if its known or expected habitat was found within or adjacent to the Project Area during the August 2011 botanical survey.

Based on the pre-survey research and literature review, 50 special-status plants have the potential to our in the Project Area. Thirty-four CRPR (CNPS) plants occur or were determined to have the potential to occur in the survey area, and these species, along with data on flowering period, conservation status, habitat preferences, geographic distribution, and known locations in the vicinity of the survey area, are presented in Table 1. Also included in this table are 20 special-status plants that are protected under the CNDPA.

Table 1. Target list of special-status plant species with the potential to occur in the Project Area

Common Name	Scientific Name	Status[1] Fed/State/CRPR/ CDNPA	Flowering Period	Habitat	Potential to Occur[2]
TREES					
Blue palo verde	*Parkinsonia florida*	--/--/--/CDNPA	Apr–May	Creosote Bush Scrub; washes and floodplains.	**Present.** This tree is the most abundant native tree in the Project Area.
California fan palm	*Washingtonia filifera*	--/--/--/CDNPA	Feb–Jun	Creosote Bush Scrub; Moist places, seeps, springs, streamsides.	**Present.** This tree does not appear to be native to the Project Area; however, it is planted in the landscaped areas.
Catclaw acacia	*Acacia greggii*	--/--/--/CDNPA	Apr–Jun	Creosote Bush Scrub; Pinyon-Juniper Woodland, uncommon on dry slopes, chapparal, washes, flats, disturbed areas.	**Present.** This shrub to small tree is common in the Project Area, particularly in the upland washes
Desert ironwood	*Olneya tesota*	--/--/--/CDNPA	Apr–May	Creosote Bush Scrub; desert washes.	**Unlikely.** Suitable habitat for this tree occurs in the Project Area; however, it was not detected during the Mature Plants Survey in August 2011 and therefore is not anticipated to occur in the Project Area.
Desert smoke tree	*Psorothamnus spinosus*	--/--/--/CDNPA	Mar–May	Creosote Bush Scrub; desert washes.	**Present.** This shrub to small tree is locally common in several parts of the Project Area, but is not common overall.
Honey mesquite	*Prosopis glandulosa* var. *torreyana*	--/--/--/CDNPA	Apr–Aug	Creosote Bush Scrub and Alkali Sink Scrub; grasslands, alkali flats, washes, sandy alluvial flats, mesas.	**Present.** This medium to large tree is common in the Project Area especially on the flood plain and nearby areas.

Little-leaved palo verde	*Parkinsonia microphylla*	--/--/4.3/CDNPA	Apr–May	Creosote Bush Scrub; rocky or gravelly areas	**Unlikely**. This woody shrub or small tree is not known from the project area, but suitable habitat occurs there. It is known from 25 miles SW of the project area in the Whipple Mts. near Copper Basin and Lake Havasu; however, it was not detected during the Mature Plants Survey in August 2011 and therefore is not anticipated to occur in the Project Area.
Screwbean mesquite	*Prosopis pubescens*	--/--/--/CDNPA	Apr–Sep	Creosote Bush Scrub; creek, river bottoms, sandy or gravelly washes, ravines.	**Present.** This medium to large tree is common under the highway and RR bridges that cross the Colorado River, and on the Arizona side of the river opposite the Topock Marina.
Velvet mesquite	*Prosopis velutina*	--/--/--/CDNPA	Apr–Jun	Mojavean Desert Scrub; sandy, rocky soils in canyons, washes; only naturalized in CA, not native.	**Unlikely**. A single occurrence of this tree is known from the Topock Marsh; however, it was not detected during the Mature Plants Survey in August 2011 and therefore is not anticipated to occur in the Project Area.
SHRUBS					
Beaver tail	*Opuntia basilaris* ssp. *basilaris*	--/--/--/CDNPA	Mar–Jun.	Mojavean Desert Scrubto Pinyon-Juniper Woodland.	**Present.** This succulent shrub is scattered throughout the upland portion of the Project Area.
Buckhorn cholla	*Cylindropuntia acanthocarpa* var. *coloradensis*	--/--/--/CDNPA	May–Jun	Creosote Bush Scrub and Joshua Tree Woodland; gravelly or rocky places.	**Present.** This succulent shrub is scattered throughout the upland portion of the Project Area.
California Barrel Cactus	*Ferocactus cylindraceus* var. *cylindraceus*	--/--/--/CDNPA	Apr–May	Creosote Bush Scrub and Joshua Tree Woodland; gravelly or rocky places.	**Present.** This succulent shrub is locally scattered in the southern portion of the Project Area near the Colorado River.

Crucifixtion thorn	*Castela emoryi*	--/--/2.3/CDNPA	Apr, Jun–Jul*	Mojavean or Sonoran desert scrub; gravelly soils, sometimes in alkali playas or washes.	**Possible.** Suitable habitat is present, for this shrub; however, there are no occurrence records in the immediate vicinity of the Project Area. It has been collected near Chemehuevi Wash 19 miles southeast of Topock.
Corkseed mammillaria	*Mammillaria tetrancistra*	--/--/--/CDNPA	Apr	Creosote Bush Scrub; sandy hills.	**Present**. This small succulent shrub is uncommon on rocky slopes in upland parts of the Project Area.
Graham's fishhook cactus	*Mammillaria grahamii* var. *grahamii*	--/--/2.2/CDNPA	Apr–Jun	Creosote Bush Scrub; gravelly alluvial fans and rocky slopes.	**Unlikely**. Small succulent shrub with nearest known occurrences in the Whipple Mtns. 25 miles south of the Project Area; however typically occurs above 900 feet elevation.
Hall's tetracoccus	*Tetracoccus hallii*	--/--/4.3/--	Jan–May	Creosote Bush Scrub; rocky slopes and washes.	**Possible**. This woody shrub is not known from the Project Area. The closest known population is 14 miles southwest of Project Area.
Howe's hedgehog cactus	*Echinocereus engelmannii* var. *howei*	--/--/1B.1/CDNPA	May–Jun	Creosote Bush Scrub; hills and flats on well-drained rocky ledges and steep gravelly slopes.	**Unlikely**. Suitable habitat for this stem succulent cactus occurs in the project area; however, there are no occurrence records there. It is known to occur 35 miles northwest of the Project Area on rocky ledges.
Kofa Mountain barberry	*Berberis harrisoniana*	--/--/1B.2/--	Jan–Mar	Mojavean Desert Scrub, usually north-facing talus slopes, sometimes volcanic.	**Possible.** Known to occur near Colorado River in Whipple Mtns.
Mojave yucca	*Yucca schidigera*	--/--/--/CDNPA	Apr–May	Creosote Bush Scrub.	**Possible**. Shrub or tree-like; occurrence known from 10 miles south of Needles.

Narrow-leaved dalea)	*Psorothamnus fremontii* var. *attenuatus*	--/--/2.2/--	Mar–May	Desert Scrub; granitic or volcanic rocky slopes and canyons.	**Possible**. Known only from the Whipple Mtns approx. 30 miles south of project area.
Ocotillo	*Fouquieria splendens*	--/--/--/CDNPA	Mar–Jul	Creosote Bush Scrub; dry, generally rocky soils.	**Present.** This large shrub is known to occur as a few individuals on slopes above the National Trails Hwy
Pencil cholla	*Cylindropuntia ramosissima*	--/--/--/CDNPA	Apr–Aug	Creosote Bush Scrub and other Mojavean Desert Scrub.	**Present.** This small succulent shrub is uncommon on rocky slopes in the Project Area.
Silver cholla	*Cylindropuntia echinocarpa*	--/--/--/CDNPA	May–Jun	Mojavean Desert Scrub.	**Present.** This succulent shrub is common on rocky slopes in upland parts of the Project Area.
Utah cynanchum	*Cynanchum (*syn. *Funastrum) utahense*	--/--/4.2/--	Apr–Jun, Sep	Mojavean desert scrub; dry, sandy or gravelly areas	**Likely**. This perennial shrub is not known from the Project Area; however, suitable habitat is present and it occurs 12 miles northwest of the Project Area.
HERBACEOUS PLANTS					
Abram's spurge	*Chamaesyce abramsiana*	--/--/2.2/--	Aug–Nov	Creosote Bush Scrub; open or vegetated sandy flats.	**Possible**. Annual herb known sporadically from Imperial to eastern Riverside and San Bernardino Counties. Nearest known occurrences are 35 miles west of the Project Area.
Arizona pholistoma	*Pholistoma auritum* var. *arizonicum*	--/--/2.3/--	Feb–Apr	Creosote Bush Scrub; rocky canyons, north-facing slopes.	**Possible**. Annual herb with nearest known occurrence from Dead Mtns. 15 miles northwest of Project Area (Andre # 18324).

Bare-stem larkspur	*Delphinium scaposum*	--/--/2.3/--	Mar–May	Creosote Bush Scrub; rocky granitic slopes and canyons.	**Unlikely**. Project Area is under species elevation range of 886 to 3,641 feet. Nearest occurrence in Whipple Mtns. 30 miles to the south of the Project Area.
Bitter hymenoxys	*Hymenoxys odorata*	--/--/2.2/--	Apr–Jun, Sep–Oct	Seasonally moist silty soils, sandy flats near the Colorado River.	**Possible**. Annual herb rediscovered in 2009 in CA 40 miles south of the Project Area along the flood plain of Colorado River (Andre #10531).
Borrego milkvetch	*Astragalus lentiginosus* var. *borreganus*	--/--/4.3/--	Feb–May, Sep	Creosote Bush Scrub; widely scattered in sand dunes, or semi-stabilized sandy areas in valleys.	**Possible**. Annual herb that is known from the Colorado River 45 miles south of the Project Area.
Cooper's rush	*Juncus cooperi*	--/--/4.3/--	Apr–May	Alkali Sink Scrub; meadows and seeps; often alkaline or saline.	**Possible**. This perennial herb is not known from the Project Area; however, suitable habitat is present and it is known from the Chemehuevi Mountains10 miles SW of the Project Area.
Cove's cassia	*Senna covesii*	--/--/2.2/--	Mar–Jun, Sep	Creosote Bush Scrub; washes, alluvial slopes, and sandy disturbed areas.	**Possible**. Perennial herb with nearest occurrences from the Whipple Mtns. to the south of the Project Area, and recently discovered in the Piute Range to the NW (Andre #12410).
Darlington's blazing star	*Mentzelia puberula*	--/--/2.2/--	April–May, Sept–Oct	Rocky slopes and canyons; sandy washes.	**Possible**. Perennial herb with nearest known occurrences 10 miles SE of the Project Area in the Needles area, AZ.
Desert germander	*Teucrium glandulosum*	--/--/2.3/--	Mar–May	Desert Scrub; dry rocky slopes.	**Possible**. Stoloniferous herb with closest occurrences from Whipple Mtns. to the south of the Project Area.

Desert portulaca	*Portulaca halimoides*	--/--/4.2/--	Aug–Oct	Desert Scrub; sandy washes, alluvial fans and flats. Emerges after summer rains.	**Possible.** Annual herb that is known from Little San Bernardino Mtns. to eastern San Bernardino County Mtns. Occurs in Piute Valley.
Desert unicorn-plant	*Proboscidea althaeifolia*	--/--/4.3/--	May–Oct	Creosote Bush Scrub; sandy soil.	**Possible**. The closest known site for this annual species is Chemehuevi Wash 19 miles southeast of the Project Area.
Glandular ditaxis	*Ditaxis claryana*	--/--/2.2/--	Oct–Mar	Mojavean and Sonoran Desert Scrub; dry washes and on rocky hillsides, sandy soils.	**Likely.** This annual herb has been collected in the vicinity of the Topock Compressor Station near the Colorado River.
Harwood's woolystar	*Eriastrum harwoodii*	--/--/1B.2/--	Apr–May	Know only from sandy areas (dunes and wind-blown ramps) of the Eastern San Bernardino and Riverside Counties.	**Possible**. Perennial herb with nearest known occurrence 40 miles southwest of the Project Area.
Lobed ground-cherry	*Physalis lobata*	--/--/2.3/--	Apr–Jun	Mojavean Desert Scrub; seasonally moist depressions, dry lake margins, and washes, and is active following summer rains.	**Possible.** Perennial herb known to occur along the Colorado River near Las Vegas, occurs in Piute Valley 13 miles from Needles.
Playa milkvetch	*Astragalus allochrous* var. *playanus*	--/--/2.2/--	March–May	Creosote Bush Scrub; sandy saline flats.	**Possible.** Known in CA only from Goffs area, 30 miles west of the Project Area. Occurs around playas near Buckeye, Arizona.
Pointed dodder	*Cuscuta californica* var. *apiculata*	--/--/3/--	Feb–Aug	Mojavean Desert Scrub; sandy soils.	**Possible.** Suitable habitat is present and it is known to occur near Parker Dam road, 38 miles southwest of Project Area.

Reveal's buckwheat	*Eriogonum contiguum*	--/--/2.3/--	May–Jul, Sept–Oct	Creosote Bush Scrub; sandy, clay or gypsum soils.	**Possible.** Annual herb with nearest known occurrence along Needles Hwy., 12 miles north of Needles (Andre #17823)
Ribbed cryptantha	*Cryptantha costata*	--/--/4.3/--	Feb–May	Mojavean and Sonoran Desert Scrub; sandy soil, dunes.	**Likely**. This small annual herb normally occurs in desert sand dunes. Nearest known occurrence is along the Colorado River just north of Topock. It has also been collected 30 miles northwest of the Project Area.
Sand evening primrose	*Camissonia arenaria*	--/--/2.2/--	Jan–May	Mojavean Desert Scrub; rocky slopes and canyon walls, may also be found in washes.	**Possible**. Annual or perennial herb with nearest known occurrence in the Needles area in Arizona 10 miles southeast of the Project Area.
Slender cottonheads	*Nemacaulis denudata* var. *gracilis*	--/--/2.2/--	Mar–May	Creosote Bush Scrub; sandy soils on stabilized dunes and sand ramps.	**Possible**. Annual herb with nearest known occurrence along the Colorado River in Arizona 15 miles south of Project Area.
Small-flowered androstephium	*Androstephium breviflorum*	--/--/2.2/--	Mar–Apr	Mojavean Desert Scrub; widely scattered in stabilized to semi-stabilized sandy areas in valleys.	**Possible.** Perennial herb (bulb) with nearest occurrence from sandy banks of Colorado River (Arizona) just north of Topock.
Spearleaf	*Matelea parvifolia*	--/--/2.3/--	Mar–May	Mojavean Desert Scrub; dry rocky areas, especially granitic rock.	**Possible.** Perennial herb with scattered populations to the south and west, nearest occurrence 15 miles west of the Project Area in the S. Sacramento Mtns. (Andre #14219).
Spiny-hair blazing star	*Mentzelia tricuspis*	--/--/2.1/--	Apr–Jun, Sept–Oct	Mojavean Desert Scrub; sandy or gravelly slopes and washes.	**Likely**. This annual species is not known from the project area, but suitable habitat is present and it has been recorded from 4 miles southeast of the Project Area.

Three-awned gramma	*Bouteloua trifida*	--/--/2.3/--	Apr–Nov	Creosote Bush Scrub; Rocky slopes, usually on limestone.	**Possible**. Perennial herb with nearest occurrence in Whipple Mtns. 30 miles to the south of the Project Area.
Wand-like fleabane daisy	*Erigeron oxyphyllus*	--/--/2.3/--	Apr–Jun	Desert Scrub, rocky slopes and canyons.	**Possible**. Perennial herb with nearest occurrence in Whipple Mtns. 30 miles to the south of the Project Area.
Winged cryptantha	*Cryptantha holoptera*	--/--/4.3/--	Mar–Apr	Mojavean Desert Scrub; sandy to rocky soils.	**Possible**. Suitable habitat is present and occurs 33 miles southwest of project area.

Sources:
California Native Plant Society 2011; California Natural Diversity Database 2011; Consortium of California Herbaria 2011; Jepson Online Interchange 2011

[1] Conservation status abbreviations:

U.S. Fish and Wildlife Service designations:
- FE Endangered: Any species in danger of extinction throughout all or a significant portion of its range.
- FT Threatened: Any species likely to become endangered within the foreseeable future.

California Department of Fish and Game designations:
- SE Endangered: Any species in danger of extinction throughout all or a significant portion of its range.
- ST Threatened: Any species likely to become endangered within the foreseeable future.
- SR Rare: Any species not currently threatened with extinction; however, in such small numbers that it may become endangered.

Department of Food and Agriculture designations:
- CDNPA Plants that are protected by the California Desert Native Plants At

BLM designations:
The California State Director has also conferred sensitive status on California State Endangered, Threatened, and Rare species, or species on List 1B (plants rare and endangered in California and elsewhere) of the CNPS' Inventory of Rare and Endangered Plants of California

California Rare Plant Ranks (formerly CNPS Lists)
- 1B Plants rare, threatened or endangered in California and elsewhere.
- 2 Plants rare, threatened or endangered in California, more common elsewhere.
- 3 Plants for which more information is needed – a review list.
- 4 Plants of limited distribution – a watch list.

California Rare Plant Ranks
- .1 Seriously endangered in California.
- .2 Fairly endangered in California.
- .3 Not very endangered in California.

[2] Potential to occur definitions:

- Present: Species observed on the site.
- Likely: Species not observed on the site, however reasonably certain to occur on the site.
- Possible: Species not observed on the site, however conditions suitable for occurrence.
- Unlikely: Species not observed on the site, conditions marginal for occurrence.

A separate target list derived from the ethnobotanically significant plants from the Colorado River Culture Ethnobotany document (Appendix PLA in the EIR) is presented in Table 2.

As with special-status plants, if an ethnobotanically significant plant distribution, habitat, or elevation range precluded its possible occurrence in the Project Area or vicinity, it was not considered further. A species was determined to have potential to occur within the Project Area if its known or expected geographic range included the Project Area or vicinity, and if its known or expected habitat was found within or adjacent to the Project Area during the August 2011 botanical survey.

Each species in this list was cross checked against special-status plant species listed in the CNPS CRPR Inventory, the CNDDB RareFind3 database, the list of protected desert plants in the CDNPA, the Arizona rare plant field guide (Arizona Rare Plant Committee 2001), the BLM special status plant list (BLM 2011), and the Federal list of endangered plants (USFWS 2011), in order to identify ethnobotanically significant plants that are also special-status species. Additionally, each plant species was searched in the Jepson Online Interchange (2011), the database of the Consortium of California Herbaria (CCH 2011), and in the SEI Net to determine its distribution, habitat, and potential to occur in the Project Area.

Of the 49 ethnobotanically significant plants listed in Appendix PLA, 30 occur or have the potential to occur in the Project Area. Ten are known to occur in the Project Area and the occurrence of an additional seven species is likely or possible. Seven plants (highlighted in bold type-face in Table 2) are special-status species and; therefore, also listed in Table 1 (i.e. they are listed in the CDNPA).

Table 2. Target list of ethnobotanically significant plant species with the potential to occur in the Project Area

Common Name	Scientific Name	Status[1] Fed/State/CRPR/ CDNPA	Flowering Period	Habitat	Potential to Occur[2]
TREES					
Blue palo verde	***Parkinsonia florida***	**--/--/--/CDNPA**	**Apr–May**	**Creosote Bush Scrub; washes and floodplains.**	**Present. This tree is the most abundant tree in the Project Area.**
Desert ironwood	***Olneya tesota***	**--/--/--/CDNPA**	**Apr–May**	**Creosote Bush Scrub; desert washes.**	**Unlikely. Suitable habitat for this tree occurs in the Project Area; however, it was not detected during the Mature Plants Survey in August 2011 and therefore is not anticipated to occur in the Project Area.**
Honey mesquite	***Prosopis glandulosa* var. *torreyana***	**--/--/--/CDNPA**	**Apr–Aug**	**Creosote Bush Scrub and Alkali Sink Scrub; grasslands, alkali flats, washes, sandy alluvial flats, mesas.**	**Present. This medium to large tree is common in the Project Area especially on the flood plain and nearby areas.**
Goodding's willow	*Salix gooddingii*	--/--/--/--	Mar–Apr	Desert Scrub; streamsides, marshes, seepage areas, washes, meadows.	**Present.** Uncommon large tree in the Project Area, section B.
Mojave yucca	***Yucca schidigera***	**--/--/--/CDNPA**	**Apr–May**	**Creosote Bush Scrub**	**Possible. Shrub or tree-like, occurrence known from 10 miles south of Needles.**
Screwbean mesquite	***Prosopis pubescens***	**--/--/--/CDNPA**	**Apr–Sep**	**Creosote Bush Scrub; creek, river bottoms, sandy or gravelly washes, ravines.**	**Present. This medium to large tree is common under the highway and RR bridges that cross the Colorado River, and on the Arizona side of the river opposite the Topock Marina.**

Velvet mesquite	***Prosopis velutina***	**--/--/--/CDNPA**	**Apr–Jun**	**Mojavean Desert Scrub; sandy, rocky soils in canyons, washes; only naturalized in CA, not native.**	**Unlikely. A single occurrence of this tree is known from the Topock Marsh; however, it was not detected during the Mature Plants Survey in August 2011 and therefore is not anticipated to occur in the Project Area.**
SHRUBS					
American agave	*Agave americana*	--/--/--/--	Jun–Aug	Original habitat unknown; grows wild in Mexico on cultivated lands and pine woodlands.	**Unlikely**. Leaf succulent shrub, long cultivated by indigenous tribes, commonly occurs on agricultural lands. Not native to California or Arizona.
Cattle saltbush	*Atriplex polycarpa*	--/--/--/--	Jul–Oct	Creosote Bush Scrub, Shadscale Scrub, Sagebrush Scrub, and Alkali Sink Scrub; dry lakes.	**Present**. Locally common in flood plain of Colorado River, sections A and J of the Project Area.
Desert tobacco	*Nicotiana obtusifolia* var. *obtusifolia*	--/--/--/--	Mar–Jun	Creosote Bush Scrub and Joshua Tree Woodland; gravelly or rocky washes, slopes	**Present.** Known to occur in Sections I and L of the Project Area.
Jojoba	*Simmondsia chinensis*	--/--/--/--	Mar–May	Creosote Bush Scrub, Joshua Tree Woodland, Chaparral.	**Unlikely**. Suitable habitat; however, no occurrences within 75 miles of the Project Area.
Iodine bush	*Allenrolfea occidentalis*	--/--/--/--	Jun–Aug	Alkali Sink Scrub; saline soils, flats, bluffs.	**Possible**. Suitable habitat; however, not known from Project Area, known from Earp 40 miles south of Topock.
Mule's fat	*Baccharis salicifolia*	--/--/--/--	All year	Coastal Sage Scrub, Foothill Woodland, Valley Grassland; moist streamsides, canyon bottoms, irrigation ditches.	**Likely.** Occurrence known from Topock Marsh.

Spiny chloracantha	*Chloracantha spinosa*	--/--/--/--	Jun–Dec	Creosote Bush Scrub and Alkali Sink Scrub; seeps, moist streamsides, ditches, sometimes saline or drier areas.	**Possible.** Habitat suitable**,** could occur in Topock marsh
Staghorn (or bukhorn) cholla	***Opuntia echinocarpa* (or *Cylindropuntia acanthocarpa* var. *coloradensi*)**	**--/--/--/CDNPA**	**May–Jun**	**Creosote Bush Scrub; gravelly or rocky places.**	**Present. This succulent shrub is scattered throughout the upland portion of the Project Area.**
HERBACEOUS PLANTS					
Awned cupgrass	*Eriochloa aristata*	--/--/--/--	Jun–Nov	Wetlands; seasonal streams, riverbanks.	**Unlikely**. Annual grass, suitable habitat; however, no known occurrence within 100 miles of the Project Area.
Broadleaf arrowhead	*Sagittaria latifolia*	--/--/--/--	Jul–Aug	Freshwater Wetlands; ponds, slow streams, ditches.	**Unlikely.** Perennial herb; however, no occurrences known for Western Riverside or San Bernardino Counties.
Broadleaf cattail	*Typha latifolia*	--/--/--/--	Jun–Jul	Freshwater Wetlands and Marshes.	**Present.** Perennial herb, known to occur in sections A, C, E, and I of the Project Area.
Careless weed	*Amaranthus palmeri*	--/--/--/--	Aug–Nov	Creosote Bush Scrub; roadside ditches, fields, arroyos.	**Unlikely.** Short-lived perennial; however, no known occurrences within 90 miles of the Project Area.
Chia	*Salvia columbariae*	--/--/--/--	Mar–Jun	Creosote Bush Scrub Chaparral, Coastal Sage Scrub; dry, disturbed sites.	**Present.** Annual herb that is common in the Project Area in washes and lower slopes; for example, Bat Cave Wash.
Common sunflower	*Helianthus annuus*	--/--/--/--	Jul–Oct	Disturbed areas in Shrublands and many habitats.	**Possible**. Annual herb, known occurrences from Parker Dam Road 18 miles south of the Project Area.

Datura (or Jimson) weed	*Datura wrightii*	--/--/--/--	Apr–Oct	Creosote Bush Scrub, Coastal Sage Scrub, Valley Grassland, Joshua Tree Woodland, Pinyon-Juniper Woodland; sandy or gravelly open areas.	**Likely.** Annual weed, suitable habitat present, known occurrence 13.3 miles northwest of Needles.
Desert lily	*Hesperocallis undulata*	--/--/--/--	Mar–May	Desert Shrublands; sandy flats and washes.	**Present.** Bulbous perennial, known to occur in sandy areas in the Project Area.
Field pumpkin	*Cucurbita pepo*	--/--/--/--	June–Aug	Cultivated lands.	**Unlikely**. Annual herb, known only from cultivated lands; however, no known occurrences in the Project Area.
Fragrant flatsedge	*Cyperus odoratus*	--/--/--/--	Jul–Oct	Wetlands; disturbed soils.	**Possible**. Annual sedge, occurrence known from Needles.
Indian woodoats	*Chasmanthium latifolium*	--/--/--/--	Jun–Aug	Woodlands; moist, fertile soils along creek and river banks.	**Unlikely**. Perennial grass, no known occurrences in California or Mojave County, Arizona.
Mexican lovegrass	*Eragrostis mexicana* ssp. *mexicana*	--/--/--/--	Jul–Oct	Disturbed Areas; generally open sites.	**Unlikely**. Annual grass, suitable habitat present; however, no known occurrences from near Topock.
Mexican panicgrass	*Panicum hirticaule*	--/--/--/--	Jul–Oct	Creosote Bush Scrub; sandy soils, open sites.	**Unlikely**. Annual grass, suitable habitat present; however, no known occurrences near Topock.
Purple ammannia	*Ammannia coccinea*	--/--/--/--	Jun–Aug	Many plant communities; wet places, drying ponds, lake and creek margins.	**Unlikely**. Annual weed; however, no occurrences known within 100 miles of the Project Area.
Sauwi	*Panicum sonorum* (syn. *hirticaule*) ssp. *hirticaule*	--/--/--/--	Jun–Aug	Domesticated, river flood plains.	**Unlikely**. Annual grass, cultivar of *P. hirticaule*; however, no known occurrences near the Project Area.

[1, 2] See below Table 1 for Sources, Conservation status abbreviations, and Occurrence potential definitions.

Field Surveys

Transect-based protocol-level Floristic surveys that conform to the guidelines of the California Department of Fish and Game (CDFG 2009), the USFWS (2000), and the CNPS (2001) will commence in November 2011 and continue at the end of March or beginning of April 2012. Other seasonal surveys may occur depending on weather patterns. Note that the November 2011 will be conducted because late-summer rainfall was sufficient to trigger germination and flowering of late-blooming species (J. Andre, personal communication). This late-season 2011 survey will be targeted to areas that exhibit germination and flowering. The appropriate survey areas will be decided, in consultation with Dr. Andre, after an initial reconnaissance at the beginning of the late-season survey. The goal of the floristic surveys is to generate a comprehensive and complete list of all plant species that occur in the survey area and to census, map, photograph, and record habitat data for special-status species listed in Table 1 and ethnobotanically significant species listed in Table 2. Some of these plants are widespread across the Project Area, and in these cases specific location information may not be collected for each plant. It is possible that a special-status plant not known to occur in the Project area or vicinity; and therefore not on the target list, is detected during the Floristic survey, especially given the relatively few survey records in the Needles and Topock area. The surveys will be floristic and comprehensive in nature, meaning that all plants found in identifiable condition will be identified, with the aid of a field guide with plant identification key, to the level necessary to determine their sensitivity (i.e. special-status or ethnobotanically significant).[2]

Trimble GeoXT or GeoXH global positioning systems (GPS) with sub-meter accuracy will be used to collect data on sensitive plant species. The GPS units will be equipped with data files for navigation and with data dictionaries for data collection. Transect lines, spaced at 50 feet, will be programmed into the GPS units and walked by surveyors. Surveyors will walk meandering routes along each transect to ensure coverage of the entire Project Area, unless vegetation density precludes surveyors from accessing certain areas (i.e. dense tamarisk/mesquite forest patches in the flood plain or saturated wetlands). To ensure that inaccessible areas are surveyed to the extent feasible, surveyors will identify species by making observations from the vegetation patch margins or vantage points, and through the use of the high resolution aerial photographs. In such areas, it is unlikely that understory vegetation would be present due to lack of sunlight and high soil salinity. Data dictionaries will be used to record locality information, the actual or estimated number of individuals observed, and habitat information. Point data collected in the field will be later digitized using Geographic Information System software to create map polygons that depict the total extent of each sensitive plant occurrence, where practicable.

A list of all plant species observed will be compiled for the Project Area during the surveys (see preliminary list in Appendix A). Nomenclature for scientific names will follow *The Jepson Online Interchange* (http://ucjeps.berkeley.edu/interchange.html) or Hickman (1993), except where noted. Representative habitat photographs will be taken as will photos of the sensitive plant species observed in the Project Area.

[2] The primary field guide will be the Jepson Manual: Higher Plants of California (Hickman 1993)

The ability of surveyors to detect and identify plants efficiently and accurately in the field will be enhanced by a field review of the common plant species at the Project Area prior to beginning the surveys. Surveyors will also be provided with a photo guide of several targeted sensitive plants that are less familiar to the Senior Botanist (examples are in Appendix B) and preliminary species lists compiled prior to the Floristic surveys. These materials will supplement the field guide with plant identification key, which will be the primary resource used to identify plants. The services of Dr. Andre, expert on the East Mojave/Sonoran Desert flora, will be consulted regarding the target plant list, timing, and level of intensity of the seasonal (e.g. fall and spring) surveys and overall survey methodology.

Reference Site Visits

Before the Floristic surveys begin, searches of nearby reference populations will be made for spiny-hair blazing star (*Mentzelia tricuspis*), glandular ditaxis, Crucifixion thorn (*Castela emoryi*), Utah cynanchum *(Cynanchum utahense)*, Cooper's rush (*Juncus cooperi*), and Hall's tetracoccus (*Tetracoccus hallii*) based on locality data in the database of the Consortium of California Herbaria (CCH). These represent the special-status species that are closest to the Project Area and are most likely to occur there.

Deliverables

The primary deliverables resulting from the Floristic survey will be a detailed map that depicts the location and distribution of sensitive plants that occur within the Project Area (point or polygon data may not be included if species is widespread) and a master plant list that includes all plant species that occur in the Project Area. Sensitive plant location information data will also be presented in a tabular/list form that will enable any user to find the locations of sensitive plants that occur in the Project Area. A report summarizing the survey effort, including the methodology described herein, will also be prepared. The target completion date of these deliverables is June 1, 2012.

References

Arizona Rare Plant Committee (2001). Arizona rare plant field guide: a collaboration of agencies and organizations. Washington: U.S. Government Printing Office. Available online at http://www.aznps.com/rareplants.html

Brooks, M.L., and D.A. Pyke. 2001. Invasive plants and fire in the deserts of North America. Pages 1–14 *in* K.E.M. Galley and T.P. Wilson (eds.). Proceedings of the Invasive Species Workshop: the Role of Fire in the Control and Spread of Invasive Species. Fire Conference 2000: the First National Congress on Fire Ecology, Prevention, and Management. Miscellaneous Publication No. 11, Tall Timbers Research Station, Tallahassee, FL. Accessed at: http://www.dmg.gov/documents/rpt_invsve_plnts_and_fire_in_thedsrts_of_na_usgs_012402%20.pdf

Bureau of Land Management (BLM). 2011. BLM Special Status Plants, California. Accessed at: http://www.blm.gov/ca/st/en/prog/ssp.html

California Department of Fish and Game (CDFG). 2009. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities. Sacramento, CA. Accessed at: http://www.dfg.ca.gov/bdb/pdfs/guideplt.pdf.

California Desert Native Plants Act (CDNPA). 1981. Accessed at: http://www.dfg.ca.gov/habcon/plant/cadesertplantact.html

California Native Plant Society (CNPS). 2001. Botanical survey guidelines of the California Native Plant Society. 9 December 1983 / Revised 2 June 2001.

California Native Plant Society (CNPS). 2011. Inventory of Rare and Endangered Plants of California (online edition). Accessed at: http://www.CNPS.org/inventory

California Natural Diversity Database (CNDDB). 2011a. RareFind3, version 3.0.5. Electronic database. Sacramento, California.

California Natural Diversity Database (CNDDB). 2011b. Special vascular plants, bryophytes and lichens list. April 2011. Accessed at: http://www.dfg.ca.gov/whdab/pdfs/spplants.pdf

California Natural Diversity Database (CNDDB). 2011c. Quickviewer on-line database. Accessed at: http://imaps.dfg.ca.gov/viewers/cnddb_quickviewer/app.asp

CH2M HILL. 2005. Biological Resources Survey Report for the Area of Potential Effect (APE), Topock Compressor Station Expanded Groundwater Extraction and Treatment System, Needles, California.

CH2M HILL. 2007. Programmatic Biological Assessment for Pacific Gas and Electric Topock Compressor Station Remedial and Investigative Actions.

Consortium of California Herbaria (CCH). 2011. Data provided by the participants of the Consortium of California Herbaria. Accessed at: http://ucjeps.berkeley.edu/consortium/

Hickman, J., ed. 1993. The Jepson manual: Higher plants of California. University of California Press, Berkeley, CA.

Jepson Online Interchange (2011). Accessed at: http://ucjeps.berkeley.edu/interchange.html

Southwest Environmental Information Network, SEINet. 2011. Accessed at: http//:swbiodiversity.org/seinet/index.php. Accessed September 2011.

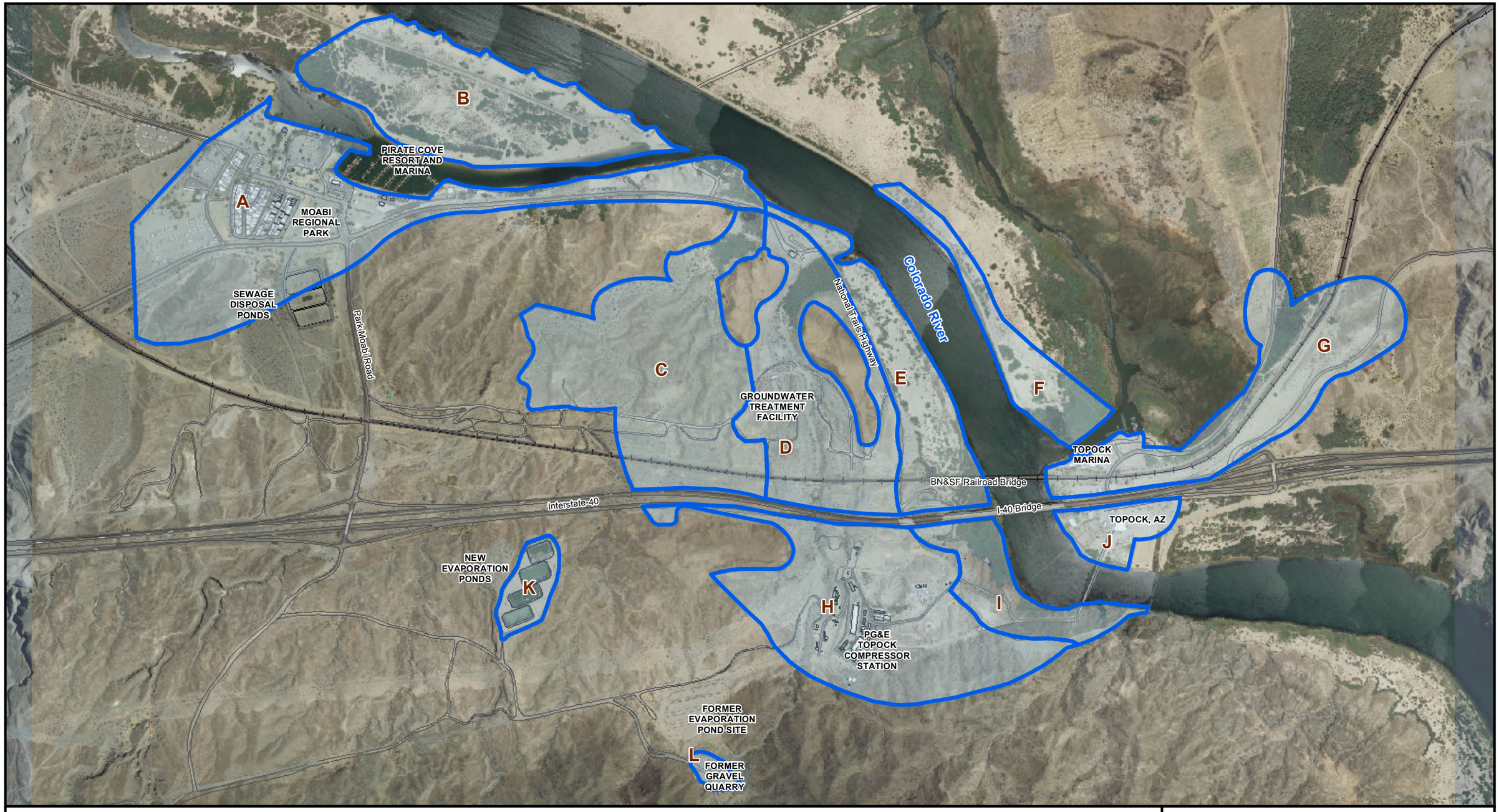
U.S. Fish and Wildlife Service (USFWS) 2000. Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants. USFWS, January 2000. Accessed at: http://www.fws.gov/ventura/species_information/protocols_guidelines/docs/botanicalinventories.pdf

U.S. Fish and Wildlife Service (USFWS). 1996b. Endangered and Threatened Wildlife and Plants; Review of Plant and Animal Taxa that are Candidates for Listing as Endangered

or Threatened Species; Notice of Review; Proposed Rule. Federal Register 61(40): 7596-7613.

U.S. Fish and Wildlife Service (USFWS). 2006. List of federal candidates for listing. Accessed at: http://ecos.fws.gov/endangered/candidates/index.html

U.S. Fish and Wildlife Service (USFWS). 2011. List of federally listed threatened & endangered species which may occur in Riverside County, CA. USFWS, Carlsbad Fish and Wildlife Office, Carlsbad, CA. Accessed at: http://www.fws.gov/carlsbad/TEspecies/CFWO_Species_List.html



LEGEND

Survey Segments

N

0 500 1,000 2,000 Feet

FIGURE 1
EIR PROJECT AREA WITH VEGETATION SURVEY SEGMENTS

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

CH2MHILL

D:\Projects\Topock\MapFiles\2011\CMS\BioSurveySegements

Appendix A
Vascular Plant Species Observed

GYMNOSPERMS		Survey Segment Location
EPHEDRACEAE	**ephedra family**	
Ephedra sp.	joint fir	I
DICOTS		
AIZOACEAE	**ice plant family**	
Trianthema portulacastrum	horse-purslane	G
AMARANTHACEAE	**amaranth family**	
Tidestromia oblongifolia	honeysweet	A, G, K
APIACEAE	**carrot family**	
Hydrocotyle verticillata	marsh pennywort	A
ASCLEPIADACEAE	**milkweed family**	
Asclepias subulata	rush milkweed	H, C
Sarcostemma cynanchoides ssp. *hartwegii*	climbing milkweed	A, C, D
ASTERACEAE	**sunflower family**	
Ambrosia dumosa	bursage	A, B, C, E
Baccharis sarathroides	broom bacharis	B, E
Bebbia juncea	sweetbush	D, H
Encelia farinosa	brittlebush	B, C, E
Hymenoclea salsola	cheesebush	B, I
Palafoxia arida	Spanish needle	B, E, F
Pectis papposa var. *papposa*	chinch-weed	G
Peucephyllum schottii	pygmy-cedar	H, I
Pluchea odorata	marsh fleabane	B
Pluchea sericea	arrow weed	A, B, E, F, J, I
Pulicaria paludosa	Spanish false-fleabane	B
Sonchus asper	prickly sow-thistle	I
Stephanomeria pauciflora	skeletonweed	I
BORAGINACEAE	**borage family**	
Amsinckia tessellata	devil's lettuce	C, D
Tiquilia plicata	fanleaf crinklemat	B, E, F, B, J

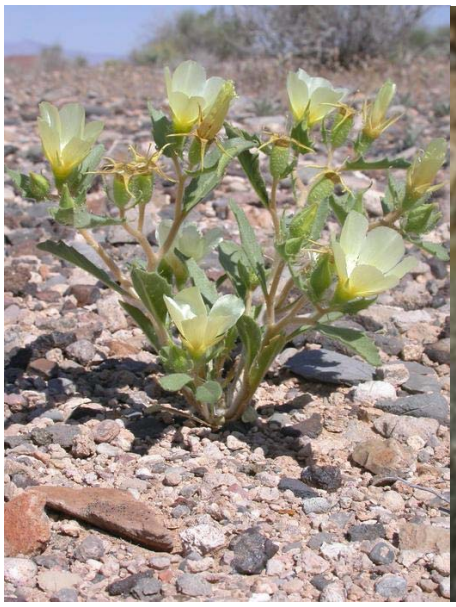
		Survey Segment Location
BRASSICACEAE	**mustard family**	
Brassica tournefortii	African mustard	C, D
Guillenia lasiophylla	California mustard	
Lepidium lasiocarpum	pepperweed	C
CACTACEAE	**cactus family**	
Cylindropuntia acanthocarpa	buckhorn cholla	I
Cylindropuntia echinocarpa	silver cholla	A, C, D, H
Cylindropuntia ramosissima	pencil cholla	D
Ferocactus cylindraceus var cylindraceus	California barrel cactus	I
Opuntia basilaris var basilaris	beavertail	C, D, H
Mammillaria tetrancistra	foxtail cactus	C, D
CHENOPODIACEAE	**goosefoot family**	
Atriplex confertifolia	shadscale	A, J
Atriplex fruticulosa	ball saltbush	A
Atriplex polycarpa	cattle saltbush	A, B, C, J, G
Salsola tragus	Russian thistle	B, E, F
Suaeda moquinii	bush seepweed	A
CUCURBITACEAE	**gourd family**	
Cucurbita palmata	coyote gourd	G
EUPHORBIACEAE	**spurge family**	
Chamaesyce micromera	desert spurge	H, D, C, E, B, A
FABACEAE	**legume family**	
Acacia greggii	catclaw acacia	A, C, C, H, I
Parkinsonia florida	blue palo verde	A, C, D, E, G, H, I, J
Prosopis glandulosa var. *torreyana*	honey mesquite	A, E
Prosopis pubescens	screwbean mesquite	E, F
Psorothamnus spinosus	smoketree	A, D
FOUQUIERIACEAE	**ocotillo family**	
Fouquieria splendens ssp splendens	ocotillo	E
GENTIANACEAE		
Eustoma exaltatum	catchfly gentian	B
GERANIACEAE	**geranium family**	
Erodium cicutarium	redstem filaree	C, D, I

		Survey Segment Location
KRAMERIACEAE	**rhatany family**	
Krameria grayi	white ratany	I, H
LAMIACEAE	**mint family**	
Hyptis emoryi	desert-lavender	A, H
Salvia columbariae	chia	H
MALVACEAE	**mallow family**	
Sphaeralcea ambigua var. *ambigua*	apricot mallow	L
Myrtaceae	**myrtle family**	
Eucalyptus sp.	eucalyptus	A, B
NYCTAGINACEAE	**four-o-clock family**	
Boerhavia coccinea	spiderling	B
PLANTAGINACEAE	**plantain family**	
Plantago ovata	desert indianwheat	C, D, H, I
POLYGONACEAE	**buckwheat family**	
Chorizanthe rigida	spiney rigid herb	K, H
Eriogonum deflexum var deflexum	flatcrown buckwheat	H
Eriogonum inflatum var inflatum	desert trumpet	H
Eriogonum palmerianum	Palmer's buckwheat	H
Eriogonum trichopes	little desert buckwheat	H
SALICACEAE	**willow family**	
Salix exigua	sand-bar willow	E
Salix goodingii	Goodding's willow	B
Populus fremontii	Fremont cottonwood	B
SOLANACEAE	**nightshade family**	
Nicotiana obtusifolia	desert tobacco	I
Nicotiana quadrivalvis	indian tobacco I	
Physalis crassifolia	thick-leaf ground cherry	L
TAMARICACEAE	**tamarisk family**	
Tamarix ramosissima	salt cedar	A, B, C, C, E, F, G, I, J
Tamarix aphylla	athel	B, G,
VISCACEAE	**mistletoe family**	
Phoradendron californicum	desert mistletoe	A, B, E

		Survey Segment Location
ZYGOPHYLLACEAE	**caltrop family**	
Larrea tridentata	creosote bush	A-- L
Kallstroemia californica	California kallstroemia	G
MONOCOTS		
ARECACEAE	**palm family**	
Washingtonia filifera	California fan palm	B
CYPERACEAE	**sedge family**	
Eleocharis thermalis	beakrush	A, B, E
Schoenoplectus californicus	common reed	A, I
JUNCACEAE	**rush family**	
Juncus xiphioides	iris-leaved rush	A
POACEAE	**grass family**	
Arundo donax	giant reed	A, E, I, J
Bromus madritensis ssp rubens	red brome	C, D
Cynodon dactylon	Bermuda grass	G
Distichlis spicata	saltgrass	E
Paspalum dilatatum	dallis grass	E, B
Pennisetum villosum	feathertop	A, I
Phragmites australis	common reed	A, I
Schismus arabicus	Arabian schismus	C, D
Setaria gracilis	knotroot bristlegrass	B
Triticum aestivum	wheat	G
Vulpia myuros	foxtail fescue	C, D
Vulpia octoflora	six weeks fescue	C, D
TYPHACEAE	**cattail family**	
Typha latifolia	broad-leaved cattail	A, G, I, J

Appendix B
CNPS List 2 species likely to occur at Topock

Mentzelia tricuspis CNPS 2B.1



Ditaxis claryana CNPS 2B.2

Castela emoryi CNPS 2.3

Manzanita Project, © California Academy of Sciences

Topock Project Executive Abstract

Document Title: Mature Plants Survey Report Submitting Agency: DTSC, RWQCB Final Document? ☒ Yes ☐ No	Date of Document: January 17, 2012 Who Created this Document?: (i.e. PG&E, DTSC, DOI, Other) – PG&E
Priority Status: ☐ **HIGH** ☐ **MED** ☒ **LOW** Is this time critical? ☐ Yes ☒ No Type of Document: ☐ Draft ☒ Report ☐ Letter ☐ Memo ☐ Other / Explain:	Action Required: ☒ Information Only ☐ Review & Comment Return to: _____ By Date:_____ ☐ Other / Explain:
What does this information pertain to? ☐ Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA)/Preliminary Assessment (PA) ☐ RCRA Facility Investigation (RFI)/Remedial Investigation (RI) (including Risk Assessment) ☐ Corrective Measures Study (CMS)/Feasibility Study (FS) ☒ Corrective Measures Implementation (CMI)/Remedial Action ☐ California Environmental Quality Act (CEQA)/Environmental Impact Report (EIR) ☐ Interim Measures ☐ Other / Explain:	Is this a Regulatory Requirement? ☒ Yes ☐ No If no, why is the document needed?
What is the consequence of NOT doing this item? What is the consequence of DOING this item? This report complies with the EIR mitigation measures AES-1a and AES-2b. If this work was not performed, it would constitute a non-compliance with the EIR mitigation measure.	Other Justification/s: ☐ Permit ☐ Other / Explain:

Brief Summary of attached document:

The Final Environmental Impact Report (EIR) for the Topock Compressor Station Groundwater Remediation Project prescribes mitigation measures to reduce impacts associated with the groundwater cleanup. Mitigation measures for aesthetics included AES-1a and AES-2b requiring a survey of mature vegetation for use in remedy design planning to be protective of views from Key Views 5 and 11, looking east and west over the Colorado River Floodplain area, respectively. At the kickoff for the August 2011 survey, Tribes requested and PG&E agreed to survey Mature Plants across the entire EIR Project Area. The Mature Plants Survey was performed in August 2011 with a field check in November 2011. This report presents the results of the survey and detailed maps of Mature Plant occurrence, as well as other background information such as the definition established for Mature Plants, a list of Mature Plant species mapped in the EIR Project Area, and appendices of photographs and GPS data. A noteworthy finding from the Mature Plant survey is the discovery of the hillside palo verde *(Parkinsonia mycrophylla)* in the EIR Project Area. This is the first reported occurrence of this species in the Chemehuevi Mountains of California, and 5 miles north of the northernmost reported Arizona occurrence. The data presented with this report will be considered in the remedy design.

.

Written by: PG&E

Recommendations:
This report is for your information only.

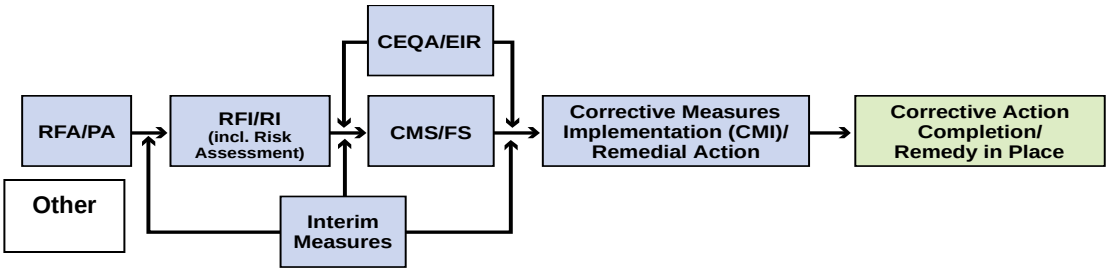
How is this information related to the Final Remedy or Regulatory Requirements:
This report presents data collected for use with the remedy design. The Mature Plants Survey complied with EIR mitigation measures AES-1a and AES-2b.
.

Other requirements of this information?

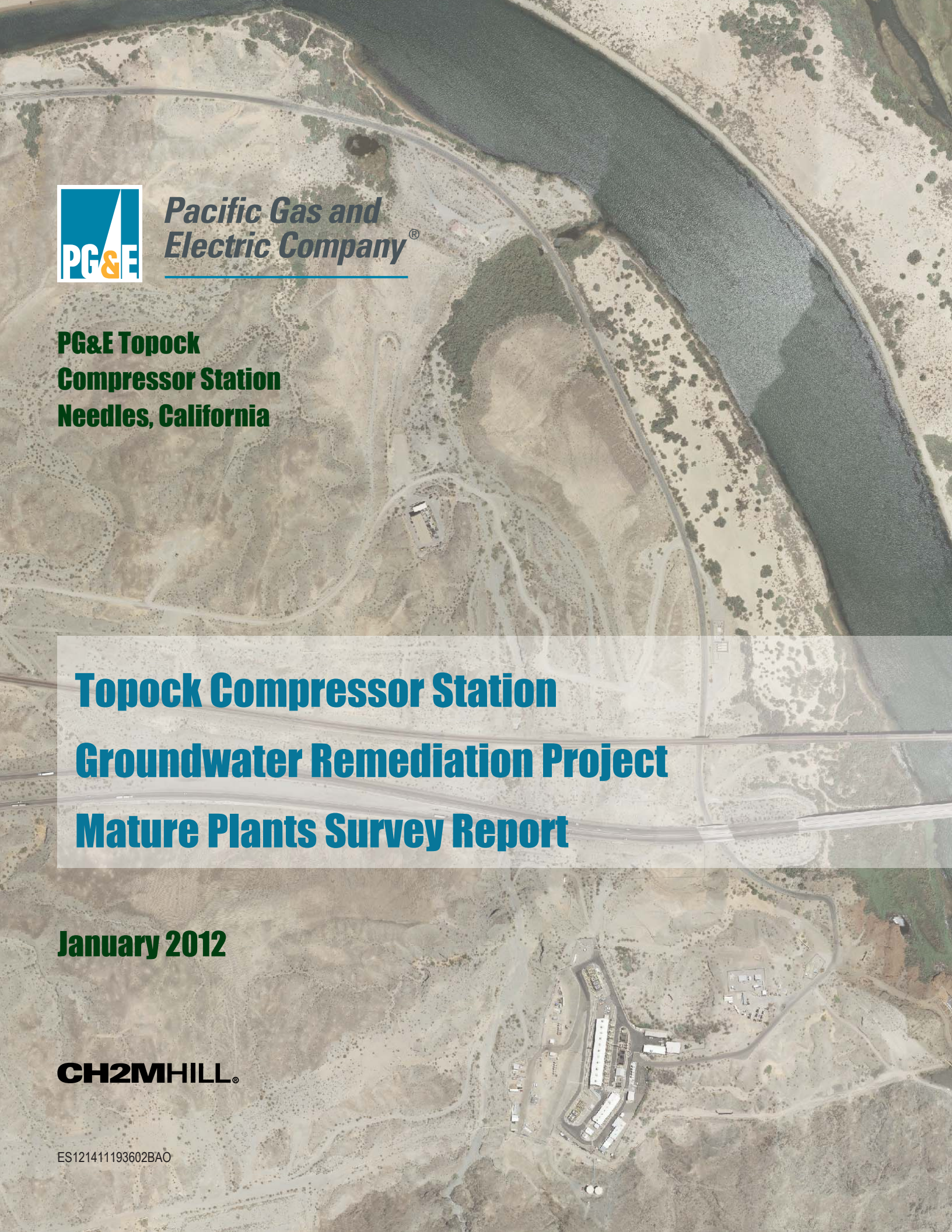
None.

Related Reports and Documents:

Click any boxes in the Regulatory Road Map (below) to be linked to the Documents Library on the DTSC Topock Web Site (www.dtsc-topock.com).



Legend
RFA/PA – RCRA Facility Assessment/Preliminary Assessment
RFI/RI – RCRA Facility Investigation/CERCLA Remedial Investigation (including Risk Assessment)
CMS/FS – RCRA Corrective Measure Study/CERCLA Feasibility Study
CEQA/EIR – California Environmental Quality Act/Environmental Impact Report



Pacific Gas and Electric Company®

PG&E Topock
Compressor Station
Needles, California

Topock Compressor Station Groundwater Remediation Project Mature Plants Survey Report

January 2012

CH2MHILL®

ES1214111193602BAO

Topock Compressor Station Groundwater Remediation Project
Mature Plants Survey Report

Prepared for: Pacific Gas and Electric Company

Prepared by:
Garcia and Associates (GANDA)
and
CH2M HILL, INC.

January 2012

Table of Contents

Tables

Figures

Appendices

Acronyms and Abbreviations

AES	Aesthetics
BLM	Bureau of Land Management
CAL-IPC	California Invasive Plant Council
CDNPA	California Desert Native Plants Act
EIR	Environmental Impact Report
GANDA	Garcia and Associates
GPS	Global Positioning System
PBA	Programmatic Biological Assessment
PG&E	Pacific Gas and Electric Company
Project	Topock Compressor Station Groundwater Remediation Project
USFWS	U.S. Fish and Wildlife Service

Introduction

The purpose of this report is to present the results from a survey of the Mature Plants that occur in the Project Area of the Pacific Gas and Electric Company (PG&E) Topock Compressor Station Groundwater Remediation Project (project). The Project Area is defined in the EIR, and includes potential locations for groundwater remediation infrastructure such as wells, pipelines, treatment systems and control buildings. A Mature Plants survey was conducted to comply with the January 2011 Final Environmental Impact Report (EIR) requirements as set forth in Mitigation Measures AES-1a and AES-2b. These Mitigation Measures are from the Aesthetics (AES) portion of the mitigation plan presented in the EIR and are intended to ensure the protection of views from specific vantage points, as discussed in greater detail below.

At the plant survey orientation meeting on August 18, 2011, the methodology for the Mature Plants survey described in this report was presented by PG&E and CH2M HILL to stakeholder representatives from the Colorado River Indian Tribes, Fort Mojave Indian Tribe, and Hualapai Tribe. During the orientation meeting, tribal representatives requested that the entire Project Area, as defined by the EIR, be the subject of the Mature Plants survey, instead of only the eastern portion of the site on and near the Colorado River Floodplain as is identified in the EIR Mitigation Measures AES-1a and AES-2b. The stated purpose of this request was to ensure the protection of other vantage points of cultural significance that may be present within the Project Area. The tribal representatives also requested a written copy of the survey methodology, and a technical memorandum describing the survey methodology was prepared to meet this request and to become a part of this report, which documents the survey effort. The technical memorandum was distributed to the Tribes via email on November 8, 2011 and included as an appendix with the Draft Basis of Design Report/Preliminary (30 percent) Design for the Final Groundwater Remedy, PG&E Topock Compressor Station, Needles, California (PG&E 2011).

At the request of PG&E, Garcia and Associates (GANDA) Senior Botanist Kim Steiner and CH2M HILL Biologist Morgan King conducted botanical field surveys on August 18-26, 2011 in the Project Area. The surveys included data collection in preparation for the following four deliverables:

1. A "Mature Plants" map and associated species list for the Project Area. Mature Plants were defined as living trees, large or prominent shrubs, and tall predominantly herbaceous plants. A more detailed description of Mature Plants is included in the Methodology section below.

2. An updated Vegetation Communities Map. A 2007 Programmatic Biological Assessment (PBA) for the project included a Vegetation Communities Map for the Area of Potential Effect, prepared from 2004-2005 field mapping. The Project Area largely, though not completely, overlaps with the Area of Potential Effect previously mapped under the PBA. To facilitate survey logistics and track daily survey progress, the Project Area was divided into eleven segments, which are labeled A through L (Figure 1). Note that section K is not included because it is outside of the Project Area. The updated Vegetation Communities Map was presented with the aforementioned Draft Basis of Design Report.

3. An "Ethnobotanically Significant Plants" map and associated species list for the Project Area. Ethnobotanically significant plants are identified in the EIR Appendix PLA: Ethnobotany Plant List. The botanical survey was also conducted to facilitate compliance with the EIR requirements described in Mitigation Measure CUL-1a-5,

which requires the protection of culturally significant plants. Future floristic surveys, for purposes other than Mature Plant mapping (as described in item 4 below), will collect additional data about ethnobotanically significant plants in the Project Area to complete this map and species list in 2012.

4. A preliminary species checklist in support of future comprehensive floristic surveys. This checklist was developed using the August 2011 botanical field survey as an opportunity to perform reconnaissance for fall 2011 and spring 2012 Floristic and Rare Plant surveys. The checklist served as the starting point for these surveys and will be updated and augmented with each subsequent survey. The checklist and botanical surveying and mapping efforts will ultimately result in a master plant list that can be sorted into subset lists including rare species or culturally significant species. This master plant list will be an important tool that will support plant protection during construction and design planning for the project.

Survey Area Description

The Survey Area encompasses the Project Area and totals approximately 780 acres. It varies in elevation from approximately 450 to 700 feet above sea level. The survey team divided the Project Area into eleven sections (A—L) as described above (Figure 1). Eight of the sections (A, B, C, D, E, H, I, and L) are located in San Bernardino County, California. The remaining three sections (F, J, and G) are located in Mohave County, Arizona. Sections of the Survey Area within California are primarily on land managed by the Bureau of Land Management (BLM) or U.S. Fish and Wildlife Service (USFWS); with the exception of a portion of sections C and D, which is owned by the Fort Mojave Indian Tribe; and a portion of section H, which is owned by PG&E. On the Arizona side of the Colorado River, sections F and most of G are also part of the USFWS Havasu National Wildlife Refuge, and land in section J and a portion of section G is privately owned. The Burlington Northern Santa Fe railroad property and Interstate 40 highway (Caltrans) right-of-way are within the Project Area.

The most common and widespread plant community in the Survey Area is Creosote Bush Scrub. This plant community is dominated by creosote bush (*Larrea tridentata*) and is one of the most extensive plant communities found within the California Deserts (Sawyer et al. 2009). Creosote Bush Scrub is present in all upland areas of the Survey Area. In the valleys and dry washes that dissect the upland areas, the most common plant community is the Palo Verde/Ironwood Woodland Alliance that is dominated by blue palo verde (*Parkinsonia florida*) and various associates including catclaw acacia (*Senegalia greggii*) (Sawyer et al. 2009). This alliance takes many forms, and in the Survey Area the alliance lacks ironwood (*Olneya tesota*).

Along the floodplain of the Colorado River, the primary vegetation type is *Tamarix* spp. Semi-natural Shrubland Stands which often forms impenetrable thickets (e.g., under the railroad and Interstate I-40 bridges) of salt cedar (*Tamarix ramosissima*) alone, or in mixtures with other species, for example honey mesquite (*Prosopis glandulosa* var. *torreyana*) (Sawyer et al. 2009). Salt cedar often interdigitates with arrow weed (*Pluchea sericea*) thickets and Mesquite Bosque on the floodplain as well. Scattered throughout the Survey Area on the floodplain or in broad washes near the floodplain are smaller patches of big saltbush and all scale scrub (*Atriplex* spp.) which grow on alkaline or saline soils (Sawyer et al. 2009). Along the Colorado River and its inlets are patches of wetlands with various marsh plants forming associations in the water such as cattail (*Typha latifolia*) and California bulrush (*Schoenoplectus californicus*) marshes, whereas

on the adjacent shores and floodplain common reed (*Phragmites australis*) marshes and occasionally great reed (*Arundo donax*) breaks are present.

Methodology

Field Survey Preparation

Pursuant to Mitigation Measure AES-1a and AES-2b,

> *"The identification of plant specimens that are determined to be mature and retained shall occur as part of the design phase and mapped/identified by a qualified plant ecologist or biologist and integrated into the final design and project implementation."*

In order to identify potential Mature Plants that occur in the Project Area, Senior Botanist Steiner, Biologist King, and PG&E Biologist Melanie Day reviewed the following existing documentation of vegetation types that occur in the Project Area: the EIR, previous biological surveys in preparation for the PBA, incidental species lists from Protocol Desert Tortoise and Southwest Willow Flycatcher surveys, and the PBA Vegetation Communities Map. In addition, a brief pre-survey reconnaissance of the Project Area was conducted by Senior Botanist Steiner and Biologists King and Day on August 18, 2011. For this survey and report, a Mature Plant was defined as a living

- mature tree,
- large or prominent shrub, or
- tall predominately herbaceous plant

that could add to the aesthetic value of the Project Area from Key Views 5 and 11, and other potential culturally significant views in the Project Area. Trees, shrubs, and herbaceous plants that would not currently add to the aesthetic value of the Project Area due to small stature were not considered to be Mature Plants (e.g., seedlings, immature plants). For example, only portions of some areas with an extensive occurrence of a single species, such as arrow weed or creosote bush, were mapped as Mature Plants, based on height and density of vegetation. This specific definition of Mature Plant was applied to vegetation conditions present at the time of the 2011 surveys. Other important groupings of plants, such as special status or culturally significant plants, will be addressed separately during ongoing floristic surveys of the Project Area. An associated report will be prepared to document the floristic survey effort and results. .

According to the EIR, a "Key View" is a vantage point offering a view of some or all of the Project Area from one of eleven specified points. Each Key View vantage point is located and described in Section 4, volume II, of the EIR. Two of the Key Views specified in the EIR (Key Views 5 and 11) are incorporated in the Aesthetics Mitigation Measures related to Mature Plant protection. Based on interpreting the PBA Plant Communities Map, Key Views 5 and 11 are described as follows: The "view corridor" from Key View 11 looking west from boats on the Colorado River consists of several overlapping areas of plant growth including: wetlands along the river, riparian vegetation on the banks and floodplain, and upland shrubs and trees on the slopes up to the next plateau and beyond (i.e., the edge of National Trails Highway and farther west). Key View 5 looks in the opposite direction (i.e., eastward) from a higher vantage point at the eastern edge of Maze Locus B outwards over the vegetated floodplain of the Colorado River.

Also included as Mature Plants were those used for landscaping around Moabi Regional Park and the Topock Compressor Station; for example: eucalyptus (*Eucalyptus* sp.), Mexican fan palm

(*Washingtonia robusta*), athel tamarisk (*Tamarix aphylla*), Fremont's cottonwood (*Populus fremontii*), and oleander (*Nerium oleander*.).

Prior to the field survey, Twenty-one species were considered appropriate to categorize and map as Mature Plants (Table 1). More than half of these (N=13) are trees, with the remainder split between shrubs (N= 5) and herbaceous perennials (N= 4; Table 1). An additional species, hillside palo verde (*Parkinsonia microphylla*), was added to the list and mapped during the fall 2011 floristic survey after it became identifiable.

High-resolution aerial photographs of the Project Area taken in 2011 were prepared as base maps for Global Positioning System (GPS) and field notation to be used during the surveys. Although the aerial photographs are of sufficient quality and resolution that some Mature Plants can be identified, it is not feasible to identify all Mature Plants through the use of the photographs alone. The aerial photographs have been incorporated into project Geographic Information System data files and may also be used as a base map for the deliverables described in the *Introduction*.

Field Survey

The field survey was conducted on August 18-26, 2011 in clear, calm, and hot summer weather. The list of Mature Plants described in Table 1, aerial photographs, and the Vegetation Communities Map were used as reference documents. Though surveyors were prepared to identify and record all observed species that met the criteria of a Mature Plant, and not just those listed is Table 1, no other species that met these criteria were observed. The field mapping was conducted using a combination of GPS data collection and surveyor notations recorded on the aforementioned aerial photographs.

The protocol for the survey was developed expressly for Mitigation Measures AES-1a and AES-2b and designed to ensure that all Mature Plants were identified and recorded. The protocol was a mix of focused and transect-based surveys for Mature Plants based on terrain and the inherent visibility of Mature Plants. Surveyors were able to walk or scan the entire Survey Area at a distance that guaranteed complete coverage for Mature Plants; therefore, surveyors were able to identify all of the Mature Plants in the Survey Area. However, because trees and shrubs of interest were not distributed evenly across the Survey Area, survey efforts were concentrated in dry riverbeds and washes in the upland areas and along river banks and floodplains in the lower areas on both sides of the Colorado River. To ensure that surveyors did not overlook any Mature Plants in the Survey Area, hilltops and ridges were used as vantage points to locate all Mature Plants in the washes and ravines below.

Vegetative sampling of individual plants was minimized during the survey (as requested by tribal representatives during the orientation meeting on August 18, 2011). In addition, vegetative sampling was not necessary for accurate identification of the majority of the Mature Plants. In some cases, identifications were facilitated by taking photographs in the field. Selected photographs from the field survey are presented in Appendix A.

GPS data was collected for some areas of Mature Plants encountered during the survey using a Trimble GeoXH 6000 and GeoXT with sub-meter accuracy. In other areas, where individual plants were numerous and closely clustered together or in long linear features (e.g. washes), it was not feasible to GPS each plant individually (e.g., salt cedar and mesquite in sections C and D near National Trails Highway, see Figure 1); therefore, GPS data was collected along the perimeter of the clusters forming a polygon of GPS points from which an approximate centroid GPS point could be derived. This was especially true along the Colorado River floodplain where

salt cedar often forms impenetrable thickets with other shrubs and trees (e.g., honey mesquite and arrow weed). In such situations, the clusters of Mature Plants were also represented as a polygon drawn on the high resolution aerial photographs.

For each Mature Plant or cluster of Mature Plants, surveyors recorded the height and health of the plant. Four height categories were used as follows:

- short (< 6 feet),
- medium (≥ 6 and < 12 feet),
- tall (≥ 12 and < 20 feet), or
- very tall (≥ 20 feet).

Plant health was also assessed using three categories as follows:

- good (plants with no dead or damaged branches or other signs of branch senescence),
- fair (plants with a few dead or senescent branches), or
- poor (plants with more than half of the branches dead or damaged).

All of the Mature Plants recorded and mapped on the floodplain of the Colorado River, with the exception of eucalyptus, fan palm, and athel tamarisk, were assumed to have established themselves naturally (i.e., not planted); however, not all naturally established plants were indigenous. For example, salt cedar and giant reed are native to eastern Asia and Europe, respectively; and the common reed, at least under the railroad bridge, is the invasive Eurasian form and not the native form from California (J. Andre 2011, personal communication). Salt cedar and giant reed are also considered highly invasive in many parts of the arid Southwest, including California and Arizona (California Invasive Plant Council [CAL-IPC], 2011). Landscape trees and shrubs in the most developed areas within Moabi Regional Park such as the trailer camps were generally excluded from the mapping because they are on private property and not anticipated to be impacted by the project.

Results and Discussion

Approximately 1,250 Mature Plant individuals comprising 16 species were geo-referenced in the Survey Area (Figure 2). Appendix B contains the field survey data for the individually mapped mature plants. Additional species were mapped as part of multiple individual points or polygons. For example, arrow weed is ubiquitous in many parts of the Survey Area (e.g., sections B, E, and F) and forms stands of hundreds of individuals. Therefore, most individuals were mapped as part of large polygons. Four species of tall herbaceous perennials were also mapped as polygons containing multiple individual points constituting thousands of individuals. All of these plants have the potential to affect the key views of the Project Area. Mature Plants included native species as well as exotics, both naturalized (e.g., salt cedar, athel tamarisk) and non-naturalized (e.g., oleander).

Abundance and Distribution of Mature Plants

The most abundant Mature Plant in the Survey Area is the exotic and invasive salt cedar (Appendix A: Plate 1A, B). Thirty-seven salt cedar points were georeferenced within the survey area representing seventy-one individual trees (Appendix B); however, most salt cedars were recorded and mapped as part of multiple individual polygons on the floodplain and nearby areas (Figure 2). This species dominates the floodplain along the Colorado River, especially under the Interstate 40 highway and railroad bridges that span the river. Salt cedar also forms dense thickets at the ends of washes near their confluence with the river. From detailed high-resolution

photographs of the floodplain and spot sampling, it is estimated that there are several thousand individuals along the floodplain between the Interstate 40 bridge and Moabi Regional Park, while two dense populations at the ends of dry riverbeds adjacent to the National Trails Highway in section C and D are estimated to contain 1,000 and 500 individuals, respectively.

Salt cedar is an invasive exotic that has been used for erosion control on the banks of the Colorado River since the early 1900s (Barranco 2001). Since that time, however, it has spread dramatically throughout the western states and is currently considered to be highly invasive in California because of its severe ecological impacts on plant and animal communities, high reproductive output (a mature salt cedar tree can produce 600,000 seeds annually, and high dispersal capabilities (Barranco 2001; DiTomaso 1998). The invasion of indigenous riparian communities by salt cedar has also been shown to result in a general decrease in overall diversity of birds, insects, and plants (DeLoach and Tracy 1997). DeLoach et al. (2000) have characterized the invasion by salt cedar as "…one of the worst ecological disasters to impact riparian ecosystems in the United States displacing native plants, degrading wildlife habitat, and causing the decline of threatened and endangered species." DeLoach et al. (2000) also suggested that southwestern willow flycatchers (*Empidonax traillii extimus*), a federal and California listed as endangered species, are not as successful when nesting in salt cedar as they are in native cottonwoods or willows (*Salix* sp.). However, recent studies have found no significant difference in nesting success for the birds when nesting in salt cedar dominated habitat (Barranco 2001, Sogge et al. 2006, 2008).

Athel tamarisk is another exotic tamarisk tree species that occurs in the Survey Area (Figure 2, Appendix A: Plate 1C, D), however it is much less abundant and does not appear to be invasive like salt cedar. This is the tallest tamarisk and one of the tallest trees in the Survey Area. Individuals routinely grow to over 20 feet tall. There are approximately 24 multi-stemmed clumps (Appendix B), comprising 48 individuals, scattered throughout the Survey Area in sections A, B, D, F, G, and L. In most clumps there are at least one or two very large trunks and a number of smaller trunks, which suggests that each clump is a clone that may have originated from the planting of one or two individuals. Like most tamarisks, athel tamarisk can apparently spread vegetatively from branches that are broken off and transported by floods. However, the scattered distribution of this species in the Survey Area is inconsistent with this mode of dispersal. It is also inconsistent with the pattern that would be expected if these plants had arisen from naturally dispersed seed. In California, athel tamarisk is apparently incapable of producing fertile seed (Cal-IPC 2011), however recent evidence indicates that in some areas of the Southwest (e.g., Lake Mead in Nevada) this species is capable of reproducing both by seed and hybridizing with the very invasive salt cedar (Gaskin and Shafroth 2005; Norman et al. 2010).

Blue palo verde is the most abundant indigenous tree species in the Survey Area (Figure 2, Appendix A: Plate 2B, D, F). Six hundred and forty-eight individuals were recorded in the Survey Area and these are represented by 584 georeferenced points (i.e. 6.6% of the points are represented by more than one individual – Appendix B). These trees occur in all except two of the survey sections (Table 1). Most (72 percent) are medium to tall (6 ≥ and < 20 feet) trees that are in good condition (i.e., no damaged or dead branches). This species is considered to be an important Mature Plant because it is a large, aesthetically pleasing tree that is common throughout the Survey Area, especially in the dry washes of sections C and D, and has the potential to screen existing and planned project activities. It is also protected under the California Desert Native Plants Act (CDNPA). Blue palo verde occurs throughout the Survey Area, but it is restricted to areas immediately above the floodplain of the Colorado River (Figure 2). In these areas blue palo verde generally occurs in sandy washes and the lower slopes of

surrounding hills. It does not occur on ridge tops, steep rocky slopes, or upland plateaus. Sawyer et al. (2009) considers blue palo verde to be the dominant or co-dominant in the Blue palo verde-Ironwood woodland.

Hillside palo verde, while not as abundant as the related blue palo verde, is also significant. It is a special status plant protected under the CDNPA, a California Native Plant Society Rare Plant Rank 4 species, and its presence at Topock represents a previously unknown northerly range extension. The observed population of 104 individuals, represented by 96 georeferenced points (Appendix B), is restricted to sections H and I with the vast majority occurring in the latter section (Figure 3). The hillside palo verde were observed in rocky areas of quaternary and tertiary conglomerate that cover pre-tertiary bedrock (PG&E 2008). In California, hillside palo verde has been recorded as far north as the Whipple Mountains near Copper Basin and Lake Havasu but not in the Chemehuevi Mountains adjacent to the southern border of the Survey Area (California Consortium of Herbaria 2011). In Arizona, hillside palo verde is known to range as far north as 'the Needles', which is approximately 5 miles southeast of the Project Area (J. Andre, pers. comm. 2011). A few blue palo verde individuals occur within the hillside palo verde population, and there are also a few individuals that may be hybrids between the two species based on intermediate leaf morphology. The spring 2012 floristic survey is anticipated to provide additional evidence for hybridization if the flowers of these intermediate individuals also prove to be intermediate in morphology.

As previously mentioned, hillside palo verde trees were not distinguishable from blue palo verde during the August survey, because at that time of year both species lacked the structures (i.e., leaves and flowers) necessary for identification. The branches and trunks of these two species are remarkably similar when plants are dormant (Appendix A: Plate 2A, B).

Honey mesquite is the second most common abundant indigenous tree in the Survey Area and like blue palo verde, is protected by the CDNPA. It occurs mainly along the river floodplain, but also occurs in the upper reaches of dry inland washes (Figure 2, Appendix A: Plate 3A, B). It commonly forms mixed thickets with salt cedar or salt cedar and blue palo verde. One hundred fourteen honey mesquite points were recorded and mapped in the Survey Area (Appendix B) and these represented 133 individuals with another 24 present in mixed-species polygons with salt cedar and/or blue palo verde.

Screwbean mesquite (*Prosopis pubescens*) is similar vegetatively to its congener honey mesquite, but its fruits are very different (Appendix A: Plate 3C). It is also much less common in the Survey Area (Table 1, Figure 2). Seventy individual points were georeferenced and these represented 119 individuals (Appendix B). Trees were restricted to localized populations on the floodplain of the Colorado River in sections A, F (just opposite the Topock Marina), and I (under the railroad bridge). In sections A and I, these trees occurred in close proximity to honey mesquite, however in section F, honey mesquite individuals were absent. There is also a small population of screwbean mesquite in section I that was planted as part of a restoration project.

Catclaw acacia is the third most common indigenous Mature Plant in the Survey Area (Figure 2, Appendix A: Plate 4A, B) and it is also protected under the CDNPA. Catclaw acacia occurs mainly in dry washes away from the floodplain of the Colorado River and often occurs with blue palo verde. In section C, it is very abundant (Figure 1) and occurs with blue palo verde and Anderson's wolf berry (*Lycium andersonii*). Two hundred nineteen points representing 265 individuals of catclaw acacia were georeferenced and mapped in the Survey Area (Appendix B)

and additional individuals were recorded and mapped as part of multiple individual polygons or mixed-species polygons (Figure 2).

Desert smoke tree (*Psorothamnus spinosus*) is an uncommon but distinctive tree in the Survey Area (Appendix A: Plate 5A, B) where it occurs as small populations (< 10 trees) in dry washes in sections D (Bat Cave Wash) and A, and on sandy alluvial soils in the middle of Section B (Moabi Regional Park). Twenty-seven points (Appendix B) were mapped for desert smoke tree, and these represented 47 individuals (Figure 2).

Arrow weed, next to creosote bush, is the most common shrub in the Survey Area, occurring in all but one of the Survey Sections (Table 1). On the floodplain of the Colorado River, this plant is ubiquitous and often forms dense, impenetrable thickets (Figure 2, Appendix A: Plate 5D, 7B, C). The sandy dunes that constitute the floodplain on both sides of the Colorado River and the areas where arrow weed is presently most abundant are of recent and man-made origin. They were created by the placement of dredge spoils from the Colorado River primarily in the 1950s and 1960s (C. Russell 2011, personal communication).

Wetland plants There are four common wetland species in the Survey Area (Figure 2) that, due to their position, height and screening ability, have been considered to meet the criteria of a Mature Plant**.** These include the common reed, giant reed, California bulrush, and broad-leaved cattail. The most common of these is the California bulrush, which forms large populations that are 6 to12 feet tall in the Colorado River, just offshore from sections A, B, E, F, G, I and J (Figure 2, Appendix A: Plate 6A).

The second most abundant wetland plant is common reed, which forms dense populations of hundreds of individuals that are generally 6 to 20 feet tall (Appendix A: Plate 6A, B). There appear to be two forms of the common reed in the Survey Area. The Eurasian genotype (*P. australis* ssp. *australis*) is invasive (Saltonstall 2002). The North American genotype (*P. australis* ssp. *americanus*) is non-invasive (Saltonstall et al. 2004; Swearingen and Saltonstall 2010). The most conspicuous form in the Survey Area is the invasive Eurasian genotype, which is present in a large stand on the floodplain of the Colorado River in section I between the Interstate 40 bridge and the first pipeline bridge to the south and across the Colorado River in section J (Figure 2, Appendix A: Plate 6A). This subspecies is known to colonize disturbed areas. Scattered smaller populations with shorter individuals occur elsewhere along the river shoreline in sections A and F, and these are suspected to be the native subspecies. However, the two subspecies are very similar. Although morphological characters can often be used to distinguish between them, they are best identified using molecular techniques, especially in areas such as California and Arizona where a third subspecies may also be present that complicates morphological determinations (Swearingen and Saltonstall 2010).

Another wetland species that is exotic and invasive is the giant reed. This giant grass is native to eastern Asia (Polunin & Huxley 1987). It can be up to 30 feet tall with rigid bamboo-like stems. In the Survey Area, plants range from tall to very tall. Giant reed was first introduced in California by Spanish colonists in the 1700's (Newhouser et al. 1999). Giant reed was initially used in the early 1800s for erosion control in drainage canals (Bell 1997). It is now a major threat to riparian areas in California as well as other southwestern states (Cal-IPC 2011). In the Survey Area, this grass forms localized patches ranging in size from ten to several hundred stems along the river's edge and floodplain in sections A, E, F, and I (Figure 2). The largest population occurs in section F across from the Topock Marina.

The Aesthetic Value of Mature Plants in the Topock Survey Area

The shores and floodplain of Colorado River have been dramatically transformed by river channelization, dredging, and the establishment and spread of exotic plant species such as salt cedar, athel tamarisk, common reed, and giant reed. In the Project Area, some of these same plants, however, provide a valuable aesthetic role in screening the necessary activities of the Topock Project (Appendix A: Plate 7A–C). Fourteen key views are identified in the FEIR, and two of those, key views 5 and 11, include the Colorado River floodplain and are the subject of the specific mitigation measures AES-1a and AES-2b that led to the undertaking of this survey. Therefore, it is important to consider the role that Mature Plants can play in ameliorating or mitigating any aesthetic disturbance caused by project activities. The potential for preventing a deterioration of the key views depends not only on the height and width of the plants, but also on their branching pattern, and their spacing within a population. These latter two characteristics, however, are more difficult to quantify.

The tallest of the trees outside of developed or landscaped areas is athel tamarisk with 88 percent of individuals over 20 feet tall (Appendix A: Plate 1C). Next in height is the blue palo verde with 54 percent of the individuals over 20 feet tall, salt cedar (Appendix A: Plate 1A) with 49 percent over 20 feet tall, honey mesquite with 40 percent over 20 feet tall, and catclaw acacia with no individuals over 12 feet tall. In terms of branching pattern and spacing within a population, salt cedar has the densest branching pattern and closest spacing of all trees in the Survey Area (Appendix A: Plate 1A). Among the shrubs, individuals of arrow weed can be nearly as closely spaced as salt cedar (Appendix A: Plate 7C), and in the herb layer California bulrush, common reed, broad-leaved cattail, and giant reed all form very dense populations (Appendix A: Plate 6A, B).

Level of Detail on Mature Plant Maps and Protection of Mature Plants

For the purpose of the project design and implementation, it is particularly important to know whether the open areas visible on the high resolution images of the Mature Plants Maps are clear of all Mature Plants (Figure 2). On the Colorado River floodplain below the National Trails Highway, this will be crucial for choosing the best routes for pipe installation and vehicle access routes to proposed project sites. During the November 2011 floristic survey, surveyors, led by Senior Botanist Steiner, carefully re-checked these open areas for Mature Plants and found none. However, the presence of seedlings could change on a seasonal basis, and given the long-term nature of the project, new potential Mature Plant species could grow in these previously cleared areas. Therefore, despite the high quality of the images used for the Mature Plants maps, these maps must be viewed as a general guide for the distribution of Mature Plants in the Survey Area. Once an approved access route or project site is established, pre-construction surveys will closely examine the affected areas, using the same methodology and criteria for Mature Plant identification as this survey, at the level of detail necessary to ensure that Mature Plants are documented and protected in accordance with the EIR.

References

Barranco, A. 2001. Salt Cedar (*Tamarix ramosissima*). Invasive species project. Accessed at http://www.columbia.edu/itc/cerc/danoff-urg/invasion_bio/inv_spp_summ/Tamarix_ramosissima.html

Bell, G. 1997. Ecology and management of *Arundo donax*, and approaches to riparian habitat restoration in southern California. In: Brock, J.H., M. Wade, P. Pysek, D. Green eds. Plant Invasions: Studies from North America and Europe. Leiden, The Netherlands. Pg 103-113.

California Invasive Plant Council (Cal-IPC). 2011. California Invasive Plant Inventory. Cal-IPC Publication 2006-02. California Invasive Plant Council: Berkeley, CA. Accessed at http://www.cal-ipc.org/ip/inventory/weedlist.php

Consortium of California Herbaria (CCH) 2011. Data provided by the participants of the Consortium of California Herbaria (ucjeps.berkeley.edu/consortium/)

DeLoach, C.J. and J.L. Tracy. 1997. Effects of Biological Control of Saltcedar (*Tamarix ramosissima*) on Endangered Species: Draft Biological Assessment, 17 October 1997. USDA/ARS, Temple, TX.

DeLoach, C.J., R.I. Carruthers, J.E. Lovich, T.L. Dudley, and S.D. Smith. 2000. Ecological interactions in the biological control of saltcedar (*Tamarix* spp.) in the United States: toward a new understanding. Pp. 819–873, *In* N. R. Spencer (ed.), Proceedings of the 10th International Symposium on Biological Control of Weeds. 414 July, 1999, Montana State University, Bozeman, Montana

DiTomaso, J.M. 1998. Impact, biology, and ecology of saltcedar (*Tamarix* spp.) in the Southwestern United States. Weed Technology 12:326-336.

Gaskin, J.F., and P.B. Shafroth. 2005. Hybridization of *Tamarix ramosissima* and *T. chinensis* (saltcedars) with *T. aphylla* (athel) (family Tamaricaceae) in the southwestern USA determined from DNA sequence data. Madrono 52:1–10.

Newhouser, M., C. Cornwall and R. Dale. 1999. *Arundo*: A Landowner Handbook. Available online: http://team*Arundo*.org/education/landowner_handbook.pdf

Norman, C., C. Deuser and J. Hoines. 2010. Athel (*Tamarix aphylla*) and Athel hybrid (*Tamarix aphylla* X *Tamarix ramosissima)* establishment and control at Lake Mead National Recreation Area. Accessed at http://www.lakemeadsymposium.org/pdf/posters/poster_R2.pdf

Pacific Gas & Electric Company (PG&E). 2008. Hydrogeologic Characterization and Results of Groundwater and Surface Water Investigation. RCRA Facility Investigation/Remedial Investigation Report Vol. 2. PG&E Topock Compressor Station, Needles, California.

Pacific Gas & Electric Company (PG&E). 2011. Draft Basis of Design Report/Preliminary (30 percent) Design for the Final Groundwater Remedy. PG&E Topock Compressor Station, Needles, California.

Polunin, O. & A. Huxley. 1987. Flowers of the Mediterranean. Hogarth Press, London.

Saltonstall, K. 2002. Cryptic invasion by a non-native genotype of the common reed, *Phragmites australis*, into North America. Proceedings of the National Academy of Sciences 99: 2445–2449

Saltonstall, K., P.M. Peterson, and R. Soreng. 2004. Recognition of *Phragmites australis* subsp. *Americanus* (Poaceae: Arundinoideae) in North America: evidence from morphological and genetic analyses. Sida21(2):683-692.

Sawyer, J. O., T. Keeler-Wolf, and J. M. Evens. 2009. A manual of California vegetation, 2nd ed. California Native Plant Society, Sacramento, CA.

Sogge, M. K., E. H. Paxton, and A. A. Tudor. 2006. Saltcedar and Southwestern Willow Flycatchers: lessons from long-term studies in central Arizona. Pages 238–241 in C. Aguirre-Bravo, P. J. Pellicane, D. P. Burns, and S. Draggan, eds. Monitoring science and technology symposium: unifying knowledge for sustainability in the Western hemisphere. 20–24 September 2004, Denver, Colorado. Proceedings RMRS-P-42CD. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fort Collins, Colorado.

Sogge, M. K., S. J. Sferra, and E. H. Paxton. 2008. *Tamarix* as Habitat for Birds: Implications for Riparian Restoration in the Southwestern United States**.** Restoration Ecology 16: 146-154.

Swearingen, J. and K. Saltonstall. 2010. *Phragmites* Field Guide: Distinguishing Native and Exotic Forms of Common Reed (*Phragmites australis*) in the United States. Plant Conservation Alliance, Weeds Gone Wild. http://www.nps.gov/plants/alien/pubs/index.htm

Personal Communications

André, James, Director of Sweeney Granite Mountains Desert Research Center (UCR Natural Reserve System). In discussion of *Phragmites* at Topock. (November 2011).

Russell, Curt, Site Manager of PG&E Topock Compressor Station. In debriefing discussion regarding the history of the Colorado River at Topock (November 2011).

Table 1. List of Mature Plants in the Survey Area

Common name	Scientific name	Plant habit	Sections in which species occurs
TREES			
Athel tamarisk	*Tamarix aphylla*	Tall to very tall tree	A, B, D, F, G, L
Blue palo verde	*Parkinsonia florida*	Shrub to tree	A, C, D, E, F, G, H, I, J, L
Catclaw acacia	*Senegalia greggii* (*Acacia greggii*)	Shrub to small tree	A, B, C, D, E, G, H, I
Desert smoke tree	*Psorothamnus spinosus*	Medium to tall tree	A, B, C, D, J
Eucalyptus	*Eucalyptus* sp.	Tall tree	A, B
Fremont's cottonwood	*Populus fremontii*	Tall tree	B
Goodding's willow	*Salix gooddingii*	Medium to tall tree	B
Hillside palo verde	*Parkinsonia microphylla*	Shrub to tree	H, I
Honey mesquite	*Prosopis glandulosa* var. *torreyana*	Medium to tall tree	A, B, C, D, E, G, H, I, J
Mexican fan palm	*Washingtonia robusta*	Medium to tall tree	A, B, E, H, J
Narrow-leaved willow	*Salix exigua*	Medium tree	A, E, F, G, I
Salt cedar	*Tamarix ramosissima*	Shrub to large tree	A, B, C, D, E, F, G, H, I, J, L
Screwbean mesquite	*Prosopis pubescens*	Medium to tall tree	A, E, F, I
SHRUBS			
Arrow weed	*Pluchea sericea*	Medium to tall shrub	A, B, C, D, E, F, G, H, I, J
Creosote bush	*Larrea tridentata*	Shrub	A, B, C, D, E, F, G, H, I, J, L
Ocotillo	*Fouquieria splendens*	Tall shrub	C, D, I
Oleander	*Nerium oleander*	Medium to tall shrub	A, B, H
Big saltbush	*Atriplex lentiformis*	Shrub	A, G, J
HERBS			
Broad-leaved cattail	*Typha latifolia*	Tall herb	A, B, C, E, I, J
California bulrush	*Schoenoplectus californicus*	Tall sedge	A, B, E, F, G, I, J
Common reed	*Phragmites australis*	Tall perennial grass	A, E, F, G, I, J
Giant reed	*Arundo donax*	Tall perennial grass	A, E, F, G, I

LEGEND

Survey Segments

N

0 500 1,000 2,000 Feet

FIGURE 1
EIR PROJECT AREA WITH BOTANICAL SURVEY SEGMENTS

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

CH2MHILL

D:\Projects\Topock\MapFiles\2011\CMS\BioSurveySegements

FIGURE 2
MATURE PLANTS

PG&E Topock Compressor Station
Needles, California

TREES

Common Name	Species	Plant Habit
Athel Tamarisk (2)	*Tamarix aphylla*	Tall to very tall tree
Blue Palo Verde (3)	*Parkinsonia florida*	Shrub to tree
Catclaw Acacia (9)	*Senegalia greggii (Acacia greggii)*	Shrub to small tree
Desert Smoke Tree (13)	*Psorothamnus spinosus*	Medium to tall tree
Hillside Palo Verde (14)	*Parkinsonia microphylla*	Medium to tall tree
Honey Mesquite (16)	*Prosopis glandulosa* var. *torreyana*	Medium to tall tree
Mexican Fan Palm (8)	*Washingtonia robusta*	Medium to tall tree
Narrow-leaved Willow (20)	*Salix exigua*	Shrub or small tree
Salt Cedar (21)	*Tamarix ramosissima*	Shrub to large tree
Screwbean Mesquite (22)	*Prosopis pubescens*	Medium to tall tree
Fremont's Cottonwood	*Populus fremontii*	Tall tree
Goodding's Willow	*Salix gooddingii*	Shrub to small tree
Eucalyptus	*Eucalyptus* sp.	Tall tree

SHRUBS

Common Name	Species	Plant Habit
Arrow Weed (1)	*Pluchea sericea*	Medium to tall shrub
Big Saltbush (25)	*Atriplex lentiformis*	Medium to tall shrub
Creosote Bush Scrub (11)	*Larrea tridentata*	Shrub
Ocotillo (18)	*Fouquieria splendens*	Tall Shrub
Oleander (19)	*Nerium oleander*	Medium to tall shrub

HERBS

Common Name	Species	Plant Habit
Broad-leaved Cattail (6)	*Typha latifolia*	Tall herb
California Bulrush (7)	*Schoenoplectus californicus*	Tall sedge
Common Reed (10)	*Phragmites australis*	Tall perennial grass
Giant Reed (15)	*Arundo donax*	Tall perennial grass

MULTI-SPECIES AREAS
Common Name

- Blue Palo Verde/Catclaw Acacia (4)
- Blue Palo Verde/Salt Cedar/Honey Mesquite (5)
- Salt Cedar/Arrow Weed (22)
- Salt Cedar/Honey Mesquite (23)
- Salt Cedar/Screwbean Mesquite (24)

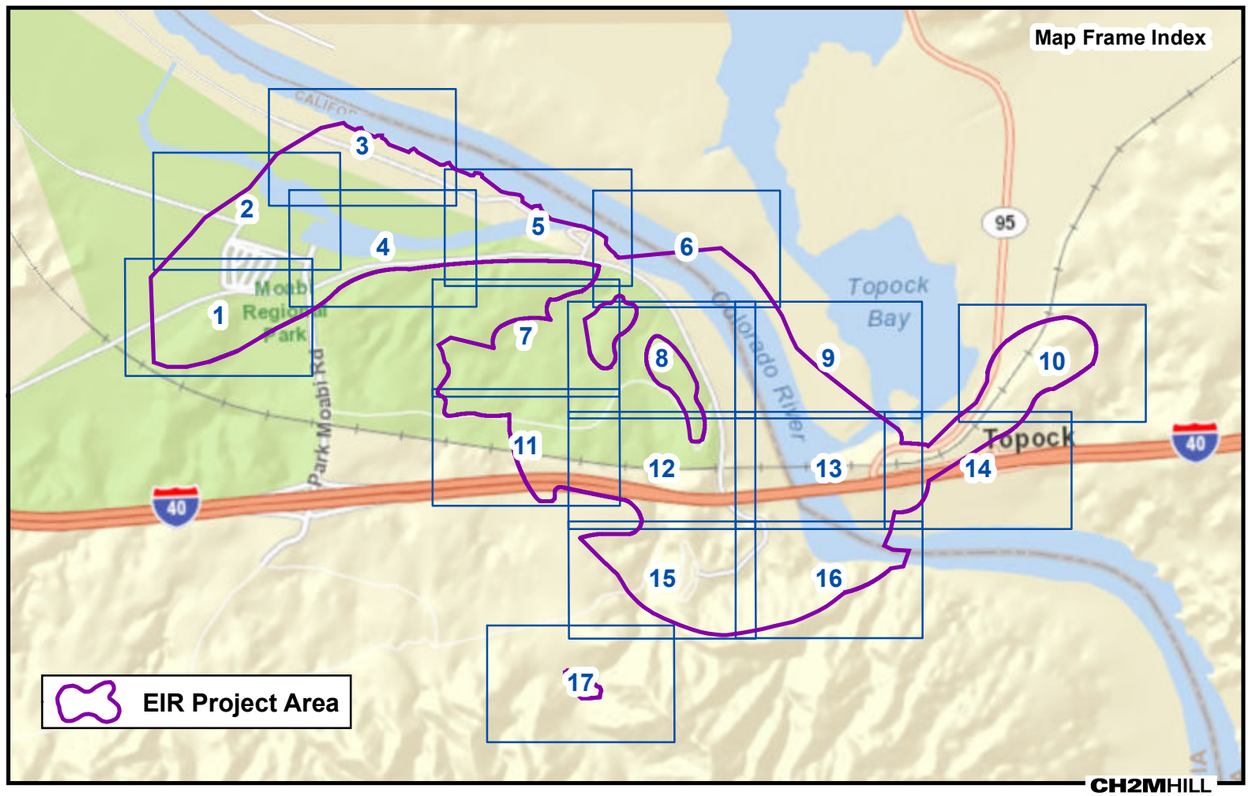
HEIGHT DESIGNATIONS

- Very Tall features are outlined in PINK
- Tall features are outlined in RED
- Medium features are outlined in ORANGE
- Short features are outlined in BLUE
- Features with multiple height classes are outlined in GREEN

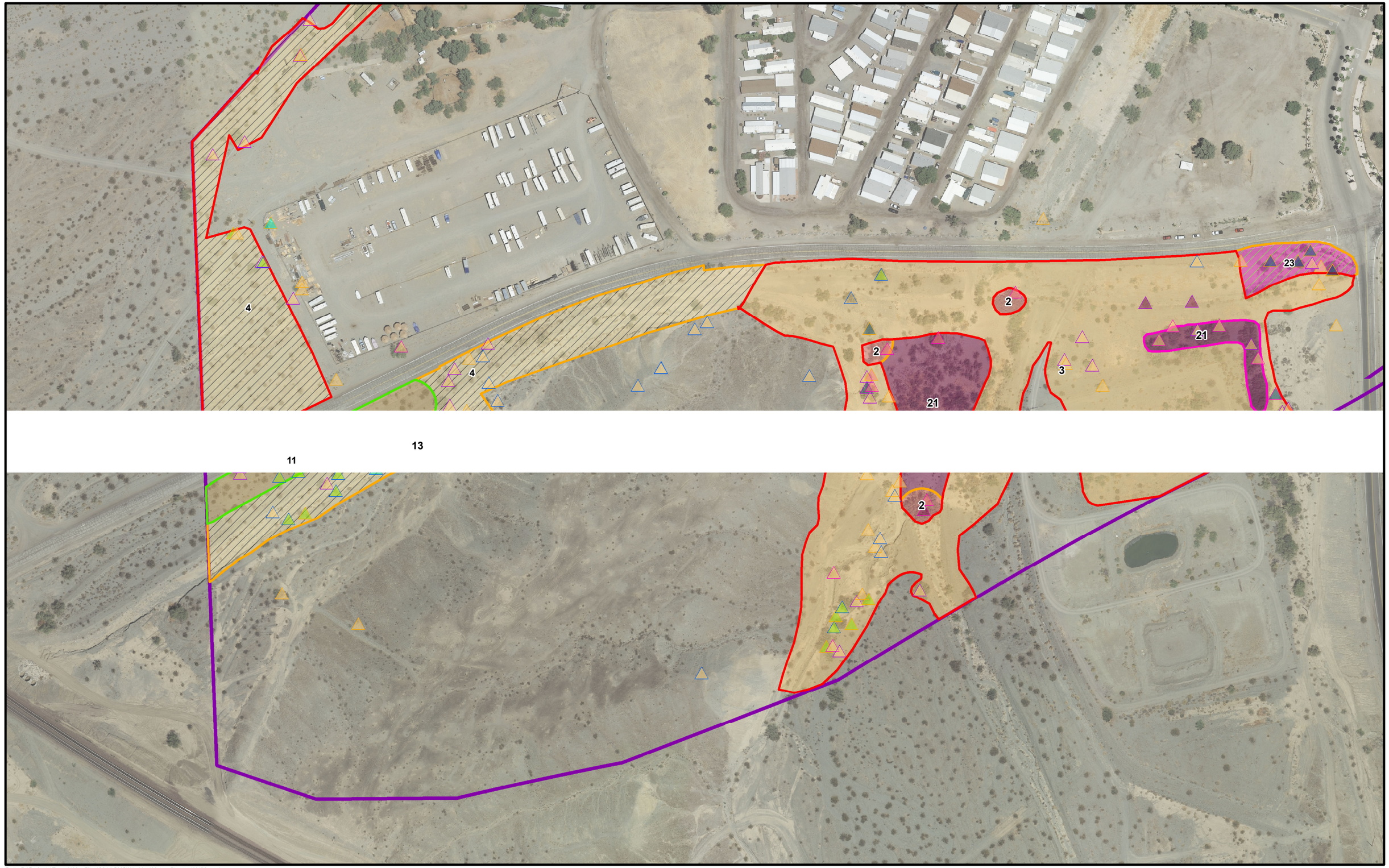
N

0 125 250 500 Feet

Scale bar and north arrow pertain to map frames, not frame index

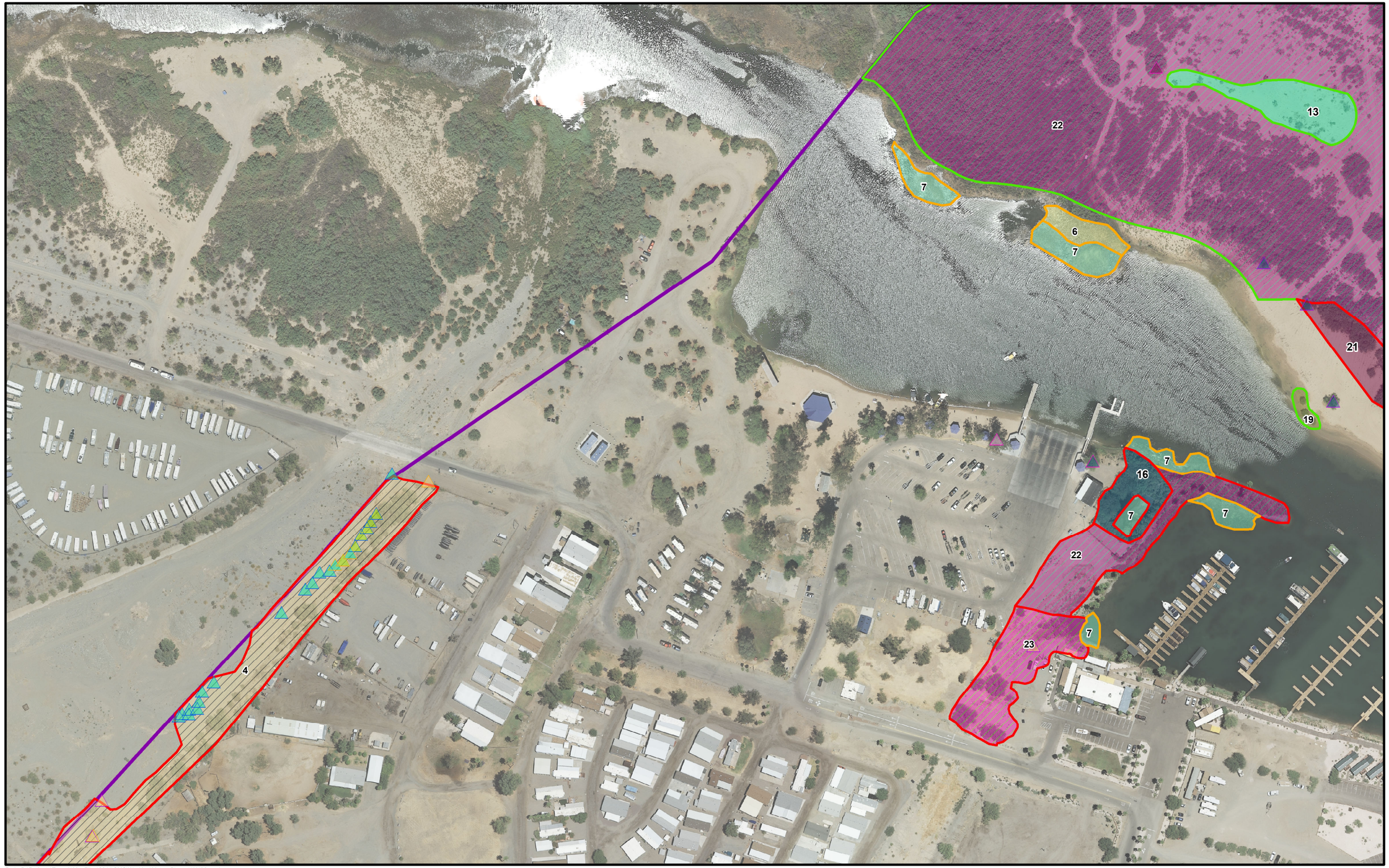


Path: D:\Projects\Topock\MapFiles\2011\CMS\Final\MatureVeg_LEGEND.mxd Date Saved: 1/26/2012 2:01:37 PM



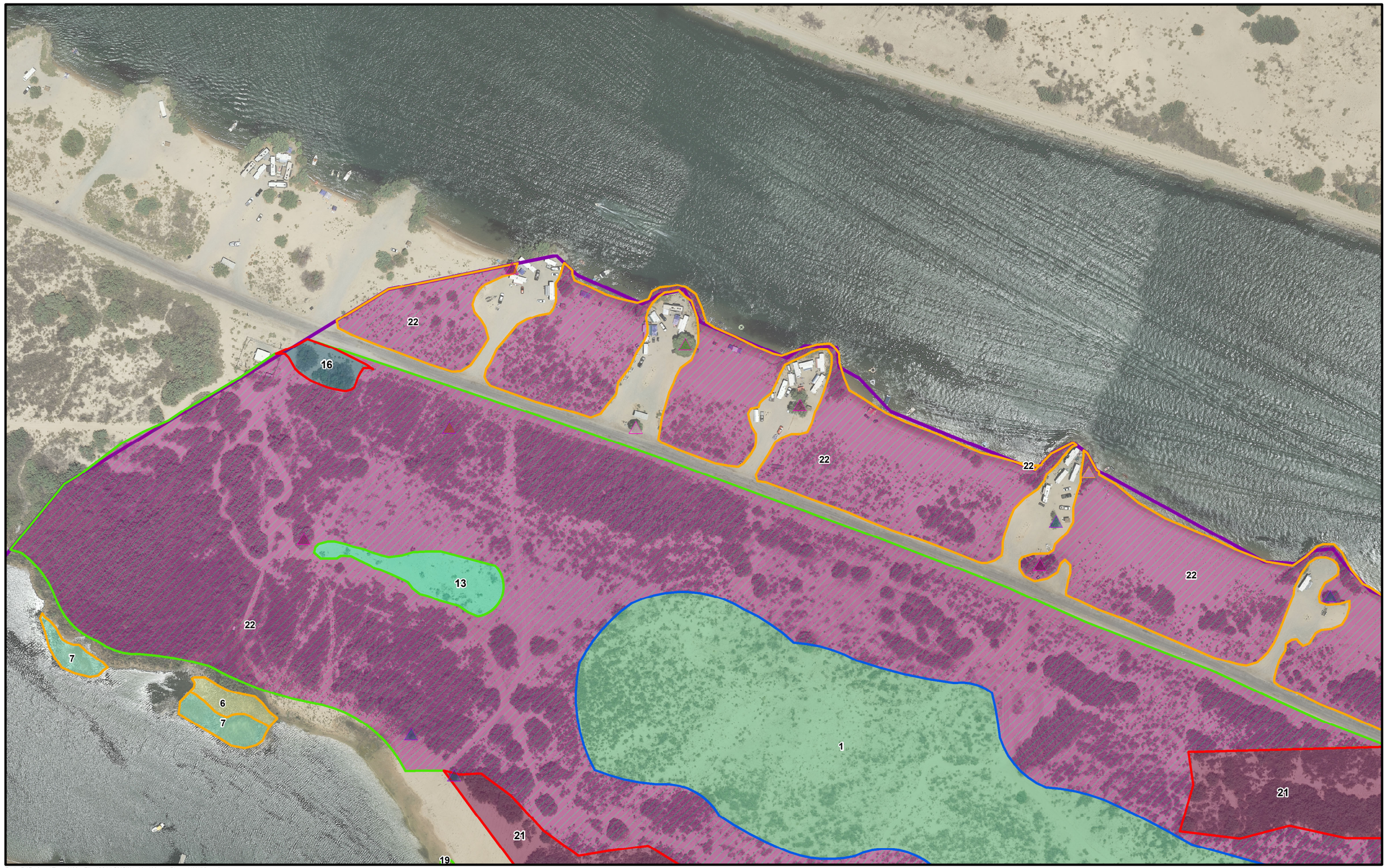
Path: D:\Projects\Topock\MapFiles\2011\CMS\Working\MaturePlants11X172.mxd
Date Saved: 12/20/2011 3:34:21 PM

MAP 1



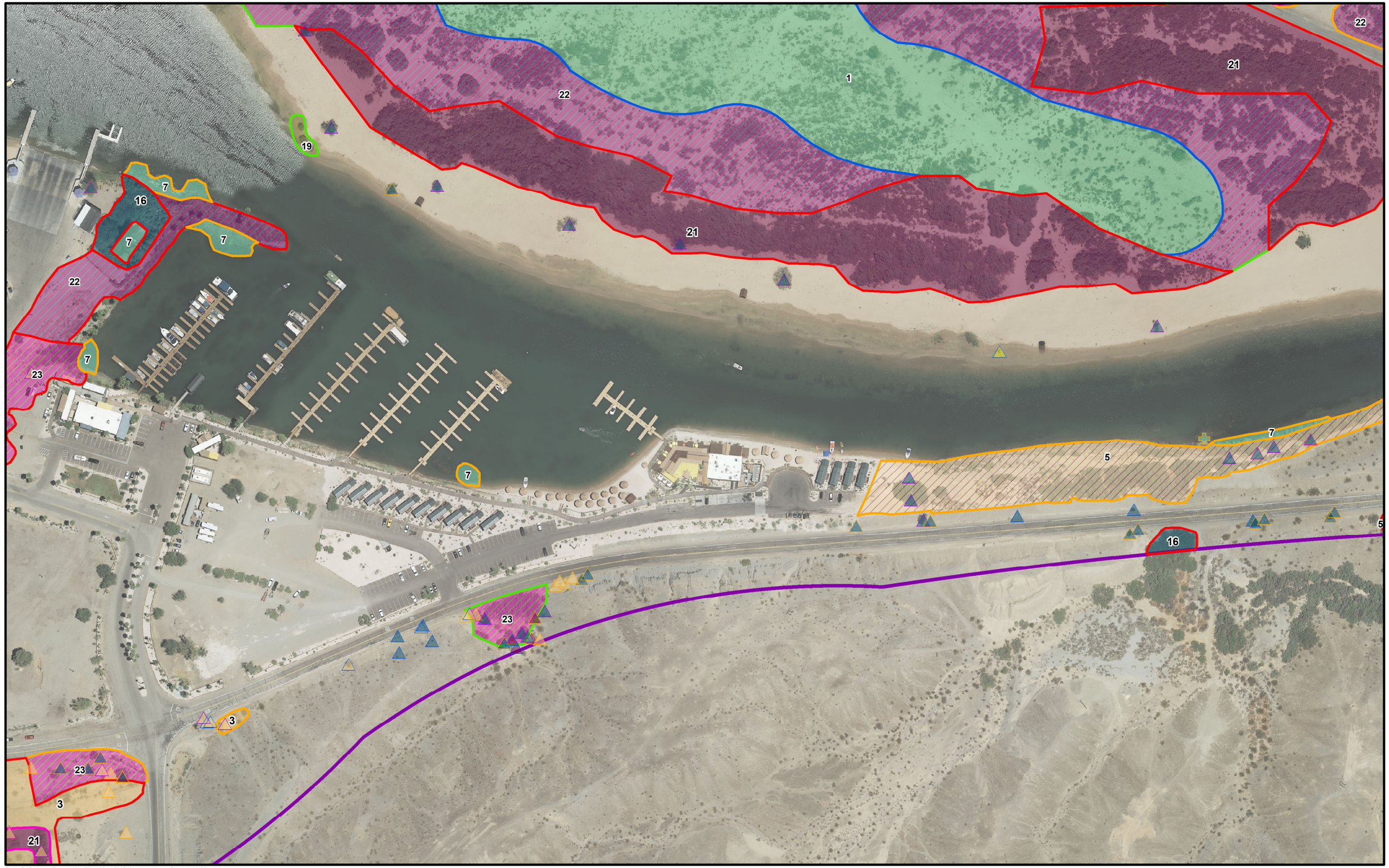
Path: D:\Projects\Topock\MapFiles\2011\CMS\Working\MaturePlants11X172.mxd
Date Saved: 12/20/2011 3:34:21 PM

MAP 2



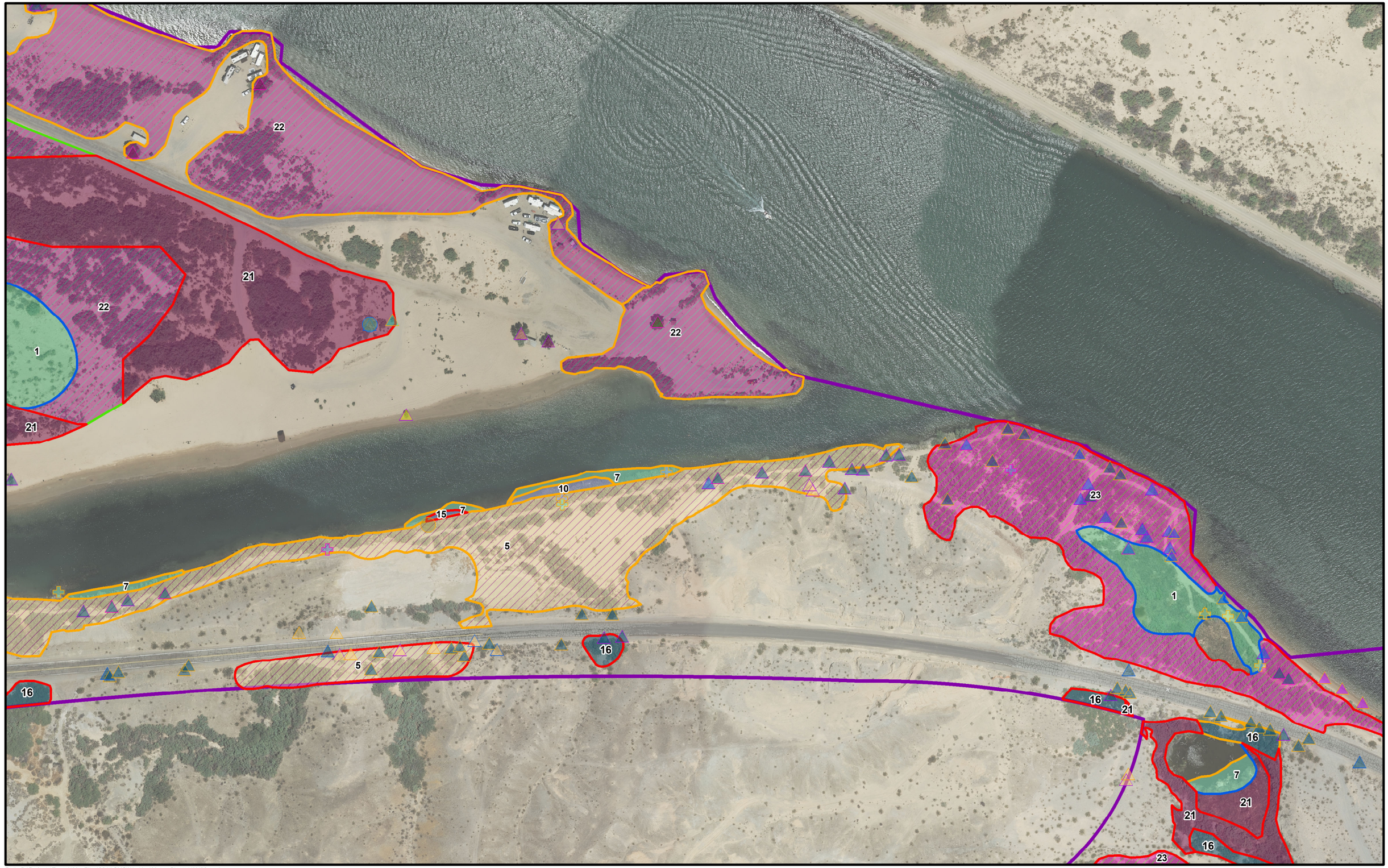
Path: D:\Projects\Topock\MapFiles\2011\CMS\Working\MaturePlants11X172.mxd
Date Saved: 12/20/2011 3:34:21 PM

MAP 3



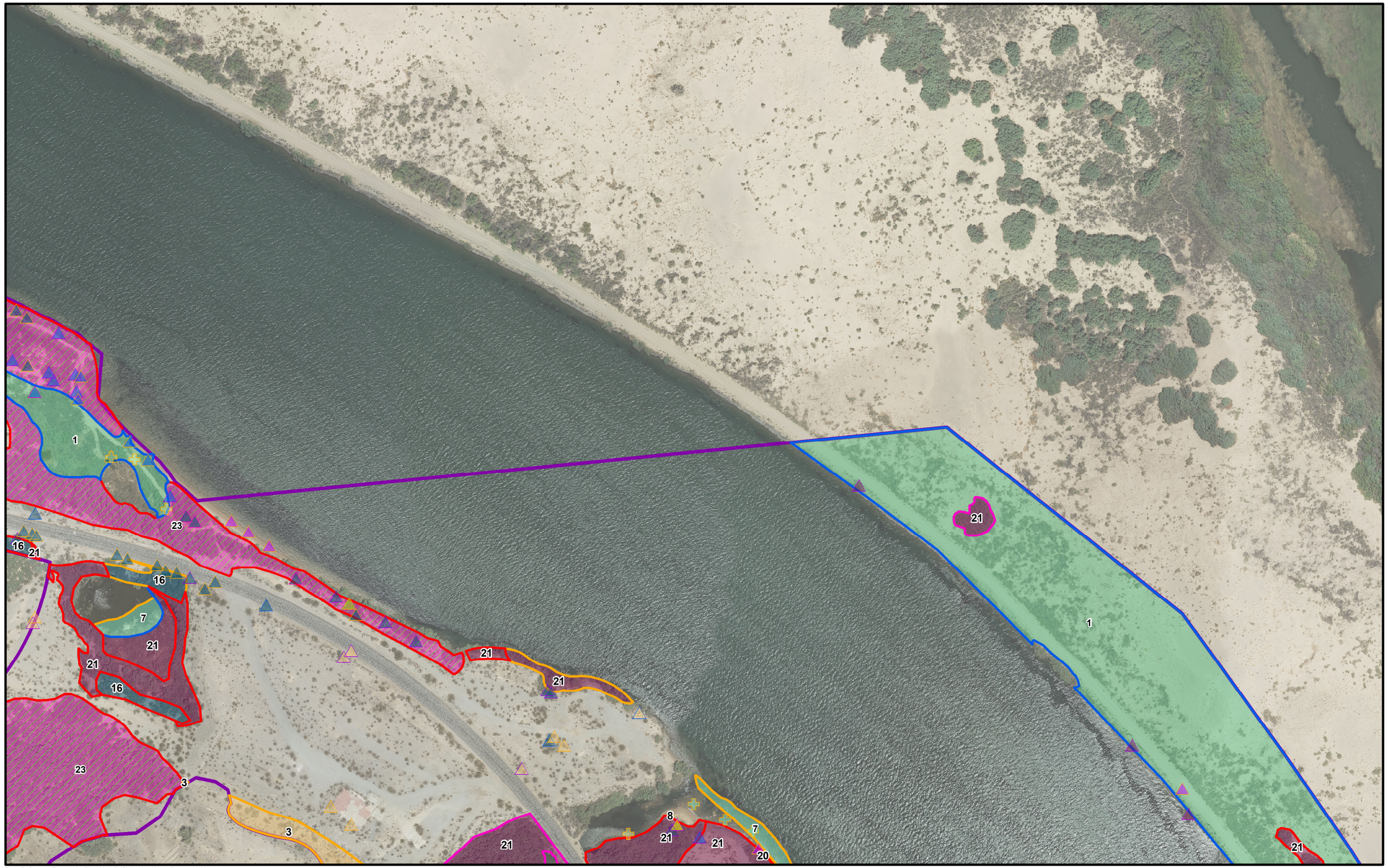
Path: D:\Projects\Topock\MapFiles\2011\CMS\Working\MaturePlants11X172.mxd
Date Saved: 12/20/2011 3:34:21 PM

MAP 4



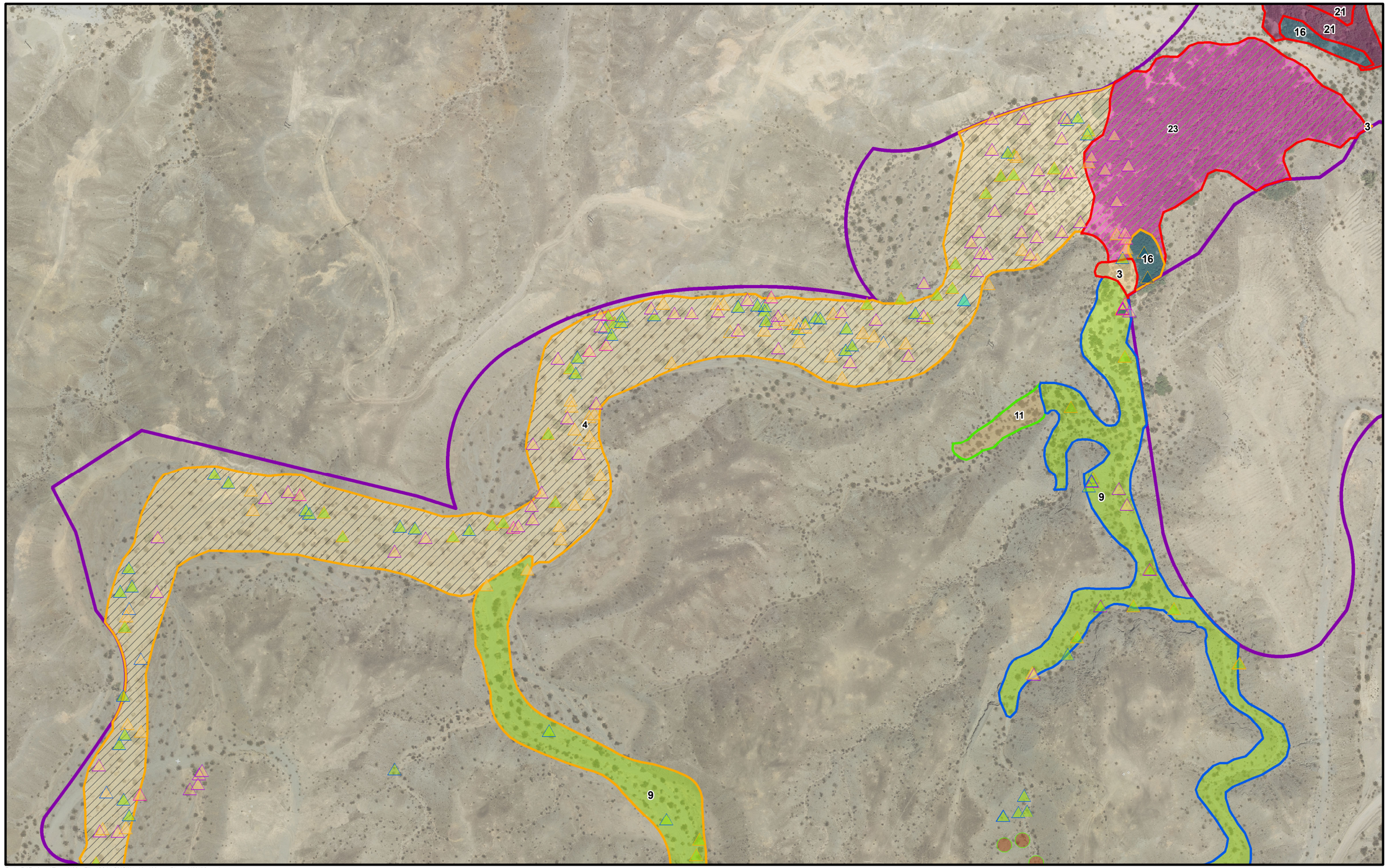
Path: D:\Projects\Topock\MapFiles\2011\CMS\Working\MaturePlants11X172.mxd
Date Saved: 12/20/2011 3:34:21 PM

MAP 5



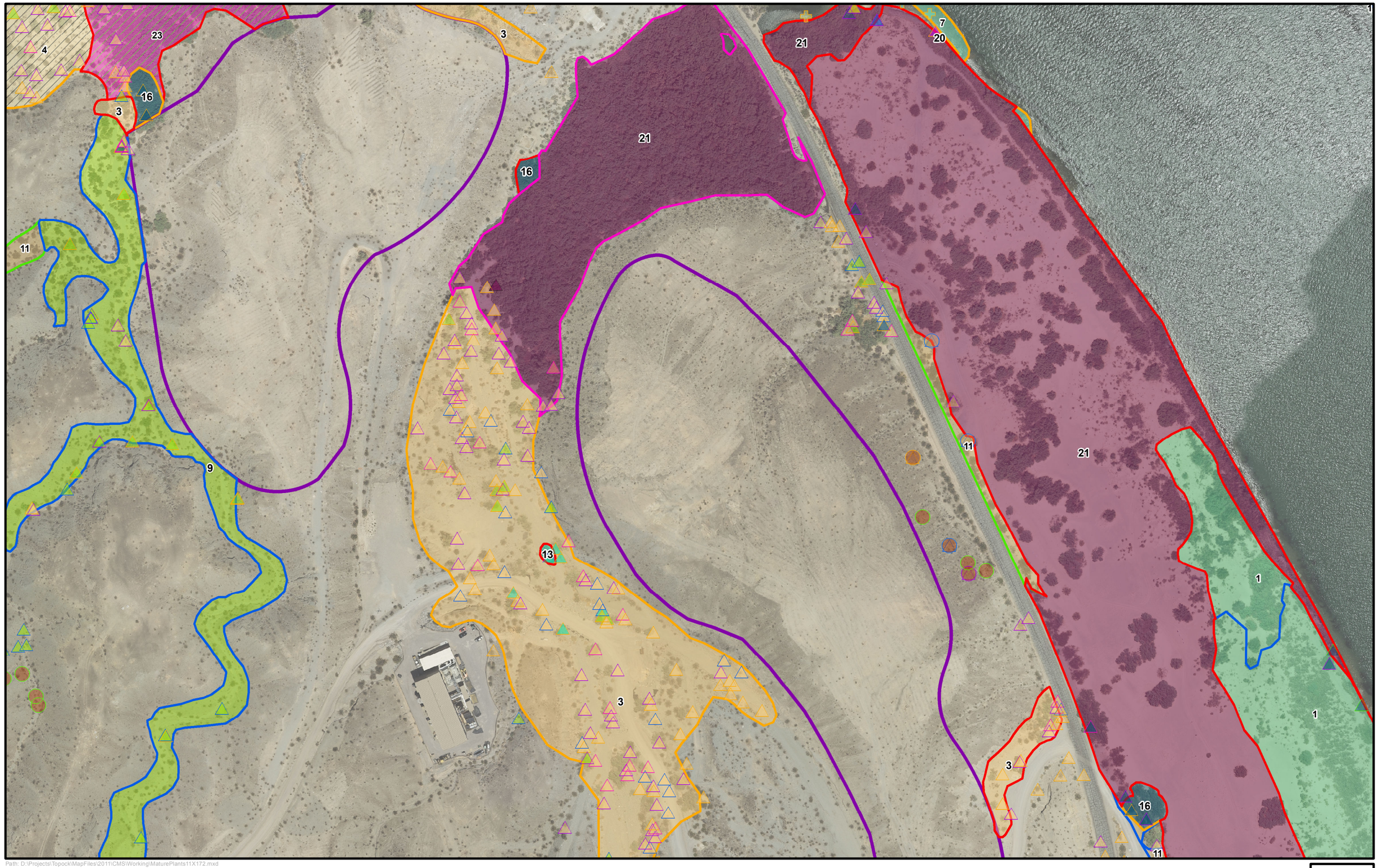
Path: D:\Projects\Topock\MapFiles\2011\CMS\Working\MaturePlants11X172.mxd
Date Saved: 12/20/2011 3:34:21 PM

MAP 6



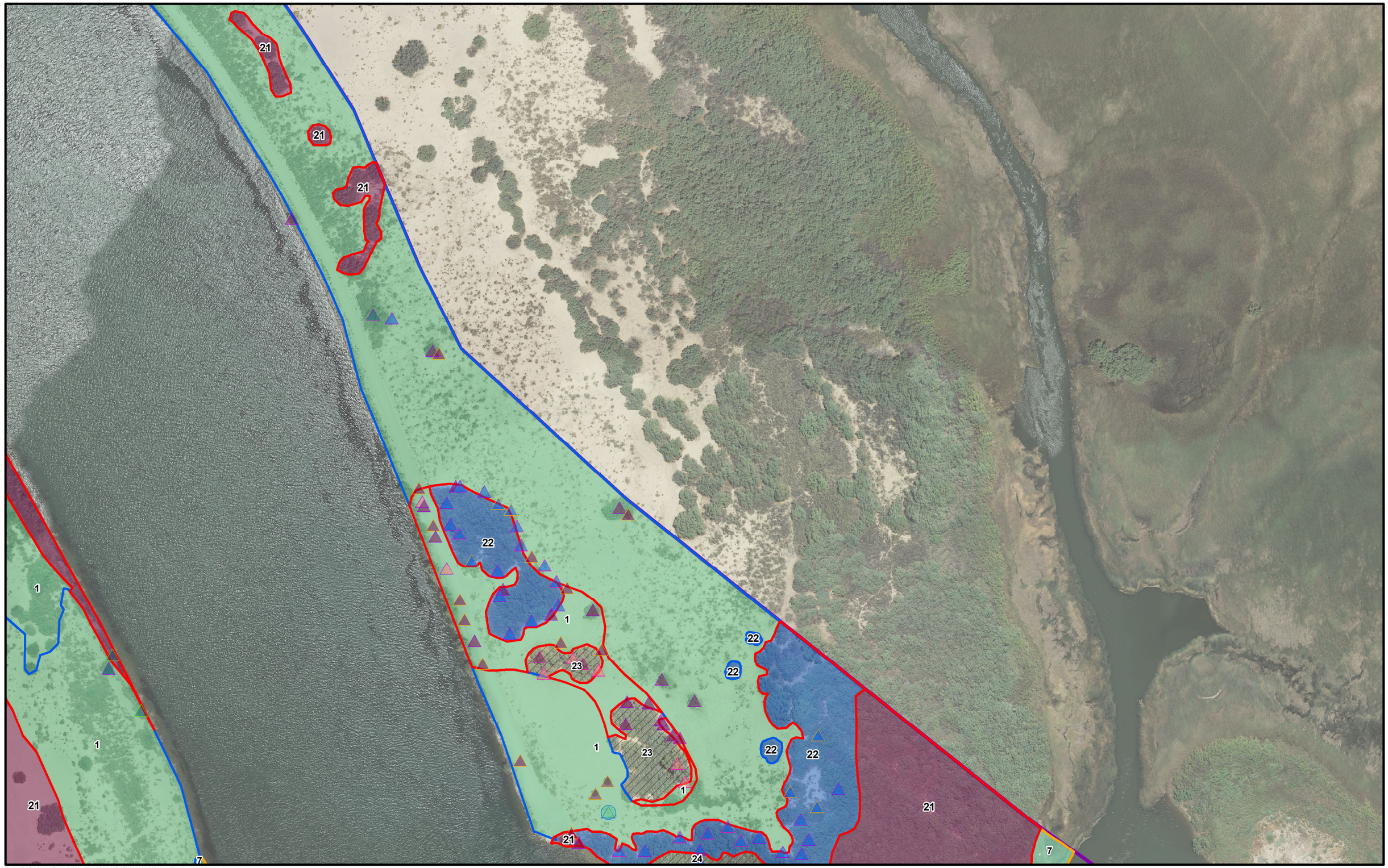
Path: D:\Projects\Topock\MapFiles\2011\CMS\Working\MaturePlants11X172.mxd
Date Saved: 12/20/2011 3:34:21 PM

MAP 7



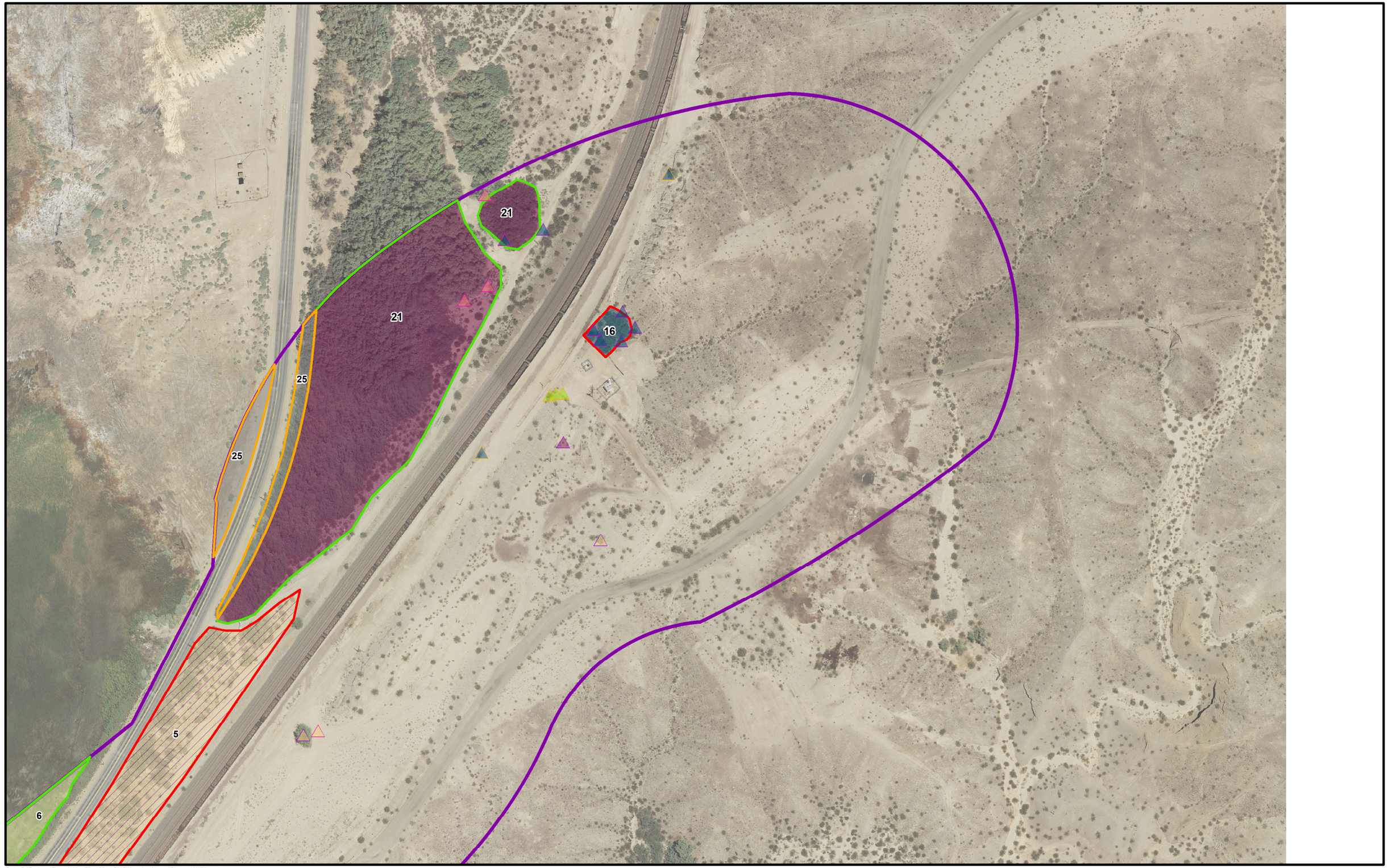
Path: D:\Projects\Topock\MapFiles\2011\CMS\Working\MaturePlants11X172.mxd
Date Saved: 12/20/2011 3:34:21 PM

MAP 8



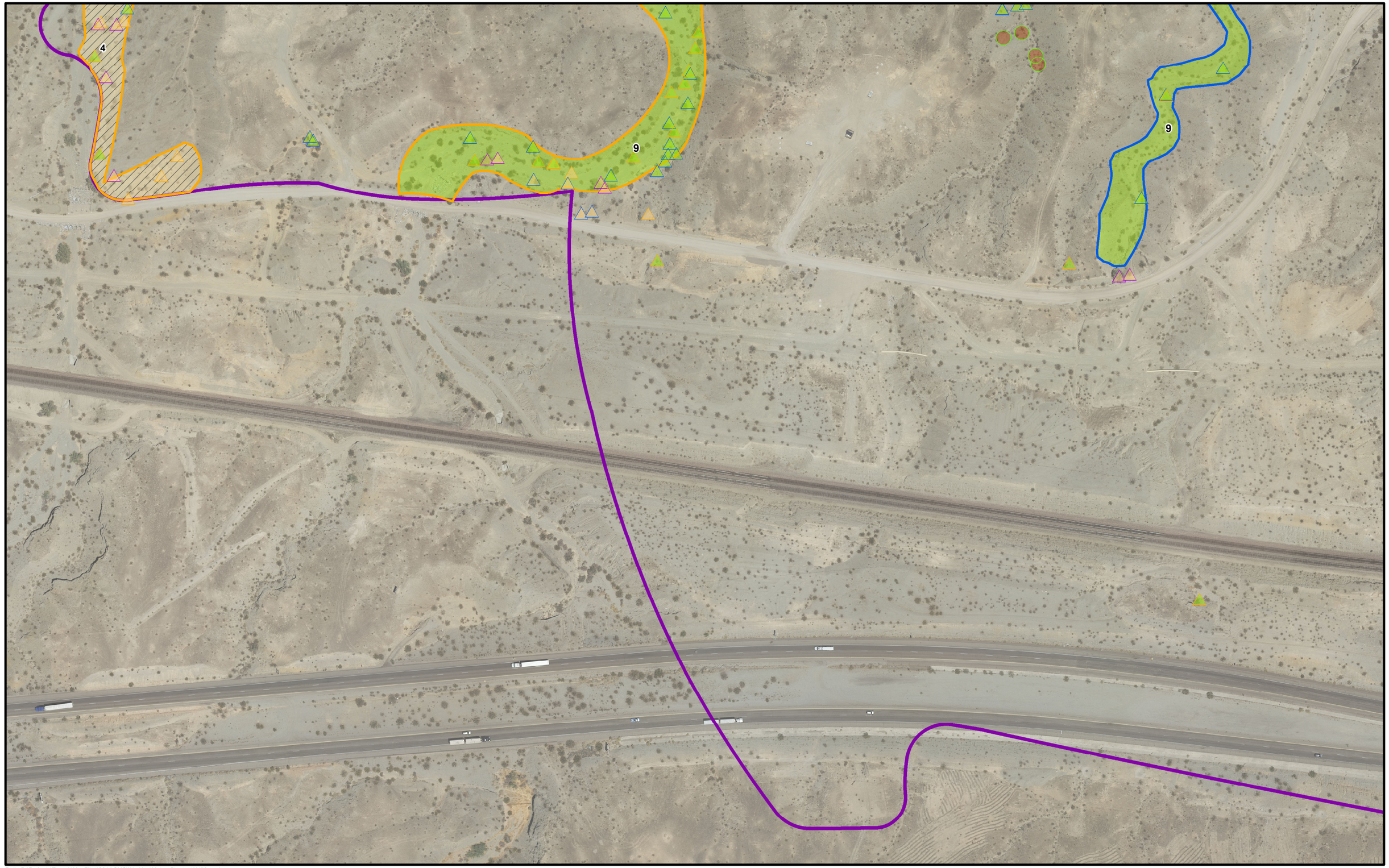
Path: D:\Projects\Topock\MapFiles\2011\CMS\Working\MaturePlants11X172.mxd
Date Saved: 12/20/2011 3:34:21 PM

MAP 9



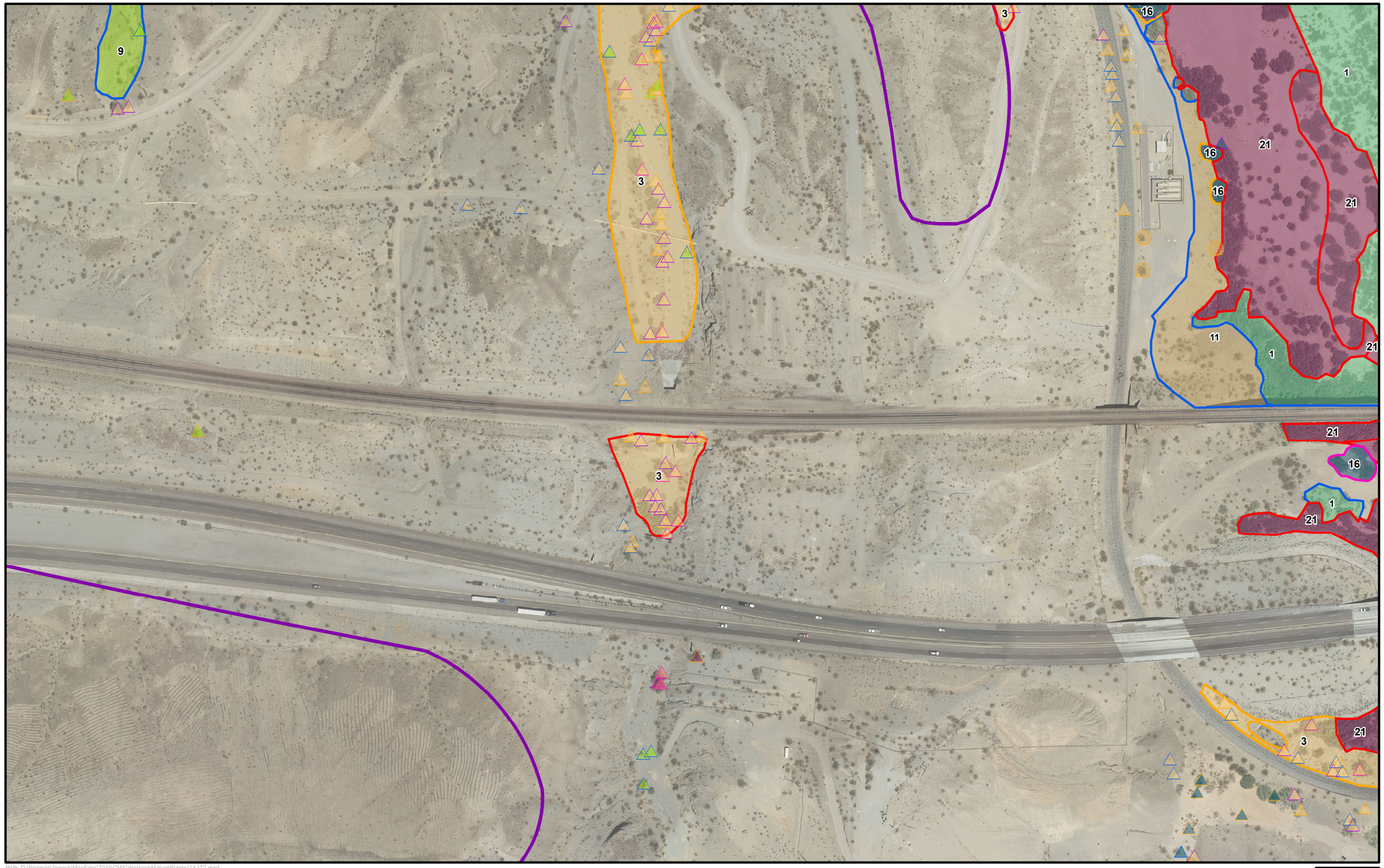
Path: D:\Projects\Topock\MapFiles\2011\CMS\Working\MaturePlants11X172.mxd
Date Saved: 12/20/2011 3:34:21 PM

MAP 10



Path: D:\Projects\Topock\MapFiles\2011\CMS\Working\MaturePlants11X172.mxd
Date Saved: 12/20/2011 3:34:21 PM

MAP 11



Path: D:\Projects\Topock\MapFiles\2011\CMS\Working\MaturePlants11X172.mxd
Date Saved: 12/20/2011 3:34:21 PM

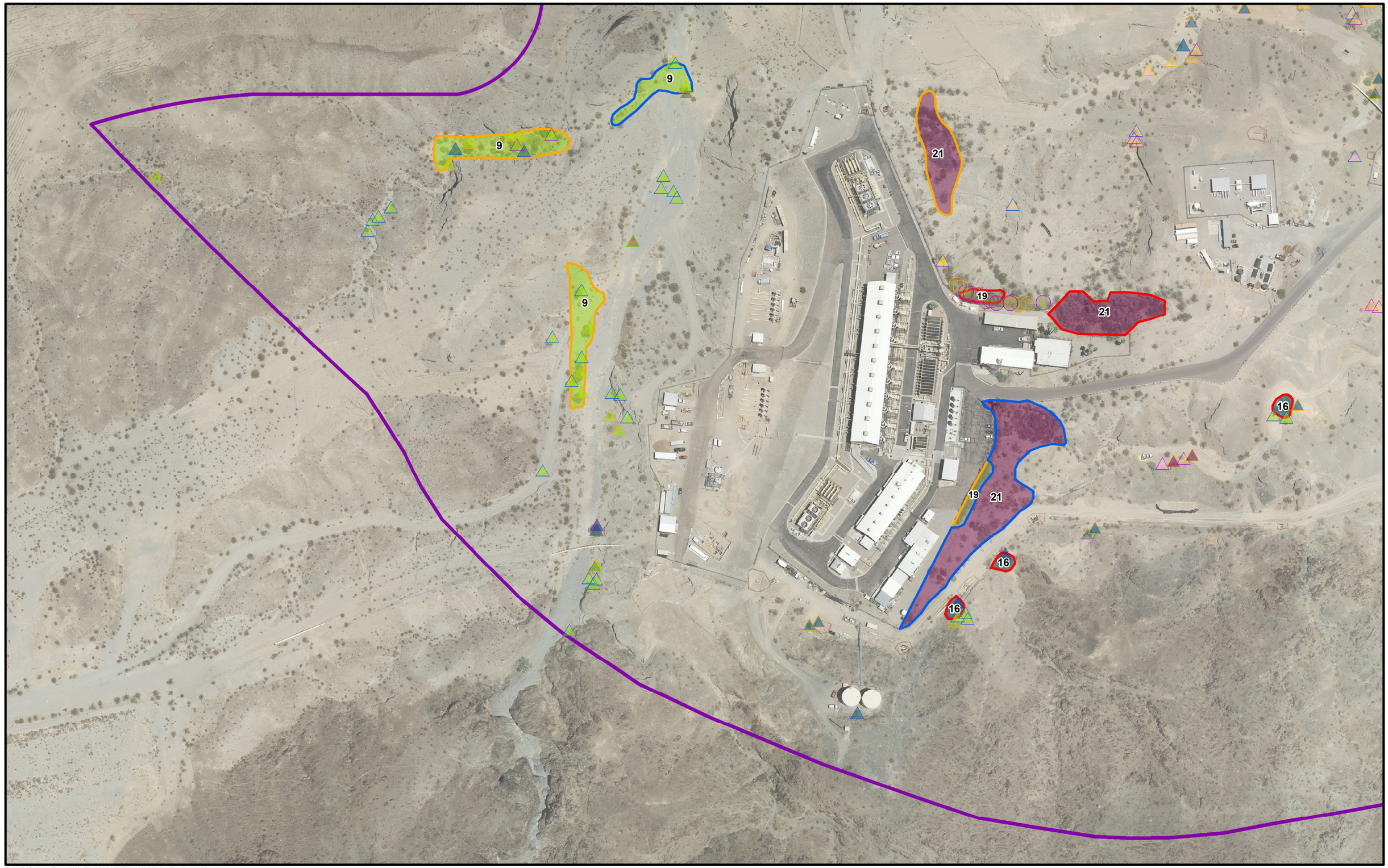
MAP 12

Path: D:\Projects\Topock\MapFiles\2011\CMS\Working\MaturePlants11X172.mxd
Date Saved: 12/20/2011 3:34:21 PM

MAP 13

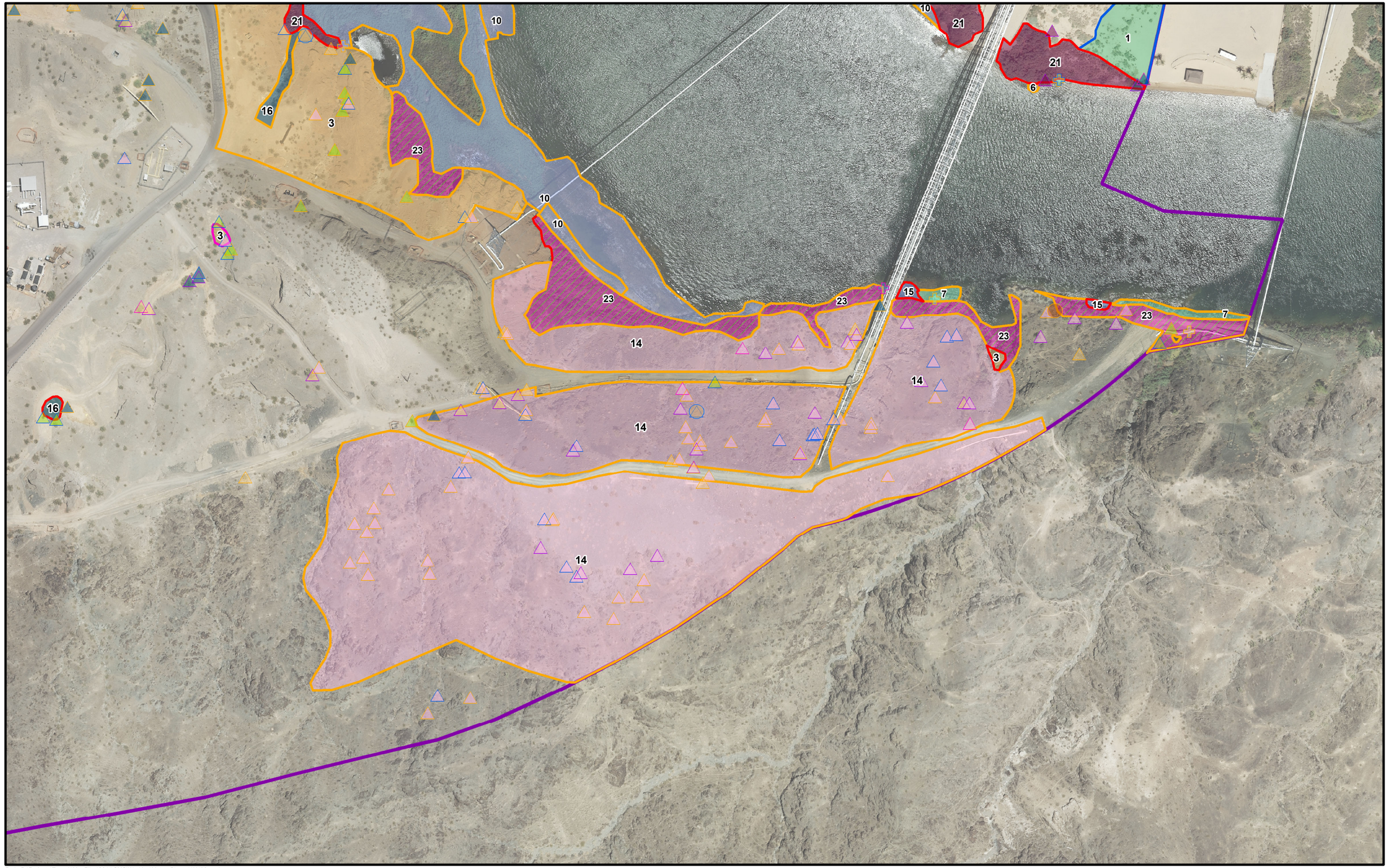
Path: D:\Projects\Topock\MapFiles\2011\CMS\Working\MaturePlants11X172.mxd
Date Saved: 12/20/2011 3:34:21 PM

MAP 14



Path: D:\Projects\Topock\MapFiles\2011\CMS\Working\MaturePlants11X172.mxd
Date Saved: 12/20/2011 3:34:21 PM

MAP 15

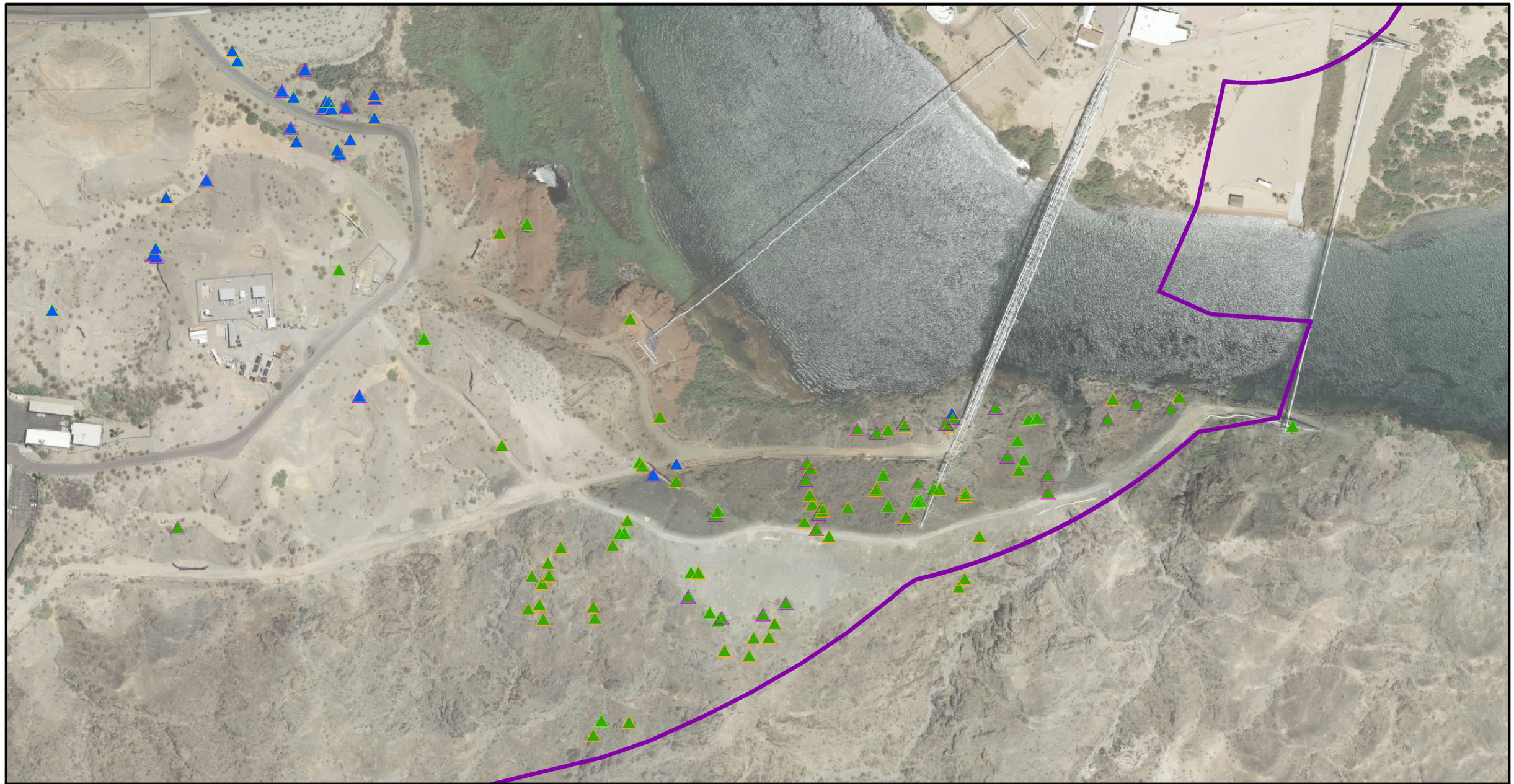


Path: D:\Projects\Topock\MapFiles\2011\CMS\Working\MaturePlants11X172.mxd
Date Saved: 12/20/2011 3:34:21 PM

MAP 16

Path: D:\Projects\Topock\MapFiles\2011\CMS\Working\MaturePlants11X172.mxd
Date Saved: 12/20/2011 3:34:21 PM

MAP 17



LEGEND

- EIR Project Area
- Blue Palo Verde
- Hillside Palo Verde

Height Designation

- Short
- Medium
- Tall
- Very Tall

N

0 175 350 700 Feet

FIGURE 3
DISTRIBUTION OF HILLSIDE PALO VERDE IN THE SURVEY AREA AT TOPOCK

PG&E Topock Compressor Station
Needles, California

CH2MHILL

Path: D:\Projects\Topock\MapFiles\2011\CMS\Final\HillSidePV.mxd
Date Saved: 12/21/2011 9:54:25 AM

Appendix A
Photographs

Appendix A

Plate 1. (A) Salt cedar (*Tamarix ramosissima*) with flowering branches (B) and (C) athel tamarisk (*Tamarix aphylla*) with branches and leaves (D).

Plate 2. (A) Hillside palo verde (*Parkinsonia microphylla*) with branches and leaves (C) and flower (E)and (B) blue palo verde (*Parkinsonia florida*) with branches and leaves (D) and flower (F).

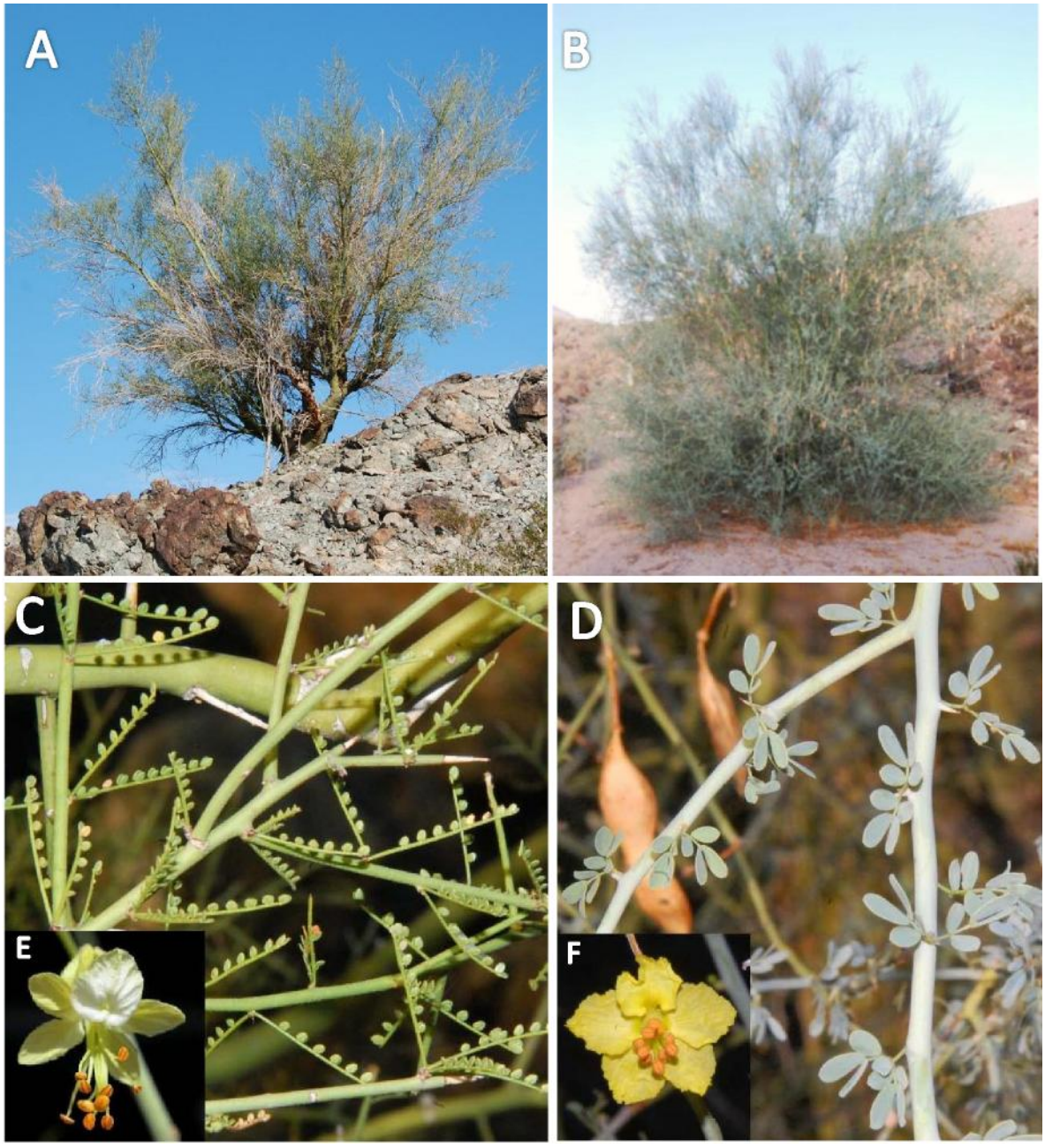


Plate 3. (A) Honey mesquite (*Prosopis glandulosa var. torreyana*) with close-up of fruit (B) and (C) Screwbean mesquite (*Prosopis pubescens*).

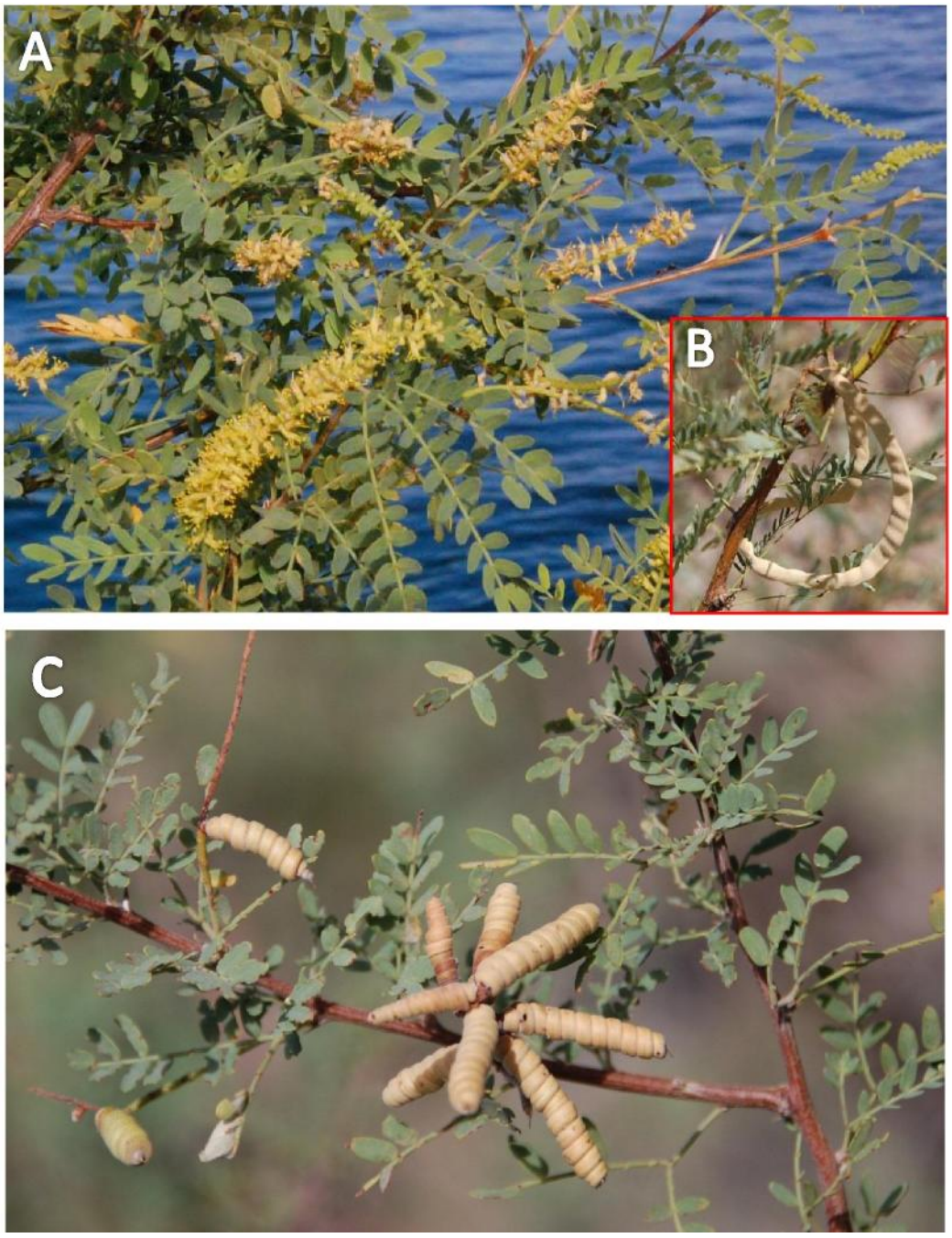


Plate 4. (A) Catclaw acacia (*Senegalia greggii*) and close-up of fruiting branch (B).

Plate 5. (A) Desert smoke tree and branches (B). (C&D) Arrow weed.

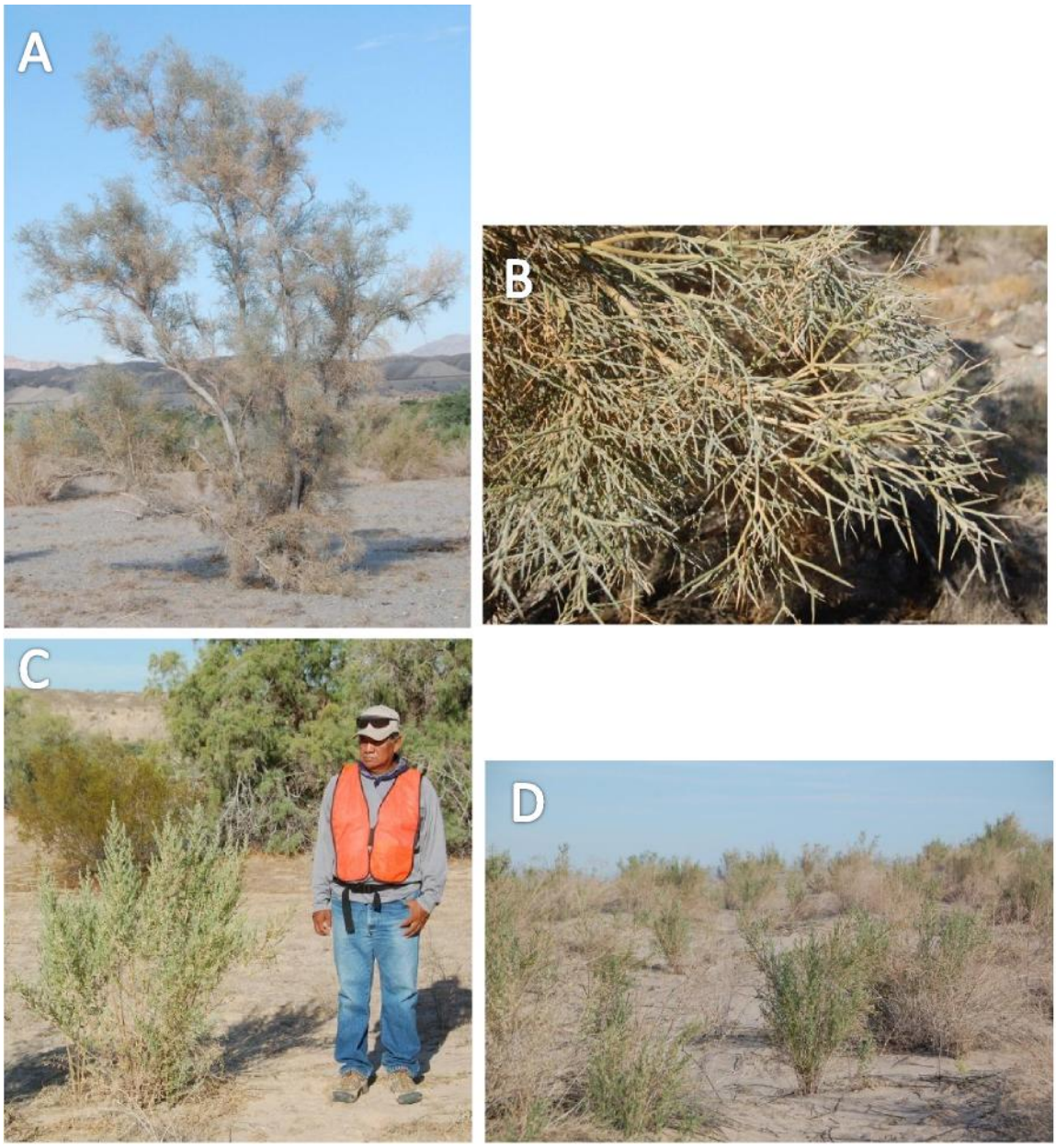


Plate 6. Wetland plants in Section I of the Survey Area. (A) California bulrush (*Schoenoplectus californicus*) marsh (1) and common reed (*Phragmites australis ssp. australis*) marsh (2) along the Colorado River, south of Interstate 40. (B) Eurasian genotype of common reed.

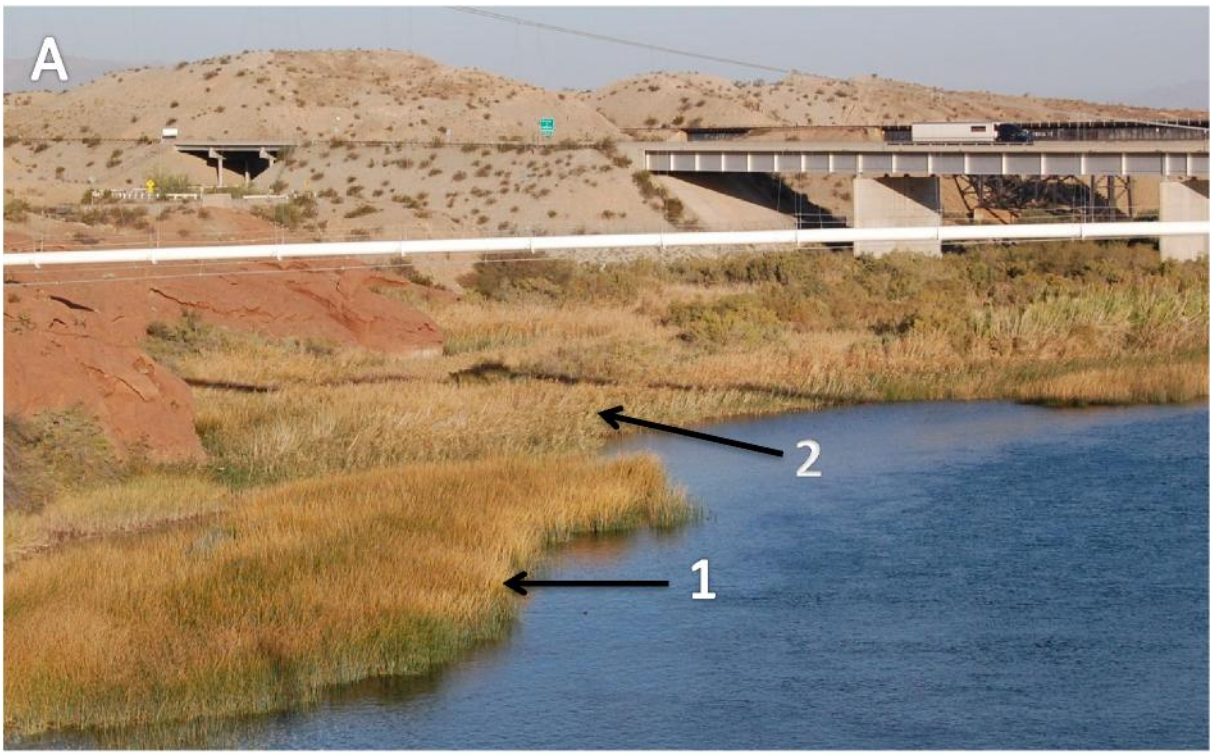
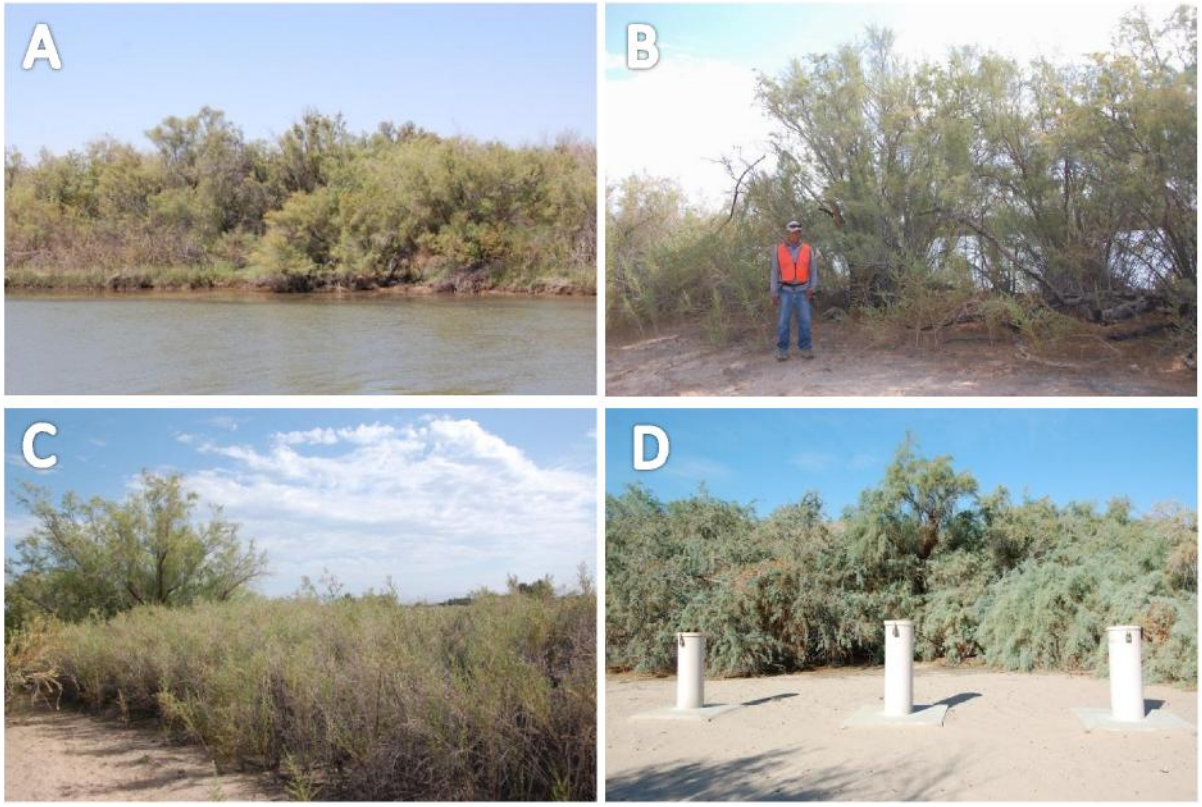


Plate 7. Screening of Survey Area in Section E by Mature Plants. (A) View of Section E shoreline from Topock Marina. (B) View from flood plain (Section E) towards Topock Marina with, from left to right, arrow weed, salt cedar and honey mesquite. (C) Dense arrow weed thicket and honey mesquite on flood plain in Section E. (D) Screening of well heads in flood plain by salt cedar.



Appendix B
Individual Mature Plants Survey Data

Apendix B. Mature plant points for Topock Compressor Station: size, health & location.

No.	Common Name	Scientific Name	Size Class	Health	Easting[1]	Northing	Object ID
TREES							
1	Athel tamarisk	*Tamarix aphylla*	Medium	Good	727651.7605	3845370.553	ID_621
2	Athel tamarisk	*Tamarix aphylla*	Medium	Good	729111.8949	3843709.388	ID_196
3	Athel tamarisk	*Tamarix aphylla*	Tall	Good	727708.3417	3845337.217	ID_625
4	Athel tamarisk	*Tamarix aphylla*	Tall	Good	727719.9001	3845329.815	ID_626
5	Athel tamarisk	*Tamarix aphylla*	Tall	Good	727721.0248	3845341.457	ID_627
6	Athel tamarisk	*Tamarix aphylla*	Tall	Good	729169.7124	3843677.501	ID_207
7	Athel tamarisk	*Tamarix aphylla*	Tall	Good	730035.8007	3845086.634	ID_236
8	Athel tamarisk	*Tamarix aphylla*	Tall	Good	730049.8047	3845046.954	ID_240
9	Athel tamarisk	*Tamarix aphylla*	Very Tall	Good	731034.5506	3845180.448	ID_1546
10	Athel tamarisk	*Tamarix aphylla*	Very Tall	Good	731048.3489	3845188.574	ID_1547
11	Athel tamarisk	*Tamarix aphylla*	Very Tall	Good	731047.3924	3845242.395	ID_1548
12	Athel tamarisk	*Tamarix aphylla*	Very Tall	Good	729447.1755	3844504.343	ID_1460
13	Athel tamarisk	*Tamarix aphylla*	Very Tall	Good	729447.7052	3844510.548	ID_1464
14	Athel tamarisk	*Tamarix aphylla*	Very Tall	Good	730138.5652	3844985.966	ID_1206
15	Athel tamarisk	*Tamarix aphylla*	Very Tall	Good	730123.7943	3844993.269	ID_1207
16	Athel tamarisk	*Tamarix aphylla*	Very Tall	Good	730106.3832	3844984.363	ID_1208
17	Athel tamarisk	*Tamarix aphylla*	Very Tall	Good	729390.7124	3845170.568	ID_857
18	Athel tamarisk	*Tamarix aphylla*	Very Tall	Good	729390.7124	3845170.568	ID_756
19	Athel tamarisk	*Tamarix aphylla*	Very Tall	Good	727652.0334	3845363.829	ID_620
20	Athel tamarisk	*Tamarix aphylla*	Very Tall	Good	727661.2031	3845385.669	ID_622
21	Athel tamarisk	*Tamarix aphylla*	Very Tall	Good	727691.4108	3845392.019	ID_623
22	Athel tamarisk	*Tamarix aphylla*	Very Tall	Good	727683.5622	3845296.362	ID_624
23	Athel tamarisk	*Tamarix aphylla*	Very Tall	Good	727736.9559	3845418.143	ID_628
24	Athel tamarisk	*Tamarix aphylla*	Very Tall	Good	730189.0983	3844919.772	ID_227
25	Blue palo verde	*Parkinsonia florida*	Short	Poor	729360.4593	3845049.309	ID_560
26	Blue palo verde	*Parkinsonia florida*	Short	Poor	727386.734	3845332.409	ID_1793
27	Blue palo verde	*Parkinsonia florida*	Short	Fair	728818.7997	3844888.821	ID_1174
28	Blue palo verde	*Parkinsonia florida*	Short	Fair	727527.6944	3845375.892	ID_44
29	Blue palo verde	*Parkinsonia florida*	Short	Fair	727513.865	3845365.382	ID_45
30	Blue palo verde	*Parkinsonia florida*	Short	Good	727422.8603	3845383.606	ID_1795
31	Blue palo verde	*Parkinsonia florida*	Short	Good	727426.0379	3845368.076	ID_1796
32	Blue palo verde	*Parkinsonia florida*	Short	Good	727431.1701	3845357.413	ID_1797
33	Blue palo verde	*Parkinsonia florida*	Short	Good	727527.4903	3845375.655	ID_1798
34	Blue palo verde	*Parkinsonia florida*	Short	Good	729725.8315	3844351.228	ID_1344
35	Blue palo verde	*Parkinsonia florida*	Short	Good	729426.1959	3844598.182	ID_1362
36	Blue palo verde	*Parkinsonia florida*	Short	Good	729430.1173	3844584.886	ID_1364
37	Blue palo verde	*Parkinsonia florida*	Short	Good	728547.3955	3845133.345	ID_1159
38	Blue palo verde	*Parkinsonia florida*	Short	Good	728532.8769	3845025.224	ID_1163
39	Blue palo verde	*Parkinsonia florida*	Short	Good	727844.3208	3845435.495	ID_1026
40	Blue palo verde	*Parkinsonia florida*	Short	Good	730604.2211	3844579.439	ID_1033
41	Blue palo verde	*Parkinsonia florida*	Short	Good	730605.0209	3844568.484	ID_1034
42	Blue palo verde	*Parkinsonia florida*	Short	Good	727656.475	3845265.972	ID_903

[1]Coordinates are UTM NAD 83 Zone 11N;

No.	Common Name	Scientific Name	Size Class	Health	Easting[1]	Northing	Object ID
43	Blue palo verde	*Parkinsonia florida*	Short	Good	727655.8788	3845273.976	ID_904
44	Blue palo verde	*Parkinsonia florida*	Short	Good	727664.6081	3845299.022	ID_905
45	Blue palo verde	*Parkinsonia florida*	Short	Good	727974.1757	3845461.306	ID_909
46	Blue palo verde	*Parkinsonia florida*	Short	Good	727976.3426	3845461.622	ID_910
47	Blue palo verde	*Parkinsonia florida*	Short	Good	728129.6994	3845523.685	ID_913
48	Blue palo verde	*Parkinsonia florida*	Short	Good	728157.3473	3845499.51	ID_917
49	Blue palo verde	*Parkinsonia florida*	Short	Good	728809.0673	3845591.586	ID_933
50	Blue palo verde	*Parkinsonia florida*	Short	Good	729587.1718	3845199.149	ID_948
51	Blue palo verde	*Parkinsonia florida*	Short	Good	729690.1575	3844964.445	ID_954
52	Blue palo verde	*Parkinsonia florida*	Short	Good	729445.1433	3844884.661	ID_782
53	Blue palo verde	*Parkinsonia florida*	Short	Good	729442.7148	3844926.875	ID_792
54	Blue palo verde	*Parkinsonia florida*	Short	Good	729416.6142	3845029.771	ID_805
55	Blue palo verde	*Parkinsonia florida*	Short	Good	729405.5209	3844947.374	ID_812
56	Blue palo verde	*Parkinsonia florida*	Short	Good	729413.6417	3844809.262	ID_818
57	Blue palo verde	*Parkinsonia florida*	Short	Good	729425.3697	3844703.526	ID_819
58	Blue palo verde	*Parkinsonia florida*	Short	Good	729428.4032	3844675.3	ID_821
59	Blue palo verde	*Parkinsonia florida*	Short	Good	729333.9105	3845035.42	ID_823
60	Blue palo verde	*Parkinsonia florida*	Short	Good	729339.1798	3845133.335	ID_833
61	Blue palo verde	*Parkinsonia florida*	Short	Good	729328.942	3845145.967	ID_841
62	Blue palo verde	*Parkinsonia florida*	Short	Good	729490.201	3844995.325	ID_862
63	Blue palo verde	*Parkinsonia florida*	Short	Good	729445.1433	3844884.661	ID_681
64	Blue palo verde	*Parkinsonia florida*	Short	Good	729442.7148	3844926.875	ID_691
65	Blue palo verde	*Parkinsonia florida*	Short	Good	729416.6142	3845029.771	ID_704
66	Blue palo verde	*Parkinsonia florida*	Short	Good	729405.5209	3844947.374	ID_711
67	Blue palo verde	*Parkinsonia florida*	Short	Good	729413.6417	3844809.262	ID_717
68	Blue palo verde	*Parkinsonia florida*	Short	Good	729425.3697	3844703.526	ID_718
69	Blue palo verde	*Parkinsonia florida*	Short	Good	729428.4032	3844675.3	ID_720
70	Blue palo verde	*Parkinsonia florida*	Short	Good	729333.9105	3845035.42	ID_722
71	Blue palo verde	*Parkinsonia florida*	Short	Good	729339.1798	3845133.335	ID_732
72	Blue palo verde	*Parkinsonia florida*	Short	Good	729328.942	3845145.967	ID_740
73	Blue palo verde	*Parkinsonia florida*	Short	Good	729490.201	3844995.325	ID_761
74	Blue palo verde	*Parkinsonia florida*	Short	Good	729456.1005	3844905.149	ID_544
75	Blue palo verde	*Parkinsonia florida*	Short	Good	729456.9485	3844918.002	ID_545
76	Blue palo verde	*Parkinsonia florida*	Short	Good	729454.2519	3844925.087	ID_546
77	Blue palo verde	*Parkinsonia florida*	Short	Good	729449.1864	3844960.916	ID_548
78	Blue palo verde	*Parkinsonia florida*	Short	Good	729415.3762	3845041.95	ID_554
79	Blue palo verde	*Parkinsonia florida*	Short	Good	729384.9039	3845017.921	ID_559
80	Blue palo verde	*Parkinsonia florida*	Short	Good	729361.3144	3845084.918	ID_563
81	Blue palo verde	*Parkinsonia florida*	Short	Good	729382.8683	3845108.306	ID_570
82	Blue palo verde	*Parkinsonia florida*	Short	Good	729353.1129	3845139.241	ID_573
83	Blue palo verde	*Parkinsonia florida*	Short	Good	727297.8756	3845292.844	ID_606
84	Blue palo verde	*Parkinsonia florida*	Short	Good	727353.9319	3845325.245	ID_610
85	Blue palo verde	*Parkinsonia florida*	Short	Good	727400.5114	3845342.61	ID_613
86	Blue palo verde	*Parkinsonia florida*	Short	Good	729854.0846	3844419.427	ID_158
87	Blue palo verde	*Parkinsonia florida*	Short	Good	729652.5699	3844308.288	ID_167
88	Blue palo verde	*Parkinsonia florida*	Short	Good	729850.2242	3844448.093	ID_214

[1]Coordinates are UTM NAD 83 Zone 11N;

No.	Common Name	Scientific Name	Size Class	Health	Easting[1]	Northing	Object ID
89	Blue palo verde	*Parkinsonia florida*	Short	Good	729846.4658	3844453.641	ID_217
90	Blue palo verde	*Parkinsonia florida*	Short	Good	729823.8647	3844456.416	ID_218
91	Blue palo verde	*Parkinsonia florida*	Short	Good	729784.6863	3844482.463	ID_220
92	Blue palo verde	*Parkinsonia florida*	Short	Good	728994.0734	3845286.395	ID_274
93	Blue palo verde	*Parkinsonia florida*	Short	Good	728554.0217	3845103.588	ID_311
94	Blue palo verde	*Parkinsonia florida*	Short	Good	728804.6738	3844905.786	ID_321
95	Blue palo verde	*Parkinsonia florida*	Short	Good	728812.4262	3844887.721	ID_323
96	Blue palo verde	*Parkinsonia florida*	Short	Good	727549.7785	3845195.347	ID_41
97	Blue palo verde	*Parkinsonia florida*	Short	Good	727555.027	3845402.564	ID_42
98	Blue palo verde	*Parkinsonia florida*	Short	Good	727547.8179	3845398.517	ID_43
99	Blue palo verde	*Parkinsonia florida*	Short	Good	727615.1112	3845370.265	ID_46
100	Blue palo verde	*Parkinsonia florida*	Short	Good	728101.1409	3845516.121	ID_56
101	Blue palo verde	*Parkinsonia florida*	Short	Good	729586.5847	3845202.145	ID_74
102	Blue palo verde	*Parkinsonia florida*	Short	Good	729717.0808	3844867.062	ID_80
103	Blue palo verde	*Parkinsonia florida*	Short	Good	729718.1385	3844862.208	ID_81
104	Blue palo verde	*Parkinsonia florida*	Short	Good	729719.9408	3844849.039	ID_83
105	Blue palo verde	*Parkinsonia florida*	Short	Good	729720.251	3844831.728	ID_85
106	Blue palo verde	*Parkinsonia florida*	Short	Good	729721.5262	3844822.828	ID_86
107	Blue palo verde	*Parkinsonia florida*	Medium	Poor	728864.4758	3845310.374	ID_1142
108	Blue palo verde	*Parkinsonia florida*	Medium	Poor	729353.9366	3845053.975	ID_561
109	Blue palo verde	*Parkinsonia florida*	Medium	Poor	729351.7111	3845059.288	ID_562
110	Blue palo verde	*Parkinsonia florida*	Medium	Poor	729193.8278	3845509.181	ID_247
111	Blue palo verde	*Parkinsonia florida*	Medium	Poor	728826.2893	3845209.67	ID_297
112	Blue palo verde	*Parkinsonia florida*	Medium	Fair	728963.1125	3845278.294	ID_1130
113	Blue palo verde	*Parkinsonia florida*	Medium	Fair	728964.576	3845303.524	ID_1131
114	Blue palo verde	*Parkinsonia florida*	Medium	Fair	728948.0883	3845295.563	ID_1132
115	Blue palo verde	*Parkinsonia florida*	Medium	Fair	728944.3097	3845298.03	ID_1133
116	Blue palo verde	*Parkinsonia florida*	Medium	Fair	728941.4077	3845297.704	ID_1134
117	Blue palo verde	*Parkinsonia florida*	Medium	Fair	729561.6705	3845253.126	ID_946
118	Blue palo verde	*Parkinsonia florida*	Medium	Fair	729343.2278	3845187.668	ID_853
119	Blue palo verde	*Parkinsonia florida*	Medium	Fair	729343.2278	3845187.668	ID_752
120	Blue palo verde	*Parkinsonia florida*	Medium	Fair	729447.2587	3844801.994	ID_539
121	Blue palo verde	*Parkinsonia florida*	Medium	Fair	729427.9621	3845038.829	ID_553
122	Blue palo verde	*Parkinsonia florida*	Medium	Fair	729374.8534	3845148.747	ID_586
123	Blue palo verde	*Parkinsonia florida*	Medium	Fair	727302.8588	3845244.985	ID_608
124	Blue palo verde	*Parkinsonia florida*	Medium	Fair	730090.2393	3844195.938	ID_354
125	Blue palo verde	*Parkinsonia florida*	Medium	Fair	729450.211	3844599.624	ID_169
126	Blue palo verde	*Parkinsonia florida*	Medium	Fair	729431.0512	3844650.427	ID_177
127	Blue palo verde	*Parkinsonia florida*	Medium	Fair	729472.8132	3844650.082	ID_178
128	Blue palo verde	*Parkinsonia florida*	Medium	Fair	729780.9088	3844489.615	ID_221
129	Blue palo verde	*Parkinsonia florida*	Medium	Fair	729076.5758	3845340.115	ID_261
130	Blue palo verde	*Parkinsonia florida*	Medium	Fair	728944.3276	3845287.148	ID_279
131	Blue palo verde	*Parkinsonia florida*	Medium	Fair	728868.9069	3845275.31	ID_286
132	Blue palo verde	*Parkinsonia florida*	Medium	Fair	728574.7543	3844923.873	ID_318
133	Blue palo verde	*Parkinsonia florida*	Medium	Fair	729079.8861	3845090.097	ID_324
134	Blue palo verde	*Parkinsonia florida*	Medium	Fair	729138.1811	3845340.414	ID_335

[1]Coordinates are UTM NAD 83 Zone 11N;

No.	Common Name	Scientific Name	Size Class	Health	Easting[1]	Northing	Object ID
135	Blue palo verde	*Parkinsonia florida*	Medium	Good	727316.4979	3845428.394	ID_1780
136	Blue palo verde	*Parkinsonia florida*	Medium	Good	727316.406	3845424.158	ID_1784
137	Blue palo verde	*Parkinsonia florida*	Medium	Good	727381.3456	3845347.213	ID_1791
138	Blue palo verde	*Parkinsonia florida*	Medium	Good	730284.3873	3844229.772	ID_1613
139	Blue palo verde	*Parkinsonia florida*	Medium	Good	729429.694	3844585.303	ID_1363
140	Blue palo verde	*Parkinsonia florida*	Medium	Good	729431.6126	3844588.434	ID_1365
141	Blue palo verde	*Parkinsonia florida*	Medium	Good	729126.5344	3843676.72	ID_1401
142	Blue palo verde	*Parkinsonia florida*	Medium	Good	729880.3737	3844457.846	ID_1441
143	Blue palo verde	*Parkinsonia florida*	Medium	Good	729880.4803	3844441.485	ID_1443
144	Blue palo verde	*Parkinsonia florida*	Medium	Good	729073.7811	3845394.882	ID_1122
145	Blue palo verde	*Parkinsonia florida*	Medium	Good	728936.337	3845300.036	ID_1135
146	Blue palo verde	*Parkinsonia florida*	Medium	Good	728545.9105	3845065.31	ID_1161
147	Blue palo verde	*Parkinsonia florida*	Medium	Good	728530.4284	3845003.543	ID_1165
148	Blue palo verde	*Parkinsonia florida*	Medium	Good	728545.4833	3844898.947	ID_1168
149	Blue palo verde	*Parkinsonia florida*	Medium	Good	728806.9281	3844911.887	ID_1173
150	Blue palo verde	*Parkinsonia florida*	Medium	Good	727517.055	3845769.469	ID_1000
151	Blue palo verde	*Parkinsonia florida*	Medium	Good	727766.4778	3845375.741	ID_1003
152	Blue palo verde	*Parkinsonia florida*	Medium	Good	727787.8889	3845362.747	ID_1005
153	Blue palo verde	*Parkinsonia florida*	Medium	Good	727925.9459	3845396.904	ID_1016
154	Blue palo verde	*Parkinsonia florida*	Medium	Good	727916.0807	3845421.077	ID_1017
155	Blue palo verde	*Parkinsonia florida*	Medium	Good	727924.1105	3845429.523	ID_1018
156	Blue palo verde	*Parkinsonia florida*	Medium	Good	727917.3347	3845431.861	ID_1020
157	Blue palo verde	*Parkinsonia florida*	Medium	Good	727870.2387	3845435.582	ID_1025
158	Blue palo verde	*Parkinsonia florida*	Medium	Good	730565.28	3844560.414	ID_1029
159	Blue palo verde	*Parkinsonia florida*	Medium	Good	727317.2458	3845562.596	ID_982
160	Blue palo verde	*Parkinsonia florida*	Medium	Good	727648.9308	3845279.018	ID_901
161	Blue palo verde	*Parkinsonia florida*	Medium	Good	727652.9325	3845269.124	ID_902
162	Blue palo verde	*Parkinsonia florida*	Medium	Good	727663.3346	3845302.008	ID_906
163	Blue palo verde	*Parkinsonia florida*	Medium	Good	727648.6063	3845311.81	ID_907
164	Blue palo verde	*Parkinsonia florida*	Medium	Good	728133.4928	3845523.437	ID_914
165	Blue palo verde	*Parkinsonia florida*	Medium	Good	728171.0277	3845508.384	ID_920
166	Blue palo verde	*Parkinsonia florida*	Medium	Good	728735.9706	3845584.565	ID_927
167	Blue palo verde	*Parkinsonia florida*	Medium	Good	728784.8984	3845587.881	ID_930
168	Blue palo verde	*Parkinsonia florida*	Medium	Good	729556.4428	3845255.329	ID_945
169	Blue palo verde	*Parkinsonia florida*	Medium	Good	729689.9837	3844963.858	ID_955
170	Blue palo verde	*Parkinsonia florida*	Medium	Good	729691.0988	3844959.73	ID_956
171	Blue palo verde	*Parkinsonia florida*	Medium	Good	729687.4732	3844955.498	ID_957
172	Blue palo verde	*Parkinsonia florida*	Medium	Good	729655.1491	3844926.032	ID_960
173	Blue palo verde	*Parkinsonia florida*	Medium	Good	729654.9218	3844908.696	ID_961
174	Blue palo verde	*Parkinsonia florida*	Medium	Good	729665.9479	3844934.086	ID_964
175	Blue palo verde	*Parkinsonia florida*	Medium	Good	729448.2808	3844760.692	ID_771
176	Blue palo verde	*Parkinsonia florida*	Medium	Good	729450.2879	3844775.889	ID_773
177	Blue palo verde	*Parkinsonia florida*	Medium	Good	729449.2873	3844782.301	ID_774
178	Blue palo verde	*Parkinsonia florida*	Medium	Good	729430.4214	3844854.025	ID_778
179	Blue palo verde	*Parkinsonia florida*	Medium	Good	729443.5161	3844875.462	ID_781
180	Blue palo verde	*Parkinsonia florida*	Medium	Good	729446.6853	3844898.504	ID_787

[1]Coordinates are UTM NAD 83 Zone 11N;

No.	Common Name	Scientific Name	Size Class	Health	Easting[1]	Northing	Object ID
181	Blue palo verde	*Parkinsonia florida*	Medium	Good	729447.6238	3844918.394	ID_789
182	Blue palo verde	*Parkinsonia florida*	Medium	Good	729439.6349	3844919.493	ID_793
183	Blue palo verde	*Parkinsonia florida*	Medium	Good	729415.143	3844950.329	ID_810
184	Blue palo verde	*Parkinsonia florida*	Medium	Good	729406.6809	3844944.853	ID_811
185	Blue palo verde	*Parkinsonia florida*	Medium	Good	729425.2544	3844684.499	ID_820
186	Blue palo verde	*Parkinsonia florida*	Medium	Good	729342.8591	3845039.352	ID_822
187	Blue palo verde	*Parkinsonia florida*	Medium	Good	729339.9034	3845045.994	ID_824
188	Blue palo verde	*Parkinsonia florida*	Medium	Good	729334.2009	3845105.021	ID_830
189	Blue palo verde	*Parkinsonia florida*	Medium	Good	729338.1128	3845134.515	ID_834
190	Blue palo verde	*Parkinsonia florida*	Medium	Good	729324.1653	3845112.348	ID_835
191	Blue palo verde	*Parkinsonia florida*	Medium	Good	729340.6192	3845138.791	ID_839
192	Blue palo verde	*Parkinsonia florida*	Medium	Good	729334.2835	3845150.528	ID_842
193	Blue palo verde	*Parkinsonia florida*	Medium	Good	729336.564	3845173.85	ID_848
194	Blue palo verde	*Parkinsonia florida*	Medium	Good	729332.3679	3845185.595	ID_850
195	Blue palo verde	*Parkinsonia florida*	Medium	Good	729493.5179	3844983.34	ID_864
196	Blue palo verde	*Parkinsonia florida*	Medium	Good	729496.2233	3844980.447	ID_865
197	Blue palo verde	*Parkinsonia florida*	Medium	Good	729512.4663	3844965.505	ID_866
198	Blue palo verde	*Parkinsonia florida*	Medium	Good	729448.2808	3844760.692	ID_670
199	Blue palo verde	*Parkinsonia florida*	Medium	Good	729450.2879	3844775.889	ID_672
200	Blue palo verde	*Parkinsonia florida*	Medium	Good	729449.2873	3844782.301	ID_673
201	Blue palo verde	*Parkinsonia florida*	Medium	Good	729430.4214	3844854.025	ID_677
202	Blue palo verde	*Parkinsonia florida*	Medium	Good	729443.5161	3844875.462	ID_680
203	Blue palo verde	*Parkinsonia florida*	Medium	Good	729446.6853	3844898.504	ID_686
204	Blue palo verde	*Parkinsonia florida*	Medium	Good	729447.6238	3844918.394	ID_688
205	Blue palo verde	*Parkinsonia florida*	Medium	Good	729439.6349	3844919.493	ID_692
206	Blue palo verde	*Parkinsonia florida*	Medium	Good	729415.143	3844950.329	ID_709
207	Blue palo verde	*Parkinsonia florida*	Medium	Good	729406.6809	3844944.853	ID_710
208	Blue palo verde	*Parkinsonia florida*	Medium	Good	729425.2544	3844684.499	ID_719
209	Blue palo verde	*Parkinsonia florida*	Medium	Good	729342.8591	3845039.352	ID_721
210	Blue palo verde	*Parkinsonia florida*	Medium	Good	729339.9034	3845045.994	ID_723
211	Blue palo verde	*Parkinsonia florida*	Medium	Good	729334.2009	3845105.021	ID_729
212	Blue palo verde	*Parkinsonia florida*	Medium	Good	729338.1128	3845134.515	ID_733
213	Blue palo verde	*Parkinsonia florida*	Medium	Good	729324.1653	3845112.348	ID_734
214	Blue palo verde	*Parkinsonia florida*	Medium	Good	729340.6192	3845138.791	ID_738
215	Blue palo verde	*Parkinsonia florida*	Medium	Good	729334.2835	3845150.528	ID_741
216	Blue palo verde	*Parkinsonia florida*	Medium	Good	729336.564	3845173.85	ID_747
217	Blue palo verde	*Parkinsonia florida*	Medium	Good	729332.3679	3845185.595	ID_749
218	Blue palo verde	*Parkinsonia florida*	Medium	Good	729493.5179	3844983.34	ID_763
219	Blue palo verde	*Parkinsonia florida*	Medium	Good	729496.2233	3844980.447	ID_764
220	Blue palo verde	*Parkinsonia florida*	Medium	Good	729512.4663	3844965.505	ID_765
221	Blue palo verde	*Parkinsonia florida*	Medium	Good	729447.8194	3844855.677	ID_541
222	Blue palo verde	*Parkinsonia florida*	Medium	Good	729450.4162	3844875.853	ID_543
223	Blue palo verde	*Parkinsonia florida*	Medium	Good	729446.7042	3844969.658	ID_549
224	Blue palo verde	*Parkinsonia florida*	Medium	Good	729448.4467	3845012.497	ID_551
225	Blue palo verde	*Parkinsonia florida*	Medium	Good	729431.9983	3845020.397	ID_552
226	Blue palo verde	*Parkinsonia florida*	Medium	Good	729368.0405	3845032.016	ID_556

[1]Coordinates are UTM NAD 83 Zone 11N;

No.	Common Name	Scientific Name	Size Class	Health	Easting[1]	Northing	Object ID
227	Blue palo verde	*Parkinsonia florida*	Medium	Good	729382.7001	3845026.653	ID_558
228	Blue palo verde	*Parkinsonia florida*	Medium	Good	729367.1116	3845097.941	ID_565
229	Blue palo verde	*Parkinsonia florida*	Medium	Good	729355.9083	3845103.539	ID_568
230	Blue palo verde	*Parkinsonia florida*	Medium	Good	729349.9974	3845144.317	ID_574
231	Blue palo verde	*Parkinsonia florida*	Medium	Good	729357.1245	3845170.611	ID_575
232	Blue palo verde	*Parkinsonia florida*	Medium	Good	729356.6468	3845194.246	ID_579
233	Blue palo verde	*Parkinsonia florida*	Medium	Good	729355.818	3845205.202	ID_580
234	Blue palo verde	*Parkinsonia florida*	Medium	Good	729351.6843	3845218.777	ID_581
235	Blue palo verde	*Parkinsonia florida*	Medium	Good	729420.657	3845018.721	ID_592
236	Blue palo verde	*Parkinsonia florida*	Medium	Good	729462.0036	3844990.21	ID_593
237	Blue palo verde	*Parkinsonia florida*	Medium	Good	729471.2865	3844965.087	ID_594
238	Blue palo verde	*Parkinsonia florida*	Medium	Good	729463.9672	3844951.812	ID_595
239	Blue palo verde	*Parkinsonia florida*	Medium	Good	729467.5509	3844934.416	ID_596
240	Blue palo verde	*Parkinsonia florida*	Medium	Good	729477.3059	3844914.271	ID_598
241	Blue palo verde	*Parkinsonia florida*	Medium	Good	727278.439	3845457.649	ID_602
242	Blue palo verde	*Parkinsonia florida*	Medium	Good	727336.1628	3845370.867	ID_609
243	Blue palo verde	*Parkinsonia florida*	Medium	Good	727347.722	3845226.48	ID_612
244	Blue palo verde	*Parkinsonia florida*	Medium	Good	727392.9918	3845349.069	ID_614
245	Blue palo verde	*Parkinsonia florida*	Medium	Good	727414.6825	3845382.442	ID_618
246	Blue palo verde	*Parkinsonia florida*	Medium	Good	727412.7676	3845351.873	ID_619
247	Blue palo verde	*Parkinsonia florida*	Medium	Good	729863.3255	3844426.394	ID_156
248	Blue palo verde	*Parkinsonia florida*	Medium	Good	729825.3888	3844425.526	ID_159
249	Blue palo verde	*Parkinsonia florida*	Medium	Good	729733.5063	3844386.922	ID_166
250	Blue palo verde	*Parkinsonia florida*	Medium	Good	729450.7013	3844650.171	ID_176
251	Blue palo verde	*Parkinsonia florida*	Medium	Good	729848.5805	3844453.287	ID_216
252	Blue palo verde	*Parkinsonia florida*	Medium	Good	729116.2765	3845391.209	ID_251
253	Blue palo verde	*Parkinsonia florida*	Medium	Good	729132.3032	3845348.688	ID_256
254	Blue palo verde	*Parkinsonia florida*	Medium	Good	729085.2545	3845334.253	ID_263
255	Blue palo verde	*Parkinsonia florida*	Medium	Good	729056.6151	3845319.874	ID_270
256	Blue palo verde	*Parkinsonia florida*	Medium	Good	729007.2958	3845285.533	ID_273
257	Blue palo verde	*Parkinsonia florida*	Medium	Good	728988.4781	3845289.974	ID_275
258	Blue palo verde	*Parkinsonia florida*	Medium	Good	728982.168	3845292.21	ID_276
259	Blue palo verde	*Parkinsonia florida*	Medium	Good	728969.4378	3845265.686	ID_278
260	Blue palo verde	*Parkinsonia florida*	Medium	Good	728923.8185	3845294.138	ID_281
261	Blue palo verde	*Parkinsonia florida*	Medium	Good	728900.0217	3845309.793	ID_283
262	Blue palo verde	*Parkinsonia florida*	Medium	Good	728896.2809	3845310.186	ID_284
263	Blue palo verde	*Parkinsonia florida*	Medium	Good	728823.0344	3845245.506	ID_288
264	Blue palo verde	*Parkinsonia florida*	Medium	Good	728820.0918	3845243.805	ID_289
265	Blue palo verde	*Parkinsonia florida*	Medium	Good	728820.0094	3845232.592	ID_290
266	Blue palo verde	*Parkinsonia florida*	Medium	Good	728822.5033	3845228.476	ID_291
267	Blue palo verde	*Parkinsonia florida*	Medium	Good	728809.2527	3845253.879	ID_292
268	Blue palo verde	*Parkinsonia florida*	Medium	Good	728809.6863	3845249.912	ID_293
269	Blue palo verde	*Parkinsonia florida*	Medium	Good	728811.3492	3845236.698	ID_295
270	Blue palo verde	*Parkinsonia florida*	Medium	Good	728819.3295	3845198.37	ID_298
271	Blue palo verde	*Parkinsonia florida*	Medium	Good	728810.8052	3845192.381	ID_299
272	Blue palo verde	*Parkinsonia florida*	Medium	Good	728801.9158	3845180.087	ID_300

[1]Coordinates are UTM NAD 83 Zone 11N;

No.	Common Name	Scientific Name	Size Class	Health	Easting[1]	Northing	Object ID
273	Blue palo verde	*Parkinsonia florida*	Medium	Good	728802.5757	3845171.86	ID_301
274	Blue palo verde	*Parkinsonia florida*	Medium	Good	728782.738	3845154.275	ID_302
275	Blue palo verde	*Parkinsonia florida*	Medium	Good	728758.506	3845145.283	ID_303
276	Blue palo verde	*Parkinsonia florida*	Medium	Good	728621.1769	3845190.989	ID_305
277	Blue palo verde	*Parkinsonia florida*	Medium	Good	728620.0828	3845202.623	ID_307
278	Blue palo verde	*Parkinsonia florida*	Medium	Good	728545.8995	3845128.902	ID_310
279	Blue palo verde	*Parkinsonia florida*	Medium	Good	728553.7576	3845060.849	ID_312
280	Blue palo verde	*Parkinsonia florida*	Medium	Good	728544.1964	3845004.015	ID_315
281	Blue palo verde	*Parkinsonia florida*	Medium	Good	728851.8872	3844887.112	ID_319
282	Blue palo verde	*Parkinsonia florida*	Medium	Good	729143.8986	3845313.293	ID_331
283	Blue palo verde	*Parkinsonia florida*	Medium	Good	729148.6874	3845317.407	ID_332
284	Blue palo verde	*Parkinsonia florida*	Medium	Good	727644.9688	3845241.225	ID_50
285	Blue palo verde	*Parkinsonia florida*	Medium	Good	727667.7521	3845307.29	ID_53
286	Blue palo verde	*Parkinsonia florida*	Medium	Good	727648.6201	3845321.57	ID_54
287	Blue palo verde	*Parkinsonia florida*	Medium	Good	727661.9465	3845357.775	ID_55
288	Blue palo verde	*Parkinsonia florida*	Medium	Good	728190.7409	3845544.453	ID_59
289	Blue palo verde	*Parkinsonia florida*	Medium	Good	728183.0943	3845542.725	ID_60
290	Blue palo verde	*Parkinsonia florida*	Medium	Good	729694.503	3844935.501	ID_76
291	Blue palo verde	*Parkinsonia florida*	Medium	Good	729703.4101	3844925.279	ID_77
292	Blue palo verde	*Parkinsonia florida*	Medium	Good	729715.6197	3844876.897	ID_79
293	Blue palo verde	*Parkinsonia florida*	Medium	Good	729717.5345	3844855.082	ID_82
294	Blue palo verde	*Parkinsonia florida*	Medium	Good	729720.368	3844836.443	ID_84
295	Blue palo verde	*Parkinsonia florida*	Medium	Good	729724.2099	3844781.949	ID_87
296	Blue palo verde	*Parkinsonia florida*	Tall	Poor	728791.4891	3845199.656	ID_1150
297	Blue palo verde	*Parkinsonia florida*	Tall	Poor	727972.2822	3845463.856	ID_908
298	Blue palo verde	*Parkinsonia florida*	Tall	Poor	729445.6448	3844973.173	ID_550
299	Blue palo verde	*Parkinsonia florida*	Tall	Fair	727293.1235	3845440.786	ID_1782
300	Blue palo verde	*Parkinsonia florida*	Tall	Fair	729102.5037	3845417.763	ID_1114
301	Blue palo verde	*Parkinsonia florida*	Tall	Fair	728914.0159	3845312.06	ID_1139
302	Blue palo verde	*Parkinsonia florida*	Tall	Fair	729100.5169	3845405.568	ID_1115
303	Blue palo verde	*Parkinsonia florida*	Tall	Fair	728827.1736	3845304.348	ID_1144
304	Blue palo verde	*Parkinsonia florida*	Tall	Fair	728827.2956	3845297.489	ID_1145
305	Blue palo verde	*Parkinsonia florida*	Tall	Fair	728785.6549	3845191.761	ID_1151
306	Blue palo verde	*Parkinsonia florida*	Tall	Fair	728786.139	3845183.976	ID_1152
307	Blue palo verde	*Parkinsonia florida*	Tall	Fair	728722.7626	3845173.362	ID_1155
308	Blue palo verde	*Parkinsonia florida*	Tall	Fair	728641.907	3845201.474	ID_1157
309	Blue palo verde	*Parkinsonia florida*	Tall	Fair	728543.0902	3845087.176	ID_1160
310	Blue palo verde	*Parkinsonia florida*	Tall	Fair	728528.6379	3845041.138	ID_1162
311	Blue palo verde	*Parkinsonia florida*	Tall	Fair	728537.1226	3844912.707	ID_1167
312	Blue palo verde	*Parkinsonia florida*	Tall	Fair	728786.7347	3845228.384	ID_1149
313	Blue palo verde	*Parkinsonia florida*	Tall	Fair	730585.2902	3844567.081	ID_1031
314	Blue palo verde	*Parkinsonia florida*	Tall	Fair	729135.4893	3844848.57	ID_977
315	Blue palo verde	*Parkinsonia florida*	Tall	Fair	728764.9143	3845586.582	ID_929
316	Blue palo verde	*Parkinsonia florida*	Tall	Fair	729683.0108	3844951.302	ID_959
317	Blue palo verde	*Parkinsonia florida*	Tall	Fair	729451.2839	3844731.462	ID_768
318	Blue palo verde	*Parkinsonia florida*	Tall	Fair	729450.6557	3844753.783	ID_769

[1]Coordinates are UTM NAD 83 Zone 11N;

No.	Common Name	Scientific Name	Size Class	Health	Easting[1]	Northing	Object ID
319	Blue palo verde	*Parkinsonia florida*	Tall	Fair	729453.7024	3844756.636	ID_770
320	Blue palo verde	*Parkinsonia florida*	Tall	Fair	729434.0597	3844941.447	ID_797
321	Blue palo verde	*Parkinsonia florida*	Tall	Fair	729407.5439	3844967.1	ID_808
322	Blue palo verde	*Parkinsonia florida*	Tall	Fair	729332.2945	3845153.201	ID_844
323	Blue palo verde	*Parkinsonia florida*	Tall	Fair	729328.8973	3845158.509	ID_845
324	Blue palo verde	*Parkinsonia florida*	Tall	Fair	729451.2839	3844731.462	ID_667
325	Blue palo verde	*Parkinsonia florida*	Tall	Fair	729450.6557	3844753.783	ID_668
326	Blue palo verde	*Parkinsonia florida*	Tall	Fair	729453.7024	3844756.636	ID_669
327	Blue palo verde	*Parkinsonia florida*	Tall	Fair	729407.5439	3844967.1	ID_707
328	Blue palo verde	*Parkinsonia florida*	Tall	Fair	729434.0597	3844941.447	ID_696
329	Blue palo verde	*Parkinsonia florida*	Tall	Fair	729332.2945	3845153.201	ID_743
330	Blue palo verde	*Parkinsonia florida*	Tall	Fair	729328.8973	3845158.509	ID_744
331	Blue palo verde	*Parkinsonia florida*	Tall	Fair	729448.7582	3844796.866	ID_538
332	Blue palo verde	*Parkinsonia florida*	Tall	Fair	729369.6025	3845030.621	ID_557
333	Blue palo verde	*Parkinsonia florida*	Tall	Fair	729465.5976	3844925.172	ID_597
334	Blue palo verde	*Parkinsonia florida*	Tall	Fair	728932.1145	3845283.358	ID_280
335	Blue palo verde	*Parkinsonia florida*	Tall	Fair	728813.7362	3845222.366	ID_296
336	Blue palo verde	*Parkinsonia florida*	Tall	Fair	728704.4784	3845165.611	ID_304
337	Blue palo verde	*Parkinsonia florida*	Tall	Fair	728532.9335	3844970.86	ID_317
338	Blue palo verde	*Parkinsonia florida*	Tall	Fair	729151.5285	3845257.073	ID_328
339	Blue palo verde	*Parkinsonia florida*	Tall	Fair	727641.6705	3845236.995	ID_49
340	Blue palo verde	*Parkinsonia florida*	Tall	Fair	729581.5056	3845207.382	ID_72
341	Blue palo verde	*Parkinsonia florida*	Tall	Good	727311.1131	3845418.742	ID_1781
342	Blue palo verde	*Parkinsonia florida*	Tall	Good	727330.0699	3845309.554	ID_1787
343	Blue palo verde	*Parkinsonia florida*	Tall	Good	727425.6661	3845391.063	ID_1794
344	Blue palo verde	*Parkinsonia florida*	Tall	Good	729761.8632	3844398.845	ID_1343
345	Blue palo verde	*Parkinsonia florida*	Tall	Good	729724.4494	3844347.043	ID_1345
346	Blue palo verde	*Parkinsonia florida*	Tall	Good	729726.2925	3844345.12	ID_1346
347	Blue palo verde	*Parkinsonia florida*	Tall	Good	729451.3596	3844634.69	ID_1354
348	Blue palo verde	*Parkinsonia florida*	Tall	Good	729881.0838	3844455.171	ID_1440
349	Blue palo verde	*Parkinsonia florida*	Tall	Good	729102.9274	3845385.127	ID_1117
350	Blue palo verde	*Parkinsonia florida*	Tall	Good	729086.3543	3845386.921	ID_1118
351	Blue palo verde	*Parkinsonia florida*	Tall	Good	729077.0807	3845376.241	ID_1119
352	Blue palo verde	*Parkinsonia florida*	Tall	Good	729092.1627	3845377.511	ID_1120
353	Blue palo verde	*Parkinsonia florida*	Tall	Good	729059.6141	3845417.765	ID_1123
354	Blue palo verde	*Parkinsonia florida*	Tall	Good	729078.1794	3845417.325	ID_1124
355	Blue palo verde	*Parkinsonia florida*	Tall	Good	729059.293	3845399.379	ID_1125
356	Blue palo verde	*Parkinsonia florida*	Tall	Good	729018.242	3845320.934	ID_1126
357	Blue palo verde	*Parkinsonia florida*	Tall	Good	729017.8765	3845301.639	ID_1127
358	Blue palo verde	*Parkinsonia florida*	Tall	Good	728989.7277	3845299.751	ID_1128
359	Blue palo verde	*Parkinsonia florida*	Tall	Good	728969.9287	3845304.238	ID_1129
360	Blue palo verde	*Parkinsonia florida*	Tall	Good	728932.0906	3845302.478	ID_1136
361	Blue palo verde	*Parkinsonia florida*	Tall	Good	728930.5578	3845297.972	ID_1137
362	Blue palo verde	*Parkinsonia florida*	Tall	Good	728881.0326	3845304.524	ID_1140
363	Blue palo verde	*Parkinsonia florida*	Tall	Good	728870.878	3845304.577	ID_1141
364	Blue palo verde	*Parkinsonia florida*	Tall	Good	728857.2506	3845307.73	ID_1143

[1]Coordinates are UTM NAD 83 Zone 11N;

No.	Common Name	Scientific Name	Size Class	Health	Easting[1]	Northing	Object ID
365	Blue palo verde	*Parkinsonia florida*	Tall	Good	728801.9346	3845278.46	ID_1148
366	Blue palo verde	*Parkinsonia florida*	Tall	Good	728777.5269	3845179.947	ID_1153
367	Blue palo verde	*Parkinsonia florida*	Tall	Good	728528.7513	3845002.303	ID_1166
368	Blue palo verde	*Parkinsonia florida*	Tall	Good	727776.2632	3845391.71	ID_1001
369	Blue palo verde	*Parkinsonia florida*	Tall	Good	727765.5346	3845378.122	ID_1002
370	Blue palo verde	*Parkinsonia florida*	Tall	Good	727782.0647	3845374.706	ID_1004
371	Blue palo verde	*Parkinsonia florida*	Tall	Good	727844.1675	3845394.98	ID_1008
372	Blue palo verde	*Parkinsonia florida*	Tall	Good	727875.7486	3845386.42	ID_1010
373	Blue palo verde	*Parkinsonia florida*	Tall	Good	727893.7106	3845346.348	ID_1013
374	Blue palo verde	*Parkinsonia florida*	Tall	Good	727897.179	3845348.443	ID_1014
375	Blue palo verde	*Parkinsonia florida*	Tall	Good	727912.1858	3845433.819	ID_1021
376	Blue palo verde	*Parkinsonia florida*	Tall	Good	730561.3177	3844573.416	ID_1030
377	Blue palo verde	*Parkinsonia florida*	Tall	Good	730593.4483	3844577.214	ID_1032
378	Blue palo verde	*Parkinsonia florida*	Tall	Good	730474.2562	3844564.156	ID_1041
379	Blue palo verde	*Parkinsonia florida*	Tall	Good	730410.4965	3844563.312	ID_1042
380	Blue palo verde	*Parkinsonia florida*	Tall	Good	727322.5976	3845583.213	ID_983
381	Blue palo verde	*Parkinsonia florida*	Tall	Good	727629.2501	3845177.215	ID_897
382	Blue palo verde	*Parkinsonia florida*	Tall	Good	727984.8793	3845460.114	ID_911
383	Blue palo verde	*Parkinsonia florida*	Tall	Good	728729.2918	3845584.238	ID_926
384	Blue palo verde	*Parkinsonia florida*	Tall	Good	729380.302	3845487.586	ID_944
385	Blue palo verde	*Parkinsonia florida*	Tall	Good	729687.6157	3844965.587	ID_953
386	Blue palo verde	*Parkinsonia florida*	Tall	Good	729659.9739	3844902.546	ID_962
387	Blue palo verde	*Parkinsonia florida*	Tall	Good	729665.2773	3844933.345	ID_963
388	Blue palo verde	*Parkinsonia florida*	Tall	Good	729442.9253	3844711.591	ID_766
389	Blue palo verde	*Parkinsonia florida*	Tall	Good	729451.7925	3844767.91	ID_772
390	Blue palo verde	*Parkinsonia florida*	Tall	Good	729441.6491	3844779.267	ID_775
391	Blue palo verde	*Parkinsonia florida*	Tall	Good	729436.2869	3844825.573	ID_777
392	Blue palo verde	*Parkinsonia florida*	Tall	Good	729442.3713	3844886.998	ID_783
393	Blue palo verde	*Parkinsonia florida*	Tall	Good	729448.2482	3844890.748	ID_784
394	Blue palo verde	*Parkinsonia florida*	Tall	Good	729446.8309	3844895.064	ID_786
395	Blue palo verde	*Parkinsonia florida*	Tall	Good	729449.4927	3844910.115	ID_788
396	Blue palo verde	*Parkinsonia florida*	Tall	Good	729447.5818	3844921.264	ID_790
397	Blue palo verde	*Parkinsonia florida*	Tall	Good	729431.5603	3844930.917	ID_795
398	Blue palo verde	*Parkinsonia florida*	Tall	Good	729424.0376	3844959.148	ID_798
399	Blue palo verde	*Parkinsonia florida*	Tall	Good	729422.9155	3844963.211	ID_799
400	Blue palo verde	*Parkinsonia florida*	Tall	Good	729427.0495	3844990.121	ID_801
401	Blue palo verde	*Parkinsonia florida*	Tall	Good	729405.4699	3844987.635	ID_807
402	Blue palo verde	*Parkinsonia florida*	Tall	Good	729410.477	3844952.998	ID_809
403	Blue palo verde	*Parkinsonia florida*	Tall	Good	729418.1063	3844911.371	ID_816
404	Blue palo verde	*Parkinsonia florida*	Tall	Good	729333.0093	3845054.434	ID_825
405	Blue palo verde	*Parkinsonia florida*	Tall	Good	729332.4069	3845069.411	ID_827
406	Blue palo verde	*Parkinsonia florida*	Tall	Good	729337.1524	3845096.355	ID_828
407	Blue palo verde	*Parkinsonia florida*	Tall	Good	729338.528	3845123.809	ID_831
408	Blue palo verde	*Parkinsonia florida*	Tall	Good	729335.9487	3845129.082	ID_832
409	Blue palo verde	*Parkinsonia florida*	Tall	Good	729309.5098	3845135.323	ID_837
410	Blue palo verde	*Parkinsonia florida*	Tall	Good	729332.5883	3845141.542	ID_840

[1]Coordinates are UTM NAD 83 Zone 11N;

No.	Common Name	Scientific Name	Size Class	Health	Easting[1]	Northing	Object ID
411	Blue palo verde	*Parkinsonia florida*	Tall	Good	729333.236	3845160.612	ID_846
412	Blue palo verde	*Parkinsonia florida*	Tall	Good	729333.1878	3845166.374	ID_847
413	Blue palo verde	*Parkinsonia florida*	Tall	Good	729325.5802	3845179.587	ID_849
414	Blue palo verde	*Parkinsonia florida*	Tall	Good	729332.1352	3845187.394	ID_851
415	Blue palo verde	*Parkinsonia florida*	Tall	Good	729341.8966	3845181.07	ID_852
416	Blue palo verde	*Parkinsonia florida*	Tall	Good	729342.1565	3845197.304	ID_855
417	Blue palo verde	*Parkinsonia florida*	Tall	Good	729339.4585	3845203.452	ID_856
418	Blue palo verde	*Parkinsonia florida*	Tall	Good	729425.2349	3845039.229	ID_860
419	Blue palo verde	*Parkinsonia florida*	Tall	Good	729488.2852	3844988.44	ID_863
420	Blue palo verde	*Parkinsonia florida*	Tall	Good	729442.9253	3844711.591	ID_665
421	Blue palo verde	*Parkinsonia florida*	Tall	Good	729451.7925	3844767.91	ID_671
422	Blue palo verde	*Parkinsonia florida*	Tall	Good	729441.6491	3844779.267	ID_674
423	Blue palo verde	*Parkinsonia florida*	Tall	Good	729436.2869	3844825.573	ID_676
424	Blue palo verde	*Parkinsonia florida*	Tall	Good	729442.3713	3844886.998	ID_682
425	Blue palo verde	*Parkinsonia florida*	Tall	Good	729448.2482	3844890.748	ID_683
426	Blue palo verde	*Parkinsonia florida*	Tall	Good	729446.8309	3844895.064	ID_685
427	Blue palo verde	*Parkinsonia florida*	Tall	Good	729449.4927	3844910.115	ID_687
428	Blue palo verde	*Parkinsonia florida*	Tall	Good	729447.5818	3844921.264	ID_689
429	Blue palo verde	*Parkinsonia florida*	Tall	Good	729431.5603	3844930.917	ID_694
430	Blue palo verde	*Parkinsonia florida*	Tall	Good	729424.0376	3844959.148	ID_697
431	Blue palo verde	*Parkinsonia florida*	Tall	Good	729422.9155	3844963.211	ID_698
432	Blue palo verde	*Parkinsonia florida*	Tall	Good	729427.0495	3844990.121	ID_700
433	Blue palo verde	*Parkinsonia florida*	Tall	Good	729405.4699	3844987.635	ID_706
434	Blue palo verde	*Parkinsonia florida*	Tall	Good	729410.477	3844952.998	ID_708
435	Blue palo verde	*Parkinsonia florida*	Tall	Good	729418.1063	3844911.371	ID_715
436	Blue palo verde	*Parkinsonia florida*	Tall	Good	729333.0093	3845054.434	ID_724
437	Blue palo verde	*Parkinsonia florida*	Tall	Good	729332.4069	3845069.411	ID_726
438	Blue palo verde	*Parkinsonia florida*	Tall	Good	729337.1524	3845096.355	ID_727
439	Blue palo verde	*Parkinsonia florida*	Tall	Good	729338.528	3845123.809	ID_730
440	Blue palo verde	*Parkinsonia florida*	Tall	Good	729335.9487	3845129.082	ID_731
441	Blue palo verde	*Parkinsonia florida*	Tall	Good	729309.5098	3845135.323	ID_736
442	Blue palo verde	*Parkinsonia florida*	Tall	Good	729332.5883	3845141.542	ID_739
443	Blue palo verde	*Parkinsonia florida*	Tall	Good	729333.236	3845160.612	ID_745
444	Blue palo verde	*Parkinsonia florida*	Tall	Good	729333.1878	3845166.374	ID_746
445	Blue palo verde	*Parkinsonia florida*	Tall	Good	729325.5802	3845179.587	ID_748
446	Blue palo verde	*Parkinsonia florida*	Tall	Good	729332.1352	3845187.394	ID_750
447	Blue palo verde	*Parkinsonia florida*	Tall	Good	729341.8966	3845181.07	ID_751
448	Blue palo verde	*Parkinsonia florida*	Tall	Good	729342.1565	3845197.304	ID_754
449	Blue palo verde	*Parkinsonia florida*	Tall	Good	729339.4585	3845203.452	ID_755
450	Blue palo verde	*Parkinsonia florida*	Tall	Good	729425.2349	3845039.229	ID_759
451	Blue palo verde	*Parkinsonia florida*	Tall	Good	729488.2852	3844988.44	ID_762
452	Blue palo verde	*Parkinsonia florida*	Tall	Good	729452.1803	3844789.082	ID_537
453	Blue palo verde	*Parkinsonia florida*	Tall	Good	729451.4188	3844947.151	ID_547
454	Blue palo verde	*Parkinsonia florida*	Tall	Good	729408.6134	3845044.052	ID_555
455	Blue palo verde	*Parkinsonia florida*	Tall	Good	729359.8742	3845098.474	ID_566
456	Blue palo verde	*Parkinsonia florida*	Tall	Good	729360.763	3845116.276	ID_569

[1]Coordinates are UTM NAD 83 Zone 11N;

No.	Common Name	Scientific Name	Size Class	Health	Easting[1]	Northing	Object ID
457	Blue palo verde	*Parkinsonia florida*	Tall	Good	729374.7186	3845118.367	ID_571
458	Blue palo verde	*Parkinsonia florida*	Tall	Good	729372.2796	3845138.535	ID_572
459	Blue palo verde	*Parkinsonia florida*	Tall	Good	729365.3715	3845174.342	ID_576
460	Blue palo verde	*Parkinsonia florida*	Tall	Good	729358.2884	3845179.215	ID_577
461	Blue palo verde	*Parkinsonia florida*	Tall	Good	729360.23	3845189.963	ID_578
462	Blue palo verde	*Parkinsonia florida*	Tall	Good	729335.5391	3845224.708	ID_582
463	Blue palo verde	*Parkinsonia florida*	Tall	Good	729393.5329	3845155.463	ID_583
464	Blue palo verde	*Parkinsonia florida*	Tall	Good	729389.1959	3845148.21	ID_584
465	Blue palo verde	*Parkinsonia florida*	Tall	Good	729384.1793	3845147.826	ID_585
466	Blue palo verde	*Parkinsonia florida*	Tall	Good	729375.7877	3845134.977	ID_587
467	Blue palo verde	*Parkinsonia florida*	Tall	Good	727283.5427	3845511.524	ID_599
468	Blue palo verde	*Parkinsonia florida*	Tall	Good	727264.5229	3845504.1	ID_600
469	Blue palo verde	*Parkinsonia florida*	Tall	Good	727278.7115	3845319.619	ID_605
470	Blue palo verde	*Parkinsonia florida*	Tall	Good	727402.8338	3845355.081	ID_615
471	Blue palo verde	*Parkinsonia florida*	Tall	Good	727402.1117	3845369.214	ID_616
472	Blue palo verde	*Parkinsonia florida*	Tall	Good	727405.9017	3845376.28	ID_617
473	Blue palo verde	*Parkinsonia florida*	Tall	Good	729009.4945	3845678.311	ID_380
474	Blue palo verde	*Parkinsonia florida*	Tall	Good	730074.2159	3844188.289	ID_353
475	Blue palo verde	*Parkinsonia florida*	Tall	Good	729855.9204	3844416.029	ID_157
476	Blue palo verde	*Parkinsonia florida*	Tall	Good	729821.5671	3844434.896	ID_160
477	Blue palo verde	*Parkinsonia florida*	Tall	Good	729451.0456	3844600.979	ID_170
478	Blue palo verde	*Parkinsonia florida*	Tall	Good	729448.1975	3844607.383	ID_171
479	Blue palo verde	*Parkinsonia florida*	Tall	Good	729444.9493	3844609.011	ID_172
480	Blue palo verde	*Parkinsonia florida*	Tall	Good	729445.8158	3844615.826	ID_173
481	Blue palo verde	*Parkinsonia florida*	Tall	Good	729441.6976	3844615.602	ID_174
482	Blue palo verde	*Parkinsonia florida*	Tall	Good	729436.9038	3844648.077	ID_175
483	Blue palo verde	*Parkinsonia florida*	Tall	Good	729466.7743	3844649.311	ID_179
484	Blue palo verde	*Parkinsonia florida*	Tall	Good	729867.9246	3844245.949	ID_210
485	Blue palo verde	*Parkinsonia florida*	Tall	Good	729844.6359	3844448.702	ID_215
486	Blue palo verde	*Parkinsonia florida*	Tall	Good	729815.6578	3844460.924	ID_219
487	Blue palo verde	*Parkinsonia florida*	Tall	Good	729192.5795	3845505.799	ID_248
488	Blue palo verde	*Parkinsonia florida*	Tall	Good	729131.4594	3845407.24	ID_249
489	Blue palo verde	*Parkinsonia florida*	Tall	Good	729117.8966	3845394.669	ID_250
490	Blue palo verde	*Parkinsonia florida*	Tall	Good	729125.9291	3845386.887	ID_252
491	Blue palo verde	*Parkinsonia florida*	Tall	Good	729139.6124	3845389.225	ID_253
492	Blue palo verde	*Parkinsonia florida*	Tall	Good	729132.6516	3845368.294	ID_254
493	Blue palo verde	*Parkinsonia florida*	Tall	Good	729137.2679	3845349.658	ID_255
494	Blue palo verde	*Parkinsonia florida*	Tall	Good	729111.0596	3845356.136	ID_257
495	Blue palo verde	*Parkinsonia florida*	Tall	Good	729099.9157	3845350.504	ID_258
496	Blue palo verde	*Parkinsonia florida*	Tall	Good	729085.228	3845347.513	ID_259
497	Blue palo verde	*Parkinsonia florida*	Tall	Good	729076.1998	3845350.439	ID_260
498	Blue palo verde	*Parkinsonia florida*	Tall	Good	729081.2018	3845337.281	ID_262
499	Blue palo verde	*Parkinsonia florida*	Tall	Good	729060.6279	3845363.116	ID_264
500	Blue palo verde	*Parkinsonia florida*	Tall	Good	729051.104	3845350.983	ID_265
501	Blue palo verde	*Parkinsonia florida*	Tall	Good	729046.4529	3845344.862	ID_266
502	Blue palo verde	*Parkinsonia florida*	Tall	Good	729051.8651	3845338.44	ID_267

[1]Coordinates are UTM NAD 83 Zone 11N;

No.	Common Name	Scientific Name	Size Class	Health	Easting[1]	Northing	Object ID
503	Blue palo verde	*Parkinsonia florida*	Tall	Good	729055.5899	3845338.013	ID_268
504	Blue palo verde	*Parkinsonia florida*	Tall	Good	729049.7107	3845327.835	ID_269
505	Blue palo verde	*Parkinsonia florida*	Tall	Good	729008.781	3845278.097	ID_272
506	Blue palo verde	*Parkinsonia florida*	Tall	Good	728974.2401	3845274.84	ID_277
507	Blue palo verde	*Parkinsonia florida*	Tall	Good	728908.3853	3845294.182	ID_282
508	Blue palo verde	*Parkinsonia florida*	Tall	Good	728896.6846	3845305.278	ID_285
509	Blue palo verde	*Parkinsonia florida*	Tall	Good	728824.1443	3845252.112	ID_287
510	Blue palo verde	*Parkinsonia florida*	Tall	Good	728807.1294	3845243.231	ID_294
511	Blue palo verde	*Parkinsonia florida*	Tall	Good	728628.4301	3845198.1	ID_306
512	Blue palo verde	*Parkinsonia florida*	Tall	Good	728564.6837	3845175.403	ID_308
513	Blue palo verde	*Parkinsonia florida*	Tall	Good	728563.9481	3845143.577	ID_309
514	Blue palo verde	*Parkinsonia florida*	Tall	Good	728589.4242	3845037.359	ID_313
515	Blue palo verde	*Parkinsonia florida*	Tall	Good	728587.0595	3845029.68	ID_314
516	Blue palo verde	*Parkinsonia florida*	Tall	Good	728539.5386	3845001.947	ID_316
517	Blue palo verde	*Parkinsonia florida*	Tall	Good	728826.5494	3844902.706	ID_320
518	Blue palo verde	*Parkinsonia florida*	Tall	Good	728763.598	3844920.867	ID_322
519	Blue palo verde	*Parkinsonia florida*	Tall	Good	729136.6859	3845189.043	ID_325
520	Blue palo verde	*Parkinsonia florida*	Tall	Good	729154.2763	3845255.793	ID_327
521	Blue palo verde	*Parkinsonia florida*	Tall	Good	729139.3511	3845303.003	ID_329
522	Blue palo verde	*Parkinsonia florida*	Tall	Good	729141.4129	3845310.566	ID_330
523	Blue palo verde	*Parkinsonia florida*	Tall	Good	727631.1963	3845207.535	ID_48
524	Blue palo verde	*Parkinsonia florida*	Tall	Good	727678.9063	3845243.137	ID_52
525	Blue palo verde	*Parkinsonia florida*	Tall	Good	729565.5153	3845245.671	ID_68
526	Blue palo verde	*Parkinsonia florida*	Tall	Good	729572.1172	3845213.318	ID_71
527	Blue palo verde	*Parkinsonia florida*	Tall	Good	729582.8163	3845204.379	ID_73
528	Blue palo verde	*Parkinsonia florida*	Tall	Good	729671.4756	3845018.934	ID_75
529	Blue palo verde	*Parkinsonia florida*	Tall	Good	729712.929	3844885.554	ID_78
530	Blue palo verde	*Parkinsonia florida*	Tall	Good	729746.232	3844882.901	ID_88
531	Blue palo verde	*Parkinsonia florida*	Very Tall	Fair	729860.2502	3844449.124	ID_1442
532	Blue palo verde	*Parkinsonia florida*	Very Tall	Fair	728830.452	3845286.448	ID_1146
533	Blue palo verde	*Parkinsonia florida*	Very Tall	Fair	728820.5599	3845282.877	ID_1147
534	Blue palo verde	*Parkinsonia florida*	Very Tall	Fair	730651.9907	3844582.075	ID_1035
535	Blue palo verde	*Parkinsonia florida*	Very Tall	Fair	730669.4801	3844581.838	ID_1036
536	Blue palo verde	*Parkinsonia florida*	Very Tall	Fair	728774.5824	3845179.154	ID_1154
537	Blue palo verde	*Parkinsonia florida*	Very Tall	Fair	727821.5068	3845389.558	ID_1006
538	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	727374.5153	3845389.858	ID_1790
539	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729451.9332	3844593.107	ID_1350
540	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729458.5346	3844600.534	ID_1351
541	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729457.1668	3844629.658	ID_1352
542	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729449.6274	3844627.008	ID_1353
543	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729105.478	3845385.588	ID_1116
544	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729081.96	3845364.33	ID_1121
545	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	728928.2004	3845313.477	ID_1138
546	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	728648.7826	3845199.524	ID_1156
547	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	728552.7448	3845023.662	ID_1164
548	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729136.7812	3845307.628	ID_1186

[1]Coordinates are UTM NAD 83 Zone 11N;

No.	Common Name	Scientific Name	Size Class	Health	Easting[1]	Northing	Object ID
549	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729138.0445	3845346.117	ID_1187
550	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	727829.6627	3845397.338	ID_1007
551	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	727857.0079	3845397.486	ID_1009
552	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	727879.6833	3845377.871	ID_1011
553	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	727895.8376	3845325.067	ID_1015
554	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	730574.7233	3844557.425	ID_1028
555	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	730524.8224	3844565.674	ID_1039
556	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	730477.1705	3844554.261	ID_1040
557	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	730945.6046	3844927.13	ID_1048
558	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	727630.3904	3845184.43	ID_898
559	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	727627.2966	3845210.897	ID_899
560	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	727628.3224	3845253.924	ID_900
561	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729591.6925	3845190.443	ID_947
562	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729565.788	3845191.561	ID_950
563	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729568.43	3845196.562	ID_951
564	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729688.204	3844969.035	ID_952
565	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729683.8345	3844954.933	ID_958
566	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729450.1658	3844712.546	ID_767
567	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729439.2281	3844808.457	ID_776
568	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729429.4246	3844858.971	ID_779
569	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729439.5041	3844873.848	ID_780
570	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729448.5026	3844896.026	ID_785
571	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729444.4356	3844932.591	ID_791
572	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729432.3443	3844927.705	ID_794
573	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729433.5742	3844933.522	ID_796
574	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729422.2678	3844968.041	ID_800
575	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729413.8841	3845003.07	ID_802
576	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729413.3304	3844936.561	ID_814
577	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729420.0183	3844922.011	ID_815
578	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729344.5723	3845053.49	ID_826
579	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729328.9403	3845109.348	ID_829
580	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729317.0882	3845114.256	ID_836
581	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729346.3602	3845126.522	ID_838
582	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729335.6804	3845154.826	ID_843
583	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729342.3786	3845194.012	ID_854
584	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729398.6545	3845067.27	ID_858
585	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729407.0916	3845046.484	ID_859
586	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729430.5001	3845023.31	ID_861
587	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729450.1658	3844712.546	ID_666
588	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729439.2281	3844808.457	ID_675
589	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729429.4246	3844858.971	ID_678
590	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729439.5041	3844873.848	ID_679
591	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729448.5026	3844896.026	ID_684
592	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729444.4356	3844932.591	ID_690
593	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729432.3443	3844927.705	ID_693
594	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729433.5742	3844933.522	ID_695

[1]Coordinates are UTM NAD 83 Zone 11N;

No.	Common Name	Scientific Name	Size Class	Health	Easting[1]	Northing	Object ID
595	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729422.2678	3844968.041	ID_699
596	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729413.8841	3845003.07	ID_701
597	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729413.3304	3844936.561	ID_713
598	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729420.0183	3844922.011	ID_714
599	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729344.5723	3845053.49	ID_725
600	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729328.9403	3845109.348	ID_728
601	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729317.0882	3845114.256	ID_735
602	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729346.3602	3845126.522	ID_737
603	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729335.6804	3845154.826	ID_742
604	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729342.3786	3845194.012	ID_753
605	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729398.6545	3845067.27	ID_757
606	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729407.0916	3845046.484	ID_758
607	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729430.5001	3845023.31	ID_760
608	Blue palo verde	*Parkinsonia florida*	Very Tall	Good	729831.8934	3844475.847	ID_222
609	Catclaw acacia	*Senegalia greggii*	Short	Poor	728748.549	3845177.814	ID_1261
610	Catclaw acacia	*Senegalia greggii*	Short	Poor	729380.179	3844233.076	ID_186
611	Catclaw acacia	*Senegalia greggii*	Short	Poor	729142.1081	3843674.347	ID_205
612	Catclaw acacia	*Senegalia greggii*	Short	Fair	729142.3236	3843704.795	ID_199
613	Catclaw acacia	*Senegalia greggii*	Short	Good	727293.8928	3845440.457	ID_1783
614	Catclaw acacia	*Senegalia greggii*	Short	Good	727313.4197	3845316.473	ID_1785
615	Catclaw acacia	*Senegalia greggii*	Short	Good	727335.2439	3845305.029	ID_1788
616	Catclaw acacia	*Senegalia greggii*	Short	Good	727336.7968	3845315.004	ID_1789
617	Catclaw acacia	*Senegalia greggii*	Short	Good	729617.6575	3844065.733	ID_1667
618	Catclaw acacia	*Senegalia greggii*	Short	Good	729622.3966	3844067.504	ID_1668
619	Catclaw acacia	*Senegalia greggii*	Short	Good	729623.5056	3844064.385	ID_1669
620	Catclaw acacia	*Senegalia greggii*	Short	Good	729985.0135	3844386.34	ID_1471
621	Catclaw acacia	*Senegalia greggii*	Short	Good	729397.6657	3844260.384	ID_1461
622	Catclaw acacia	*Senegalia greggii*	Short	Good	729373.6199	3844154.222	ID_1462
623	Catclaw acacia	*Senegalia greggii*	Short	Good	729454.323	3844393.93	ID_1370
624	Catclaw acacia	*Senegalia greggii*	Short	Good	729115.4992	3845407.825	ID_1219
625	Catclaw acacia	*Senegalia greggii*	Short	Good	729110.0998	3845417.861	ID_1220
626	Catclaw acacia	*Senegalia greggii*	Short	Good	729103.8497	3845416.419	ID_1221
627	Catclaw acacia	*Senegalia greggii*	Short	Good	729068.5788	3845397.712	ID_1225
628	Catclaw acacia	*Senegalia greggii*	Short	Good	729013.0536	3845303.271	ID_1232
629	Catclaw acacia	*Senegalia greggii*	Short	Good	728972.3549	3845294.788	ID_1235
630	Catclaw acacia	*Senegalia greggii*	Short	Good	728975.5627	3845284.63	ID_1236
631	Catclaw acacia	*Senegalia greggii*	Short	Good	728971.7248	3845281.872	ID_1237
632	Catclaw acacia	*Senegalia greggii*	Short	Good	728956.995	3845300.667	ID_1238
633	Catclaw acacia	*Senegalia greggii*	Short	Good	728954.2719	3845301.215	ID_1239
634	Catclaw acacia	*Senegalia greggii*	Short	Good	728948.0314	3845297.92	ID_1240
635	Catclaw acacia	*Senegalia greggii*	Short	Good	728944.0415	3845294.733	ID_1241
636	Catclaw acacia	*Senegalia greggii*	Short	Good	728924.9416	3845299.489	ID_1242
637	Catclaw acacia	*Senegalia greggii*	Short	Good	728924.1647	3845305.576	ID_1243
638	Catclaw acacia	*Senegalia greggii*	Short	Good	728924.3929	3845308.395	ID_1244
639	Catclaw acacia	*Senegalia greggii*	Short	Good	728919.9141	3845308.784	ID_1245
640	Catclaw acacia	*Senegalia greggii*	Short	Good	728908.6003	3845308.309	ID_1246

[1]Coordinates are UTM NAD 83 Zone 11N;

No.	Common Name	Scientific Name	Size Class	Health	Easting[1]	Northing	Object ID
641	Catclaw acacia	*Senegalia greggii*	Short	Good	728859.0787	3845303.53	ID_1247
642	Catclaw acacia	*Senegalia greggii*	Short	Good	728840.1072	3845303.006	ID_1248
643	Catclaw acacia	*Senegalia greggii*	Short	Good	728839.6063	3845299.852	ID_1249
644	Catclaw acacia	*Senegalia greggii*	Short	Good	728830.0169	3845296.768	ID_1252
645	Catclaw acacia	*Senegalia greggii*	Short	Good	728833.6514	3845292.36	ID_1253
646	Catclaw acacia	*Senegalia greggii*	Short	Good	728813.3604	3845279.122	ID_1254
647	Catclaw acacia	*Senegalia greggii*	Short	Good	728812.3025	3845269.811	ID_1256
648	Catclaw acacia	*Senegalia greggii*	Short	Good	728716.503	3845179.189	ID_1263
649	Catclaw acacia	*Senegalia greggii*	Short	Good	728707.7487	3845180.358	ID_1264
650	Catclaw acacia	*Senegalia greggii*	Short	Good	728654.3968	3845188.574	ID_1267
651	Catclaw acacia	*Senegalia greggii*	Short	Good	728652.2689	3845190.58	ID_1268
652	Catclaw acacia	*Senegalia greggii*	Short	Good	728606.6541	3845207.209	ID_1269
653	Catclaw acacia	*Senegalia greggii*	Short	Good	728598.5524	3845212.615	ID_1270
654	Catclaw acacia	*Senegalia greggii*	Short	Good	728547.4659	3845157.381	ID_1271
655	Catclaw acacia	*Senegalia greggii*	Short	Good	728549.1354	3845146.664	ID_1272
656	Catclaw acacia	*Senegalia greggii*	Short	Good	728542.306	3845143.665	ID_1273
657	Catclaw acacia	*Senegalia greggii*	Short	Good	728543.4152	3845082.097	ID_1276
658	Catclaw acacia	*Senegalia greggii*	Short	Good	728544.1221	3845059.1	ID_1277
659	Catclaw acacia	*Senegalia greggii*	Short	Good	728540.8695	3845053.542	ID_1278
660	Catclaw acacia	*Senegalia greggii*	Short	Good	728543.0941	3845020.83	ID_1279
661	Catclaw acacia	*Senegalia greggii*	Short	Good	728546.1493	3845011.444	ID_1280
662	Catclaw acacia	*Senegalia greggii*	Short	Good	728654.8758	3844932.497	ID_1283
663	Catclaw acacia	*Senegalia greggii*	Short	Good	728794.4329	3845058.741	ID_1284
664	Catclaw acacia	*Senegalia greggii*	Short	Good	728863.2785	3845005.943	ID_1285
665	Catclaw acacia	*Senegalia greggii*	Short	Good	728877.5446	3844969.481	ID_1289
666	Catclaw acacia	*Senegalia greggii*	Short	Good	728875.9807	3844952.288	ID_1291
667	Catclaw acacia	*Senegalia greggii*	Short	Good	728864.9297	3844940.611	ID_1292
668	Catclaw acacia	*Senegalia greggii*	Short	Good	728865.1016	3844928.53	ID_1294
669	Catclaw acacia	*Senegalia greggii*	Short	Good	728863.9455	3844922.145	ID_1295
670	Catclaw acacia	*Senegalia greggii*	Short	Good	728868.8948	3844922.457	ID_1296
671	Catclaw acacia	*Senegalia greggii*	Short	Good	728862.2828	3844917.852	ID_1297
672	Catclaw acacia	*Senegalia greggii*	Short	Good	728857.46	3844912.324	ID_1298
673	Catclaw acacia	*Senegalia greggii*	Short	Good	728830.116	3844909.987	ID_1300
674	Catclaw acacia	*Senegalia greggii*	Short	Good	728784.4048	3844927.609	ID_1303
675	Catclaw acacia	*Senegalia greggii*	Short	Good	728747.4023	3844933.015	ID_1304
676	Catclaw acacia	*Senegalia greggii*	Short	Good	729070.9205	3845007.981	ID_1306
677	Catclaw acacia	*Senegalia greggii*	Short	Good	729075.9592	3845008.714	ID_1307
678	Catclaw acacia	*Senegalia greggii*	Short	Good	729074.4353	3845017.82	ID_1308
679	Catclaw acacia	*Senegalia greggii*	Short	Good	729061.7637	3845005.877	ID_1309
680	Catclaw acacia	*Senegalia greggii*	Short	Good	729062.071	3845005.98	ID_1310
681	Catclaw acacia	*Senegalia greggii*	Short	Good	729100.9783	3845100.97	ID_1311
682	Catclaw acacia	*Senegalia greggii*	Short	Good	746815.8227	3852376.873	ID_1319
683	Catclaw acacia	*Senegalia greggii*	Short	Good	729116.6916	3845205.009	ID_1322
684	Catclaw acacia	*Senegalia greggii*	Short	Good	729116.0466	3845203.028	ID_1325
685	Catclaw acacia	*Senegalia greggii*	Short	Good	729115.8878	3845202.999	ID_1326
686	Catclaw acacia	*Senegalia greggii*	Short	Good	729114.57	3845200.013	ID_1327

[1]Coordinates are UTM NAD 83 Zone 11N;

No.	Common Name	Scientific Name	Size Class	Health	Easting[1]	Northing	Object ID
687	Catclaw acacia	*Senegalia greggii*	Short	Good	729135.2183	3845304.44	ID_1331
688	Catclaw acacia	*Senegalia greggii*	Short	Good	729135.7191	3845334.631	ID_1335
689	Catclaw acacia	*Senegalia greggii*	Short	Good	729142.8816	3844893.497	ID_1337
690	Catclaw acacia	*Senegalia greggii*	Short	Good	729157.8572	3844954.286	ID_1338
691	Catclaw acacia	*Senegalia greggii*	Short	Good	729191.7037	3844969.842	ID_1340
692	Catclaw acacia	*Senegalia greggii*	Short	Good	729278.488	3844305.03	ID_1051
693	Catclaw acacia	*Senegalia greggii*	Short	Good	729285.7868	3844310.495	ID_1052
694	Catclaw acacia	*Senegalia greggii*	Short	Good	727473.5242	3845731.729	ID_1060
695	Catclaw acacia	*Senegalia greggii*	Short	Good	727477.1166	3845738.247	ID_1061
696	Catclaw acacia	*Senegalia greggii*	Short	Good	727480.4761	3845742.386	ID_1062
697	Catclaw acacia	*Senegalia greggii*	Short	Good	727482.6239	3845745.941	ID_1063
698	Catclaw acacia	*Senegalia greggii*	Short	Good	727486.0893	3845750.732	ID_1064
699	Catclaw acacia	*Senegalia greggii*	Short	Good	727628.1686	3845221.633	ID_969
700	Catclaw acacia	*Senegalia greggii*	Short	Good	727633.0677	3845233.441	ID_971
701	Catclaw acacia	*Senegalia greggii*	Short	Good	729420.6474	3844878.395	ID_817
702	Catclaw acacia	*Senegalia greggii*	Short	Good	729420.6474	3844878.395	ID_716
703	Catclaw acacia	*Senegalia greggii*	Short	Good	729437.9389	3844831.981	ID_540
704	Catclaw acacia	*Senegalia greggii*	Short	Good	729388.6215	3845087.565	ID_588
705	Catclaw acacia	*Senegalia greggii*	Short	Good	727295.2198	3845344.777	ID_603
706	Catclaw acacia	*Senegalia greggii*	Short	Good	727303.3703	3845331.859	ID_604
707	Catclaw acacia	*Senegalia greggii*	Short	Good	727307.2316	3845288.712	ID_607
708	Catclaw acacia	*Senegalia greggii*	Short	Good	729441.0234	3844464.01	ID_168
709	Catclaw acacia	*Senegalia greggii*	Short	Good	729446.7082	3844327.453	ID_181
710	Catclaw acacia	*Senegalia greggii*	Short	Good	729452.471	3844318.363	ID_182
711	Catclaw acacia	*Senegalia greggii*	Short	Good	729397.4198	3844220.827	ID_184
712	Catclaw acacia	*Senegalia greggii*	Short	Good	729391.3633	3844207.061	ID_187
713	Catclaw acacia	*Senegalia greggii*	Short	Good	729404.6393	3844089.753	ID_191
714	Catclaw acacia	*Senegalia greggii*	Short	Good	729402.9075	3844087.119	ID_192
715	Catclaw acacia	*Senegalia greggii*	Short	Good	729423.9227	3844185.013	ID_194
716	Catclaw acacia	*Senegalia greggii*	Short	Good	729419.7664	3844198.557	ID_195
717	Catclaw acacia	*Senegalia greggii*	Short	Good	729106.9266	3843713.313	ID_197
718	Catclaw acacia	*Senegalia greggii*	Short	Good	729138.0662	3843707.769	ID_200
719	Catclaw acacia	*Senegalia greggii*	Short	Good	729136.2699	3843715.211	ID_201
720	Catclaw acacia	*Senegalia greggii*	Short	Good	729812.7319	3844180.95	ID_212
721	Catclaw acacia	*Senegalia greggii*	Short	Good	729572.9229	3845231.718	ID_69
722	Catclaw acacia	*Senegalia greggii*	Medium	Fair	729356.768	3844352.482	ID_1056
723	Catclaw acacia	*Senegalia greggii*	Medium	Fair	729986.39	3844368.543	ID_362
724	Catclaw acacia	*Senegalia greggii*	Medium	Fair	729983.2185	3844361.555	ID_363
725	Catclaw acacia	*Senegalia greggii*	Medium	Fair	728857.0978	3844859.621	ID_1050
726	Catclaw acacia	*Senegalia greggii*	Medium	Fair	729140.5131	3843694.711	ID_202
727	Catclaw acacia	*Senegalia greggii*	Medium	Fair	729145.0494	3843686.937	ID_204
728	Catclaw acacia	*Senegalia greggii*	Medium	Good	727316.9829	3845291.962	ID_1786
729	Catclaw acacia	*Senegalia greggii*	Medium	Good	730405.1793	3844172.641	ID_1670
730	Catclaw acacia	*Senegalia greggii*	Medium	Good	730470.8223	3844228.3	ID_1671
731	Catclaw acacia	*Senegalia greggii*	Medium	Good	729978.5384	3844338.731	ID_1527
732	Catclaw acacia	*Senegalia greggii*	Medium	Good	731087.9709	3845124.856	ID_1549

[1]Coordinates are UTM NAD 83 Zone 11N;

No.	Common Name	Scientific Name	Size Class	Health	Easting[1]	Northing	Object ID
733	Catclaw acacia	*Senegalia greggii*	Medium	Good	729379.5089	3845515.28	ID_1480
734	Catclaw acacia	*Senegalia greggii*	Medium	Good	729363.9989	3844040.957	ID_1463
735	Catclaw acacia	*Senegalia greggii*	Medium	Good	729916.8496	3844280.455	ID_1466
736	Catclaw acacia	*Senegalia greggii*	Medium	Good	729453.2483	3844395.409	ID_1369
737	Catclaw acacia	*Senegalia greggii*	Medium	Good	729116.5034	3845410.283	ID_1218
738	Catclaw acacia	*Senegalia greggii*	Medium	Good	729095.8521	3845387.871	ID_1222
739	Catclaw acacia	*Senegalia greggii*	Medium	Good	729071.8158	3845384.572	ID_1223
740	Catclaw acacia	*Senegalia greggii*	Medium	Good	729072.3395	3845396.147	ID_1224
741	Catclaw acacia	*Senegalia greggii*	Medium	Good	729064.3279	3845383.92	ID_1226
742	Catclaw acacia	*Senegalia greggii*	Medium	Good	729055.4609	3845373.818	ID_1227
743	Catclaw acacia	*Senegalia greggii*	Medium	Good	729037.1147	3845332.398	ID_1228
744	Catclaw acacia	*Senegalia greggii*	Medium	Good	729035.0436	3845317.812	ID_1229
745	Catclaw acacia	*Senegalia greggii*	Medium	Good	729025.9307	3845314.05	ID_1230
746	Catclaw acacia	*Senegalia greggii*	Medium	Good	729020.1008	3845300.311	ID_1231
747	Catclaw acacia	*Senegalia greggii*	Medium	Good	729004.692	3845311.972	ID_1233
748	Catclaw acacia	*Senegalia greggii*	Medium	Good	728984.6177	3845309.031	ID_1234
749	Catclaw acacia	*Senegalia greggii*	Medium	Good	728835.4417	3845299.447	ID_1250
750	Catclaw acacia	*Senegalia greggii*	Medium	Good	728809.1012	3845272.81	ID_1255
751	Catclaw acacia	*Senegalia greggii*	Medium	Good	728795.6366	3845234.367	ID_1257
752	Catclaw acacia	*Senegalia greggii*	Medium	Good	728799.5071	3845194.03	ID_1258
753	Catclaw acacia	*Senegalia greggii*	Medium	Good	728768.641	3845182.262	ID_1259
754	Catclaw acacia	*Senegalia greggii*	Medium	Good	728762.1225	3845181.051	ID_1260
755	Catclaw acacia	*Senegalia greggii*	Medium	Good	728739.1178	3845174.189	ID_1262
756	Catclaw acacia	*Senegalia greggii*	Medium	Good	728673.9073	3845174.726	ID_1265
757	Catclaw acacia	*Senegalia greggii*	Medium	Good	728663.0401	3845189.096	ID_1266
758	Catclaw acacia	*Senegalia greggii*	Medium	Good	728544.6587	3845122.67	ID_1274
759	Catclaw acacia	*Senegalia greggii*	Medium	Good	728541.3558	3845094.264	ID_1275
760	Catclaw acacia	*Senegalia greggii*	Medium	Good	728526.4769	3844983.594	ID_1281
761	Catclaw acacia	*Senegalia greggii*	Medium	Good	728528.985	3844925.81	ID_1282
762	Catclaw acacia	*Senegalia greggii*	Medium	Good	728882.6645	3844993.906	ID_1286
763	Catclaw acacia	*Senegalia greggii*	Medium	Good	728880.6672	3844984.747	ID_1287
764	Catclaw acacia	*Senegalia greggii*	Medium	Good	728876.8141	3844971.486	ID_1288
765	Catclaw acacia	*Senegalia greggii*	Medium	Good	728874.2	3844964.192	ID_1290
766	Catclaw acacia	*Senegalia greggii*	Medium	Good	728867.9309	3844935.773	ID_1293
767	Catclaw acacia	*Senegalia greggii*	Medium	Good	728843.9021	3844920.853	ID_1299
768	Catclaw acacia	*Senegalia greggii*	Medium	Good	728796.6826	3844917.667	ID_1301
769	Catclaw acacia	*Senegalia greggii*	Medium	Good	728787.5655	3844918.759	ID_1302
770	Catclaw acacia	*Senegalia greggii*	Medium	Good	728749.9136	3844919.747	ID_1305
771	Catclaw acacia	*Senegalia greggii*	Medium	Good	729106.7151	3845110.93	ID_1312
772	Catclaw acacia	*Senegalia greggii*	Medium	Good	729140.1043	3845129.011	ID_1314
773	Catclaw acacia	*Senegalia greggii*	Medium	Good	729163.8868	3845127.22	ID_1315
774	Catclaw acacia	*Senegalia greggii*	Medium	Good	729150.4156	3845150.503	ID_1317
775	Catclaw acacia	*Senegalia greggii*	Medium	Good	729116.8444	3845204.925	ID_1320
776	Catclaw acacia	*Senegalia greggii*	Medium	Good	729116.7878	3845204.999	ID_1321
777	Catclaw acacia	*Senegalia greggii*	Medium	Good	729116.9852	3845204.946	ID_1323
778	Catclaw acacia	*Senegalia greggii*	Medium	Good	729136.4402	3845276.363	ID_1328

[1]Coordinates are UTM NAD 83 Zone 11N;

No.	Common Name	Scientific Name	Size Class	Health	Easting[1]	Northing	Object ID
779	Catclaw acacia	*Senegalia greggii*	Medium	Good	729135.0481	3845304.795	ID_1329
780	Catclaw acacia	*Senegalia greggii*	Medium	Good	729135.1563	3845304.435	ID_1330
781	Catclaw acacia	*Senegalia greggii*	Medium	Good	729134.9691	3845304.282	ID_1332
782	Catclaw acacia	*Senegalia greggii*	Medium	Good	729135.5124	3845305.054	ID_1334
783	Catclaw acacia	*Senegalia greggii*	Medium	Good	729099.9887	3844855.652	ID_1336
784	Catclaw acacia	*Senegalia greggii*	Medium	Good	729158.289	3844953.691	ID_1339
785	Catclaw acacia	*Senegalia greggii*	Medium	Good	729202.3812	3845094.693	ID_1341
786	Catclaw acacia	*Senegalia greggii*	Medium	Good	729201.9153	3845094.39	ID_1342
787	Catclaw acacia	*Senegalia greggii*	Medium	Good	729174.7432	3844656.517	ID_1049
788	Catclaw acacia	*Senegalia greggii*	Medium	Good	729320.0498	3844335.616	ID_1053
789	Catclaw acacia	*Senegalia greggii*	Medium	Good	729332.5212	3844348.152	ID_1054
790	Catclaw acacia	*Senegalia greggii*	Medium	Good	729361.8948	3844352.206	ID_1057
791	Catclaw acacia	*Senegalia greggii*	Medium	Good	727466.3232	3845723.561	ID_1059
792	Catclaw acacia	*Senegalia greggii*	Medium	Good	731091.9802	3845124.902	ID_1070
793	Catclaw acacia	*Senegalia greggii*	Medium	Good	727609.3158	3845182.021	ID_967
794	Catclaw acacia	*Senegalia greggii*	Medium	Good	727623.5475	3845210.306	ID_968
795	Catclaw acacia	*Senegalia greggii*	Medium	Good	727629.2366	3845228.332	ID_970
796	Catclaw acacia	*Senegalia greggii*	Medium	Good	729568.8233	3845192.812	ID_976
797	Catclaw acacia	*Senegalia greggii*	Medium	Good	729421.2211	3845020.693	ID_803
798	Catclaw acacia	*Senegalia greggii*	Medium	Good	729421.2211	3845020.693	ID_702
799	Catclaw acacia	*Senegalia greggii*	Medium	Good	729448.6112	3844858.105	ID_542
800	Catclaw acacia	*Senegalia greggii*	Medium	Good	729356.463	3845088.649	ID_564
801	Catclaw acacia	*Senegalia greggii*	Medium	Good	729360.7092	3845100.306	ID_567
802	Catclaw acacia	*Senegalia greggii*	Medium	Good	729418.0674	3845022.45	ID_591
803	Catclaw acacia	*Senegalia greggii*	Medium	Good	727276.2065	3845457.6	ID_601
804	Catclaw acacia	*Senegalia greggii*	Medium	Good	729984.7991	3844371.946	ID_361
805	Catclaw acacia	*Senegalia greggii*	Medium	Good	729460.5512	3844379.77	ID_180
806	Catclaw acacia	*Senegalia greggii*	Medium	Good	729402.1833	3844238.29	ID_183
807	Catclaw acacia	*Senegalia greggii*	Medium	Good	729396.6335	3844212.495	ID_185
808	Catclaw acacia	*Senegalia greggii*	Medium	Good	729397.352	3844200.273	ID_188
809	Catclaw acacia	*Senegalia greggii*	Medium	Good	729405.136	3844097.713	ID_190
810	Catclaw acacia	*Senegalia greggii*	Medium	Good	729418.7378	3844177.825	ID_193
811	Catclaw acacia	*Senegalia greggii*	Medium	Good	729143.1891	3843708.229	ID_198
812	Catclaw acacia	*Senegalia greggii*	Medium	Good	729144.1007	3843692.984	ID_203
813	Catclaw acacia	*Senegalia greggii*	Medium	Good	729139.5067	3843671.049	ID_206
814	Catclaw acacia	*Senegalia greggii*	Medium	Good	727638.5835	3845223.377	ID_47
815	Catclaw acacia	*Senegalia greggii*	Medium	Good	727648.6454	3845238.006	ID_51
816	Catclaw acacia	*Senegalia greggii*	Medium	Good	729578.963	3845221.162	ID_70
817	Catclaw acacia	*Senegalia greggii*	Tall	Good	729124.5811	3843741.868	ID_1465
818	Catclaw acacia	*Senegalia greggii*	Tall	Good	729120.5124	3845129.219	ID_1313
819	Catclaw acacia	*Senegalia greggii*	Tall	Good	729150.3804	3845150.424	ID_1316
820	Catclaw acacia	*Senegalia greggii*	Tall	Good	729149.8271	3845150.54	ID_1318
821	Catclaw acacia	*Senegalia greggii*	Tall	Good	729135.6092	3845304.575	ID_1333
822	Catclaw acacia	*Senegalia greggii*	Tall	Good	729360.3383	3844346.664	ID_1055
823	Catclaw acacia	*Senegalia greggii*	Tall	Good	729380.8802	3844352.58	ID_1058
824	Catclaw acacia	*Senegalia greggii*	Tall	Good	729408.3808	3844938.214	ID_813

[1]Coordinates are UTM NAD 83 Zone 11N;

No.	Common Name	Scientific Name	Size Class	Health	Easting[1]	Northing	Object ID
825	Catclaw acacia	*Senegalia greggii*	Tall	Good	729408.3808	3844938.214	ID_712
826	Catclaw acacia	*Senegalia greggii*	Very Tall	Fair	728831.8662	3845303.946	ID_1251
827	Catclaw acacia	*Senegalia greggii*	Very Tall	Good	729116.507	3845202.783	ID_1324
828	Desert smoke tree	*Psorothamnus spinosus*	Short	Good	727368.5461	3845632.504	ID_984
829	Desert smoke tree	*Psorothamnus spinosus*	Short	Good	727370.3034	3845633.772	ID_985
830	Desert smoke tree	*Psorothamnus spinosus*	Short	Good	727374.3841	3845633.67	ID_986
831	Desert smoke tree	*Psorothamnus spinosus*	Short	Good	727374.5585	3845636.242	ID_987
832	Desert smoke tree	*Psorothamnus spinosus*	Short	Good	727379.3192	3845636.744	ID_988
833	Desert smoke tree	*Psorothamnus spinosus*	Short	Good	727380.3464	3845640.91	ID_989
834	Desert smoke tree	*Psorothamnus spinosus*	Short	Good	727382.4024	3845646.659	ID_990
835	Desert smoke tree	*Psorothamnus spinosus*	Short	Good	727389.3548	3845652.235	ID_991
836	Desert smoke tree	*Psorothamnus spinosus*	Short	Good	727429.5838	3845692.934	ID_992
837	Desert smoke tree	*Psorothamnus spinosus*	Short	Good	727443.7452	3845706.528	ID_993
838	Desert smoke tree	*Psorothamnus spinosus*	Short	Good	727447.9538	3845710.341	ID_994
839	Desert smoke tree	*Psorothamnus spinosus*	Short	Good	727452.2671	3845716.365	ID_995
840	Desert smoke tree	*Psorothamnus spinosus*	Short	Good	727458.2106	3845717.266	ID_996
841	Desert smoke tree	*Psorothamnus spinosus*	Short	Good	727495.5964	3845774.118	ID_999
842	Desert smoke tree	*Psorothamnus spinosus*	Short	Good	729418.3851	3845026.032	ID_804
843	Desert smoke tree	*Psorothamnus spinosus*	Short	Good	729418.3851	3845026.032	ID_703
844	Desert smoke tree	*Psorothamnus spinosus*	Short	Good	727359.1305	3845317.761	ID_611
845	Desert smoke tree	*Psorothamnus spinosus*	Short	Good	729041.9812	3845310.709	ID_271
846	Desert smoke tree	*Psorothamnus spinosus*	Medium	Fair	730579.3252	3844551.022	ID_1037
847	Desert smoke tree	*Psorothamnus spinosus*	Medium	Good	727378.8472	3845328.325	ID_1792
848	Desert smoke tree	*Psorothamnus spinosus*	Medium	Good	727298.4682	3845463.468	ID_1676
849	Desert smoke tree	*Psorothamnus spinosus*	Medium	Good	727461.5523	3845720.898	ID_997

[1]Coordinates are UTM NAD 83 Zone 11N;

No.	Common Name	Scientific Name	Size Class	Health	Easting[1]	Northing	Object ID
850	Desert smoke tree	*Psorothamnus spinosus*	Medium	Good	727470.461	3845727.697	ID_998
851	Desert smoke tree	*Psorothamnus spinosus*	Medium	Good	729394.8153	3845015.157	ID_806
852	Desert smoke tree	*Psorothamnus spinosus*	Medium	Good	729394.8153	3845015.157	ID_705
853	Desert smoke tree	*Psorothamnus spinosus*	Medium	Good	729390.8259	3845062.832	ID_589
854	Desert smoke tree	*Psorothamnus spinosus*	Medium	Good	729393.7609	3845057.665	ID_590
855	Hillside palo verde	*Parkinsonia microphylla*	Short	Good	730523.9603	3844218.163	ID_1579
856	Hillside palo verde	*Parkinsonia microphylla*	Short	Good	730334.6087	3844196.159	ID_1603
857	Hillside palo verde	*Parkinsonia microphylla*	Short	Good	730330.3487	3844210.193	ID_1607
858	Hillside palo verde	*Parkinsonia microphylla*	Short	Good	730338.5749	3844225.001	ID_1608
859	Hillside palo verde	*Parkinsonia microphylla*	Short	Good	730344.1643	3844225.78	ID_1609
860	Hillside palo verde	*Parkinsonia microphylla*	Short	Good	730099.8963	3844119.465	ID_1636
861	Hillside palo verde	*Parkinsonia microphylla*	Short	Good	730112.7394	3844091.203	ID_1638
862	Hillside palo verde	*Parkinsonia microphylla*	Short	Good	730118.5944	3844085.346	ID_1639
863	Hillside palo verde	*Parkinsonia microphylla*	Short	Good	730271.069	3844176.709	ID_1654
864	Hillside palo verde	*Parkinsonia microphylla*	Short	Good	730258.8244	3844167.566	ID_1655
865	Hillside palo verde	*Parkinsonia microphylla*	Short	Good	730259.7599	3844168.03	ID_1656
866	Hillside palo verde	*Parkinsonia microphylla*	Short	Good	730261.5526	3844168.308	ID_1657
867	Hillside palo verde	*Parkinsonia microphylla*	Short	Good	730235.6832	3844186.5	ID_1659
868	Hillside palo verde	*Parkinsonia microphylla*	Short	Good	730239.1099	3844164.691	ID_1661
869	Hillside palo verde	*Parkinsonia microphylla*	Short	Good	730119.3164	3844162.581	ID_1664
870	Hillside palo verde	*Parkinsonia microphylla*	Short	Good	730035.8986	3844015.973	ID_1404
871	Hillside palo verde	*Parkinsonia microphylla*	Short	Good	729913.6419	3844285.621	ID_1439
872	Hillside palo verde	*Parkinsonia microphylla*	Short	Good	730053.311	3844147.607	ID_337

[1]Coordinates are UTM NAD 83 Zone 11N;

No.	Common Name	Scientific Name	Size Class	Health	Easting[1]	Northing	Object ID
873	Hillside palo verde	*Parkinsonia microphylla*	Short	Good	730049.9686	3844147.508	ID_338
874	Hillside palo verde	*Parkinsonia microphylla*	Short	Good	730064.5686	3844197.228	ID_351
875	Hillside palo verde	*Parkinsonia microphylla*	Short	Good	729986.8702	3844365.738	ID_358
876	Hillside palo verde	*Parkinsonia microphylla*	Short	Good	729854.5216	3844334.836	ID_96
877	Hillside palo verde	*Parkinsonia microphylla*	Medium	Poor	730031.9823	3844087.936	ID_340
878	Hillside palo verde	*Parkinsonia microphylla*	Medium	Poor	730089.9843	3844183.788	ID_357
879	Hillside palo verde	*Parkinsonia microphylla*	Medium	Poor	730030.9279	3844095.816	ID_341
880	Hillside palo verde	*Parkinsonia microphylla*	Medium	Fair	730251.4632	3844157.203	ID_1663
881	Hillside palo verde	*Parkinsonia microphylla*	Medium	Fair	730055.1431	3844014.573	ID_1403
882	Hillside palo verde	*Parkinsonia microphylla*	Medium	Fair	729993.0558	3844098.055	ID_344
883	Hillside palo verde	*Parkinsonia microphylla*	Medium	Fair	729995.2945	3844112.875	ID_345
884	Hillside palo verde	*Parkinsonia microphylla*	Medium	Fair	729999.3866	3844126.98	ID_348
885	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	730104.7813	3844118.99	ID_1566
886	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	730179.9577	3844154.253	ID_1567
887	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	730197.2465	3844144.042	ID_1568
888	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	730302.8173	3844142.95	ID_1571
889	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	730444.3101	3844239.65	ID_1585
890	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	730397.6436	3844238.433	ID_1596
891	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	730331.1593	3844189.236	ID_1602
892	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	730281.9072	3844220.973	ID_1615
893	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	730251.037	3844221.039	ID_1618
894	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	730239.3325	3844218.479	ID_1619
895	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	730184.7058	3844191.691	ID_1623

[1]Coordinates are UTM NAD 83 Zone 11N;

No.	Common Name	Scientific Name	Size Class	Health	Easting[1]	Northing	Object ID
896	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	730183.8156	3844172.962	ID_1625
897	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	730185.4478	3844166.294	ID_1626
898	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	730192.2096	3844164.791	ID_1627
899	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	730192.7282	3844162.217	ID_1628
900	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	730210.5692	3844163.969	ID_1630
901	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	730230.0622	3844176.027	ID_1631
902	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	730187.9536	3844148.994	ID_1632
903	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	730105.2246	3844119.639	ID_1635
904	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	730122.8978	3844064.478	ID_1642
905	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	730140.1387	3844060.386	ID_1643
906	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	730143.4505	3844072.895	ID_1644
907	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	730154.2103	3844073.232	ID_1645
908	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	730158.3146	3844083.06	ID_1646
909	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	730288.0103	3844107.225	ID_1649
910	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	730292.2145	3844113.023	ID_1650
911	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	730293.0164	3844171.543	ID_1651
912	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	730293.2174	3844173.786	ID_1652
913	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	730275.2029	3844176.532	ID_1653
914	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	730231.1197	3844177.467	ID_1660
915	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	730030.0259	3844005.765	ID_1405
916	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	730055.4326	3844156.559	ID_336
917	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	730044.9476	3844139.115	ID_339
918	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	729995.6207	3844087.684	ID_342

[1]Coordinates are UTM NAD 83 Zone 11N;

No.	Common Name	Scientific Name	Size Class	Health	Easting[1]	Northing	Object ID
919	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	729985.0662	3844094.962	ID_343
920	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	730000.0965	3844118.306	ID_346
921	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	729988.0332	3844117.878	ID_347
922	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	730008.3647	3844138.082	ID_349
923	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	729967.8388	3844210.227	ID_350
924	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	730066.3815	3844194.776	ID_352
925	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	730079.0484	3844229.1	ID_355
926	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	730058.9177	3844298.163	ID_356
927	Hillside palo verde	*Parkinsonia microphylla*	Medium	Good	729967.6006	3844359.634	ID_359
928	Hillside palo verde	*Parkinsonia microphylla*	Tall	Good	730438.3856	3844231.547	ID_1586
929	Hillside palo verde	*Parkinsonia microphylla*	Tall	Good	730414.0773	3844234.984	ID_1593
930	Hillside palo verde	*Parkinsonia microphylla*	Tall	Good	730393.7028	3844224.321	ID_1598
931	Hillside palo verde	*Parkinsonia microphylla*	Tall	Good	730351.27	3844185.351	ID_1605
932	Hillside palo verde	*Parkinsonia microphylla*	Tall	Good	730323.1405	3844198.72	ID_1606
933	Hillside palo verde	*Parkinsonia microphylla*	Tall	Good	730315.0139	3844233.175	ID_1611
934	Hillside palo verde	*Parkinsonia microphylla*	Tall	Good	730285.1114	3844226.538	ID_1614
935	Hillside palo verde	*Parkinsonia microphylla*	Tall	Good	730279.8107	3844222.357	ID_1616
936	Hillside palo verde	*Parkinsonia microphylla*	Tall	Good	730250.4039	3844222.915	ID_1617
937	Hillside palo verde	*Parkinsonia microphylla*	Tall	Good	730231.3588	3844216.232	ID_1620
938	Hillside palo verde	*Parkinsonia microphylla*	Tall	Good	730180.8387	3844183.796	ID_1624
939	Hillside palo verde	*Parkinsonia microphylla*	Tall	Good	730190.0925	3844159.845	ID_1629
940	Hillside palo verde	*Parkinsonia microphylla*	Tall	Good	730188.3598	3844149.245	ID_1633
941	Hillside palo verde	*Parkinsonia microphylla*	Tall	Good	730117.3522	3844159.84	ID_1634

[1]Coordinates are UTM NAD 83 Zone 11N;

No.	Common Name	Scientific Name	Size Class	Health	Easting[1]	Northing	Object ID
942	Hillside palo verde	*Parkinsonia microphylla*	Tall	Good	730097.6704	3844102.613	ID_1637
943	Hillside palo verde	*Parkinsonia microphylla*	Tall	Good	730121.1315	3844087.456	ID_1640
944	Hillside palo verde	*Parkinsonia microphylla*	Tall	Good	730166.3783	3844097.378	ID_1647
945	Hillside palo verde	*Parkinsonia microphylla*	Tall	Good	730150.2593	3844089.438	ID_1648
946	Hillside palo verde	*Parkinsonia microphylla*	Tall	Good	730260.1777	3844180.536	ID_1658
947	Hillside palo verde	*Parkinsonia microphylla*	Tall	Good	730251.1375	3844156.446	ID_1662
948	Hillside palo verde	*Parkinsonia microphylla*	Tall	Good	729739.254	3844154.689	ID_131
949	Hillside palo verde	*Parkinsonia microphylla*	Very Tall	Fair	730217.8372	3844219.037	ID_1621
950	Hillside palo verde	*Parkinsonia microphylla*	Very Tall	Fair	730182.2923	3844195.511	ID_1622
951	Hillside palo verde	*Parkinsonia microphylla*	Very Tall	Good	730351.5929	3844173.312	ID_1574
952	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Short	Fair	729754.0679	3844401.483	ID_165
953	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Short	Good	728087.1368	3845511.045	ID_912
954	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Short	Good	728592.1661	3845574.285	ID_922
955	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Short	Good	728722.3595	3845586.405	ID_925
956	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Short	Good	729330.4196	3845514.742	ID_943
957	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Short	Good	728453.2108	3845578.243	ID_382
958	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Short	Good	729897.6939	3844266.785	ID_209
959	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Short	Good	728102.1275	3845517.197	ID_57
960	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Poor	729764.0613	3844436.654	ID_163
961	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Fair	730569.8308	3844536.578	ID_1038
962	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Fair	730035.5255	3844181.314	ID_360
963	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Fair	728747.8917	3845575.255	ID_62
964	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Fair	728802.8039	3845582.758	ID_63

[1]Coordinates are UTM NAD 83 Zone 11N;

No.	Common Name	Scientific Name	Size Class	Health	Easting[1]	Northing	Object ID
965	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	729699.0108	3844117.021	ID_1552
966	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	729535.4647	3844063.439	ID_1555
967	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	730299.0614	3844243.686	ID_1612
968	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	729988.2029	3844392.526	ID_1470
969	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	729383.1969	3845508.608	ID_1479
970	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	729239.8132	3845603.825	ID_1485
971	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	729191.1433	3845657.788	ID_1491
972	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	729115.4567	3845695.001	ID_1497
973	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	729087.6733	3845705.395	ID_1499
974	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	729067.7895	3845685.952	ID_1502
975	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	727924.0803	3845429.719	ID_1019
976	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	727911.2634	3845441.282	ID_1022
977	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	727903.808	3845434.954	ID_1023
978	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	727887.5728	3845435.194	ID_1024
979	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	728150.0933	3845506.335	ID_916
980	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	728524.2896	3845569.704	ID_921
981	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	728598.9182	3845575.244	ID_923
982	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	728640.2698	3845578.762	ID_924
983	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	728752.8118	3845585.806	ID_928
984	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	728795.2785	3845587.463	ID_931
985	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	728800.3275	3845588.674	ID_932
986	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	728817.6603	3845590.028	ID_934
987	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	729187.8484	3845560.03	ID_937

[1]Coordinates are UTM NAD 83 Zone 11N;

No.	Common Name	Scientific Name	Size Class	Health	Easting[1]	Northing	Object ID
988	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	729192.7583	3845558.418	ID_938
989	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	729195.2415	3845557.098	ID_939
990	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	729300.46	3845529.054	ID_940
991	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	729277.7427	3845534.652	ID_942
992	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	729587.3145	3845193.81	ID_949
993	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	729190.9675	3845686.023	ID_373
994	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	729184.7423	3845690.609	ID_374
995	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	729134.7016	3845710.736	ID_376
996	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	729124.8054	3845713.904	ID_377
997	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	729088.8797	3845672.395	ID_378
998	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	728748.4627	3845612.623	ID_381
999	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	728401.9422	3845575.835	ID_383
1000	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	728358.2143	3845573.329	ID_384
1001	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	729869.0772	3844380.775	ID_154
1002	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	729877.7719	3844411.409	ID_155
1003	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	729809.6361	3844434.825	ID_161
1004	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	729790.3095	3844423.13	ID_162
1005	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	729766.6766	3844444.152	ID_164
1006	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	729819.3205	3844188.366	ID_211
1007	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	729150.2631	3845323.109	ID_333
1008	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	729148.4408	3845337.833	ID_334
1009	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	728199.5579	3845546.547	ID_58
1010	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	729242.6487	3845545.656	ID_64

[1]Coordinates are UTM NAD 83 Zone 11N;

No.	Common Name	Scientific Name	Size Class	Health	Easting[1]	Northing	Object ID
1011	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	729248.7497	3845543.129	ID_65
1012	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	729266.408	3845539.123	ID_66
1013	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	729271.2213	3845535.885	ID_67
1014	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Medium	Good	729731.3738	3844904.006	ID_90
1015	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Tall	Poor	728979.5901	3845689.14	ID_1507
1016	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Tall	Fair	729728.0145	3844912.235	ID_965
1017	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Tall	Good	729646.0374	3844102.226	ID_1553
1018	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Tall	Good	729617.9037	3844074.074	ID_1554
1019	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Tall	Good	729782.2907	3844820.55	ID_1473
1020	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Tall	Good	729849.7824	3844989.846	ID_1474
1021	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Tall	Good	729497.9905	3845461.586	ID_1476
1022	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Tall	Good	729418.6506	3845492.662	ID_1477
1023	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Tall	Good	729400.7012	3845504.25	ID_1478
1024	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Tall	Good	729371.7391	3845519.409	ID_1481
1025	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Tall	Good	729172.8926	3845673.536	ID_1489
1026	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Tall	Good	729060.4654	3845699.125	ID_1500
1027	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Tall	Good	729052.8641	3845698.701	ID_1501
1028	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Tall	Good	729039.2176	3845690.326	ID_1503
1029	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Tall	Good	729032.6087	3845690.751	ID_1504
1030	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Tall	Good	729019.29	3845695.46	ID_1505
1031	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Tall	Good	728604.8992	3845617.53	ID_1516
1032	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Tall	Good	728578.5495	3845611.37	ID_1518
1033	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Tall	Good	728389.6955	3845601.501	ID_1519

[1]Coordinates are UTM NAD 83 Zone 11N;

No.	Common Name	Scientific Name	Size Class	Health	Easting[1]	Northing	Object ID
1034	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Tall	Good	728390.6973	3845588.051	ID_1520
1035	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Tall	Good	731081.3496	3845221.678	ID_1522
1036	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Tall	Good	730517.3008	3844810.944	ID_1524
1037	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Tall	Good	731127.6662	3845172.713	ID_1043
1038	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Tall	Good	731134.9735	3845163.479	ID_1044
1039	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Tall	Good	731126.7524	3845155.638	ID_1045
1040	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Tall	Good	731114.4048	3845156.544	ID_1046
1041	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Tall	Good	728138.5583	3845520.88	ID_915
1042	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Tall	Good	728160.3338	3845512.118	ID_918
1043	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Tall	Good	728163.6965	3845509.991	ID_919
1044	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Tall	Good	728885.5348	3845592.773	ID_935
1045	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Tall	Good	728896.0804	3845593.324	ID_936
1046	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Tall	Good	729285.6215	3845531.447	ID_941
1047	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Tall	Good	729028.3151	3845679.381	ID_379
1048	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Tall	Good	729405.3369	3844121.636	ID_189
1049	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Tall	Good	729897.3783	3844264.365	ID_208
1050	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Tall	Good	729160.9206	3845254.444	ID_326
1051	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Tall	Good	728174.1155	3845524.926	ID_61
1052	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Tall	Good	729740.1392	3844898.536	ID_89
1053	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Very Tall	Fair	729707.7258	3844953.844	ID_966
1054	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Very Tall	Good	729348.0987	3845530.61	ID_1482
1055	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Very Tall	Good	729288.7958	3845564.675	ID_1483
1056	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Very Tall	Good	729283.4979	3845567.892	ID_1484

[1]Coordinates are UTM NAD 83 Zone 11N;

No.	Common Name	Scientific Name	Size Class	Health	Easting[1]	Northing	Object ID
1057	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Very Tall	Good	729005.1067	3845690.042	ID_1506
1058	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Very Tall	Good	728953.4961	3845686.306	ID_1508
1059	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Very Tall	Good	728626.7232	3845621.6	ID_1515
1060	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Very Tall	Good	728595.2808	3845613.847	ID_1517
1061	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Very Tall	Good	731058.5568	3845215.901	ID_1521
1062	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Very Tall	Good	731110.5741	3845162.072	ID_1523
1063	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Very Tall	Good	729135.5221	3845304.937	ID_1185
1064	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Very Tall	Good	727889.9472	3845356.988	ID_1012
1065	Honey mesquite	*Prosopis glandulosus* var. *torreyana*	Very Tall	Good	730456.0172	3844375.475	ID_1027
1066	Mexican fan palm	*Washingtonia robusta*	Tall	Good	729571.6145	3845382.88	ID_1475
1067	Mexican fan palm	*Washingtonia robusta*	Tall	Good	729610.8778	3844275.891	ID_1459
1068	Narrow-leaved willow	*Salix exigua*	Medium	Good	729619.4599	3845368.451	ID_1528
1069	Narrow-leaved willow	*Salix exigua*	Medium	Good	729332.4494	3845549.783	ID_1534
1070	Narrow-leaved willow	*Salix exigua*	Medium	Good	729320.3874	3845558.215	ID_1535
1071	Narrow-leaved willow	*Salix exigua*	Medium	Good	729310.2513	3845564.815	ID_1536
1072	Narrow-leaved willow	*Salix exigua*	Medium	Good	730286.988	3844777.76	ID_1191
1073	Narrow-leaved willow	*Salix exigua*	Medium	Good	730297.6109	3844792.106	ID_1194
1074	Narrow-leaved willow	*Salix exigua*	Medium	Good	730302.9778	3844799.121	ID_1195
1075	Narrow-leaved willow	*Salix exigua*	Medium	Good	730336.0055	3844811.295	ID_1197
1076	Narrow-leaved willow	*Salix exigua*	Medium	Good	729869.8992	3845401.214	ID_1217
1077	Salt cedar	*Tamarix ramosissima*	Short	Good	728157.2287	3845503.532	ID_972
1078	Salt cedar	*Tamarix ramosissima*	Short	Good	728154.6016	3845507.959	ID_973
1079	Salt cedar	*Tamarix ramosissima*	Medium	Poor	729745.8206	3844156.164	ID_213
1080	Salt cedar	*Tamarix ramosissima*	Medium	Poor	730070.4798	3844990.58	ID_244
1081	Salt cedar	*Tamarix ramosissima*	Medium	Fair	730057.3804	3845028.644	ID_241
1082	Salt cedar	*Tamarix ramosissima*	Medium	Fair	730060.0426	3845016.77	ID_242
1083	Salt cedar	*Tamarix ramosissima*	Medium	Good	729756.9167	3844159.473	ID_1467

[1]Coordinates are UTM NAD 83 Zone 11N;

No.	Common Name	Scientific Name	Size Class	Health	Easting[1]	Northing	Object ID
1084	Salt cedar	*Tamarix ramosissima*	Medium	Good	730140.5655	3844998.236	ID_1209
1085	Salt cedar	*Tamarix ramosissima*	Medium	Good	730116.5797	3845002.879	ID_1210
1086	Salt cedar	*Tamarix ramosissima*	Medium	Good	730100.0775	3845053.612	ID_1213
1087	Salt cedar	*Tamarix ramosissima*	Medium	Good	730120.6907	3845034.951	ID_1214
1088	Salt cedar	*Tamarix ramosissima*	Medium	Good	728166.0623	3845509.07	ID_974
1089	Salt cedar	*Tamarix ramosissima*	Medium	Good	728168.3329	3845520.978	ID_975
1090	Salt cedar	*Tamarix ramosissima*	Medium	Good	730157.2352	3845077.884	ID_232
1091	Salt cedar	*Tamarix ramosissima*	Medium	Good	730046.5224	3845173.949	ID_233
1092	Salt cedar	*Tamarix ramosissima*	Medium	Good	730033.7781	3845094.544	ID_235
1093	Salt cedar	*Tamarix ramosissima*	Medium	Good	730042.1164	3845072.696	ID_238
1094	Salt cedar	*Tamarix ramosissima*	Medium	Good	730092.0935	3844933.32	ID_245
1095	Salt cedar	*Tamarix ramosissima*	Medium	Good	730121.7411	3844890.292	ID_246
1096	Salt cedar	*Tamarix ramosissima*	Tall	Fair	730043.4194	3845065.951	ID_239
1097	Salt cedar	*Tamarix ramosissima*	Tall	Good	730126.0253	3844884.319	ID_1198
1098	Salt cedar	*Tamarix ramosissima*	Tall	Good	730182.2127	3844947.253	ID_1200
1099	Salt cedar	*Tamarix ramosissima*	Tall	Good	730176.6914	3844953.778	ID_1201
1100	Salt cedar	*Tamarix ramosissima*	Tall	Good	730175.1489	3844956.143	ID_1202
1101	Salt cedar	*Tamarix ramosissima*	Tall	Good	730168.0457	3844966.342	ID_1203
1102	Salt cedar	*Tamarix ramosissima*	Tall	Good	730155.3114	3844967.107	ID_1204
1103	Salt cedar	*Tamarix ramosissima*	Tall	Good	730154.407	3844954.081	ID_1205
1104	Salt cedar	*Tamarix ramosissima*	Tall	Good	730135.7175	3845021.656	ID_1211
1105	Salt cedar	*Tamarix ramosissima*	Tall	Good	730055.5069	3845095.344	ID_1212
1106	Salt cedar	*Tamarix ramosissima*	Tall	Good	730111.2036	3845019.274	ID_1215
1107	Salt cedar	*Tamarix ramosissima*	Tall	Good	730082.7968	3845034.435	ID_1216
1108	Salt cedar	*Tamarix ramosissima*	Tall	Good	730397.8868	3844375.307	ID_1067
1109	Salt cedar	*Tamarix ramosissima*	Tall	Good	730402.3675	3844404.393	ID_1068
1110	Salt cedar	*Tamarix ramosissima*	Tall	Good	730422.8904	3844444.05	ID_1069
1111	Salt cedar	*Tamarix ramosissima*	Tall	Good	730036.7504	3845084.015	ID_237
1112	Salt cedar	*Tamarix ramosissima*	Tall	Good	730065.8071	3845004.188	ID_243
1113	Salt cedar	*Tamarix ramosissima*	Very Tall	Good	730186.2868	3844945.562	ID_1199
1114	Screw bean mesquite	*Prosopis pubescens*	Medium	Poor	729261.5258	3845601.41	ID_369
1115	Screw bean mesquite	*Prosopis pubescens*	Medium	Poor	729251.0206	3845612.24	ID_370
1116	Screw bean mesquite	*Prosopis pubescens*	Medium	Poor	729220.6294	3845637.767	ID_371
1117	Screw bean mesquite	*Prosopis pubescens*	Medium	Poor	729166.8449	3845698.307	ID_375
1118	Screw bean mesquite	*Prosopis pubescens*	Medium	Fair	729222.3589	3845651.006	ID_372
1119	Screw bean mesquite	*Prosopis pubescens*	Medium	Good	730283.3792	3844776.06	ID_1082
1120	Screw bean mesquite	*Prosopis pubescens*	Medium	Good	730080.4666	3845085.013	ID_1099
1121	Screw bean mesquite	*Prosopis pubescens*	Medium	Good	730088.167	3845081.402	ID_1100

[1]Coordinates are UTM NAD 83 Zone 11N;

No.	Common Name	Scientific Name	Size Class	Health	Easting[1]	Northing	Object ID
1122	Screw bean mesquite	*Prosopis pubescens*	Medium	Good	730064.6025	3845051.416	ID_1110
1123	Screw bean mesquite	*Prosopis pubescens*	Medium	Good	730252.8516	3844783.11	ID_225
1124	Screw bean mesquite	*Prosopis pubescens*	Medium	Good	730252.4546	3844796.288	ID_226
1125	Screw bean mesquite	*Prosopis pubescens*	Medium	Good	730251.0891	3844913.274	ID_228
1126	Screw bean mesquite	*Prosopis pubescens*	Medium	Good	730266.6541	3844904.164	ID_229
1127	Screw bean mesquite	*Prosopis pubescens*	Medium	Good	730268.0325	3844946.42	ID_231
1128	Screw bean mesquite	*Prosopis pubescens*	Tall	Poor	730018.9705	3845195.001	ID_234
1129	Screw bean mesquite	*Prosopis pubescens*	Tall	Good	729219.7353	3845642.219	ID_1486
1130	Screw bean mesquite	*Prosopis pubescens*	Tall	Good	729219.2125	3845652.259	ID_1487
1131	Screw bean mesquite	*Prosopis pubescens*	Tall	Good	729209.5276	3845676.862	ID_1488
1132	Screw bean mesquite	*Prosopis pubescens*	Tall	Good	729182.1531	3845661.163	ID_1490
1133	Screw bean mesquite	*Prosopis pubescens*	Tall	Good	729203.5478	3845653.677	ID_1492
1134	Screw bean mesquite	*Prosopis pubescens*	Tall	Good	729206.2335	3845648.947	ID_1493
1135	Screw bean mesquite	*Prosopis pubescens*	Tall	Good	729167.2921	3845671.808	ID_1495
1136	Screw bean mesquite	*Prosopis pubescens*	Tall	Good	729171.9746	3845680.42	ID_1496
1137	Screw bean mesquite	*Prosopis pubescens*	Tall	Good	728948.0721	3845683.266	ID_1509
1138	Screw bean mesquite	*Prosopis pubescens*	Tall	Good	730171.726	3844849.727	ID_1072
1139	Screw bean mesquite	*Prosopis pubescens*	Tall	Good	730174.9759	3844846.088	ID_1073
1140	Screw bean mesquite	*Prosopis pubescens*	Tall	Good	730190.1228	3844834.097	ID_1074
1141	Screw bean mesquite	*Prosopis pubescens*	Tall	Good	730197.3595	3844824.057	ID_1075
1142	Screw bean mesquite	*Prosopis pubescens*	Tall	Good	730205.0802	3844817.128	ID_1077
1143	Screw bean mesquite	*Prosopis pubescens*	Tall	Good	730231.4797	3844805.939	ID_1078
1144	Screw bean mesquite	*Prosopis pubescens*	Tall	Good	730242.7814	3844789.258	ID_1079

[1]Coordinates are UTM NAD 83 Zone 11N;

No.	Common Name	Scientific Name	Size Class	Health	Easting[1]	Northing	Object ID
1145	Screw bean mesquite	*Prosopis pubescens*	Tall	Good	730265.7033	3844782.651	ID_1080
1146	Screw bean mesquite	*Prosopis pubescens*	Tall	Good	730262.8195	3844773.93	ID_1081
1147	Screw bean mesquite	*Prosopis pubescens*	Tall	Good	730287.3567	3844778.116	ID_1083
1148	Screw bean mesquite	*Prosopis pubescens*	Tall	Good	730290.0199	3844783.614	ID_1084
1149	Screw bean mesquite	*Prosopis pubescens*	Tall	Good	730164.9402	3844879.387	ID_1085
1150	Screw bean mesquite	*Prosopis pubescens*	Tall	Good	730196.5702	3844873.984	ID_1087
1151	Screw bean mesquite	*Prosopis pubescens*	Tall	Good	730197.5338	3844879.438	ID_1088
1152	Screw bean mesquite	*Prosopis pubescens*	Tall	Good	730232.5334	3844886.457	ID_1092
1153	Screw bean mesquite	*Prosopis pubescens*	Tall	Good	730246.2505	3844877.775	ID_1093
1154	Screw bean mesquite	*Prosopis pubescens*	Tall	Good	730257.5354	3844876.512	ID_1094
1155	Screw bean mesquite	*Prosopis pubescens*	Tall	Good	730261.7593	3844885.058	ID_1095
1156	Screw bean mesquite	*Prosopis pubescens*	Tall	Good	730257.2427	3844896.727	ID_1096
1157	Screw bean mesquite	*Prosopis pubescens*	Tall	Good	730057.9946	3845095.44	ID_1097
1158	Screw bean mesquite	*Prosopis pubescens*	Tall	Good	730072.412	3845092.103	ID_1098
1159	Screw bean mesquite	*Prosopis pubescens*	Tall	Good	730115.4706	3845024.718	ID_1105
1160	Screw bean mesquite	*Prosopis pubescens*	Tall	Good	730099.5132	3845015.619	ID_1106
1161	Screw bean mesquite	*Prosopis pubescens*	Tall	Good	730086.6859	3845007.954	ID_1107
1162	Screw bean mesquite	*Prosopis pubescens*	Tall	Good	730081.0505	3845030.436	ID_1108
1163	Screw bean mesquite	*Prosopis pubescens*	Tall	Good	730079.9956	3845045.099	ID_1109
1164	Screw bean mesquite	*Prosopis pubescens*	Tall	Good	730052.2288	3845073.034	ID_1112
1165	Screw bean mesquite	*Prosopis pubescens*	Tall	Good	730050.1687	3845085.749	ID_1113
1166	Screw bean mesquite	*Prosopis pubescens*	Tall	Good	729584.9046	3845375.378	ID_367
1167	Screw bean mesquite	*Prosopis pubescens*	Tall	Poor	729274.3781	3845579.913	ID_368

[1]Coordinates are UTM NAD 83 Zone 11N;

No.	Common Name	Scientific Name	Size Class	Health	Easting[1]	Northing	Object ID
1168	Screw bean mesquite	*Prosopis pubescens*	Tall	Good	730193.2416	3844828.149	ID_223
1169	Screw bean mesquite	*Prosopis pubescens*	Tall	Good	730279.6032	3844914.687	ID_230
1170	Screw bean mesquite	*Prosopis pubescens*	Very Tall	Good	729195.2186	3845642.255	ID_1494
1171	Screw bean mesquite	*Prosopis pubescens*	Very Tall	Good	729100.3635	3845704.555	ID_1498
1172	Screw bean mesquite	*Prosopis pubescens*	Very Tall	Good	730014.4864	3844536.405	ID_1468
1173	Screw bean mesquite	*Prosopis pubescens*	Very Tall	Good	730149.7308	3844879.48	ID_1071
1174	Screw bean mesquite	*Prosopis pubescens*	Very Tall	Good	730201.2853	3844822.405	ID_1076
1175	Screw bean mesquite	*Prosopis pubescens*	Very Tall	Good	730185.8046	3844887.319	ID_1086
1176	Screw bean mesquite	*Prosopis pubescens*	Very Tall	Good	730202.2925	3844889.243	ID_1089
1177	Screw bean mesquite	*Prosopis pubescens*	Very Tall	Good	730214.027	3844893.082	ID_1090
1178	Screw bean mesquite	*Prosopis pubescens*	Very Tall	Good	730221.6887	3844884.844	ID_1091
1179	Screw bean mesquite	*Prosopis pubescens*	Very Tall	Good	730091.5694	3845071.698	ID_1101
1180	Screw bean mesquite	*Prosopis pubescens*	Very Tall	Good	730093.8768	3845060.363	ID_1102
1181	Screw bean mesquite	*Prosopis pubescens*	Very Tall	Good	730107.6462	3845048.371	ID_1103
1182	Screw bean mesquite	*Prosopis pubescens*	Very Tall	Good	730114.4917	3845038.777	ID_1104
1183	Screw bean mesquite	*Prosopis pubescens*	Very Tall	Good	730057.3878	3845067.524	ID_1111
Shrubs							
1184	Creosote bush	*Larrea tridentata*	Medium	Good	729788.6387	3845043.586	ID_364
1185	Creosote bush	*Larrea tridentata*	Medium	Good	729764.1736	3845055.124	ID_365
1186	Creosote bush	*Larrea tridentata*	Medium	Good	729636.6079	3845318.377	ID_366
1187	Ocotillo	*Fouquieria splendens*	Medium	Poor	729062.3956	3844988.867	ID_147
1188	Ocotillo	*Fouquieria splendens*	Medium	Good	730402.3098	3844239.268	ID_1595
1189	Ocotillo	*Fouquieria splendens*	Medium	Good	729073.152	3844991.557	ID_148
1190	Ocotillo	*Fouquieria splendens*	Medium	Good	729081.1626	3844977.957	ID_149
1191	Ocotillo	*Fouquieria splendens*	Medium	Good	729082.6467	3844973.006	ID_150
1192	Ocotillo	*Fouquieria splendens*	Medium	Good	729609.0115	3845079.481	ID_37
1193	Ocotillo	*Fouquieria splendens*	Medium	Good	729635.6963	3845051.948	ID_38
1194	Ocotillo	*Fouquieria splendens*	Medium	Good	729646.5411	3845047.112	ID_39
1195	Oleander	*Nerium oleander*	Medium	Fair	729661.0681	3844249.674	ID_1447
1196	Oleander	*Nerium oleander*	Medium	Fair	729655.1138	3844249.214	ID_1448

[1]Coordinates are UTM NAD 83 Zone 11N;

No.	Common Name	Scientific Name	Size Class	Health	Easting[1]	Northing	Object ID
1197	Oleander	*Nerium oleander*	Medium	Fair	729651.5445	3844250.091	ID_1449
1198	Oleander	*Nerium oleander*	Medium	Fair	729621.217	3844260.038	ID_1457
1199	Oleander	*Nerium oleander*	Medium	Fair	729618.7956	3844261.694	ID_1458
1200	Oleander	*Nerium oleander*	Medium	Good	728782.3091	3845660.314	ID_1543
1201	Oleander	*Nerium oleander*	Tall	Fair	729624.3765	3844257.07	ID_1456
1202	Oleander	*Nerium oleander*	Tall	Good	729669.8072	3844250.335	ID_1446
1203	Oleander	*Nerium oleander*	Tall	Good	729650.333	3844250.204	ID_1450
1204	Oleander	*Nerium oleander*	Tall	Good	729642.1997	3844250.249	ID_1451
1205	Oleander	*Nerium oleander*	Tall	Good	729638.9168	3844251.782	ID_1452
1206	Oleander	*Nerium oleander*	Tall	Good	729627.0337	3844255.964	ID_1455
1207	Oleander	*Nerium oleander*	Very Tall	Good	729636.2979	3844251.316	ID_1453
1208	Oleander	*Nerium oleander*	Very Tall	Good	729631.7564	3844255.188	ID_1454
Herbs							
1209	Broad-leaved cattail	*Typha latifolia*	Medium	Good	730481.6891	3844226.208	ID_1672
1210	Broad-leaved cattail	*Typha latifolia*	Medium	Good	729543.1175	3845377.74	ID_1532
1211	Broad-leaved cattail	*Typha latifolia*	Medium	Good	729272.4533	3845572.129	ID_1533
1212	Broad-leaved cattail	*Typha latifolia*	Medium	Good	729253.8362	3845601.639	ID_1537
1213	Broad-leaved cattail	*Typha latifolia*	Medium	Good	729240.2914	3845603.162	ID_1538
1214	Broad-leaved cattail	*Typha latifolia*	Medium	Good	730406.0156	3844374.911	ID_1065
1215	California bulrush	*Schoenoplectus californicus*	Short	Good	730406.4404	3844375.42	ID_1066
1216	California bulrush	*Schoenoplectus californicus*	Medium	Good	729912.8895	3844858.432	ID_1675
1217	California bulrush	*Schoenoplectus californicus*	Medium	Good	729616.555	3845378.485	ID_1529
1218	California bulrush	*Schoenoplectus californicus*	Medium	Good	729600.2221	3845385.402	ID_1530
1219	California bulrush	*Schoenoplectus californicus*	Medium	Good	729581.8764	3845394.98	ID_1531
1220	California bulrush	*Schoenoplectus californicus*	Medium	Good	728861.7893	3845671.373	ID_1542
1221	California bulrush	*Schoenoplectus californicus*	Medium	Good	728564.1988	3845622.857	ID_1545
1222	California bulrush	*Schoenoplectus californicus*	Medium	Good	730705.4445	3844782.28	ID_1550
1223	California bulrush	*Schoenoplectus californicus*	Medium	Good	730516.4377	3844811.766	ID_1551
1224	California bulrush	*Schoenoplectus californicus*	Medium	Good	730296.7501	3844777.779	ID_1192
1225	California bulrush	*Schoenoplectus californicus*	Medium	Good	730323.6459	3844804.999	ID_1196

[1]Coordinates are UTM NAD 83 Zone 11N;

No.	Common Name	Scientific Name	Size Class	Health	Easting[1]	Northing	Object ID
1226	Common reed	*Phragmites australis*	Medium	Good	729984.2857	3844399.47	ID_1526
1227	Common reed	*Phragmites australis*	Medium	Good	728923.5756	3845690.137	ID_1540
1228	Common reed	*Phragmites australis*	Medium	Good	728861.6738	3845674.729	ID_1541
1229	Common reed	*Phragmites australis*	Medium	Good	729917.3269	3844475.785	ID_1469
1230	Common reed	*Phragmites australis*	Medium	Good	730296.7273	3844788.34	ID_1193
1231	Giant reed	*Arundo donax*	Tall	Fair	730242.8115	3844782.914	ID_224
1232	Giant reed	*Arundo donax*	Tall	Good	730249.4705	3844779.315	ID_1190
1233	Giant reed	*Arundo donax*	Very Tall	Good	730301.5935	3844253.476	ID_1674
1234	Giant reed	*Arundo donax*	Very Tall	Good	729126.6877	3845689.14	ID_1539
1235	Giant reed	*Arundo donax*	Very Tall	Good	728723.018	3845646.121	ID_1544

[1]Coordinates are UTM NAD 83 Zone 11N;

Appendix A5
Topock Groundwater Remediation Project
Floristic Survey Report
(*on CD-ROM only*)

Topock Project Executive Abstract

Document Title:

Topock Groundwater Remediation Project Floristic Survey Report

Submitting Agency/Authored by: DTSC

Final Document? ☒ Yes ☐ No

Date of Document: March 29, 2013

Who Created this Document?: (i.e. PG&E, DTSC, DOI, Other)
PG&E

Priority Status: ☐ HIGH ☐ MED ☒ LOW
Is this time critical? ☐ Yes ☒ No

Type of Document:
☐ Draft ☒ Report ☐ Letter ☐ Memo
☐ Other / Explain:

Action Required:
☒ Information Only ☐ Review & Comment
Return to:_____
By Date: _____

☐ Other / Explain:

What does this information pertain to?
☐ Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA)/Preliminary Assessment (PA)
☐ RCRA Facility Investigation (RFI)/Remedial Investigation (RI) (including Risk Assessment)
☐ Corrective Measures Study (CMS)/Feasibility Study (FS)
☐ Corrective Measures Implementation (CMI)/Remedial Action
☒ California Environmental Quality Act (CEQA)/Environmental Impact Report (EIR)
☐ Interim Measures
☐ Other / Explain: Programmatic Biological Assessment (PBA)

Is this a Regulatory Requirement?
☒ Yes
☐ No
If no, why is the document needed?

What is the consequence of NOT doing this item? What is the consequence of DOING this item?
This report presents data collected during surveys made in compliance with the EIR mitigation measures AES-1a, AES-2b, and CUL-1a-5. If this work was not performed, it would constitute a non-compliance with the EIR mitigation measure.

Other Justification/s:
☐ Permit ☐ Other / Explain:

Brief Summary of attached document:

The Final Environmental Impact Report (EIR) for the Topock Compressor Station Groundwater Remediation Project prescribes mitigation measures to reduce impacts associated with the groundwater cleanup. Mitigation measures for aesthetics included AES-1a and AES-2b, requiring a survey of mature vegetation, and mitigation measure CUL-1a-5 for cultural resource protection required a survey for ethnobotanically significant plants, with data from both surveys used in remedy design planning. In order to collect this data, a comprehensive floristic survey was performed with field effort in August and November 2011, and March 2012. Incidental floristic data was also collected during the February 2012 Wetlands Survey performed under mitigation measure BIO-1. This report presents the results of the floristic surveys and detailed maps of Federal and State listed rare plant occurrence, as well as appendices of photographs and GPS data. Avoidance and restoration plans for rare plant communities are included. The data presented with this report will be considered in the remedy design.

Written by: PG&E

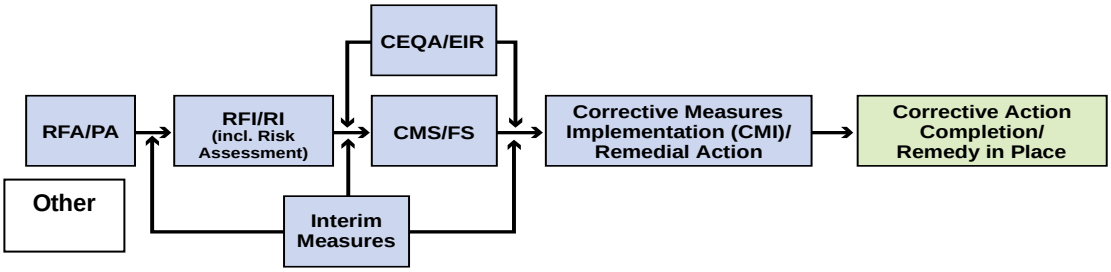
Recommendations:
This report is for information only.

How is this information related to the Final Remedy or Regulatory Requirements:
This report presents data collected for use with the remedy design. The comprehensive Floristic Survey collected data for compliance with EIR mitigation measures AES-1a, AES-2b, BIO-1, and CUL-1a-5, with separate reports issued in relation to those mitigation measures. Rare plant results are reported herein.

Other requirements of this information?
None.

Related Reports and Documents:

Click any boxes in the Regulatory Road Map (below) to be linked to the Documents Library on the DTSC Topock Web Site (www.dtsc-topock.com). **The link to the Documents Library is currently UNDER CONSTRUCTION.**



Legend
RFA/PA – RCRA Facility Assessment/Preliminary Assessment
RFI/RI – RCRA Facility Investigation/CERCLA Remedial Investigation (including Risk Assessment)
CMS/FS – RCRA Corrective Measure Study/CERCLA Feasibility Study
CEQA/EIR – California Environmental Quality Act/Environmental Impact Report

Version 9

FINAL

Topock Groundwater Remediation Project
Floristic Survey Report

Prepared for

Pacific Gas and Electric Company

Prepared by

Garcia and Associates (GANDA)

and

CH2M HILL

March 29, 2013

Contents

Table

Figures

Appendices

Acronyms and Abbreviations

ADA	Arizona Department of Agriculture
BLM	Bureau of Land Management
BN&SF	Burlington Northern and Santa Fe
CDNPA	California Desert Native Plants Act
CEQA	California Environmental Quality Act
CDFG	California Department of Fish and Game
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Ranked
DTSC	California Department of Toxic Substance Control
EIR	Environmental Impact Report
PG&E	Pacific Gas and Electric Company
Project	Topock Groundwater Remediation Project
TCS	Topock Compressor Station
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

SECTION 1

Introduction

Pacific Gas and Electric Company (PG&E) is implementing the final groundwater remedy to address chromium in groundwater near the PG&E Topock Compressor Station, located in eastern San Bernardino County 15 miles southeast of the city of Needles, California. The California Department of Toxic Substance Control (DTSC) is the state lead agency overseeing corrective actions at the compressor station. Pursuant to the California Environmental Quality Act (CEQA), DTSC prepared and certified an environmental impact report (EIR) (DTSC, 2011) that evaluated and prescribed mitigation measures to lessen the potential environmental impacts of the final groundwater remedy.

The purpose of this report is to establish a comprehensive inventory of plant species that occur in the PG&E Topock Groundwater Remediation Project (Project), and to identify any special-status plant species (as defined in the *Methodology* section below). The Mitigation Measures contained in the January 2011 EIR included specific cultural and aesthetic protection requirements (DTSC, 2011). The Mitigation Measures require PG&E to avoid, protect, and encourage the regeneration of special-status plant species. Vegetation surveys within the EIR Project Area were required to comply with cultural resource measure CUL-1a-5 for a survey to identify traditional culturally (ethnobotanically) significant plants, and aesthetics measures AES-1a and AES-2b for a survey of mature plant specimens intrinsic to key viewsheds. Biology mitigation measure BIO-1 required that a Section 404 Wetland Delineation be prepared. In order to collect data for these specific mitigation measures, a comprehensive floristic survey was performed. Results specific to the Ethnobotanical and Mature Plants surveys were reported separately. This report presents overall floristic and rare plant findings from the botanical surveys and other field surveys and includes a preliminary avoidance and restoration plan for rare and sensitive species. The location of the Compressor Station is indicated in Figure 1, and the survey segments comprising the Project Area are depicted in Figure 2.

1.1 Project Area

The Topock Compressor Station (TCS) is located near the California and Arizona border in eastern San Bernardino County, approximately 12 miles southeast of the city of Needles, California (Figure 1). The town of Topock, Arizona is located approximately one-half mile to the east. Access to the compressor station is from the Park Moabi Road exit off of Interstate 40 (I-40). At Moabi Regional Park, the roadway connects to National Trails Highway, which extends eastward and then southward for approximately one mile along the Colorado River to the Topock Compressor Station.

1.2 Survey Area

The Survey Area encompasses the entire Project Area and totals approximately 780 acres. It varies in elevation from approximately 400 to 700 feet above sea level.[1] The survey team arbitrarily divided the Project Area into twelve segments designated A—L (Figure 2). One of these, Segment K which contains the new evaporation ponds in operational use by PG&E TCS, was excluded from the Survey Area after August and Fall surveys were completed because this location is outside of the EIR project area. Of the remaining 11 segments, eight (A, B, C, D, E, H, I, and L) are located in San Bernardino County, California, and three (F, J, and G) are located in Mohave County, Arizona (Figure 2). Segments of the Project Area within California are primarily on land managed by the Bureau of Land Management (BLM) or the U.S. Fish and Wildlife Service (USFWS); with the exception of portions of segments C

[1] The Burlington Northern and Santa Fe railroad and Interstate 40 rights-of-way are within the boundaries of the Project Area; however, they were not included in the Floristic Survey because the project is not anticipated to impact these right-of-way areas.

and D, which are owned by the Fort Mojave Indian Tribe; and a portion of Segment H, which is owned by PG&E. On the Arizona side of the Colorado River, Segment F and most of Segment G are part of the USFWS Havasu National Wildlife Refuge, and land in Segment J and a portion of Segment G are on privately owned land.

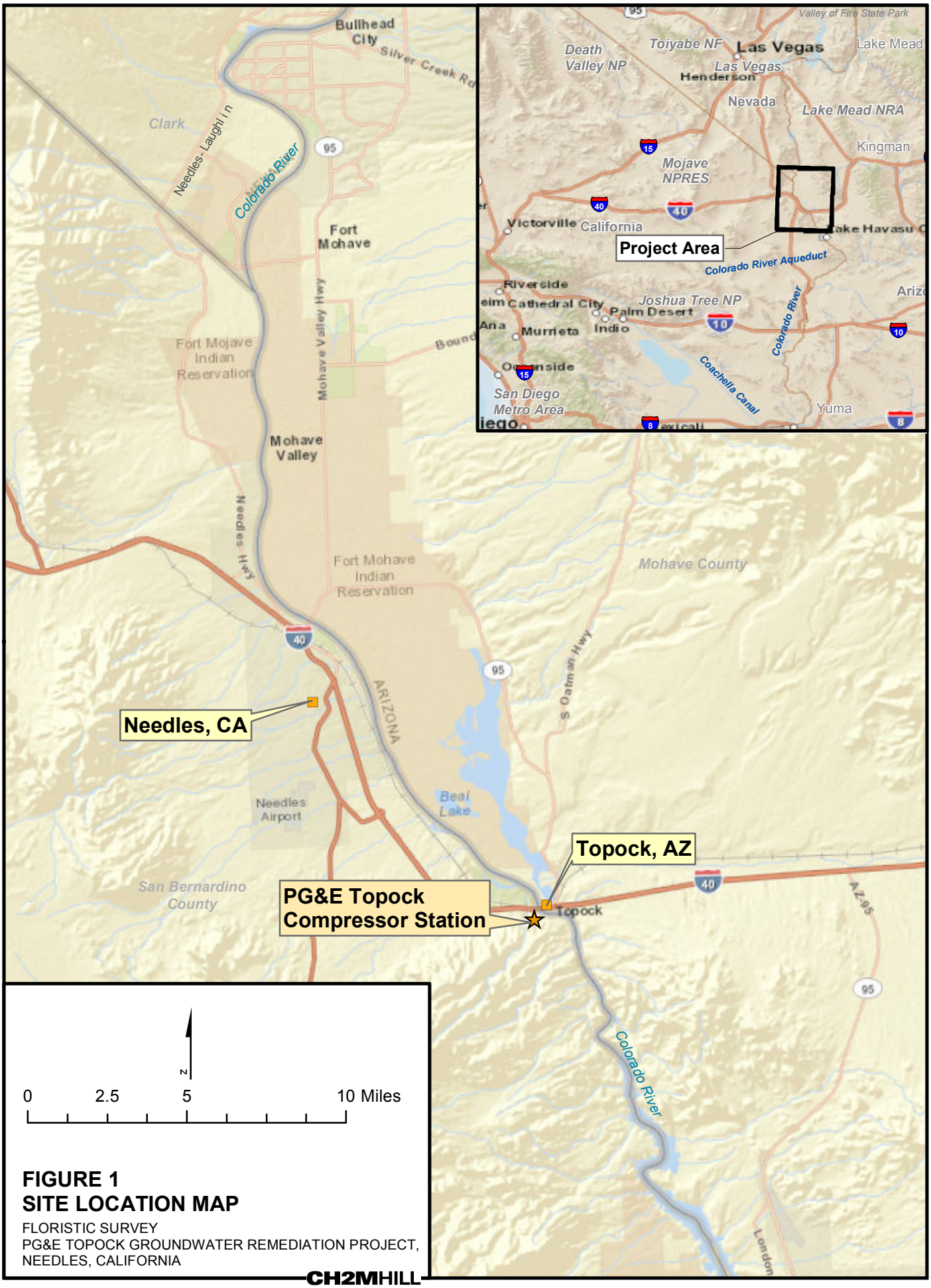


FIGURE 1
SITE LOCATION MAP

FLORISTIC SURVEY
PG&E TOPOCK GROUNDWATER REMEDIATION PROJECT,
NEEDLES, CALIFORNIA

CH2MHILL

Path: D:\Projects\Topock\MapFiles\2013\Vegetation\Floristic\SiteLocation.mxd Date Saved: 3/27/2013 4:32:35 PM

LEGEND

Survey Segments

N

0 500 1,000 2,000 Feet

FIGURE 2
PROJECT AREA WITH BOTANICAL SURVEY SEGMENTS

FLORISTIC SURVEY
PG&E TOPOCK GROUNDWATER REMEDIATION PROJECT,
NEEDLES, CALIFORNIA

CH2MHILL

D:\Projects\Topock\MapFiles\2011\CMS\BioSurveySegements

SECTION 2

Vegetation Communities of the Project Area

There are ten primary terrestrial plant community types, and three major wetland communities in the Project Area. The primary terrestrial plant community types are creosote bush scrub, tamarisk thickets, arrow weed thickets, blue palo verde woodlands, catclaw acacia thorn scrub, foothill palo verde scrub, allscale scrub, quailbush scrub, western honey mesquite bosque, and screwbean mesquite bosque (Sawyer et al. 2009). The primary wetland communities include California bulrush marshes, cattail marshes, and common reed marshes. Descriptions of these primary plant communities are provided in the following sections. A detailed vegetation map with additional community types found in the Project Area is provided in Figure 3.

2.1 Terrestrial Communities

2.1.1 Creosote Bush Scrub

The most common and widespread plant community in the Project Area is creosote bush scrub. This vegetation type is characterized by widely-spaced creosote bush (*Larrea tridentata*) with associated species such as white bursage (*Ambrosia dumosa*), white rhatany (*Krameria bicolor*), brittlebush (*Encelia farinosa*), beavertail cactus (*Opuntia basilaris* var. *basilaris*), and silver cholla (*Cylindropuntia echinocarpa*). Creosote bush scrub occurs throughout the dissected alluvial terraces in the Project Area (Appendix C, Plate 5, G-5).

2.1.2 Tamarisk Thicket

Tamarisk thicket is found primarily on the low sandy terraces adjacent to the Colorado River and the inlet to Pirate's Cove between Segments A and B (Appendix C, Plate 3, E-1 and E-2, Plate 4, G-2). This vegetation type is also found near the terminus of the larger ephemeral washes in Survey Segments A, C, and D (Appendix C, Plate 3, D-2) south of the National Trails Highway. Vegetation is characterized by open to dense stands of the non-native and invasive salt cedar (*Tamarix ramosissima*). In many locations salt cedar trees and shrubs occur as monospecific stands; in other areas associated trees or shrubs include athel (*Tamarix aphylla*), western honey mesquite (*Prosopis glandulosa* var. *torreyana*), screwbean mesquite (*Prosopis pubescens*), blue palo verde (*Parkinsonia florida*) and arrow weed (*Pluchea sericea*). Herbaceous vegetation is absent within dense thickets of salt cedar, but occurs in openings between such thickets where scattered individuals of fanleaf crinklemat (*Tiquilia plicata*), Spanish needle (*Palafoxia arida*) and *Cryptantha* spp. may be present.

2.1.3 Arrow Weed Thicket

Arrow weed thicket is also found on the low sandy terraces along the Colorado River and Park Moabi Slough (Appendix C, Plate 4, F-1). Arrow weed is the sole dominant shrub species with individuals widely scattered or aggregated into dense, nearly impenetrable stands. It is most common in Survey Segments A, B, E, and F and often inter-digitates with tamarisk thickets and mesquite bosque. Associated species include salt cedar, smoke tree (*Psorothamnus spinosus*), western honey mesquite, brittlebush, and broom baccharis (*Baccharis sarothroides*). Scattered herbaceous vegetation in the more open areas includes fanleaf crinklemat, Spanish needle, *Cryptantha* spp., and Mediterranean grass (*Schismus barbatus*).

2.1.4 Blue Palo Verde Woodland

Blue palo verde woodland is restricted to the edges and channel bottoms of the ephemeral washes in the dissected alluvial terraces that characterize the largest portion of the Project Area south of the Colorado River (Appendix C, Plate 3, D-1). Total vegetation cover is generally low, but species diversity is relatively high compared to the other vegetation types in the Project Area. Blue palo verde is the dominant tree with scattered individuals of salt cedar, athel, and smoke tree also present in some areas. Associated shrubs include catclaw acacia (*Senegalia greggii*), Anderson's desert thorn (*Lycium andersonii*), brittlebush, sweetbush (*Bebbia juncea*),

cheesebush (*Hymenoclea salsola*), climbing milkweed (*Funastrum hirtellum*), desert lavender (*Hyptis emoryi*), white bursage, white rhatany, and creosote bush. Common herbaceous species include small-seeded spurge (*Chamaesyce polycarpa*.), small-flowered California poppy (*Eschscholzia minutiflora*), Emory rock daisy (*Perityle emoryi*), Spanish needle, and Arizona lupine (*Lupinus arizonicus*).

2.1.5 Catclaw Acacia Thorn Scrub

In the Project Area catclaw acacia thorn scrub is limited to the bottoms of moderate-sized ephemeral washes in the dissected terraces south of the National Trails Highway. This vegetation type is characterized by widely scattered shrubs dominated by catclaw acacia. Common associated species include Anderson's desert thorn, brittlebush, sweetbush, cheesebush, desert lavender, white bursage, white rhatany and creosote bush. Herbaceous species include small-seeded spurge, Arizona lupine, and Spanish needle.

2.1.6 Foothill Palo Verde Scrub

Foothill palo verde scrub is restricted to a small area east of the compressor station along the slopes of the Chemehuevi Mountains (Appendix C, Plate 6, I-3). Vegetation in this area is characterized by scattered foothill palo verde (*Parkinsonia microphylla*). Associated species in this area include creosote bush, pygmy-cedar (*Peucephyllum schottii*), brittlebush, white rhatany, beavertail cactus, buckhorn cholla (*Cylindropuntia acanthocarpa*), California barrel cactus (*Ferocactus cylindraceus* var*. cylindraceus*), and inflated desert trumpet (*Eriogonum inflatum* var*. inflatum*).

2.1.7 Quailbush Scrub

Quailbush scrub is dominated by big saltbush (*Atriplex lentiformis*) and occurs on low-lying alkaline or saline soils (Sawyer et al. 2009). In the Project Area, it is most common in Segment G, where it occurs on both sides of Arizona County Road 10, formerly Route 66. On the west side of the road, it occurs on sandy saline/alkaline soils north of the Topock Marsh on the Havasu National Wildlife Refuge (Appendix C, Plate 4, G-3). The only common associate at this site is bush seepweed (*Suaeda moquinii).* Quailbush scrub also occurs in Segment A with bush seepweed in a disturbed area near the Colorado River and in Segment J on the edge of arrow weed thickets at the foot of the southernmost natural gas pipeline bridge (Appendix C, Plate 6, J-1).

2.1.8 Allscale Scrub

Allscale scrub is dominated by cattle saltbush (*Atriplex polycarpa*) and is the most common alkaline tolerant shrubland alliance in the Project Area. In the Project Area, allscale scrub occupies a portion of the broad flat wash in Survey Segment C (Appendix C, Plate 2, C-1) (where it occurs with creosote bush), the north end of Segment E, and various parts of Segment A.

2.1.9 Western Honey Mesquite Bosque

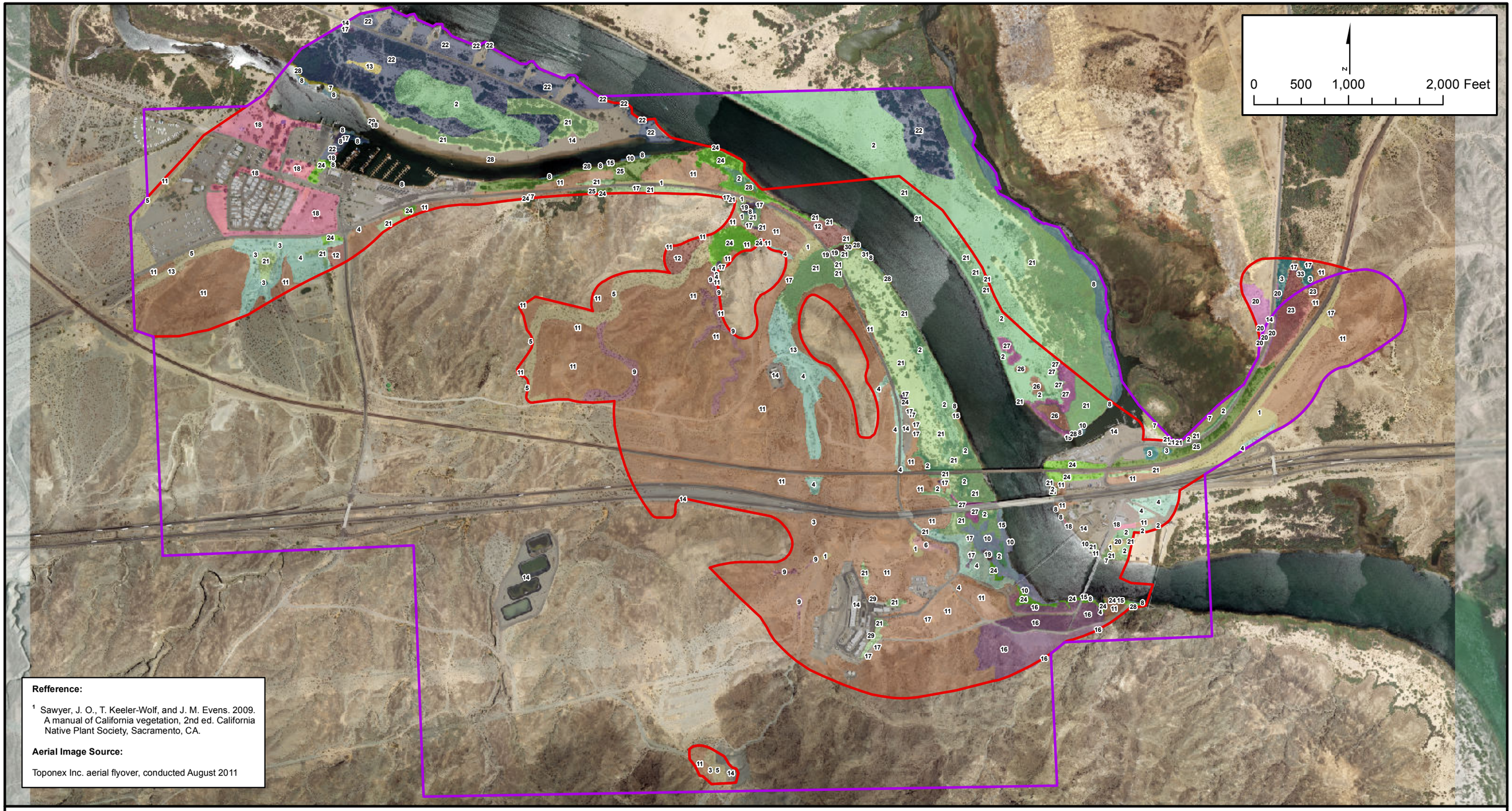
Western Honey Mesquite bosque is restricted to the low sandy terraces along the Colorado River. This vegetation type is characterized by western honey mesquite. Common associated species include salt cedar and in some areas screwbean mesquite. It is most common in Survey Segments A, B, E, and F, where it occurs intermixed with tamarisk thickets (Appendix C, Plate 4, F-2).

2.1.10 Screwbean Mesquite Bosque

Screwbean Mesquite bosque is also restricted to the low terraces along the Colorado River, but is concentrated in three relatively small areas of Segments A, B and E. It is most abundant in Survey Segment B across from the Topock Marina, especially along the southwestern shoreline of the Segment (Appendix C, Plate 4, F-2). It is also a principal component of the screwbean/tamarisk thicket vegetation that covers the southern portion of Segment B. In Segment E, it is common on the California side of the Colorado River near the Burlington Northern and Santa Fe (BN&SF) railroad bridge. In Segment A, it is locally common and near the cattail marshes that are present in the panhandle of Segment A.

2.2 Wetland Communities

Along the Colorado River and its inlets are patches of wetlands with various marsh plants forming three principal wetland communities, from the mostly submerged cattail (*Typha latifolia*) marshes and California bulrush (*Schoenoplectus californicus*) marshes, to the adjacent but somewhat drier common reed (*Phragmites australis*) marshes. The common reed marshes are concentrated and most extensive along the edges of the low terraces next to the Colorado River in Segment I (Appendix C, Plate 6, I-1), whereas the bulrush marshes occur just offshore in standing water in all Segments of the Project Area that include shoreline. It is likely that the common reed species in the Project Area is an invasive, non-indigenous form of *Phragmites australis*.



Refference:

[1] Sawyer, J. O., T. Keeler-Wolf, and J. M. Evens. 2009. A manual of California vegetation, 2nd ed. California Native Plant Society, Sacramento, CA.

Aerial Image Source:

Toponex Inc. aerial flyover, conducted August 2011

LEGEND

- Area of Potential Effects (APE)
- Project Area

Vegetation Types

- Allscale Scrub (MCV2[1]: Allscale scrub) [1]
- Arrow Weed (MCV2: Arrow weed thickets)[2]
- Athel Tamarisk (MCV2: Tamarisk thickets)[3]
- Blue Paloverde (MCV2: Blue palo verde-Ironwood woodland)[4]
- Blue Paloverde/Catclaw Acacia (MCV2: Blue palo verde-Ironwood woodland)[5]
- Blue Paloverde/Honey Mesquite (MCV2: Blue palo verde woodland)[6]
- Broad-leaved Cattail (MCV2: Cattail marshes)[7]
- California Bullrush (MCV2: California bulrush marsh)[8]
- Catclaw Acacia (MCV2: Catclaw acacia thorn scrub)[9]
- Common Reed (MCV2: Common reed marshes)[10]
- Creosote bush scrub (MCV2:Creosote bush scrub)[11]
- Creosote Bush/Cattle Saltbush (MCV2: Allscale scrub)[12]
- Desert Smoke Tree (MCV2: Blue palo verde-Ironwood woodland)[13]
- Developed/Disturbed[14]
- Giant Reed (MCV2:Giant reed breaks)[15]
- Hillside Paloverde (MCV2: Foothill palo verde desert scrub)[16]
- Honey Mesquite (MCV2: Mesquite bosque)[17]
- Landscaped[18]
- Open Water [19]
- Quailbush Scrub (MCV2: Quailbush scrub)[20]
- Salt Cedar (MCV2: Tamarisk thickets)[21]
- Salt Cedar/Arrow Weed (MCV2: Tamarisk/Arrow weed thickets)[22]
- Salt Cedar/Athel Tamarisk (MCV2: Tamarisk thickets)[23]
- Salt Cedar/Honey Mesquite (MCV2: Tamarisk thickets/Mesquite bosque)[24]
- Salt Cedar/Honey Mesquite/Blue Paloverde (MCV2: Tamarisk thickets/Mesquite bosque/Blue palo verde-Ironwood woodland)[25]
- Salt Cedar/Screwbean Mesquite (MCV2: Tamarisk thickets/ Screwbean mesquite bosque)[26]
- Screwbean Mesquite (MCV2: Screwbean mesquite bosque)[27]
- Wetland [28]

FIGURE 3
VEGETATION COMMUNITIES IN PROJECT AREA

FLORISTIC SURVEY
PG&E TOPOCK GROUNDWATER REMEDIATION PROJECT,
NEEDLES, CALIFORNIA

CH2MHILL

Path: D:\Projects\Topock\MapFiles\2013\Vegetation\Floristic\VegCommunities_11X17.mxd Date Saved: 3/27/2013 4:01:09 PM

SECTION 3

Survey Segments in the Project Area

Segment A: The western portion of Segment A north of National Trails Highway is developed and landscaped and is publicly owned (Moabi Regional Park) and privately (Pirates Cove Resort and Marina) owned. The developed portion of Moabi Regional Park includes offices, a mobile home park, RV storage lots, parking areas, camping areas, and a boat launch (Appendix C, Plate 1, A-4); whereas the Pirate's Cove portion includes the marina, a store, a restaurant, vacation housing, and paved and unpaved parking lots (Appendix C, Plate 1, A-5). The landscaped areas of Moabi Regional Park and Pirate's Cove are planted primarily with Mexican fan palm (*Washingtonia robusta*), but they also include California fan palm (*Washingtonia filifera*), honey mesquite, Fremont's cottonwood *(Populus fremontii),* eucalyptus (*Eucalyptus* spp.), and other native and exotic landscape plants (Appendix C, Plate 1, A-4). Undeveloped areas with natural vegetation are restricted primarily to areas to the south of National Trails Highway (Appendix C, Plate 1, A-1, A-2), with the exception of the sewage disposal ponds on the southwest corner of Park Moabi Road and National Trails Highway (Appendix C, Plate 1, A-3). On the south side of National Trails Highway, there is a broad dry wash that is partially channelized and includes blue palo verde, smoke tree, and creosote bush (Appendix C, Plate 1, A-1). This wash drains into a low-lying area covered with blue palo verde woodland, and tamarisk and athel thickets. The flat-topped hill to the south and west of the wash is covered with desert pavement on top and steep gravely slopes on the sides (Appendix C, Plate 1, A-2). This hill is with creosote bush scrub that is dominated almost exclusively by creosote bush and beavertail cactus.

The eastern portion of Segment A resembles a pan handle (Figure 2) and is covered primarily in creosote bush scrub on the prominent rocky hills. On the adjacent flats are small patches of a variety of other vegetation types including wetlands with California bulrush, common reed and giant reed (*Arundo* donax) along the edge of the cove. Away from the water's edge are tamarisk thickets, mixed honey mesquite/tamarisk thickets, screwbean mesquite thickets, arrow weed thickets, a cattail marsh, and creosote bush and allscale scrub. On the south side of National Trails Highway are hills covered in creosote bush scrub with the low areas characterized by tamarisk thickets or tamarisk/western honey mesquite thickets.

Segment B: This Segment is a peninsula that was partially created with dredge sands from the Colorado River. The central portion of the peninsula is dominated by arrow weed thickets (Appendix C, Plate 1, B-1) and tamarisk thickets with and fanleaf crinklemat, and open sandy areas with scattered individuals of honey mesquite, smoke tree, and creosote bush. The river's edge is mostly disturbed with a series of RV camping pads (Appendix C, Plate 2, B-2) and restrooms. Landscape plantings in this area include Fremont's cottonwood, eucalyptus, and athel. On the cove side is a small wetland area dominated by California bulrush, cattail, geniculate spike rush (*Eleocharis geniculata*), rough-glume bushy blue stem (*Andropogon glomeratus* ssp. *scabriglumis*) and other wetland plants. The majority of the cove side is characterized by a cleared and maintained beach (Appendix C, Plate 2, B-3).

Segment C: This Segment consists of alluvial terraces dissected by small natural drainage channels that converge on a single broad sandy wash. The wash is occupied primarily by blue palo verde woodland with catclaw acacia scrub, and an area of creosote bush mixed with cattle salt bush (Appendix C, Plate 2, C-1, C-2, C-3). There is also a large area containing tamarisk thickets near the National Trails Highway. The surrounding rocky hills are covered with creosote bush scrub dominated by creosote bush and white bursage. The tops of the hills are mostly flat and rocky with desert pavement.

Segment D: This Segment is similar to Segment C and dominated by one major wash system, (Bat Cave Wash). Most of this wash is dominated by blue palo verde woodland with occasional smoke trees (Appendix C, Plate 3, D-1), but it ends in an extensive tamarisk and mesquite bosque thicket (Appendix C, Plate 3, D-2) before passing under the road and emptying into the Colorado River (Appendix C, Plate 3, E-3).

Segment E: This Segment is mostly a sandy flood plain extending northward from the I-40 bridge to just beyond the outlet for Bat Cave Wash into the Colorado River. The sandy nature of the flood plain is due to dredge sands deposited during the channelization of the Colorado River. The major vegetation types in this Segment are arrow weed and tamarisk thickets (Appendix C, Plate 3, E-1 and E-2). There are also some rocky upland slopes dominated by creosote bush scrub, with scattered individuals of blue palo verde and honey mesquite extending up to the National Trails Highway along the western edge of the Segment. There is also a small area of creosote bush scrub with a narrow strip of tamarisk thickets on the northwest of the Bat Cave Wash inlet (Appendix C, Plate 3, E-3 and E-4).

Segment F: This Segment is in Arizona, directly across the Colorado River from Segment E. Similar to Segment E, it consists mainly of dredge sands dominated by arrow weed thickets (Appendix C, Plate 4, F-1), tamarisk thickets or tamarisk thickets mixed with athel or screwbean mesquite. However, unlike Segment E, there are no areas of upland rocky hills with creosote bush scrub vegetation. Instead, this Segment has a lowland area at its southern tip that includes screwbean mesquite and tamarisk thickets, as well as a small wetland along the southern edge across from the Topock Marina (Appendix C, Plate 4, F-2). This wetland is dominated by California bulrush, common reed, and sand-bar willow (*Salix exigua*), with some marsh fleabane (*Pluchea odorata*), geniculate spikerush and other wetland species (Appendix C, Plate 4, F-3).

Segment G: This Segment in Arizona is bisected by the BN&SF railroad tracks. On the north side of the tracks at the western end is the Topock Marina with a mobile home park and associated parking areas. On the northwest side of the road at the eastern end is a small portion of the Topock marsh that is dominated by California bulrush (Appendix C, Plate 4, G-1). Between the road and the tracks is a strip of tamarisk/honey mesquite/blue palo verde thicket that grades into a denser stand of salt cedar as one progresses northeastward (Appendix C, Plate 4, G-2). Further along County Road 10 (formerly Route 66), there is a sandy alkaline/saline area dominated by big saltbush with scattered shrubs of bush seepweed (Appendix C, Plate 4, G-3). There is also a section of big saltbush scrub on the southeast side of the road. The largest portion of Segment G, however, consists of upland hills dominated by creosote bush scrub in the northeast portion of the Segment (Appendix C, Plate 5, G-5). Most of this area is accessed from a gravel road that goes to a small PG&E facility. The western part of this area south of the railroad tracks is sandy and flat and although disturbed by roads at its western end, is relatively rich in annuals and allscale scrub at the eastern end.

Segment H: This Segment is botanically interesting and diverse because it encompasses two areas of different geologic history that profoundly influence soils and vegetation (Appendix C, Plate 5, H-3). The northern two-thirds of the Segment consist of alluvial terraces primarily of tertiary origin, whereas the southern one-third consists of pre-tertiary metamorphic/igneous bedrock that forms the northernmost extension of the Chemehuevi Mountains. The TCS, its auxiliary structures and landscaping, are built on the alluvial terraces. The slopes around and just below the compressor station are disturbed, highly eroded and mostly devoid of natural vegetation (Appendix C, Plate 5, H-1). Segment H also includes part of Bat Cave Wash, a major dry wash system that starts in Segment L and finishes in Segment E (Appendix C, Plate 5, H-2). The rocky north-facing slopes composed of metadiorite, gneiss, and granitic rocks provide a rich substrate for succulents, including California barrel cactus, buckhorn cholla, and corkseed mammillaria (*Mammillaria tetrancistra*) (Appendix C, Plate 5, H-4). These rocky slopes also provide habitat for hillside palo verde, and Pima rhatany (*Krameria erecta*); species that occur only on this rock formation. Two vegetatively similar species of *Asclepias* (*A. subulata* and *A. albicans*) that occur in this Segment, as do two similar species of *Krameria* (*K. bicolor* and *K. erecta*), and two similar species of *Parkinsonia* (*P. florida* and *P. microphylla* and possible hybrids) (Appendix D, Plate 1).

Segment I: Segment I runs along the Colorado River from the I-40 bridge in the north to the southernmost gas transmission line bridge in the south (Appendix C, Plate 6, I-2 and I-3). This Segment is similar to Segment H because it includes both the pre-tertiary bedrock of the Chemehuevi Mountains and the more recent tertiary alluvial terraces common in the more northerly Survey Segments (e.g., Segments A, C, D, G and E). Unlike

Segment H, however, it includes a distinctive reddish Miocene conglomerate bedrock that is exposed below the Route 66 sign, as well as wetlands along the edge of the Colorado River that sit on recent (Quaternary) alluvial deposits (Appendix C, Plate 6, I-1). The Miocene conglomerate in this area includes the only known location for rock nettle (*Eucnide urens*) within the Project Area.

Segment J: This Segment is a small one that is developed and landscaped with private residences set back on the hills overlooking the Colorado River in Arizona. The slopes above the river are variously terraced and landscaped, yet there are a few patches of native vegetation that remain near the river's edge. These patches include common reed marsh, arrow weed thickets, quailbush scrub (Appendix C, Plate 6, J-1), and tamarisk thickets, as well as California bulrush and cattail marshes. There is also landscaping with Mexican fan palms and a variety of other cultivated plants on the river's edge (Appendix C, Plate 6, J-2). Segment J contains a small area of partially degraded slopes above a wash at the east end of the Segment that is accessed from a road that drops down to the south from the frontage road next to I-40. These slopes are characterized by degraded creosote bush scrub, while the wash has remnants of blue palo verde woodland.

Segment L. This Segment is located next to a quarry site in a small valley that is approximately 0.3 miles southwest of the compressor station and consists mainly of a flat, but gently sloping (to the northeast) dry wash which is a continuation of the Bat Cave Wash drainage system. The wash is characterized by scattered blue palo verde and catclaw acacia, whereas the surrounding hills are covered with creosote bush scrub vegetation. The eastern portion of Segment L is covered by rocks from the gravel quarry and is devoid of vegetation. These rocks have been taken from the pre-tertiary bedrock that forms the northern extension of the Chemehuevi Mountains (Appendix C, Plate 6, L-1).

SECTION 4

Methodology

4.1 Research and Literature Review

Pursuant to Mitigation Measure CUL-1a-5 (DTSC, 2011),

> *"Should any indigenous plants of traditional cultural significance and listed in Appendix PLA of this FEIR be identified within the project area, PG&E shall avoid, protect, and encourage the natural regeneration of the identified plants when developing the remediation design, final restoration plan, and IM-3 decommission plan…."*

The purpose of the Floristic survey was to comply with Mitigation Measure CUL-1a-5, obtain a comprehensive inventory of plant species that occur in the Project Area, and to ensure that sensitive plants (i.e., special-status and culturally significant plant species as described below) were detected, mapped and recorded. Therefore, prior to the survey, research was conducted to: 1) determine the appropriate times to conduct surveys to maximize the potential for identifying plants that occur in the East Mojave Desert, and 2) identify special-status and culturally significant plant species with a potential to occur in the Project Area.

Research included identification of rainfall patterns in the East Mojave Desert, and specifically, the potential timing of fall and spring surveys. Rainfall in the East Mojave Desert exhibits a bimodal pattern, with most rainfall occurring in the winter and a significant proportion of annual rainfall occurring in the late-summer. To ensure the proper timing for both fall and spring surveys, a regional botanical expert and the director of the University of California Riverside, Granite Mountains Research Center, Jim Andre, Ph.D., was contracted to review survey planning and timing and to check target plant lists. Dr. Andre also joined the field survey team for a pre-survey reconnaissance and orientation towards locally occurring special-status plants. Based on late summer and early fall rainfall in 2011, it was decided to conduct a fall survey at the beginning of November. The spring survey 2012 was planned for mid-March based on preliminary observations made during a wetland delineation conducted by CH2MHILL ecologist and botanist Russell Huddleston and Garcia and Associates senior botanist Kim Steiner in mid-February, and consultation with Dr. Andre. Generally, the most productive timing for a spring survey in this area is mid- to late- March (Jim Andre, pers. comm.) and 2012 fit this pattern. In some cases later than normal rains (e.g., February or March) can stimulate later than normal flowering and warrant a late spring survey. However in 2012, rainfall occurred too late to warrant an additional late spring survey (Jim Andre, pers. comm.).

4.2 Special-Status Plants

A plant species was considered to be special-status if it met one or more of the following criteria:

- Listed, proposed, or candidate for listing, as rare, threatened or endangered under the Federal or State Endangered Species Acts or the California Native Plant Protection Act (USFWS 1996, 2006, 2011; California Natural Diversity Database [CNDDB] 2011a)
- Special Plant as defined by the California Natural Diversity Database (CNDDB, 2011b)
- California Rare Plant Ranked (CRPR) 1, 2, 3, or 4 by the California Native Plant Society (CNPS) in its Online Inventory of Rare and Endangered Plants of California (CNPS, 2011)
- Listed by the BLM as a Sensitive Plant (BLM, 2011)
- Listed by the Arizona Rare Plant Committee (2001)

- Listed by Arizona Department of Agriculture (ADA) (2012)
- Listed under the California Desert Native Plants Act (CDNPA) (1981)

A preliminary list of potentially occurring special-status plants (target list) was derived from several sources. Quadrangle-based searches of the CNPS (2011) Inventory and the CNDDB (2011a) RareFind3 database were conducted to identify potentially occurring special-status plants. The 7.5-minute United States Geological Survey (USGS) quadrangles containing the Project Area (Whale Mountain and Topock Quadrangles) and 11 surrounding USGS 7.5-minute quadrangles (Needles NW, Needles SW, Needles, Monumental Pass, Snaggle Tooth, Chemehuevi Peak, Castle Rock, Savahia Peak NW, Savahia Peak NE, Havasu Lake, and Lake Havasu City South) were included in the CNPS and CNDDB RareFind 3 database searches. The CNDDB Quickviewer online database (CNDDB 2011c) was also searched to identify potentially occurring plant species such as CRPR List 4 plants that are not recorded on a quadrangle basis in other databases. Since part of the Project Area occurs in Arizona and special-status plants in that state are not available in a database that can be queried by USGS quadrangle, each rare plant species listed for Mohave County (Arizona Rare Plant Committee, 2001 and ADA, 2012) was individually checked against data in the Southwest Environmental Information Network (SEINet, 2011) to determine the likelihood of any of these plants occurring in the Project Area. Additional special-status plants with potential to occur in the Project Area, based on observations and collections by Dr. Andre, were also included in the target list.

If a species' distribution, habitat, or elevation range precluded its possible occurrence in the Project Area or vicinity, it was not considered further. A species was determined to have potential to occur within the Project Area if its known or expected geographic range included the Project Area or was within 10 miles of the Project Area, or if its known or expected habitat was found within or adjacent to the Project Area during the August 2011 botanical survey.

Based on the pre-survey research and literature review, 53 special-status plants have the potential to occur in the Project Area. These species, along with data on flowering period, conservation status, habitat preferences, geographic distribution, and known locations in the vicinity of the survey area, are presented in Appendix A. Also included in this table are 21 special-status plants that are protected under the CNDPA and one special-status species (*Hesperocallis undulata*) protected under the ADA (2012).

4.3 Field Surveys

Transect-based protocol-level Floristic surveys that conform to the guidelines of the California Department of Fish and Game[2] (CDFG, 2009), the USFWS (2000), and the CNPS (2001) were conducted in the fall (October 31–Nov 8, 2011) and in the spring (March 12–20, 2012). The fall survey was conducted in late October/early November 2011, because late summer rainfall in amounts sufficient to trigger germination and flowering of late-blooming species had been observed in the area (Jim Andre, pers. comm.). This late-season 2011 survey was targeted to areas within the Project Area that exhibited germination and flowering. These areas were decided on after an initial field reconnaissance, and in consultation with Dr. Andre. The main goal for the surveys was to generate a comprehensive list of all plant species that occur in the Project Area and to census, map, photograph, and record habitat data for any special-status species found in the Project Area. Some of these species (e.g., beavertail cactus) were common and widespread across the Project Area, and in these cases specific locality information was not collected for each individual.

Because of the relatively few plant collections known from the Needles and Topock area, it was possible that a special-status plant not known to occur in the Project Area or vicinity (and therefore not on the target list)

[2] California Department of Fish and Game has changed its name to the California Department of Fish and Wildlife, effective January 1, 2013

would be detected during the surveys. The surveys were floristic and comprehensive in nature, meaning that all plants found were identified. Species that were not immediately recognizable to the surveyors were identified using the Jepson Manual (Baldwin et al. 2012) or the Jepson Online Interchange (2011), to the level necessary to determine whether they had special-status significance

The ability of surveyors to detect and identify plants efficiently and accurately in the field was enhanced by a field review of the common plant species in the Project Area prior to beginning the surveys. Surveyors also reviewed photographs of targeted special-status plants on the Jepson Online Interchange (2011) prior to the Floristic surveys. These materials supplemented the Jepson Manual, the primary resource used to identify plants.

Trimble GeoXT and GeoXH global positioning system (GPS) units with sub-meter accuracy were used to collect data on sensitive plant species. The GPS units were equipped with data files for navigation and with data dictionaries for data collection. Transect lines, spaced 50 feet apart, were programmed into the GPS units and walked by surveyors. Surveyors walked meandering routes along each transect to ensure coverage of the entire Project Area, unless vegetation density (i.e., dense tamarisk/mesquite thickets) or steep unstable slopes precluded surveyors from accessing certain areas. To ensure that inaccessible areas were surveyed to the extent feasible, surveyors identified species by making observations from the margins of such areas or from nearby vantage points above and below these areas. In inaccessible dense tamarisk/mesquite thickets the lack of sunlight and/or high soil salinity invariably resulted in areas devoid of understory species. Data dictionaries were used to record locality information, the actual or estimated number of special-status individuals observed, and habitat information. Point data collected in the field was mapped using Geographic Information System software to depict the total extent of each special-status plant occurrence, where practicable.

A list of all plant species observed was compiled for the Project Area during the surveys (Appendix B). Nomenclature for scientific names followed the Jepson Manual (Baldwin et al. 2012) or the Jepson Online Interchange (2011)

4.4 Reference Site Visits

Before the spring Floristic survey began, searches of nearby reference populations were made for spiny-haired blazing star (*Mentzelia tricuspis*), small-flowered androstephium (*Androstephium breviflorum*), and Hall's tetracoccus (*Tetracoccus hallii*) based on locality data in the database of the Consortium of California Herbaria (2011) and on collection data of Jim Andre. These plants represented the special-status species that were closest to the Project Area and most likely to occur there. The surveyors Kim Steiner and Russell Huddleston, together with Dr. Andre, searched unsuccessfully for plants of both spiny-haired blazing star and small-flowered androstephium (*Androstephium breviflorum*) at locations known by Dr. Andre near Laughlin, Nevada and Golden Shores, Arizona respectively. A visit to an additional site to find shrubs of Hall’s tetracoccus (*Tetracoccus hallii*) NW of Needles, California was successful. Photographs and descriptions of other special-status species that were on the target list were examined by accessing the Jepson Interchange (2011).

SECTION 5

Results

5.1 Survey Summaries

Mature plant and vegetation mapping (Aug 18-26, 2011). A preliminary checklist of 84 species was compiled by Kim Steiner and CH2M HILL ecologist Morgan King while mapping mature plants and vegetation, Due to the seasonal timing of these surveys most of the plants recorded were shrubs or trees and many of these were leafless, or in a vegetative condition [e.g., buckhorn cholla, blue palo verde, sweet bush, white bursage, among others.]. The relatively few perennial herbs encountered were mainly in wetland areas (e.g., marsh fleabane or catchfly gentian (*Eustoma exaltatum*). A few summer/fall annuals were already present and just starting to flower such as spiderling (*Boerhavia coccinea*), California kallstroemia (*Kallstroemia californica*), and chinch-weed (*Pectis papposa* var. *papposa*), but the few spring-flowering annuals such as chia (*Salvia columbariae)* and rigid spineflower (*Chorizanthe rigida*) were present only as dried skeletons.

Fall plant survey (Oct 31-Nov 8, 2011). The fall plant survey was conducted by Kim Steiner and Russell Huddleston. An additional 44 plant species, not detected during the August survey, were recorded during this survey. These included a variety of fall annuals including the grasses six-weeks three awn (*Aristida adscensionis*), needle gamma (*Bouteloua aristidoides*), and six weeks gamma (*Bouteloua barbata* ssp. *barbata*) as well as members of the four 'o clock family including sand verbena (*Abronia villosa*), trailing windmills (*Allionia incarnata* var. *incarnata*), and Wright's spiderling (*Boerhavia wrightii*). Some of these species can flower at almost any time, given adequate rainfall, but others flower only in fall and after late summer germination.

Wetland delineation (Feb 13-17, 2012). During a wetland delineation of the Project Area by Russell Huddleston and Kim Steiner, notes on spring-flowering annual species were begun. Many of the spring annuals were already in flower including *Cryptantha* spp., desert sunflower (*Geraea canescens*), combseed (*Pectocarya* spp.), *Phacelia* spp., suncups (*Chylismia* and *Eremothera* spp.), whereas some were just beginning to flower *e.g., Chaenactis* spp., white tackstem (*Calycoseris wrightii*), and gravel-ghost (*Atrichoseris platyphylla*). Other plant species *e.g.,* pedicillate phacelia (*Phacelia pedicillata*), bristly calico (*Langloisia setosissima* ssp. *setosissima*), and mousetail suncup (*Chylismia arenaria* ssp. *arenaria*) had not yet started flowering. Many of the trees (e.g., *Parkinsonia*), shrubs, and herbaceous perennials were not yet in flower, but most of these had already been identified during previous surveys. Notable new additions to the species list included desert lily (*Hesperocallis undulata*) in segment G, and rock nettle in segment I. The existence and location of the hybrid between brittle and button brittlebush (*Encelia frutescens*) on the flood plain in Segment E was also confirmed. In total, 32 species were added to the checklist, 27 of which were annual species that had not previously been detected during the surveys. Many of these were in early stages of flowering, but others were approaching their flowering peak.

Spring survey (March 12-20, 2012). This survey was conducted by Kim Steiner and Russell Huddleston. No significant rainfall occurred in the project area between the wetland delineation and the beginning of the spring survey. Although occurring only about 3-4 weeks after the wetland survey, the Project Area looked considerably drier and some species detected during the early survey were no longer flowering *e.g*., Bigelow's monkey flower (*Mimulus bigelovii*) and wedge-leaved draba (*Draba cuneifolia*) or were less abundant. Other species that had not been in flower earlier (*e.g*., mousetail suncup) were in full flower during this survey. This survey added an additional 33 species to the checklist for the Project Area for a total count of 193 species (Appendix B).

5.1.1 The Flora of Topock

The final plant list for the Project Area included 193 species in 45 families and 142 genera, however four of the species on the list (oleander, California fan palm, and eucalyptus, and Mexican palo verde) were cultivated. Among this list were 12 species of trees, 42 species of shrubs and 136 species of herbaceous plants. The greatest

numbers of species were found in Segments A, H, and D with 111, 97, and 91 species respectively, whereas the Segment with the fewest species was Segment L with only 38. Considering its small size, however, this Segment is relatively species rich, compared to the other Segments.

5.2 Special-status plants in the Project Area

5.2.1 Federal or State Listed Plants

No Federal or State Listed Endangered, Threatened, or Rare plants or candidates for Federal or State listing were found in the Project Area either in California or in Arizona.

5.2.1.1 Federally Sensitive Plants of the Bureau of Land Management

The BLM has designated a category of special-status plants termed “sensitive”. Such plants are not federally endangered, threatened or proposed, but are designated by the BLM State Director for special management consideration. In California this category includes all plants that are Federal Candidates for listing, all plants that are listed as Endangered, Threatened, or Rare by the State of California, and all plants that are ranked as 1B in the Inventory of Rare and Endangered Plants of California (CNPS, 2011) unless the State Director has determined that a particular taxon should be excluded from sensitive status. In the potential occurrence table for the Project Area, there are only three plant species that fit this designation. These species are Harwood’s woolly star (*Eriastrum harwoodii*), Kofa Mountain barberry (*Berberis harrisoniana*), and Howe's hedgehog cactus (*Eichenocereus engelmannii* var. *howei*). None of these species were found to occur in the Project Area, but the absence of Harwood’s woolly star, an annual that grows on sand dunes, could be the result of a poor rainfall year; however, its nearest known occurrence is 40 miles southwest of the Project Area. Seventeen additional taxa are listed by the Needles office of the BLM as sensitive taxa (BLM 2011), but none of these taxa were considered as potential species for the Project Area and none were found there. In Arizona, none of the 42 plant species listed as sensitive by the BLM were found in the Project Area.

5.2.1.2 Plants with Special-Status in Arizona

None of the plants listed by the Arizona Rare Plant Committee (2001) were found in the Arizona portion of the Project Area (i.e., segments F, G, and J). Furthermore, no highly safeguarded protected native plants (ADA list A) were identified in the Project Area. However, a few ADA category B (Salvage Restricted Native Plants), category C (Salvage Assessed Protected Plants), and category D (Salvage Restricted Native Plants) were found in the Project Area (Appendix A). Plants in Category B include beavertail (*Opuntia basilaris* var. *basilaris*), silver cholla (*Cylindropuntia echinocarpa*) and desert lily (*Hesperocallis undulata*). Category C plants found in the Project Area include blue palo verde, western honey mesquite, screwbean mesquite, and smoke tree. All of the protected plants from Arizona are also protected under the CDNPA with the exception of desert lily. Although spiny-haired blazing star (*Mentzelia tricuspis*) is considered a special-status plant in California (CNPS list 2.1), this plant was only found in Arizona (below the BN&SF railroad tracks that bisect Segment G) where it is not considered a special-status plant.

5.2.1.3 Plants with special-status in California

Two special-status plants (mousetail suncup and hillside palo verde) were discovered in the California portion of the Project Area (Figure 4). Mousetail suncup (*Chylismia arenaria*), a CRPR list 2.2, occurs in Survey Segments C, D and H. The largest population (with approximately 9 individuals) is on a vertical conglomerate wall above Bat Cave Wash in Survey Segment D. Single individuals also occur on a conglomerate wall above the wash in segment H and on a granitic rock face at the end of the wash just east of the Project Area. It also occurs on a bank next to the BN&SF railroad tracks in Segment C (Figure 4). These populations represent a significant range extension for the species as they are over 90 miles northeast of previously recorded populations in California (Jepson Online Interchange 2011). Hillside palo verde, a CRPR list 4.3 species occupies relatively small areas within Survey

Segments H, and I (Figure 5). If one adds those individuals that occur outside of the Project Area on adjacent lands, the number of individuals in this population is approximately 150 trees.

5.2.1.4 Plant species protected under the California Desert Native Plants Act (CDNPA)

Fourteen plant species (not including cultivated individuals of *Washingtonia filifera* in Park Moabi) found in the Project Area are protected by the California Desert Native Plants Act (Appendix A and Figures 5–7). The intent of this act is to protect California desert native plants from unlawful harvesting on both public and privately owned lands. Photographs of these species can be found in Appendix E, Plates 1-4.

5.3 Probability of Missed Occurrences due to Below-average Rainfall

The 2011-2012 rainfall year (July through March), measured in the Project Area at IM-3 near Bat Cave Wash, was below average (2.75 inches versus 4.5 inches), and this lack of precipitation affected the germination and growth of annuals and herbaceous perennials in the Project Area. There were only thirteen annuals listed with potential to occur in the Project Area and most of these species were absent (Appendix A). In a year of average or better rainfall, one or more of these species may occur in the Project Area.

Additional floristic surveys will be completed in the spring of 2013 to focus on areas where any missed herbaceous plant species are most likely to be present within the Project Area. The purpose of these surveys is to obtain a better estimate on the size of and distribution of annual and herbaceous perennials plant populations in the Project Area during a more favorable rainfall year. The results of the 2013 surveys will be provided in an addendum to this report.

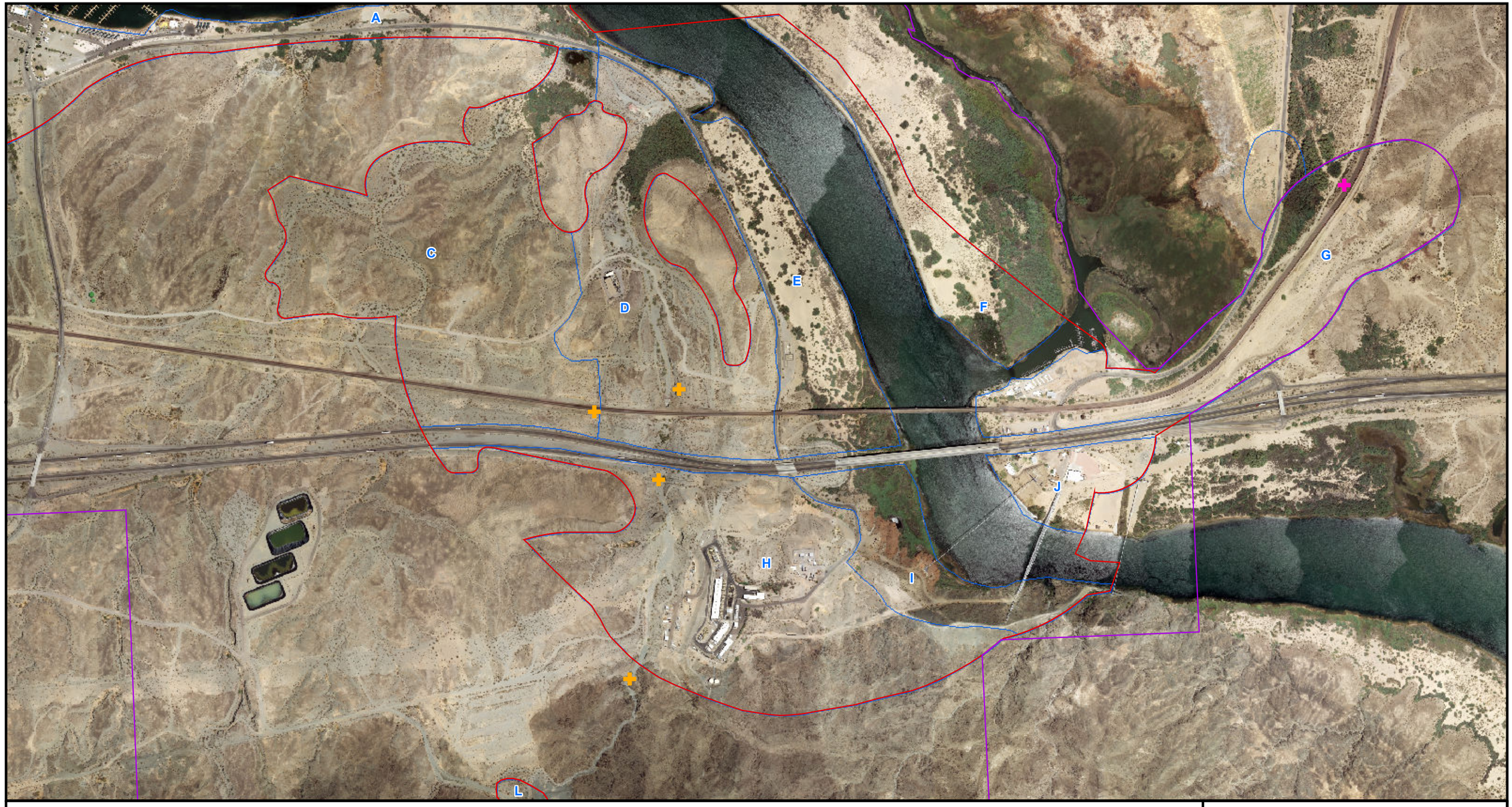
5.4 Special-status Plants versus Culturally Significant Plants

Special-status plants are protected under Federal or State statutes and may be rare, endangered or threatened/ or they may fall under other categories (CNPS, 2011). Many of the plants in the Project Area are protected by the CDNPA in order to discourage harvesting on both publicly and privately owned lands. There are also plant species that are also protected in Arizona by the Arizona Department of Agriculture (ADA, 2012). Plants on the Appendix PLA list of the EIR (DTSC, 2011) that occur in the Project Area (Table 1) are also protected by virtue of their cultural significance to the Native American tribes, whether or not they have protection under any federal or state legislation.

TABLE 1

Plants from the Ethnobotany List in the Appendix PLA found in the Project Area

Common Name	Scientific Name	Flowering Period
Trees		
Blue palo verde	*Parkinsonia florida*	Apr–May
Hillside (Yellow) palo verde	*Parkinsonia microphylla*	Apr–May
Goodding's willow	*Salix gooddingii*	Mar–Apr
Screwbean mesquite	*Prosopis pubescens*	Apr–Sep
Western honey mesquite	*Prosopis glandulosa* var. *torreyana*	Apr–Aug
Shrubs		
Big Saltbush	*Atriplex lentiformis*	Jul--Oct
Cattle saltbush	*Atriplex polycarpa*	Jul–Oct
Desert tobacco	*Nicotiana obtusifolia* var. *obtusifolia*	Mar–Jun
Herbs		
Broadleaf cattail	*Typha latifolia*	Jun–Jul
Golden suncup	*Chylismia brevipes* subsp. *brevipes*	Mar–May
Chia	*Salvia columbariae*	Mar–Jun
Common Reed	*Phragmites australis*	Jul–Nov
Desert lily	*Hesperocallis undulata*	Mar–May



LEGEND

- Area of Potential Effects (APE)
- Project Area
- Survey Segments

PLANT SPECIES

Common Name:	Scientific Name:
Mousetail suncup	*Chylismia arenaria*
Spiny-haired blazing-star	*Mentzelia tricuspis*

N

0 500 1,000 2,000 Feet

FIGURE 4
SPECIAL STATUS PLANTS IN THE PROJECT AREA

FLORISTIC SURVEY
PG&E TOPOCK GROUNDWATER REMEDIATION PROJECT, NEEDLES, CALIFORNIA

CH2MHILL

Path: D:\Projects\Topock\MapFiles\2013\Vegetation\Floristic\SpecialStatus_Floristic.mxd Date Saved: 3/27/2013 4:26:04 PM

A
B
C
D
E
F
G
H
I
J

LEGEND

- Area of Potential Effects (APE)
- Project Area
- Survey Segments

PLANT SPECIES

Common Name:	Scientific Name:
Blue palo verde	*Parkinsonia florida*
Hillside palo verde	*Parkinsonia microphylla*

N

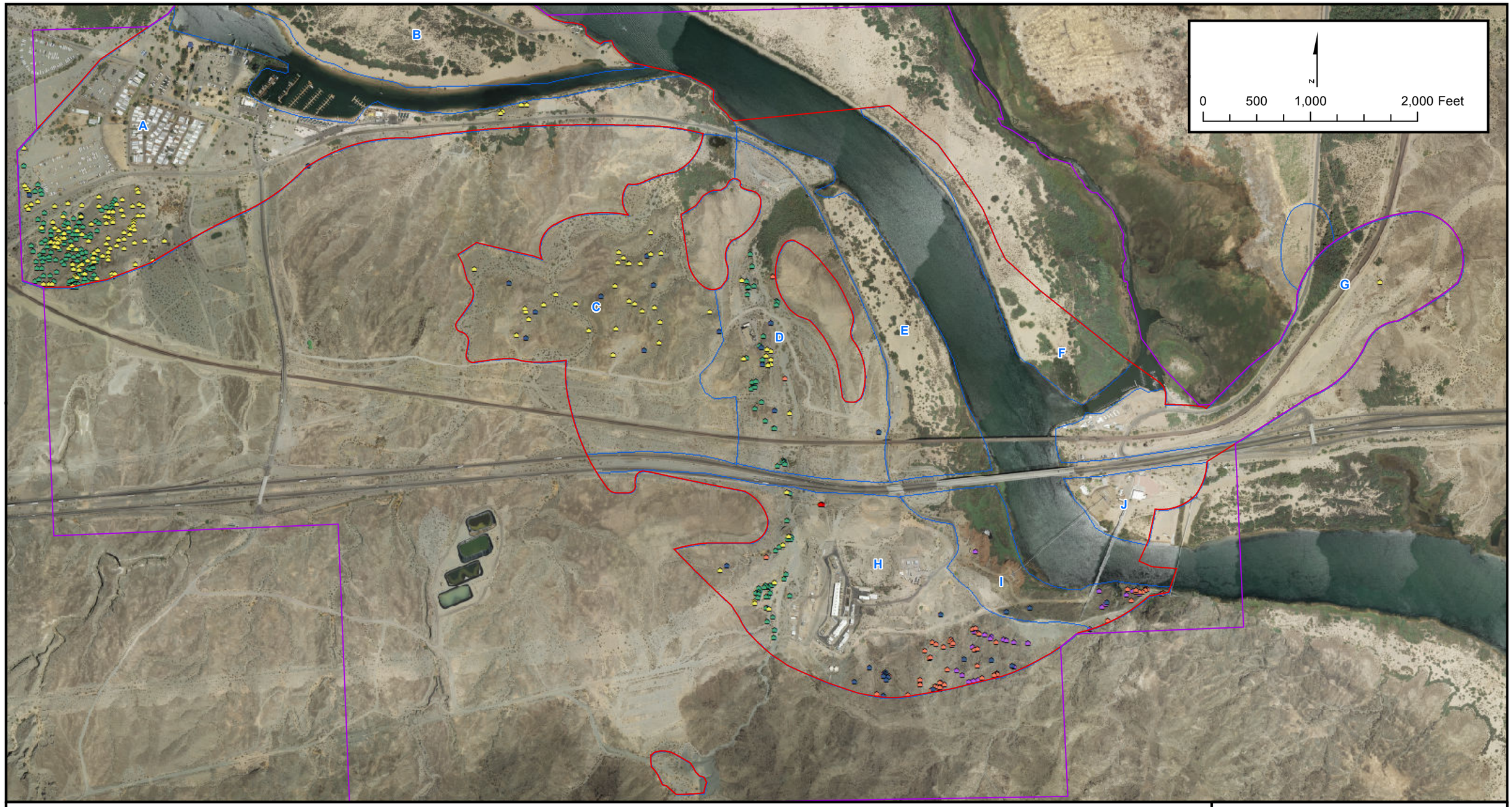
0 500 1,000 2,000 Feet

FIGURE 5
HILLSIDE PALO VERDE AND BLUE PALO VERDE IN THE PROJECT AREA

FLORISTIC SURVEY
PG&E TOPOCK GROUNDWATER REMEDIATION PROJECT
NEEDLES, CALIFORNIA

CH2MHILL

Path: D:\Projects\Topock\MapFiles\2013\Vegetation\Floristic\PaloVerde.mxd Date Saved: 3/27/2013 3:44:14 PM



LEGEND

- Area of Potential Effects (APE)
- Project Area
- Survey Segments

PLANT SPECIES

Common Name:	Scientific Name:	Common Name:	Scientific Name:
Beavertail[1]	*Opuntia basilaris var. basilaris*	Corkseed mammillaria	*Mammillaria tetrancistra*
Buckhorn cholla	*Cylindropuntia acanthocarpa var. coloradensis*	Silver cholla[2]	*Cylindropuntia echinocarpa*
California barrel cactus	*Ferocactus cylindraceus*	Teddy bear cholla	*Cylindropuntia bigelovii*

NOTES:

[1] Beavertail was mapped extensively only in the southwest corner of segment A. It is also common in Survey Segments C, D, E, G, H, I and L

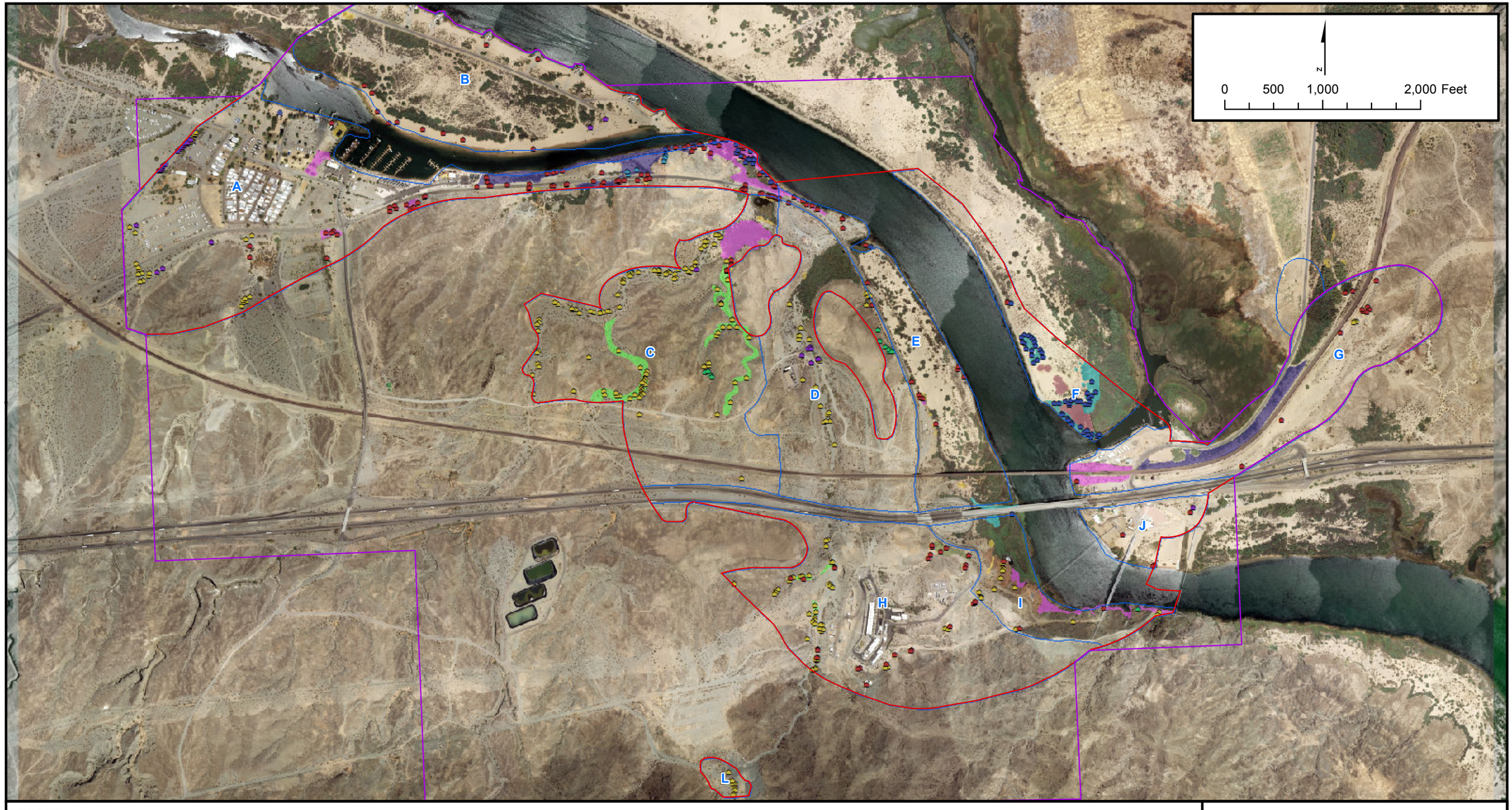
[2] Silver cholla was not extensively mapped in all areas. It occurs in Survey Segments A, C, D, E, G and H

FIGURE 6
CACTI IN THE PROJECT AREA

FLORISTIC SURVEY
PG&E TOPOCK GROUNDWATER REMEDIATION PROJECT
NEEDLES, CALIFORNIA

CH2MHILL

Path: D:\Projects\Topock\MapFiles\2013\Vegetation\Floristic\CDNPA_Cacti.mxd Date Saved: 3/27/2013 3:59:40 PM



LEGEND

- Area of Potential Effects (APE)
- Project Area
- Survey Segments

PLANT SPECIES (POINTS)

Common Name:	Scientific Name:	Common Name:	Scientific Name:
Catclaw acacia	*Senegalia greggii*	Honey mesquite	*Prosopis glandulosa var. torreyana*
Desert smoke tree	*Psorothamnus spinosa*	Ocotillo	*Fouquieria splendens*
Holly-leaved saltbush	*Atriplex hymenelytra*	Screw bean mesquite	*Prosopis pubescens*

PLANT SPECIES (COMMUNITIES)

Common Name:

- Blue Palo Verde/Salt Cedar/Honey Mesquite
- Blue Paloverde/Honey Mesquite
- Catclaw Acacia
- Honey Mesquite
- Salt Cedar/Honey Mesquite
- Salt Cedar/Screwbean Mesquite
- Screwbean Mesquite

FIGURE 7
CDNPA PROTECTED SPECIES EXCLUDING CACTI AND PALO VERDE SPECIES IN THE PROJECT AREA

FLORISTIC SURVEY
PG&E TOPOCK GROUNDWATER REMEDIATION PROJECT
NEEDLES, CALIFORNIA

CH2MHILL

Path: D:\Projects\Topock\MapFiles\2013\Vegetation\Floristic\CDNPA.mxd Date Saved: 3/27/2013 3:48:10 PM

SECTION 6

References

Arizona Department of Agriculture (ADA). 2012. Protected native plants by category. Accessed at http://www.azda.gov/ESD/protplantlst.html.

Arizona Rare Plant Committee. 2001. Arizona rare plant field guide: A collaboration of agencies and organizations. Washington, DC: U.S. Government Printing Office. Available online at http://www.aznps.com/rareplants.html.

Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken, editors. 2012. The Jepson manual: vascular plants of California, second edition. University of California Press, Berkeley.

Bureau of Land Management (BLM). 2011. BLM Special Status Plants, California. Accessed at: http://www.blm.gov/ca/st/en/prog/ssp.html.

Calflora. 2012. Information on California plants for education, research and conservation, based on data contributed by dozens of public and private institutions and individuals, including the Consortium of Calif. Herbaria. Berkeley, California. Accessed at: http://www.calflora.org/.

California Department of Fish and Game (CDFG). 2009. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities. Sacramento, CA. Accessed at: http://www.dfg.ca.gov/bdb/pdfs/guideplt.pdf.

California Desert Native Plants Act (CDNPA). 1981. Accessed at: http://www.dfg.ca.gov/habcon/plant/cadesertplantact.html.

California Native Plant Society (CNPS). 2001. Botanical survey guidelines of the California Native Plant Society. 9 December 1983 (Revised 2 June 2001).

California Native Plant Society (CNPS). 2011. Inventory of Rare and Endangered Plants of California (online edition). Accessed at: http://www.rareplants.cnps.org/.

California Natural Diversity Database (CNDDB). 2011a. RareFind3, version 3.1.1. Electronic database. Sacramento, California.

California Natural Diversity Database (CNDDB). 2011b. Special vascular plants, bryophytes and lichens list. January 2012. Accessed at: http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/SPPlants.pdf

California Natural Diversity Database (CNDDB). 2011c. Quickviewer on-line database. Accessed at: http://imaps.dfg.ca.gov/viewers/cnddb_quickviewer/app.asp

Consortium of California Herbaria. 2011. Data provided by the participants of the Consortium of California Herbaria. Accessed at: http://ucjeps.berkeley.edu/consortium/.

Jepson Online Interchange. 2011. Accessed at: http://ucjeps.berkeley.edu/interchange.htmlhttp://ucjeps.berkeley.edu/interchange.html.

Sawyer, J. O., T. Keeler-Wolf, and J. M. Evens. 2009. A manual of California vegetation, 2nd ed. California Native Plant Society, Sacramento, CA.

Southwest Environmental Information Network, SEINet. 2011. Accessed at: http//:swbiodiversity.org/seinet/index.php.

U.S. Fish and Wildlife Service (USFWS) 2000. Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants. USFWS, January 2000. Accessed at:

http://www.fws.gov/ventura/species_information/protocols_guidelines/docs/botanicalinventories.pdfhttp://www.fws.gov/ventura/species_information/protocols_guidelines/docs/botanicalinventories.pdf.

U.S. Fish and Wildlife Service (USFWS). 1996. Endangered and Threatened Wildlife and Plants; Review of Plant and Animal Taxa that are Candidates for Listing as Endangered or Threatened Species; Notice of Review; Proposed Rule. Federal Register 61(40): 7596-7613.

U.S. Fish and Wildlife Service (USFWS). 2006. List of federal candidates for listing. Accessed at: http://ecos.fws.gov/tess_public/pub/candidateSpecies.jsphttp://ecos.fws.gov/tess_public/pub/candidateSpecies.jsp.

U.S. Fish and Wildlife Service (USFWS). 2011. List of federally listed threatened & endangered species which may occur in San Bernardino County, CA. USFWS, Carlsbad Fish and Wildlife Office, Carlsbad, CA. Accessed at: http://ecos.fws.gov/tess_public/countySearch!speciesByCountyReport.action?fips=06071http://ecos.fws.gov/tess_public/countySearch!speciesByCountyReport.action?fips=06071.

Personal Communication

Andre, J. 2012. Director of the University of California Riverside, Granite Mountains Research Center, Personal communications with Kim Steiner.

Appendix A
Target List of Special-status Plant Species with the Potential to Occur in the Project Area

APPENDIX A

Target list of special-status plant species with the potential to occur in the Project Area

See below Table for sources, conservation status abbreviations, and occurrence potential definitions.

Common Name	Scientific Name	Status[1] Fed/State/CRPR/ CDNPA/ADA	Flowering Period	Habitat	Potential to Occur[2]
TREES					
Blue palo verde	*Parkinsonia florida*	--/--/--/CDNPA/C	Apr–May	Creosote bush scrub; washes and floodplains	**Present.** This tree is the most abundant native tree in the Project Area.
California fan palm	*Washingtonia filifera*	--/--/--/CDNPA/B	Feb–Jun	Creosote bush scrub; moist places, seeps, springs, streamsides	**Present.** This tree does not appear to be native to the Project Area; however, it has been planted in landscaped areas
Catclaw acacia	*Senegalia greggii*	--/--/--/CDNPA/--	Apr–Jun	Creosote bush scrub; pinyon-juniper woodland, uncommon on dry slopes, chaparral, washes, flats, disturbed areas	**Present.** This shrub to small tree is common in the Project Area, particularly in the washes associated with the dissected terraces south of the Colorado River
Desert ironwood	*Olneya tesota*	--/--/--/CDNPA/C	Apr–May	Creosote bush scrub; desert washes	**Absent.** Suitable habitat present; however, it was found in the Project Area
Desert smoke tree	*Psorothamnus spinosus*	--/--/--/CDNPA/C	Mar–May	Creosote bush scrub; desert washes	**Present.** This shrub to small tree is locally common in several parts of the Project Area, but is not common overall.
Hillside palo verde	*Parkinsonia microphylla*	--/--/4.3/CDNPA/C	Apr–May	Creosote bush scrub; rocky or gravelly areas	**Present.** This woody shrub or small tree is locally common on the rocky slopes in Segment I
Screwbean mesquite	*Prosopis pubescens*	--/--/--/CDNPA/C	Apr–Sep	Creosote bush scrub; creek/river bottoms, sandy or gravelly washes, ravines	**Present.** This medium to large tree is common under the highway and BN&SF bridges that cross the Colorado River, and on the Arizona side of the river opposite the Topock Marina.
Velvet mesquite	*Prosopis velutina*	--/--/--/CDNPA/C	Apr–Jun	Mojave desert scrub; sandy, rocky soils in canyons, washes; only naturalized in CA, not native	**Absent.** A single occurrence of this tree is known from the Topock Marsh; however, it was not found in the Project Area.

APPENDIX A

Target list of special-status plant species with the potential to occur in the Project Area

See below Table for sources, conservation status abbreviations, and occurrence potential definitions.

Common Name	Scientific Name	Status[1] Fed/State/CRPR/ CDNPA/ADA	Flowering Period	Habitat	Potential to Occur[2]
Western honey mesquite	*Prosopis glandulosa* var. *torreyana*	--/--/--/CDNPA/C	Apr–Aug	Creosote bush scrub and alkali sink scrub; grasslands, alkali flats, washes, sandy alluvial flats, mesas	**Present.** This medium to large tree is common in the Project Area especially on the low sandy terraces along the Colorado River
SHRUBS					
Beavertail prickly pear	*Opuntia basilaris* ssp. *basilaris*	--/--/--/CDNPA/B	Mar–Jun	Mojave an desert scrub to pinyon-juniper woodland.	**Present.** This succulent shrub is scattered throughout the upland portionrocky dissected terraces and slopes of the Project Area.
Buckhorn cholla	*Cylindropuntia acanthocarpa* var. *coloradensis*	--/--/--/CDNPA/B	May–Jun	Creosote bush scrub and Joshua tree woodland; gravelly or rocky places.	**Present.** This succulent shrub is scattered throughout the rocky dissected terraces and slopes of the Project Areaupland portion of the Project Area.
California Barrel Cactus	*Ferocactus cylindraceus* var. *cylindraceus*	--/--/--/CDNPA/B	Apr–May	Creosote bush scrub and Joshua tree woodland; gravelly or rocky placess.	**Present.** This succulent shrub is locally scattered on the rocky hillsopes in the southern portion of the Project Area near the Colorado River.
Corkseed mammillaria	*Mammillaria tetrancistra*	--/--/--/CDNPA/B	Apr	Creosote bush scrub; sandy hills.	**Present.** This small succulent shrub is uncommon on rocky slopes and dissected terraces in upland parts ofin the Project Area.
Crucifixion thorn	*Castela emoryi*	--/--/2.3/CDNPA/B	Apr, Jun–Jul	Mojave an or Sonoran desert scrub; gravelly soils, sometimes in alkali playas or washes.	**Absent.** Suitable habitat is present, for this shrub; however, there are no occurrence records in the immediate vicinity of the Project Area. It has been collected near Chemehuevi Wash 19 miles southeast of Topock.
desert holly saltbush	*Atriplex hymenelytra*	--/--/--/CDNPA/B	Jan–Apr	Desert slopes, washes, scrub; below 4800 feet	**Present.** A few individuals of Tthis small woody shrub occurs in the foothills of segment A

APPENDIX A

Target list of special-status plant species with the potential to occur in the Project Area

See below Table for sources, conservation status abbreviations, and occurrence potential definitions.

Common Name	Scientific Name	Status[1] Fed/State/CRPR/ CDNPA/ADA	Flowering Period	Habitat	Potential to Occur[2]
Graham's fishhook cactus	*Mammillaria grahamii* var. *grahamii*	--/--/2.2/CDNPA/B	Apr–Jun	Creosote bush scrub; gravelly alluvial fans and rocky slopes.	**Absent.** Small succulent shrub; with nearest known occurrences in is from the Whipple Mtns. 25 miles south of the Project Area; however typically occurs above 900 feet elevation.
Hall's tetracoccus	*Tetracoccus hallii*	--/--/4.3/--/--	Jan–May	Creosote bush scrub; rocky slopes and washes.	**Absent.** This woody shrub is not known from the Project Area. The closest nearest known population of this woody shrub is 14 miles southwest of Project Area.
Howe's hedgehog cactus	*Echinocereus engelmannii* var. *howei*	S/--/1B.1/CDNPA/B	May–Jun	Creosote bush scrub; hills and flats on well-drained rocky ledges and steep gravelly slopes.	**Absent.** Suitable habitat for this stem succulent cactus occurs in the project area, but none were found during the surveys; however, there are no occurrence records there. It is known to occur 35 miles northwest of the Project Area on rocky ledges.
Kofa Mountain barberry	*Berberis harrisoniana*	S/--/1B.2/--/--	Jan–Mar	Mojave desert scrub, usually north-facing talus slopes, sometimes volcanic.	**Absent.** Known to occur near Colorado River in Whipple Mtns. Approximately 30 miles south of the Project Area
Mojave yucca	*Yucca schidigera*	--/--/--/CDNPA/B	Apr–May	Creosote bush scrub.	**Absent.** Shrub or tree-like; nearest known occurrence known fromis 10 miles south of Needles.
Narrow-leaved dalea	*Psorothamnus fremontii* var. *attenuatus*	--/--/2.2/--/--	Mar–May	Desert scrub; granitic or volcanic rocky slopes and canyons.	**Absent.** Known only from the Whipple Mtns approx. 30 miles south of project area.
Narrow-leaved yerba santa	*Eriodictyon angustifolium*	--/--/2.3/--/--	May–Aug	Washes and slopes in pinyon-juniper woodland; 4670–5660 feet	**Absent.** sShrub known only from at higher elevations in pinyon/juniper woodland.

APPENDIX A

Target list of special-status plant species with the potential to occur in the Project Area

See below Table for sources, conservation status abbreviations, and occurrence potential definitions.

Common Name	Scientific Name	Status[1] Fed/State/CRPR/ CDNPA/ADA	Flowering Period	Habitat	Potential to Occur[2]
Ocotillo	*Fouquieria splendens*	--/--/--/CDNPA/B	Mar–Jul	Creosote bush scrub; dry, generally rocky soils.	**Present.** This large shrub is known to occur as aA few individuals of this large shrub are found in Segments C, D, and I.
Pencil cholla	*Cylindropuntia ramosissima*	--/--/--/CDNPA/--	Apr–Aug	Creosote bush scrub and other Mojave desert scrub.	**Absent.** Suitable habitat but none found in the Project Area. Small individuals of silver cholla can be mistaken for this species, but the absence of larger shrubs indicates that they are juvenile silver cholla.
Silver cholla	*Cylindropuntia echinocarpa*	--/--/--/CDNPA/B	May–Jun	Mojavean desert scrub.	**Present.** This succulent shrub is common on rocky slopes in uplandand dissected terraces parts of in the Project Area.
Utah funastrum	*Funastrum utahense*	--/--/4.2/--/--	Apr–Jun, Sep	Mojave desert scrub; dry, sandy or gravelly areas	**Absent.** This perennial shrub is not known from the Project Area; however, sSuitable habitat is present and itbut not found in the Project Area; nearest occurrence is occurs 12 miles northwest of the Project Area.
HERBACEOUS PLANTS					
Abram's spurge	*Chamaesyce abramsiana*	--/--/2.2/--/--	Aug–Nov	Creosote bush scrub; open or vegetated sandy flats.	**Absent.** Annual herb known sporadically from Imperial County California to eastern Riverside and San Bernardino Counties in California. Nearest known occurrences are 35 miles west of the Project Area.
Arizona pholistoma	*Pholistoma auritum* var. *arizonicum*	--/--/2.3/--/--	Feb–Apr	Creosote bush scrub; rocky canyons, north-facing slopes	**Absent. N**earest known occurrence of this annual herb is from the Dead Mtns. 15 miles northwest of Project Area
Bare-stem larkspur	*Delphinium scaposum*	--/--/2.3/--/--	Mar–May	Creosote bush scrub; rocky granitic slopes and canyons	**Absent.** Nearest occurrence of this perennial herb is from the Whipple Mtns. 30 miles south of the Project Area

APPENDIX A

Target list of special-status plant species with the potential to occur in the Project Area

See below Table for sources, conservation status abbreviations, and occurrence potential definitions.

Common Name	Scientific Name	Status[1] Fed/State/CRPR/ CDNPA/ADA	Flowering Period	Habitat	Potential to Occur[2]
Bitter hymenoxys	*Hymenoxys odorata*	--/--/2.2/--/--	Apr–Jun, Sep–Oct	Seasonally moist silty soils, sandy flats near the Colorado River	**Absent.** Annual herb rediscovered in California in 2009 40 miles south of the Project Area along the flood plain of Colorado River
Borrego milkvetch	*Astragalus lentiginosus* var. *borreganus*	--/--/4.3/--/--	Feb–May, Sep	Creosote bush scrub; widely scattered in sand dunes, or semi-stabilized sandy areas in valleys	**Absent.** The nearest known occurrence of this annual herb is 45 miles south of the Project Area
Cooper's rush	*Juncus cooperi*	--/--/4.3/--/--	Apr–May	Alkali sink scrub; meadows and seeps; often alkaline or saline	**Absent.** This perennial herb is not known from the Project Area; however, suitable habitat is present and it is known from the Chemehuevi Mountains 10 miles SW of the Project Area
Cove's cassia	*Senna covesii*	--/--/2.2/--/--	Mar–Jun, Sep	Creosote bush scrub, washes, alluvial slopes, and sandy disturbed areas	**Absent.** The nearest known occurrence of this perennial herb is from the Whipple Mtns. 30 miles south of the Project Area
Darlington's blazing star	*Mentzelia puberula*	--/--/2.2/--/--	April–May, Sept–Oct	Rocky slopes and canyons; sandy washes	**Absent.** Perennial herb with nearest known occurrences 10 miles SE of the Project
Desert germander	*Teucrium glandulosum*	--/--/2.3/--/--	Mar–May	Desert scrub; dry rocky slopes	**Absent.** Stoloniferous herb; nearest occurrences from Whipple Mtns. 30 miles south of the Project Area
Desert lily	*Hesperocallis undulata*	--/--/--/--/B	Mar–May	Desert shrublands; sandy flats and washes	**Present.** Bulbous perennial, known to occur in sandy areas of Segment G
Desert portulaca	*Portulaca halimoides*	--/--/4.2/--/--	Aug–Oct	Desert scrub; sandy washes, alluvial fans and flats. Emerges after summer rains	**Absent.** Annual herb that is known from Little San Bernardino Mtns. to eastern San Bernardino County Mtns. Occurs in Piute Valley

APPENDIX A

Target list of special-status plant species with the potential to occur in the Project Area

See below Table for sources, conservation status abbreviations, and occurrence potential definitions.

Common Name	Scientific Name	Status[1] Fed/State/CRPR/ CDNPA/ADA	Flowering Period	Habitat	Potential to Occur[2]
Desert unicorn-plant	*Proboscidea althaeifolia*	--/--/4.3/--/--	May–Oct	Creosote bush scrub; sandy soil	**Absent.** The nearest known occurrences of this annual species is from the Chemehuevi Wash 19 miles southeast of the Project Area
Glandular ditaxis	*Ditaxis claryana*	--/--/2.2/--/--	Oct–Mar	Mojave and Sonoran desert scrub; dry washes and rocky hillsides, sandy soils	**Possible.** Not found in the project area during the surveys but this annual herb has been collected in the vicinity of the Topock Compressor Station near the Colorado River
Harwood's woolystar	*Eriastrum harwoodii*	S/--/1B.2/--/--	Apr–May	Know only from sandy areas (dunes and wind-blown ramps) of the eastern San Bernardino and Riverside Counties	**Absent.** Nearest known occurrence of this annual herb is 40 miles southwest of the Project Area
Lobed ground-cherry	*Physalis lobata*	--/--/2.3/--/--	Apr–Jun	Mojave desert scrub; seasonally moist depressions, dry lake margins and washes, active following summer rains	**Absent.** Perennial herb known to occur along the Colorado River near Las Vegas; also occurs in the Piute Valley 13 miles from Needles
Mousetail suncup	*Chylismia arenaria*	--/--/2.2/--/--	Jan–May	Mojave desert scrub; rocky slopes and canyon walls, may also be found in washes	**Present.** Perennial herb found on steep nearly vertical rocky slopes in Segments C, D and H
Playa milkvetch	*Astragalus allochrous* var. *playanus*	--/--/2.2/--/--	March– May	Creosote bush scrub; sandy saline flats	**Absent.** Annual herb known in California only from near Goffs, 30 miles west of the Project Area
Pointed dodder	*Cuscuta californica* var. *apiculata*	--/--/3/--/--	Feb–Aug	Mojave desert scrub; sandy soils	**Absent.** Suitable habitat is present; not found in the Project Area; nearest occurrence is near Parker Dam road, 38 miles southwest of Project Area

APPENDIX A

Target list of special-status plant species with the potential to occur in the Project Area

See below Table for sources, conservation status abbreviations, and occurrence potential definitions.

Common Name	Scientific Name	Status[1] Fed/State/CRPR/ CDNPA/ADA	Flowering Period	Habitat	Potential to Occur[2]
Reveal's buckwheat	*Eriogonum contiguum*	--/--/2.3/--/--	May–Jul, Sept–Oct	Creosote bush scrub; sandy, clay or gypsum soils	**Possible.** Annual herb not found during the surveys; nearest known occurrence is along the Needles Hwy., 12 miles north of Needles, California
Ribbed cryptantha	*Cryptantha costata*	--/--/4.3/--/--	Feb–May	Mojave and Sonoran desert scrub; sandy soil, dunes	**Possible.** Not found in the project area during the surveys. This small annual herb normally occurs in desert sand dunes. Nearest known occurrence is along the Colorado River just north of Topock, Arizona. It has also been collected 30 miles northwest of the Project Area
Slender cottonheads	*Nemacaulis denudata* var. *gracilis*	--/--/2.2/--/--	Mar–May	Creosote bush scrub; sandy soils on stabilized dunes and sand ramps	**Absent.** Annual herb; nearest known occurrence is from along the Colorado River in Arizona, 15 miles south of Project Area
Small-flowered androstephium	*Androstephium breviflorum*	--/--/2.2/--/--	Mar–Apr	Mojave desert scrub; widely scattered in stabilized to semi-stabilized sandy areas in valleys	**Possible.** Perennial herb (bulb) with nearest occurrence from sandy banks of Colorado River just north of Topock, Arizona
Spearleaf	*Matelea parvifolia*	--/--/2.3/--/--	Mar–May	Mojave desert scrub, dry rocky areas, especially granitic rock	**Possible.** Perennial herb not found during the surveys with scattered populations to the south and west, nearest occurrence 15 miles west of the Project Area in the S. Sacramento Mtns
Spiny-hair blazing star	*Mentzelia tricuspis*	--/--/2.1/--/--	Apr–Jun, Sept–Oct	Mojave desert scrub; sandy or gravelly slopes and washes	**Present.** Found on rocky slope below the BN&SF railroad tracks in Segment G
Three-awned gramma	*Bouteloua trifida*	--/--/2.3/--/--	Apr–Nov	Creosote bush scrub; Rocky slopes, usually on limestone	**Absent.** Perennial herb not found in the survey area; nearest occurrence is in the Whipple Mtns. 30 miles to the south of the Project Area.

APPENDIX A

Target list of special-status plant species with the potential to occur in the Project Area

See below Table for sources, conservation status abbreviations, and occurrence potential definitions.

Common Name	Scientific Name	Status[1] Fed/State/CRPR/ CDNPA/ADA	Flowering Period	Habitat	Potential to Occur[2]
Wand-like fleabane daisy	*Erigeron oxyphyllus*	--/--/2.3/--/--	Apr–Jun	Desert scrub, rocky slopes and canyons	**Absent.** Perennial herb not found in the survey area; nearest occurrence is in the Whipple Mtns. 30 miles to the south of the Project Area.
Winged cryptantha	*Cryptantha holoptera*	--/--/4.3/--/--	Mar–Apr	Mojave desert scrub; sandy to rocky soils	**Absent.** Suitable habitat for this annual is present but not found during the surveys, nearest known occurrence is 33 miles southwest of the Project Area.

Notes

[1] Conservation status abbreviations:

Federal (Fed)

U.S. Fish and Wildlife Service

-- No federally listed or proposed threatened or endangered species were considered to have potential to occur in the Project Area.

BLM designations:

S - The California State Director has also conferred sensitive status on California State Endangered, Threatened, and Rare species, or species on List 1B (plants rare and endangered in California and elsewhere) of the CNPS' Inventory of Rare and Endangered Plants of California

State

California Department of Fish and Wildlife designations:

-- No state listed threatened, endangered or rare species were considered to have potential to occur in the Project Area

CNPS

California Rare Plant Ranks (formerly CNPS Lists)

1B Plants rare, threatened or endangered in California and elsewhere.
2 Plants rare threatened or endangered in California, more common elsewhere.
3 Plants for which more information is needed – a review list.
4 Plants of limited distribution – a watch list.

California Rare Plant Subcategories

.1 Seriously endangered in California.
.2 Fairly endangered in California.

APPENDIX A

Target list of special-status plant species with the potential to occur in the Project Area

See below Table for sources, conservation status abbreviations, and occurrence potential definitions.

Common Name	Scientific Name	Status[1] Fed/State/CRPR/ CDNPA/ADA	Flowering Period	Habitat	Potential to Occur[2]

.3 Not very endangered in California.

CDNPA

Plants that are protected by the California Desert Native Plants Act

Arizona Department of Agriculture (ADA):

B. Salvage Restricted Protected Native Plants

C. Salvage Assessed Protected Native Plants

[2] **Potential to occur definitions:**

Present: Species observed in one or more of the survey segments of the Project Area.

Possible: Species not observed, however conditions suitable for occurrence.

Absent: Species or suitable habitat not observed on the site during protocol-level surveys

Sources:

California Native Plant Society 2011; California Natural Diversity Database 2011; Consortium of California Herbaria 2011; Jepson Online Interchange 2011; Calflora 2012.

Appendix B
Vascular Plant Species Observed In the Project Area

APPENDIX B
Vascular Plant Species Observed in the Project Area

Scientific name	Common name	Survey Segments
GYMNOSPERMS		
EPHEDRACEAE	**ephedra family**	
Ephedra nevadensis	joint fir	H, I
ANGIOSPERMS-DICOTS		
AIZOACEAE	**ice plant family**	
Trianthema portulacastrum	horse-purslane	G
AMARANTHACEAE	**amaranth family**	
Amaranthus fimbriatus	fringed amaranth	A, C, I
Tidestromia oblongifolia	honeysweet	A, B, C, D, E, F, G, H, I, J, K
APIACEAE	**carrot family**	
Hydrocotyle verticillata	marsh pennywort	A, B, E, F
APOCYNACEAE	**milkweed family**	
Asclepias albicans	white-stemmed milkweed	C, H, L
Asclepias subulata	rush milkweed	C, D, H, L
Funastrum hirtellum	climbing-milkweed	A, C, D, E, G, H, I
*Nerium oleander**	oleander	A, B, H
ASTERACEAE	**sunflower family**	
Adenophyllum porophylloides	San Felipe dyssodia	H, I
Ambrosia dumosa	white bursage	A, C, D, E, F, G, H, I, J, L
Ambrosia salsola	cheesebush	A, B, C, D, E, F, G, H, I, J, L
Atrichoseris platyphylla	gravel-ghost	A, C, D, F, G, H, I, L
Baccharis sarothroides	broom bacharis	A, B, E, F, I
Bebbia juncea var. *aspera*	sweetbush	A, C, D, E, G, H, I, J, L
Calycoseris wrightii	white tackstem	A, C, D, E, G, H, I, L
Chaenactis carphoclinia	pebble pincushion	A, C, D, E, G, H, I, J, L
Chaenactis stevioides	stevia pincushion	G, J
Encelia farinosa	brittlebush	A, B, C, D, E, F, G, H, J, L
Encelia farinosa x frutescens	brittlebush hybrid	E
Encelia frutescens	button brittlebush	E
Eriophyllum lanosum	white woolly eriophyllum	C, L
Geraea canescens	desert sunflower	A, C, D, E, G, H, I, J

APPENDIX B
Vascular Plant Species Observed in the Project Area

Scientific name	Common name	Survey Segments
Lactuca serriola	prickly lettuce	A
Malacothrix glabrata	smooth desert dandelion	A, D, G, H, L
Monoptilon bellioides	desert star	A, C, H, L
Palafoxia arida	Spanish needle	A, B, C, D, E, F, G, H, I, J
Pectis papposa var. *papposa*	chinch-weed	A, C, D, E, G, H
Perityle emoryi	Emory rock daisy	A, C, D, E, H, I, L
Peucephyllum schottii	pygmy-cedar	D, H, I
Pluchea odorata	marsh fleabane	A, B, F, G, I
Pluchea sericea	arrow weed	B, C, D, E, F, G, H, I, J
Porophyllum gracile	slender poreleaf	C, D, H, I
Pseudognaphalium luteoalbum	cudweed	I
Pulicaria paludosa	Spanish false-fleabane	B
Rafinesquia neomexicana	New Mexico desert chicory	G
Senecio mohavensis	Mojave groundsel	D, H, I
Sonchus asper	prickly sow-thistle	A, I
Stephanomeria pauciflora	skeletonweed	A, B, C, E, F, G, H, I, J
Stylocline micropoides	woolly-head nest straw	C, D, H
Trichoptilium incisum	yellowdome	D
Xanthisma spinulosum var. *gooddingii*	goldenweed	H, I
Xanthium strumarium	common cocklebur	B
BORAGINACEAE	**borage family**	
Amsinckia tessellata	devil's lettuce	A, C, D, E, H, J, L
Cryptantha angustifolia	narrow-leaved cryptantha	A, C, E, F, G, H, J, L
Cryptantha barbigera var. *barbigera*	bearded cryptantha	C, D, E, F, G, H, I, J, L
Cryptantha inaequata	Panamint cryptantha	D
Cryptantha maritima	Guadalupe cryptantha	A, C, D, E, F, G, H, I, J, L
Cryptantha micrantha	red-root cryptantha	A, B, E, F
Cryptantha nevadensis var. *rigida*	rigid cryptantha	D
Cryptantha pterocarya	winged-nut cryptantha	A, C, D, E, H, I, L
Heliotropium curassavicum	alkali heliotrope	A, B, I
Pectocarya heterocarpa	chuckwalla combseed	B, F

APPENDIX B
Vascular Plant Species Observed in the Project Area

Scientific name	Common name	Survey Segments
Pectocarya platycarpa	broadfruited combseed	C, D, E, F, G, H, I, L
Pectocarya recurvata	curvednut combseed	A, C, D, G, H, I
Phacelia crenulata ssp. *ambigua*	notch-leaved phacelia	A, C, D, E, F, G, H, I, J, L
Phacelia distans	distant phacelia	D
Phacelia pedicillata	pedicellate phacelia	D, L
Tiquilia plicata	fanleaf crinklemat	A, B, E, F, G, H, J
BRASSICACEAE	**mustard family**	
Brassica tournefortii	Saharan mustard	A, B, C, D, E, F, G, H, I, J, L
Descurainia pinnata	pinnate tansy mustard	A
Dithyrea californica	California spectacle pod	D
Draba cuneifolia	wedge-leaved draba	D
Guillenia lasiophylla	California mustard	D
Lepidium lasiocarpum	pepperweed	C, D, H, I, L
Sisymbrium orientale	Oriental hedge-mustard	A, B, E, F, G
CACTACEAE	**cactus family**	
Cylindropuntia acanthocarpa	buckhorn cholla	C, D, H, I
Cylindropuntia bigelovii	teddy-bear cholla	H
Cylindropuntia echinocarpa	silver cholla	A, C, D, E, G, H
Ferocactus cylindraceus var. *cylindraceus*	California barrel cactus	C, D, H, I
Opuntia basilaris var. *basilaris*	beavertail	A, C, D, E, G, H, I, L
Mammillaria tetrancistra	corkseed mammillaria	A, E, C, D, H
CARYOPHYLLACEAE	**carnation family**	
Achyronychia cooperi	onyx flower	B, E, F
CHENOPODIACEAE	**goosefoot family**	
Atriplex elegans var. *elegans*	wheelscale	A
Atriplex fruticulosa	ball saltbush	A
Atriplex hymenelytra	desert holly	A
Atriplex lentiformis	big saltbush	A, G, I, J
Atriplex polycarpa	cattle saltbush	A, B, C, D, G, H, I, J
Chenopodium album	white goosefoot	A, E, L

APPENDIX B
Vascular Plant Species Observed in the Project Area

Scientific name	Common name	Survey Segments
Dysphania ambrosioides	Mexican-tea goosefoot	A, G, L
Salsola tragus	Russian thistle	A, B, C, E, F, G, J
Suaeda moquinii	bush seepweed	A, G
CUCURBITACEAE	**gourd family**	
Cucurbita palmata	coyote gourd	G
EUPHORBIACEAE	**spurge family**	
Chamaesyce micromera	desert spurge	A, B, C, D, E, H, I
Chamaesyce polycarpa	small-seeded spurge	A, B, C, D, E, F, G, H, I, J, L
Chamaesyce setiloba	Yuma spurge	A, C, D, H, I, L
Ditaxis neomexicana	common ditaxis	A, H, L
Stillingia paucidentata	Mojave toothleaf	I
FABACEAE	**legume family**	
FABACEAE	**legume family**	
Acmispon maritimus var. *maritimus*	coastal bird's foot trefoil	D
Acmispon strigosus	strigose bird's foot trefoil	D, H, I, L
Dalea mollis	hairy indigo-pea	A, C, D, E, G, H, I, L
Dalea mollissima	downy dalea	D, F, G, I
Lupinus arizonicus	Arizona lupine	A, C, D, E, G, H, J, L
Marina parryi	Parry's marina	A
Parkinsonia aculeata	Mexican palo verde	A
Parkinsonia florida	blue palo verde	A, C, D, E, G, H, I, J, L
Parkinsonia microphylla	hillside palo verde	H, I
Prosopis glandulosa var. *torreyana*	honey mesquite	A, C, E, G, H, I, J
Prosopis pubescens	screwbean mesquite	A, E, F
Psorothamnus spinosus	smoke tree	A, B, C, D, J
Senegalia greggii	catclaw acacia	A, B, C, D, G, H, I
FOUQUIERIACEAE	**ocotillo family**	
Fouquieria splendens ssp. *splendens*	ocotillo	C, D, H, I
GENTIANACEAE	**gentian family**	
Eustoma exaltatum	catchfly gentian	B, F
GERANIACEAE	**geranium family**	

APPENDIX B
Vascular Plant Species Observed in the Project Area

Scientific name	Common name	Survey Segments
Erodium cicutarium	red-stemmed filaree	A, C, D, E, F, G, H, L
Erodium texanum	Texas filaree	I
KRAMERIACEAE	**rhatany family**	
Krameria bicolor	white rhatany	A, C, D, G, H, I, L
Krameria erecta	Pima rhatany	H, I
LAMIACEAE	**mint family**	
Hyptis emoryi	desert lavender	A, C, D, H, I, L
Salazaria mexicana	bladder sage	C
Salvia columbariae	chia	D, H, L
LOASACEAE		
Eucnide urens	rock nettle	I
Mentzelia albicaulis	white-stemmed blazing star	D, E, G, H, L
Mentzelia involucrata	white-bracted mentzelia	A, C, D
Mentzelia tricuspis	spiny-haired blazing star	G
MALVACEAE	**mallow family**	
Hibiscus denudatus	paleface hibiscus	I
Malva parviflora	small-flowered cheeseweed	A
Sphaeralcea ambigua var. *ambigua*	apricot mallow	C, G, H, L
Sphaeralcea emoryi	Emory's globe mallow	G
MYRTACEAE	**myrtle family**	
*Eucalyptus sp.**	eucalyptus	A, B
NYCTAGINACEAE	**four-o-clock family**	
Abronia villosa	sand verbena	E, F, G, H, J
Allionia incarnata var. *incarnata*	trailing windmills	A, C, D, G, H, I, L
Boerhavia coccinea	spiderling	A, B, D, E
Boerhavia wrightii	Wright's spiderling	A, C, D, G, H, I, J, L
Mirabilis laevis var. *retrorsa*	retrorse desert four-o'clock	A, C, D, H, I, L
ONAGRACEAE	**evening primrose family**	
Chylismia arenaria var. *arenaria*	mousetail suncup	C, D
Chylismia brevipes ssp. *brevipes*	golden suncup	A, C
Chylismia multijuga	multi-paired suncup	F, G

APPENDIX B
Vascular Plant Species Observed in the Project Area

Scientific name	Common name	Survey Segments
Eremothera boothii ssp. *condensata*	Booth's shreading suncup	C
Eremothera refracta	narrow-leaf suncup	C, D, G
Oenothera deltoides ssp. *deltoides*	bird-cage evening primrose	G
PAPAVERACEAE	**poppy family**	
Eschscholzia minutiflora	small-flowered California poppy	A, C, D, E, I, L
PHRYMACEAE	**lopseed family**	
Mimulus bigelovii	Bigelow's monkeyflower	D
PLANTAGINACEAE	**plantain family**	
Mohavea confertiflora	Mojave ghost-flower	D, H, I
Plantago ovata	ovate plantain	A, B, C, D, E, F, G, H, I, L
POLEMONIACEAE	**phlox family**	
Gilia scopulorum	rock gilia	D, F, I
Langloisia setosissima ssp. *setosissima*	bristly calico	D
POLYGONACEAE	**buckwheat family**	
Chorizanthe corrugata	wrinkled spineflower	A, C, H, I,
Chorizanthe brevicornu var. *brevicornu*	brittle spineflower	A, C, D, E, G, H, I, L
Chorizanthe rigida	rigid spineflower	A, C, D, G, H, I, L
Eriogonum deflexum var. *deflexum*	flat-crown buckwheat	A, B, F, G, H, I
Eriogonum inflatum var. *inflatum*	inflated desert trumpet	A, C, D, E, H, I, L
Eriogonum thomasii	Thomas's wild buckwheat	C, D, G, H, I, L
Eriogonum trichopes	little desert buckwheat	A, C, D, G, H, I, L
Polygonum argyrocoleon	silver-sheathed knotweed	H
RESEDACEAE	**mignonette family**	
Oligomeris linifolia	linear-leaved oligomeris	B
RUBIACEAE	**coffee family**	
Galium angustifolia	narrow-leaved bedstraw	I
SALICACEAE	**willow family**	
Salix exigua	sand-bar willow	B, E, F, G, I
Salix gooddingii	Goodding's willow	B
Populus fremontii	Fremont's cottonwood	A, B
SOLANACEAE	**nightshade family**	

APPENDIX B
Vascular Plant Species Observed in the Project Area

Scientific name	Common name	Survey Segments
Lycium andersonii	Anderson's desert-thorn	C, D, H, I
Nicotiana obtusifolia	desert tobacco	H, I, L
Physalis crassifolia	thick-leaf ground cherry	A, C, H, L
TAMARICACEAE	**tamarisk family**	
Tamarix ramosissima	salt cedar	A, B, C, D, E, F, G, H, I, J
Tamarix aphylla	athel tamarisk	A, B, D, F, G, L
URTICACEAE	**nettle family**	
Parietaria hespera var. *hespera*	western pellitory	D, I
VERBENACEAE	**verbena family**	
Phyla nodiflora	turkey-tangle frog-fruit	F
VISCACEAE	**mistletoe family**	
Phoradendron californicum	desert mistletoe	A, B, C, E, F, G, J
ZYGOPHYLLACEAE	**caltrop family**	
Fagonia laevis	smooth-stemmed fagonia	I
Kallstroemia californica	California kallstroemia	A, D, G
Larrea tridentata	creosote bush	A—L
Tribulus terrestris	puncture vine	A, C, D, G, H, J
MONOCOTS		
AGAVACEAE	**century-plant family**	
Hesperocallis undulata	desert lily	G
ARECACEAE	**palm family**	
*Washingtonia filifera**	California fan palm	A
Washingtonia robusta	Mexican fan palm	A, B, E, H, J
CYPERACEAE	**sedge family**	
Cyperus eragrostis	tall flat sedge	A
Eleocharis geniculata	geniculate spikerush	A, B, E, F
Schoenoplectus californicus	California bulrush	A, B, E, F, G, I, J
JUNCACEAE	**rush family**	
Juncus xiphioides	iris-leaved rush	B
Juncus sp.	rush	B, F
POACEAE	**grass family**	

APPENDIX B
Vascular Plant Species Observed in the Project Area

Scientific name	Common name	Survey Segments
Andropogon glomeratus ssp. *scabriglumis*	rough-glume bushy blue stem	A, B, G
Aristida adscensionis	six-weeks three awn	A, C, D, E, G, H, I, J, L
Aristida purpurea var. *wrightii*	purple three-awn	I
Arundo donax	giant reed	A, E, F, I, J
Bouteloua aristidoides	needle gamma	A, C, D, G, H, I, L
Bouteloua barbata ssp. *barbata*	six weeks gamma	A, C, D, G, H, I, L
Bromus arizonicus	Arizona brome	A, C, D, G, H, I
Bromus catharticus	rescue brome	D, H
Bromus madritensis ssp. *rubens*	red brome	A, C, D, E, G, H, I, L
Cynodon dactylon	Bermuda grass	A, B, D, E, G, H, J, I
Distichlis spicata	saltgrass	A, E, H
Erioneuron pulchellum	fluff grass	H, I
Hordeum murinum ssp. *glaucum*	glaucus barley	A, B, C, E, G, H, I, J
Muhlenbergia microsperma	small seeded muhlenbergia	F
Paspalum dilatatum	dallis grass	A, B, F, I
Pennisetum setaceum	feathertop	A, B, E, I
Phalaris minor	lesser canary grass	A, H
Phragmites australis	common reed	A, B, E, F, G, I, J
Pleuraphis rigida	big galeta	A, H
Schismus barbatus	Mediterranean grass	A, C, D, G, H, I, J, L
Setaria gracilis	knotroot bristlegrass	B
Triticum aestivum	wheat	G
Vulpia myuros	foxtail fescue	C, D
Vulpia octoflora	six weeks fescue	C, D
TYPHACEAE	**cattail family**	
Typha latifolia	broad-leaved cattail	A, C, E, G, I, J
Typha domingensis	southern cattail	A

*cultivated

Appendix C
Photographs from Survey Segments of the Project Area

APPENDIX C

Photographs from Survey Segments of the Project Area

Plate 1. Segments A and B. (A- 1) Dry wash south of the Park Moabi and the National Trails Highway with rocky hillside on south side; facing west. A-2) Rocky hills on the south side of National Trails Highway looking west with creosote bush scrub and big galeta grass in small valley between slopes. (A-3) Sewage disposal ponds SW of the intersection of Park Moabi Road and National Trails Highway. (A-4) Landscaped and developed camping areas in Park Moabi. (A-5) Pirate's Cove Resort development. (B-1) Arrow weed thickets in central portion of peninsula; tamarisk thicket in background.

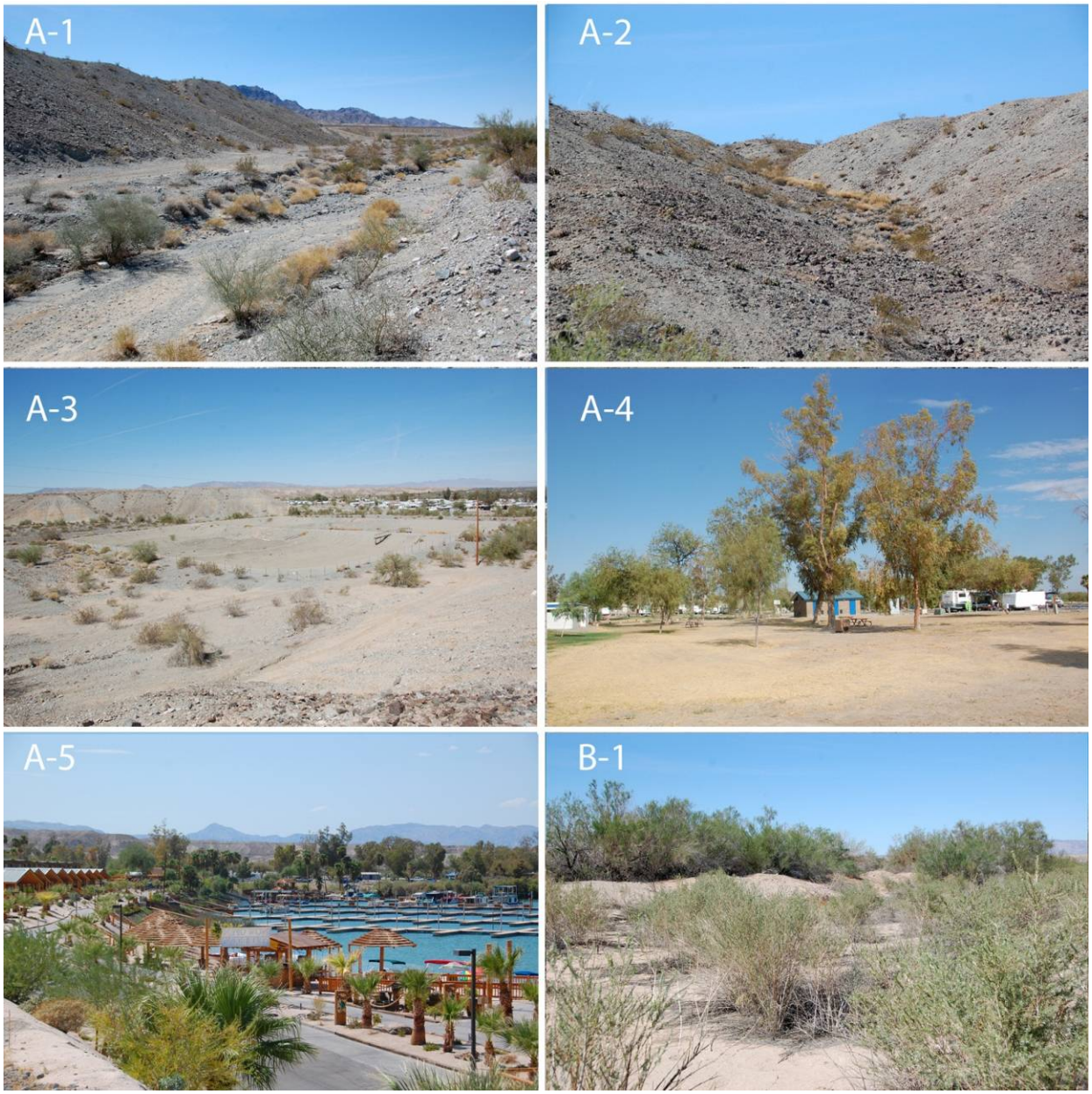


Plate 2. Segments B and C. (B-2) Camping pad on peninsula adjacent to Colorado River. (B-3) Maintained beach opposite Pirate's Cove Resort with western honey mesquite and salt cedar in background. (C-1) Broad wash at north end of Segment C with cattle saltbush and creosote bush. (C-2) Rocky slopes above wash with scattered creosote bush. (C-3) Broad wash at south end of Segment C with blue palo verde woodland and creosote bush scrub. C-4) Desert pavement on hills above washes with creosote bush scrub.

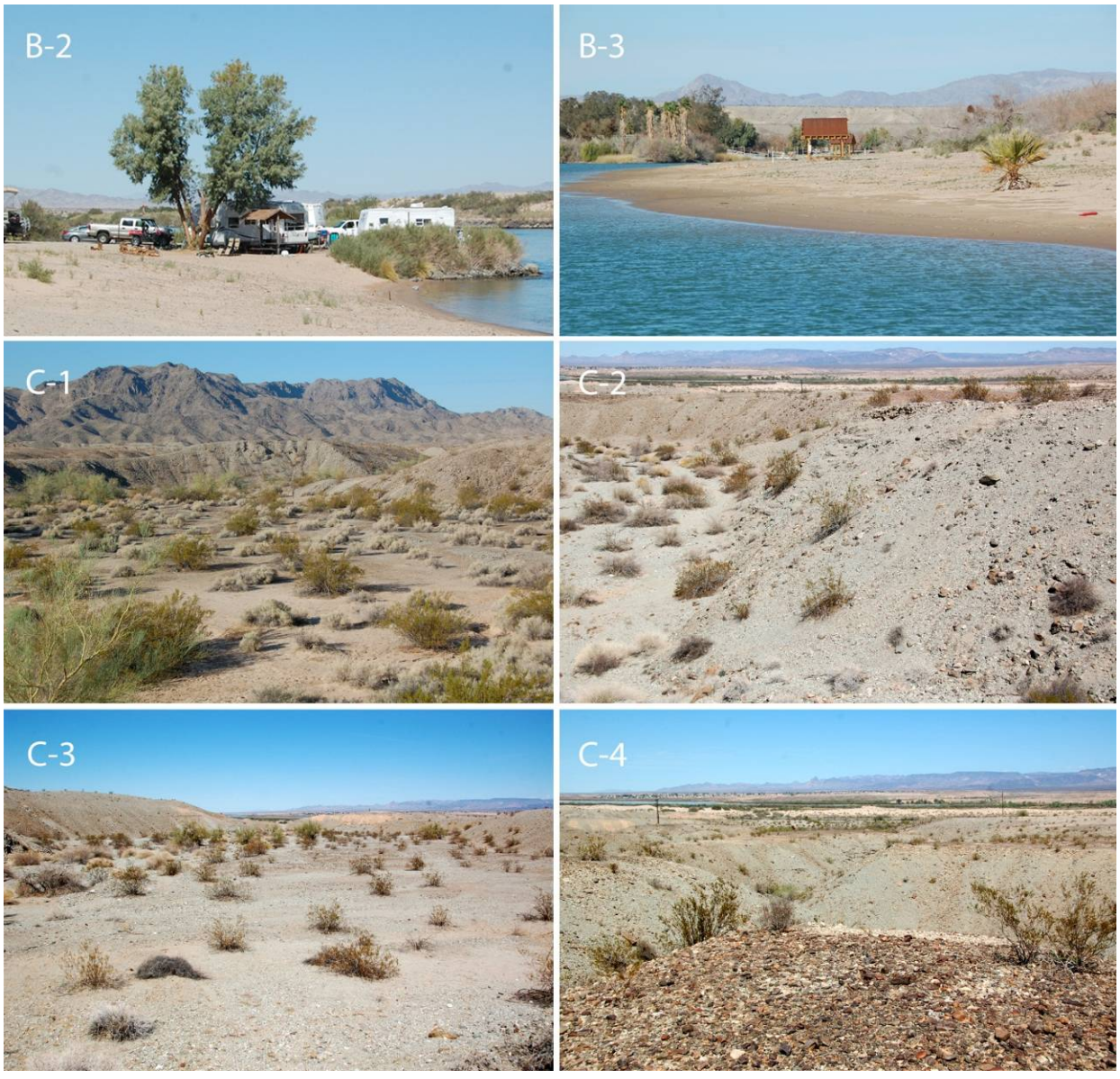


Plate 3. Segments D and E. D-1) Bat Cave Wash with blue palo verde woodland. (D-2). Tamarisk thicket mixed with western honey mesquite at north end of Bat Cave Wash south of National Trails Highway. (E-1) Colorado River and low terrace of dredged sands with tamarisk and arrow weed thickets. (E-2) Close-up of tamarisk thickets on dredged sands. (E-3) National Trails Highway bridge and wetland where Bat Cave Wash enters the Colorado River. (E-4) Upland area of Segment E with creosote bush scrub.

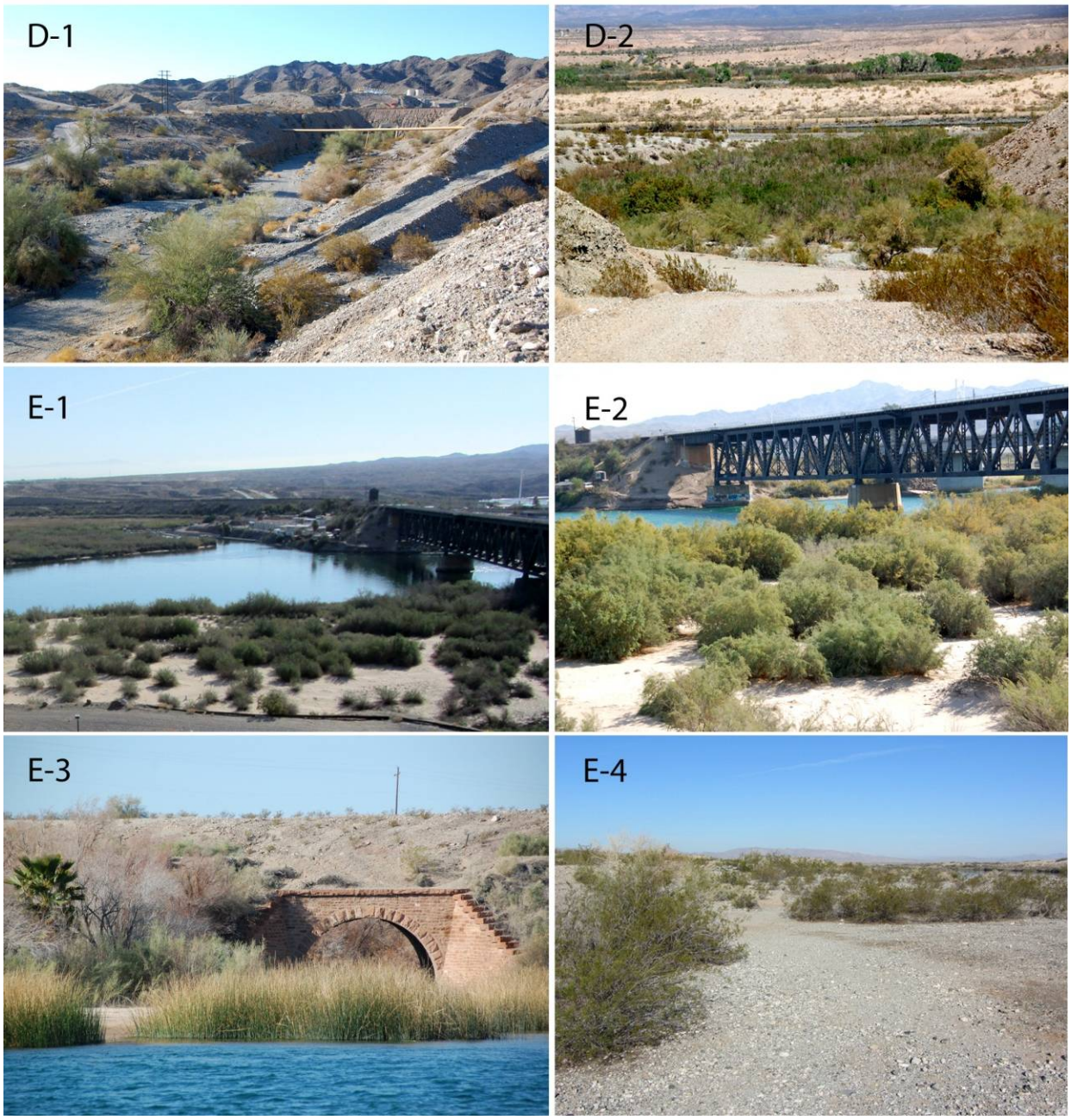


Plate 4. Segments F and G. (F-1) Arrow weed thicket on dredge sands looking north. (F-2) Western honey mesquite, screwbean and tamarisk thickets at southern end of Segment F with small wetland in the southeast corner of photo. (F-3) Close-up of wetland with common reed and sand-bar willow on drier land and California bulrush standing in water. (G-1) Edge of Topock Marsh next to Route 66; big saltbush and salt cedar on higher ground to the left and California bulrush in lower ground to the right. (G-2) Dense tamarisk thicket between BN&SF railroad tracks and Route 66. (G-3) Big saltbush on alkaline soils north of the Topock Marsh, west of County Road 10.

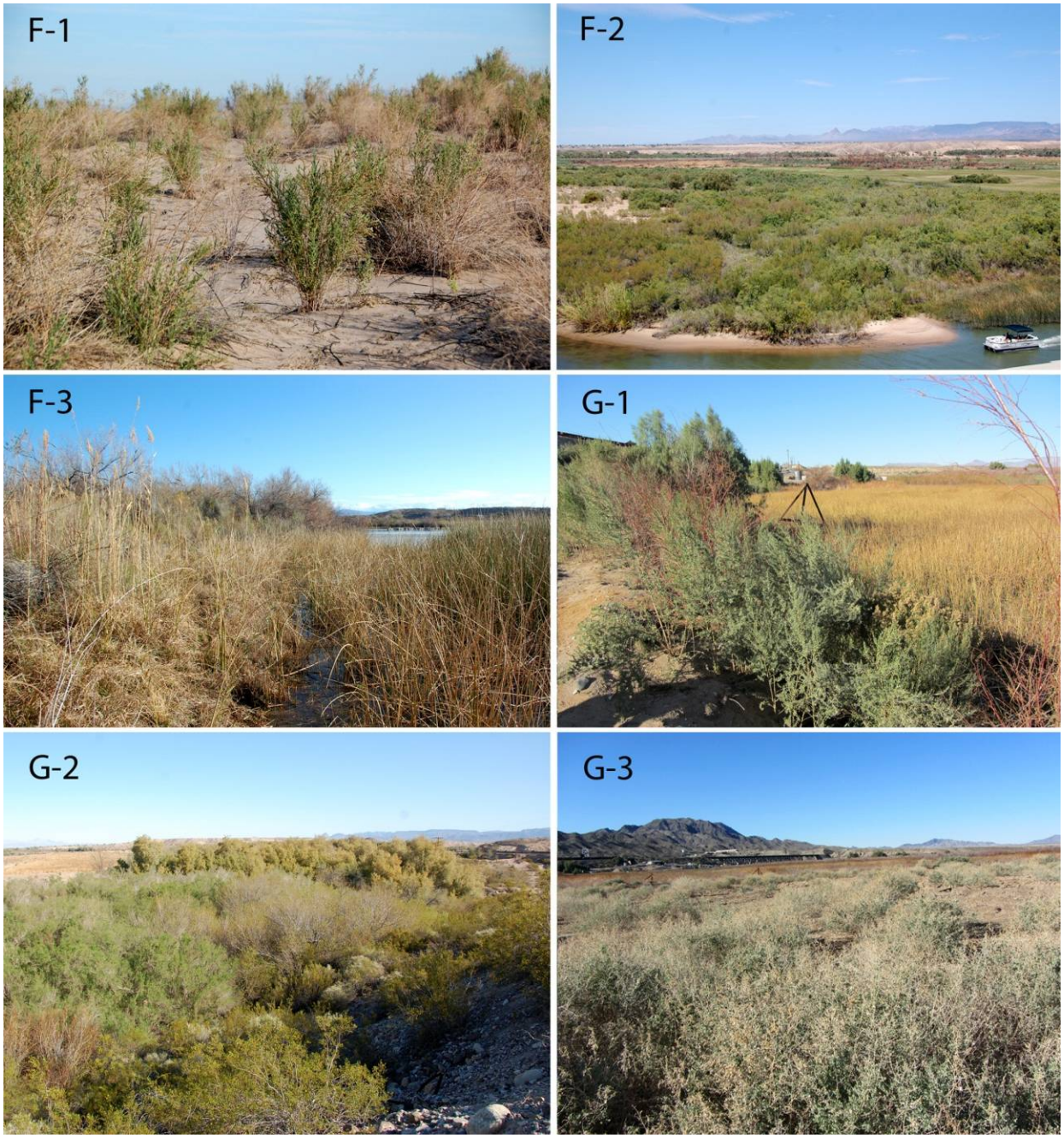


Plate 5. Segments G and H. (G-4) Sandy area with spring annuals including multi-paired suncup, stevia pincushion, brittle spineflower, *Cryptantha* spp., Spanish needles, and desert sunflower. (G-5) Upland rocky area dominated by creosote bush scrub. (H-1) Steep, disturbed, and eroded alluvial terraces below Topock Compressor Station. (H-2) Upper reaches of Bat Cave Wash below the compressor station. (H-3) Decomposing granitic bedrock of the Chemehuevi Mountains next to dissected alluvial terraces in Segment H. (H-4) Metamorphic rocks of the Chemehuevi Mountains in the eastern part of Segment H.

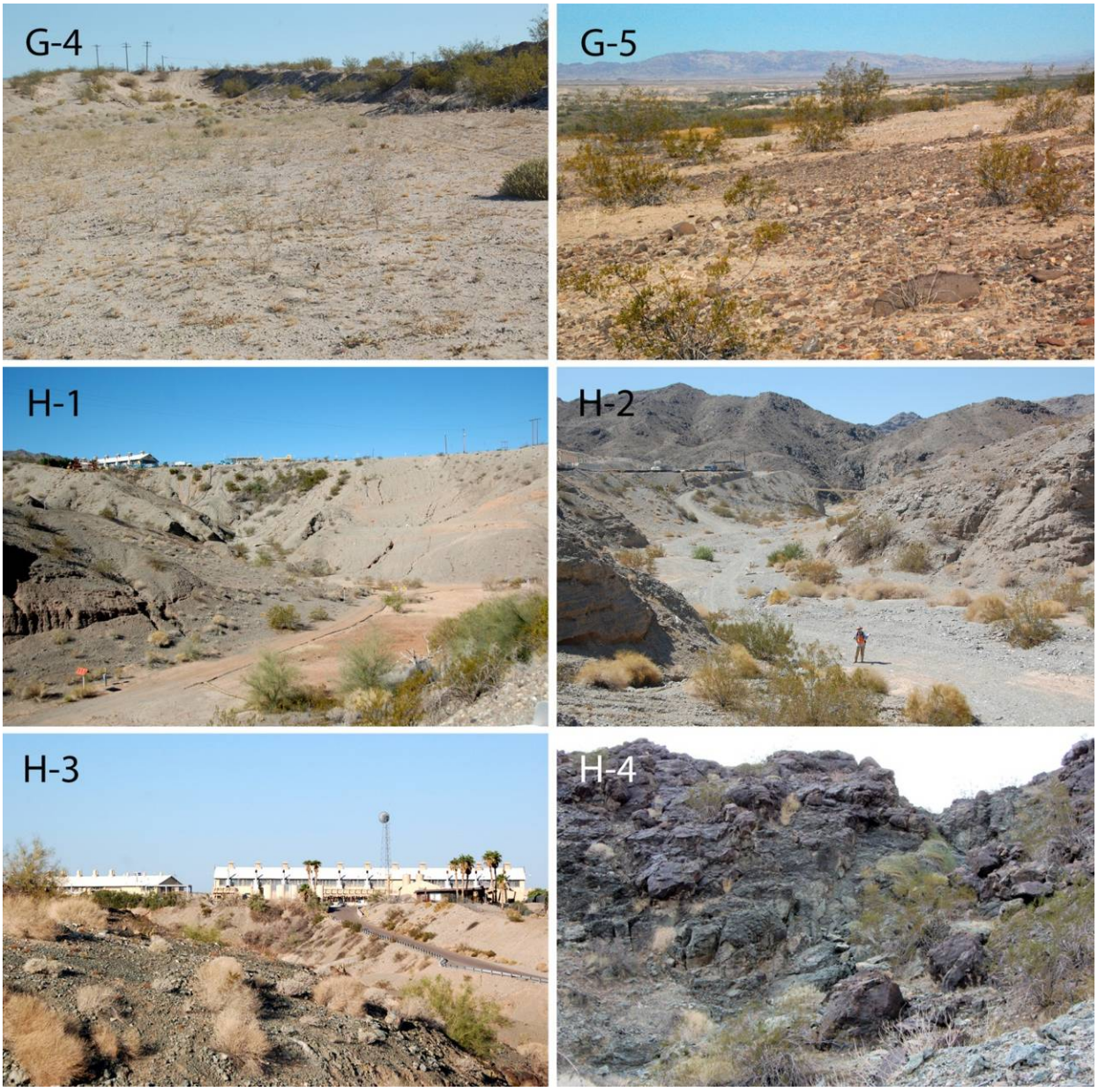
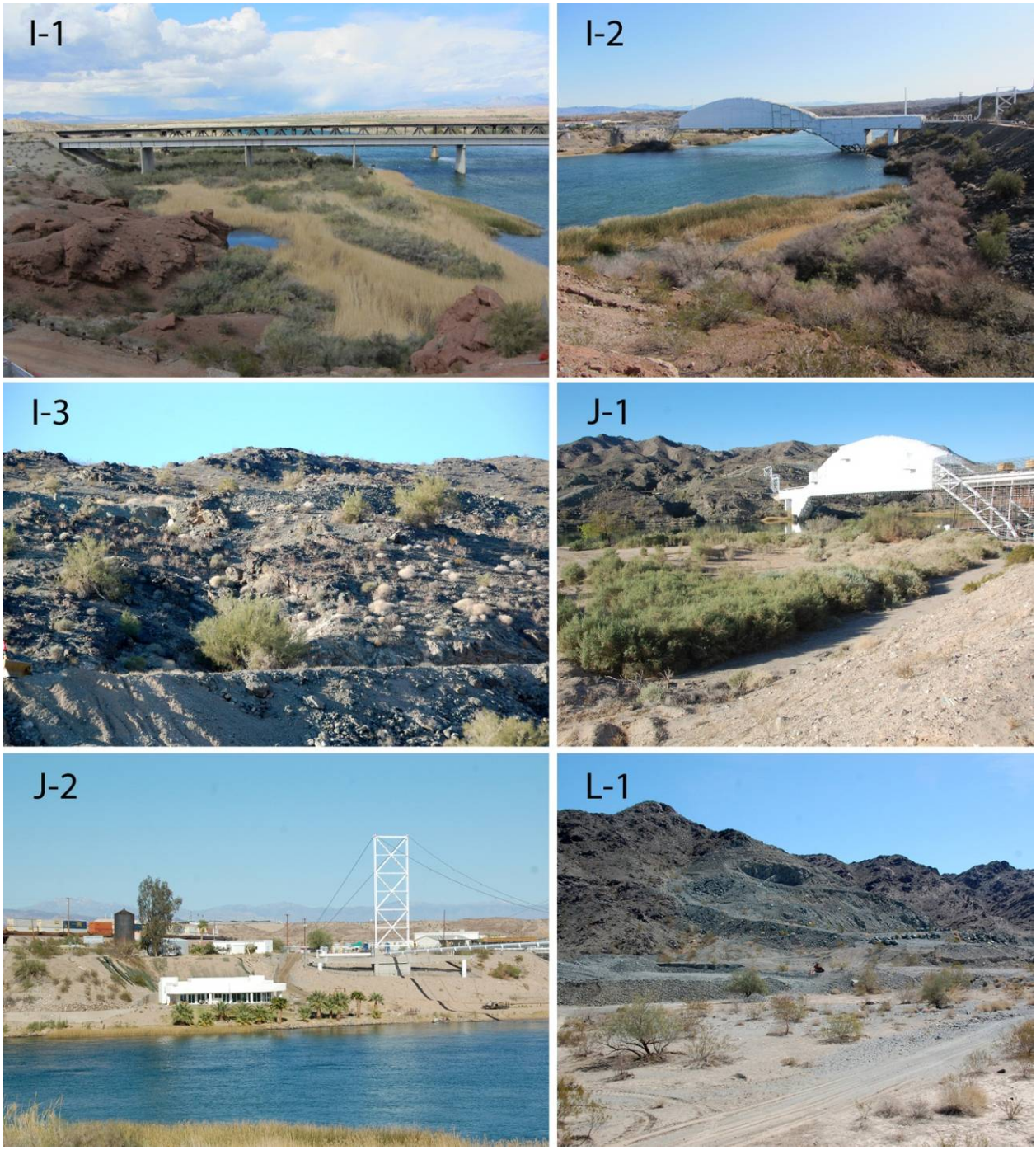


Plate 6. Segments I, J and L. (I-1) Common reed and California bulrush marshes at north end of Segment I with Miocene conglomerate outcrop in lower left of picture. (I-2) California bulrush marsh in river, honey mesquite at base of upland slope and hillside palo verde slightly higher up slope. (I-3) Hillside palo verde on slopes of Segment I above the Colorado River with white bursage and brittle bush. (J-1) Arrow weed and big saltbush in area below private residence along the Colorado River. (J-2) Private residence with landscaped areas (Mexican fan palms) and creosote bush scrub on slopes. (L-1) Blue palo verde woodland in sandy wash at quarry site; gravel piles visible at foot of Chemehuevi Mountains in background.



Appendix D
Photographs of Special-status Plants Found in the Project Area

APPENDIX D

Photographs of Special-status Plants Found in the Project Area

Plate 1. Mouse-tail suncup (*Chylismia arenaria* var. *arenaria*); California Rare Plant Rating (CRPR) = 2.2: (1) Habitat on hard-packed vertical walls of conglomerate above Bat Cave Wash in Survey Section D. (2) Close-up of habitat with four plants visible. (3) Close-up of flower (front view). (4) Close-up of flower (side view) showing elongated hypanthium with white arrow.

Plate 2. Hillside palo verde (***Parkinsonia microphylla***), **CRPR 2.2**. (1) Habit of hillside palo verde on rocky hillside in segment H. (2) Branches of hillside palo verde showing numerous small leaves. (3) Close-up of flower.

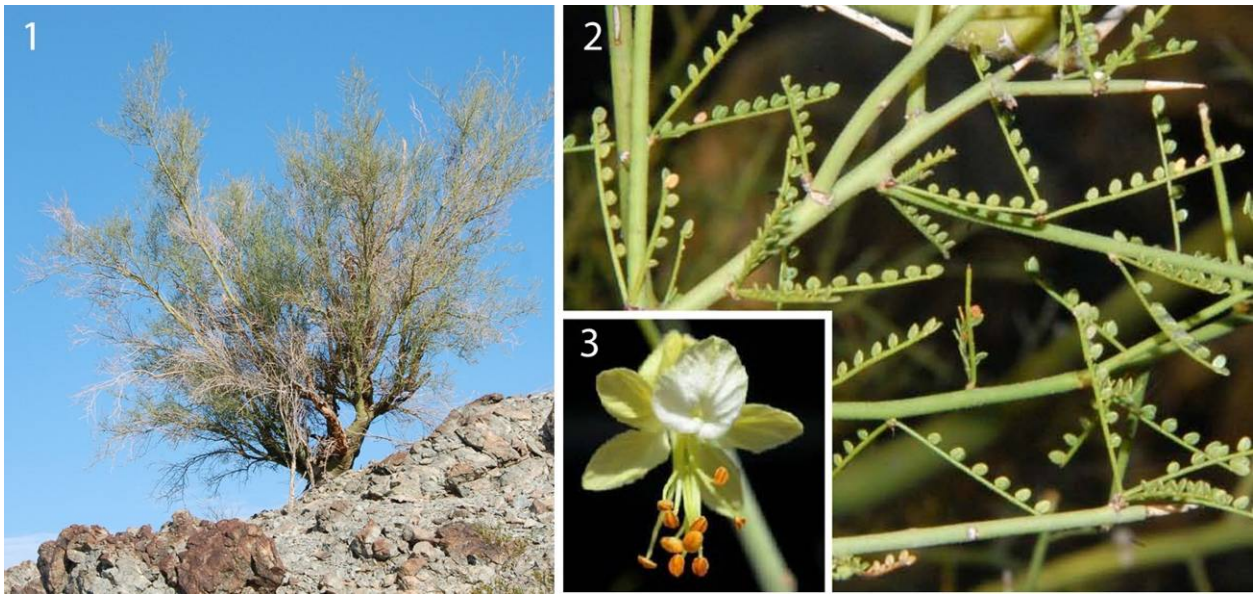


Plate 3. Spiny-haired blazing star (*Mentzelia tricuspis*) CRPR 2.1; Photographs of this plant are included, because although not considered rare in Arizona, it is considered rare in California. (1) Habitat on steep scree slope on north side of railroad tracks in Survey Section G with plant indicated by arrow. (2) Habit of *Mentzelia tricuspis* on scree slope. (3) Flower of *M. tricuspis* from a site near Golden Shores, Arizona. (4) Inflorescence of *Mentzelia tricuspis* with arrow pointing to a floral bract. (5) Arrow pointing to corresponding bract in white-bracted mentzelia (*Mentzelia involucrata*) that was found in the Project Area in California.

Appendix E
Plants Protected Under California Desert Native Plants Act

APPENDIX E

Plants Protected Under California Desert Native Plants Act (CDNPA)

Plate 1. CDNPA: Palo verde. (1) Blue palo verde (*Parkinsonia florida*) showing characteristic growth habit. (2) Blue paloverde leaves with few, large bluish leaflets. (3) Close-up of blue palo verde flower. (4) Hillside palo verde (*Parkinsonia microphylla*) growth habit (5) Hillside palo verde leaves with many, small green leaflets. (6) Close-up of hillside palo verde flower.

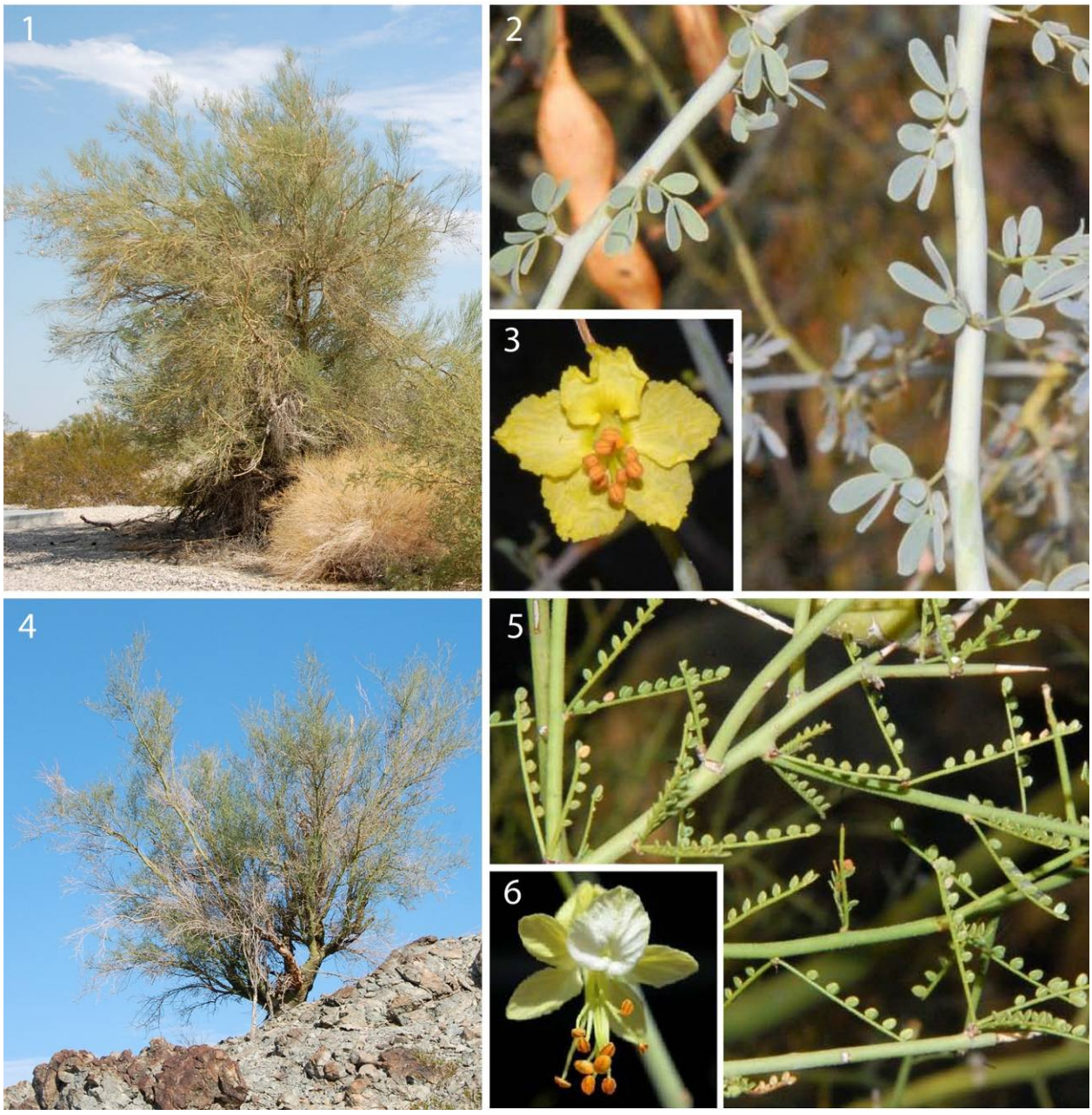
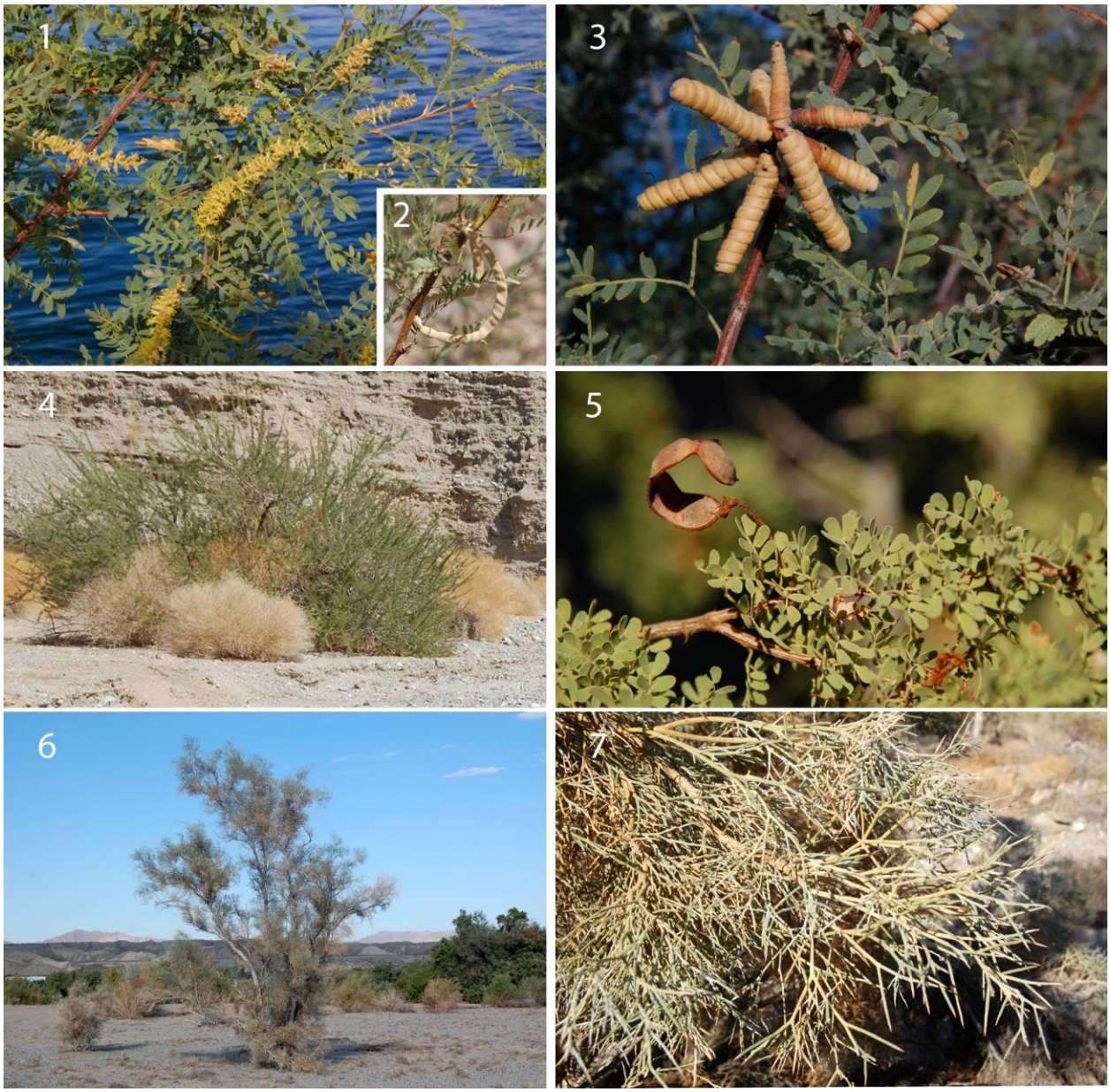


Plate 2. CDNPA cacti. 1) Habit of buckhorn cholla (*Cylindropuntia acanthocarpa* ssp. *coloradensis*). 2) Flower close-up of buckhorn cholla. 3) Habit of silver cholla (*Cylindropuntia echinocarpa*). 4) Flower close-up of silver cholla. 5) Habit of barrel cactus (*Ferocactus cylindraceus*). 6) Habit of corkseed mammillaria (*Mammillaria tetrancistra*).

Plate 3. CDNPA. 1) Habit of teddy bear cholla (*Cylindropuntia bigelovii*). 2) Habit of beavertail (*Opuntia basilaris* ssp. *basilaris*). 3) Habit of ocotillo (Fouquieria splendens). 4) Flower close-up of ocotillo. 5) Close-up of holly-leaved saltbush (*Atriplex hymenelytra*).

Plate 4. CDNPA. 1) Western honey Mesquite (*Prosopis glandulosa* var. *torreyana*) branches. 2) Close-up of western honey mesquite fruit. 3) Screwbean Mesquite (*Prosopis pubescens*) branches and fruit. 4) Catclaw acacia (*Senegalia greggii*) habit. 5) Close-up of fruiting branch of catclaw acacia. 6) Smoke tree (*Psorothamnus spinosa*) habit. 7) Close-up of smoke tree branches.



Appendix F
Avoidance and Restoration Plan for Special-Status Plant Species

APPENDIX F

Avoidance and Restoration Plan for Special-Status Plant Species

All efforts are to be made during the remediation process to avoid impacts to plants and animals, especially to those of cultural significance listed in the Appendix PLA of the EIR as well as any other special-status plants protected by federal or state regulations.

Under Mitigation Number CUL-1a-5 in the mitigation monitoring and reporting program for the Topock Groundwater Remediation Project (DTSC, 2011), it is proposed that if any indigenous plants of traditional cultural significance listed in the Appendix PLA of the FEIR are identified in the project area, PG&E shall avoid, protect, and encourage the natural regeneration of the identified plants when developing the remediation design, final restoration plan and IM-3 decommission plan.

Furthermore, it states that in the event that identified plants cannot be avoided and such plants will be displaced, PG&E shall retain a qualified botanist who shall prepare a plant transplantation/monitoring plan which can be included as part of the Cultural Impact Mitigation Program either by:

- Transplanting such indigenous plants to an on-site location or
- Providing a 2:1 ratio replacement to another location decided upon between PG&E and members of the Interested Tribes.

A separate salvage and transplantation plan is being developed to address potential impacts to culturally significant plant species.

Mitigation for Special-status plants

No federal or state listed threatened or endangered plants are known to occur in the Project area and no BLM sensitive plants were found during the surveys. Several plant species that area protected under the CNDPA and/or the ADA are present in the survey area. The California Department of Agriculture and the ADA will need to be consulted with prior to removal and transplantation of any of these species. In addition, three plant species that have special status in California are also present in the Project Area.

Mousetail suncup is a CRPR list 2.2 species. This plant has been characterized as an annual or perennial herb (Baldwin et al. 2012), but in the Project area, it appears to be mostly perennial. It occurs at two sites above Bat Cave Wash. The largest population consists of approximately 9 plants, whereas the other populations consist of a single individual. This species was also observed outside of the Project Area, in the railroad right-of-way in Segment C and on a rock face at the end of Bat Cave Wash in Segment H. While this species could potentially be impacted by the activities of the remediation project it occupies an unlikely site for construction activities (steep vertical rock cliffs). Therefore this species is unlikely to be affected by remediation activities. However, if mitigation for mousetail suncup with its very specialized habitat becomes necessary, one should collect and store seed prior to the disturbance and re-seed post-construction. Digging up and transplanting individuals is not a viable option with this species, nor is soil salvage of the topsoil, because these plants grow in rock crevices.

Spiny-haired blazing star is also a special-status plant that occurs in the project area, but it has been found only in Arizona where it has no special-status. In California, it is classed as a CRPR 2.3 species. CRPR list 2 plants are considered to be rare in California, but more common elsewhere in their distribution. This species has no special-status designation in Arizona.

Hillside Paloverde is a CRPR list 4 (watch list) that has a limited distribution on the rock hill slopes southeast of the compressor station. Project activities are not anticipated to affect this species.

Appendix G
Locations of Special-Status Species in the Project Area

APPENDIX G
Locations of Special-Status Species in the Project Area

Common Name	Species	Northing	Easting
Mousetail suncup	*Chylismia arenaria*	--	--
Mousetail suncup	*Chylismia arenaria*	--	--
Mousetail suncup	*Chylismia arenaria*	--	--
Hillside palo verde	*Parkinsonia microphylla*	7618435.435	12612239.09
Hillside palo verde	*Parkinsonia microphylla*	7617815.16	12612166.9
Hillside palo verde	*Parkinsonia microphylla*	7617800.731	12612212.94
Hillside palo verde	*Parkinsonia microphylla*	7617827.225	12612261.52
Hillside palo verde	*Parkinsonia microphylla*	7617845.531	12612264.08
Hillside palo verde	*Parkinsonia microphylla*	7617047.906	12611915.28
Hillside palo verde	*Parkinsonia microphylla*	7617090.95	12611822.56
Hillside palo verde	*Parkinsonia microphylla*	7617110.343	12611803.34
Hillside palo verde	*Parkinsonia microphylla*	7617607.412	12612103.09
Hillside palo verde	*Parkinsonia microphylla*	7617567.553	12612073.09
Hillside palo verde	*Parkinsonia microphylla*	7617570.606	12612074.61
Hillside palo verde	*Parkinsonia microphylla*	7617576.476	12612075.53
Hillside palo verde	*Parkinsonia microphylla*	7617491.041	12612135.21
Hillside palo verde	*Parkinsonia microphylla*	7617502.992	12612063.66
Hillside palo verde	*Parkinsonia microphylla*	7617110.188	12612056.74
Hillside palo verde	*Parkinsonia microphylla*	7616841.402	12611575.74
Hillside palo verde	*Parkinsonia microphylla*	7616431.64	12612460.41
Hillside palo verde	*Parkinsonia microphylla*	7616894.206	12612007.61
Hillside palo verde	*Parkinsonia microphylla*	7616883.248	12612007.28
Hillside palo verde	*Parkinsonia microphylla*	7616929.506	12612170.41
Hillside palo verde	*Parkinsonia microphylla*	7616669.182	12612723.26
Hillside palo verde	*Parkinsonia microphylla*	7616236.142	12612621.87
Hillside palo verde	*Parkinsonia microphylla*	7617063.943	12611913.72
Hillside palo verde	*Parkinsonia microphylla*	7617309.338	12612029.41
Hillside palo verde	*Parkinsonia microphylla*	7617366.372	12611995.91
Hillside palo verde	*Parkinsonia microphylla*	7617712.636	12611992.33
Hillside palo verde	*Parkinsonia microphylla*	7618173.514	12612309.59
Hillside palo verde	*Parkinsonia microphylla*	7618020.507	12612305.59
Hillside palo verde	*Parkinsonia microphylla*	7617804.074	12612144.19

APPENDIX G
Locations of Special-Status Species in the Project Area

Common Name	Species	Northing	Easting
Hillside palo verde	*Parkinsonia microphylla*	7617641.511	12612248.31
Hillside palo verde	*Parkinsonia microphylla*	7617540.267	12612248.52
Hillside palo verde	*Parkinsonia microphylla*	7617501.965	12612240.13
Hillside palo verde	*Parkinsonia microphylla*	7617323.687	12612152.24
Hillside palo verde	*Parkinsonia microphylla*	7617321.379	12612090.79
Hillside palo verde	*Parkinsonia microphylla*	7617326.95	12612068.92
Hillside palo verde	*Parkinsonia microphylla*	7617349.175	12612063.98
Hillside palo verde	*Parkinsonia microphylla*	7617350.96	12612055.54
Hillside palo verde	*Parkinsonia microphylla*	7617409.414	12612061.29
Hillside palo verde	*Parkinsonia microphylla*	7617472.949	12612100.85
Hillside palo verde	*Parkinsonia microphylla*	7617335.733	12612012.16
Hillside palo verde	*Parkinsonia microphylla*	7617065.375	12611915.85
Hillside palo verde	*Parkinsonia microphylla*	7617125.138	12611734.87
Hillside palo verde	*Parkinsonia microphylla*	7617181.815	12611721.45
Hillside palo verde	*Parkinsonia microphylla*	7617192.268	12611762.49
Hillside palo verde	*Parkinsonia microphylla*	7617227.544	12611763.6
Hillside palo verde	*Parkinsonia microphylla*	7617240.684	12611795.84
Hillside palo verde	*Parkinsonia microphylla*	7617665.242	12611875.12
Hillside palo verde	*Parkinsonia microphylla*	7617678.841	12611894.14
Hillside palo verde	*Parkinsonia microphylla*	7617679.559	12612086.14
Hillside palo verde	*Parkinsonia microphylla*	7617680.145	12612093.5
Hillside palo verde	*Parkinsonia microphylla*	7617620.975	12612102.51
Hillside palo verde	*Parkinsonia microphylla*	7617476.37	12612105.57
Hillside palo verde	*Parkinsonia microphylla*	7617543.75	12612039.09
Hillside palo verde	*Parkinsonia microphylla*	7616904.561	12611571.15
Hillside palo verde	*Parkinsonia microphylla*	7616822.475	12611542.25
Hillside palo verde	*Parkinsonia microphylla*	7616900.872	12612036.98
Hillside palo verde	*Parkinsonia microphylla*	7616867.055	12611979.75
Hillside palo verde	*Parkinsonia microphylla*	7616826.207	12611811.84
Hillside palo verde	*Parkinsonia microphylla*	7616822.491	12611837.69
Hillside palo verde	*Parkinsonia microphylla*	7616706.964	12611811.01
Hillside palo verde	*Parkinsonia microphylla*	7616672.111	12611834.89

APPENDIX G
Locations of Special-Status Species in the Project Area

Common Name	Species	Northing	Easting
Hillside palo verde	*Parkinsonia microphylla*	7616698.213	12611845.03
Hillside palo verde	*Parkinsonia microphylla*	7616705.071	12611893.66
Hillside palo verde	*Parkinsonia microphylla*	7616720.642	12611911.48
Hillside palo verde	*Parkinsonia microphylla*	7616681.093	12611910.07
Hillside palo verde	*Parkinsonia microphylla*	7616718.03	12611939.93
Hillside palo verde	*Parkinsonia microphylla*	7616747.112	12611976.36
Hillside palo verde	*Parkinsonia microphylla*	7616611.847	12612213.05
Hillside palo verde	*Parkinsonia microphylla*	7616935.531	12612162.36
Hillside palo verde	*Parkinsonia microphylla*	7616975.952	12612274.97
Hillside palo verde	*Parkinsonia microphylla*	7616907.676	12612501.56
Hillside palo verde	*Parkinsonia microphylla*	7617013.298	12612126.31
Hillside palo verde	*Parkinsonia microphylla*	7616606.185	12612703.23
Hillside palo verde	*Parkinsonia microphylla*	7618154.349	12612283
Hillside palo verde	*Parkinsonia microphylla*	7618074.515	12612294.28
Hillside palo verde	*Parkinsonia microphylla*	7618008.044	12612259.29
Hillside palo verde	*Parkinsonia microphylla*	7617870.155	12612131.44
Hillside palo verde	*Parkinsonia microphylla*	7617777.465	12612175.3
Hillside palo verde	*Parkinsonia microphylla*	7617749.688	12612288.34
Hillside palo verde	*Parkinsonia microphylla*	7617651.837	12612266.57
Hillside palo verde	*Parkinsonia microphylla*	7617634.59	12612252.85
Hillside palo verde	*Parkinsonia microphylla*	7617538.129	12612254.68
Hillside palo verde	*Parkinsonia microphylla*	7617475.888	12612232.75
Hillside palo verde	*Parkinsonia microphylla*	7617311.262	12612126.34
Hillside palo verde	*Parkinsonia microphylla*	7617342.393	12612047.76
Hillside palo verde	*Parkinsonia microphylla*	7617337.057	12612012.98
Hillside palo verde	*Parkinsonia microphylla*	7617103.836	12612047.74
Hillside palo verde	*Parkinsonia microphylla*	7617041.157	12611859.99
Hillside palo verde	*Parkinsonia microphylla*	7617118.595	12611810.26
Hillside palo verde	*Parkinsonia microphylla*	7617266.661	12611842.81
Hillside palo verde	*Parkinsonia microphylla*	7617214.057	12611816.77
Hillside palo verde	*Parkinsonia microphylla*	7617571.568	12612115.64
Hillside palo verde	*Parkinsonia microphylla*	7617542.707	12612036.61

APPENDIX G
Locations of Special-Status Species in the Project Area

Common Name	Species	Northing	Easting
Hillside palo verde	*Parkinsonia microphylla*	7615863.997	12612030.84
Hillside palo verde	*Parkinsonia microphylla*	7617871.608	12612091.94
Hillside palo verde	*Parkinsonia microphylla*	7617431.451	12612241.96
Hillside palo verde	*Parkinsonia microphylla*	7617315.647	12612164.77
Spiny-haired blazing star	*Mentzelia tricuspis*	--	--

Appendix H
CNDDB Forms for Special-status Plants in the Project Area

(1) Mousetail suncup (*Chylismia arenaria*)

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Date of Field Work (mm/dd/yyyy): 03/12/2012

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Chylismia arenaria*

Common Name: mousetail suncup

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 11 Subsequent Visit? ☐ yes ☐ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Kim Steiner
Address: 1791 Inverness Dr.
Petaluma, CA 94954
E-mail Address: ksteiner15@gmail.com
Phone: (415) 342-9362

Plant Information

Phenology: 2 % vegetative 7 % flowering 2 % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ wintering ☐ breeding ☐ nesting ☐ rookery ☐ burrow site ☐ other

***Location Description* (please attach map AND/OR fill out your choice of coordinates, below)**

Steep vertical walls of Bat Cave Wash below theTopock Compressor Station. Main population of 9 individuals at UTM 13844718.71m N 729477.77mE and elevation 124 m. Two other individuals at 13844506.53mN 729421.76 mE (elev. 122 m) and 50 feet north of 13844664.794 mN 729

County: San Bernadino Landowner / Mgr.: PG&E

Quad Name: NA Elevation: 122-136 m

T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): GPS

T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model Trimble GeoXT

DATUM: NAD27 ☐ NAD83 ☑ WGS84 ☐ Horizontal Accuracy 14 feet meters/feet

Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☑ *OR* Geographic (Latitude & Longitude) ☐

Coordinates:

Habitat Description (plants & animals) *plant communities, dominants, associates, substrates/soils, aspects/slope:*
Animal Behavior *(Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):*

Edge of dry wash on vertical conglomerate cliff faces, blue palo verde woodland with Parkinsonia florida, Bebbia juncea, Hyptis emoryii, creosote bushes.

Please fill out separate form for other rare taxa seen at this site.

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☑ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: No immediate land use surrounding population, injection wells for ground water re-mediation nearby

Visible disturbances: No obvious disturbances

Threats: Possible erosion of main population site if heavy rain falls. No obvious threat from re-mediation activities.

Comments:

Determination: *(check one or more, and fill in blanks)*

☐ Keyed (cite reference): Jepson 2
☐ Compared with specimen housed at: _____
☑ Compared with photo / drawing in: Cal Flora
☑ By another person (name): Jim Andre
☐ Other: _____

Photographs: *(check one or more)* Slide Print Digital

Plant / animal ☐ ☐ ☑
Habitat ☐ ☐ ☐
Diagnostic feature ☐ ☐ ☑

May we obtain duplicates at our expense? yes ☑ no ☐

DFG/BDB/1747 Rev. 6/15/09

(2) Hillside palo verde (*Parkinsonia microphylla*)

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Date of Field Work (mm/dd/yyyy): 11/05/2011

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Parkinsonia microphylla*

Common Name: hillside palo verde

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 150 Subsequent Visit? ☑ yes ☐ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Kim E. Steiner
Address: 1791 Inverness Dr., Petaluma, CA 94954

E-mail Address: ksteiner@garciaandassociates.com
Phone: (415) 342-9362

Plant Information

Phenology: 99 % vegetative 0 % flowering 1 % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ wintering ☐ breeding ☐ nesting ☐ rookery ☐ burrow site ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: San Bernadino Landowner / Mgr.: Havasu National Wildlife Refuge
Quad Name: _____ Elevation: 175 m
T____ R____ Sec ____, ____ ¼ of ____ ¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): GPS
T____ R____ Sec ____, ____ ¼ of ____ ¼, Meridian: H☐ M☐ S☐ GPS Make & Model Garmin GeoXT
DATUM: NAD27 ☐ NAD83 ☑ WGS84 ☐ Horizontal Accuracy 17 feet meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☑ *OR* Geographic (Latitude & Longitude) ☐
Coordinates:

Habitat Description (plants & animals) *plant communities, dominants, associates, substrates/soils, aspects/slope:*
Animal Behavior *(Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):*

Parkinsonia microphylla shrubland on rocky NE-facing slope above the western banks of the Colorado River with Encelia farinosa, Bebbia juncea var. aspera and Larrea tridentata. Northern edge of the Chemeheuvi Mountains in California.

Please fill out separate form for other rare taxa seen at this site.

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☑ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: Most of population is within the Havasu National Wildlife Refuge just above Colorado River.

Visible disturbances: gravel roads through population, disturbance from buried gas pipelines

Threats: No obvious threats

Comments: Sympatric with Parkinsonia florida on edge of population. Several individuals appear to be hybrids

Determination: *(check one or more, and fill in blanks)*
☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☑ Compared with photo / drawing in: Jepson Online Interchange
☑ By another person (name): James Andre
☐ Other: _____

Photographs: *(check one or more)* Slide Print Digital
Plant / animal ☐ ☐ ☑
Habitat ☐ ☐ ☑
Diagnostic feature ☐ ☐ ☑

May we obtain duplicates at our expense? yes ☑ no ☐

DFG/BDB/1747 Rev. 6/16/09

Appendix A6
Instream Habitat Typing Survey Technical Memorandum
(*on CD-ROM only*)

Instream Habitat Typing Survey, Topock Compressor Station, Colorado River

PREPARED FOR: Melanie Day/PG&E

COPY TO: Christina Hong/CH2M HILL
Marjorie Eisert/CH2M HILL

PREPARED BY: Earl Byron/CH2M HILL

DATE: May 25, 2012

I. Introduction

In compliance with the Topock Compressor Station Final Remedy Final Environmental Impact Report (EIR) mitigation measure BIO-3b, an instream habitat typing survey was conducted within the EIR defined project area along the California bank of the Colorado River in areas that are under consideration as alternative locations for a river intake structure. The installation of a river intake was considered in the EIR (Volume 2, Section 3.5.2.5 and Exhibit 3-4) (AECOM 2011). As specified in the EIR Mitigation Measure BIO-3b... "Because the type and extent of habitat potentially affected is unknown, PG&E shall have an instream habitat typing survey conducted in the area potentially affected by the intake construction. Further, cooperation with USFWS and other fisheries biologists shall determine suitable and acceptable location(s) for the intake structure(s) to avoid the spawning habitat of special-status fish species. PG&E shall avoid habitat modifications, especially to habitat that is preferred by native fishes for spawning or rearing including side channels, cobble or gravel bars, and shallow backwaters..." Dr. Earl Byron, Senior Technologist/Aquatic Scientist, conducted an instream habitat typing survey on April 4, 2012, and this report presents the results of the survey and supporting background information.

II. Background

The construction of a river intake structure in the Colorado River at Topock is under consideration as one alternative to supply fresh water for the final groundwater remedy at the Topock site. Disturbance of the river and riverbed substrate, as well as any water withdrawals as a result of this intake structure, has the potential to affect two protected fish species that inhabit the Colorado River: the razorback sucker (*Xyrauchen texanus*) and bonytail chub (*Gila elegans*). Both species have been found in recent years in the immediate vicinity of the project area, at Park Moabi lagoon and Topock Marsh (AECOM 2011).

Both species are federally-listed as endangered, California State-listed as endangered (the razorback sucker is also a "fully protected" species under California law), and covered species under the Lower Colorado River Multi-Species Conservation Program (LCR MSCP). Federally designated critical habitat for the bonytail chub occurs within the EIR project area along the Colorado River.

Currently, the project is not authorized by the U.S. Fish and Wildlife Service (USFWS) to result in take of federally-listed species. Project proponents may seek take authorization under sections 7 or 10 of the federal Endangered Species Act. The project's federal Record of Decision for the groundwater remediation states that design and implementation of the remedy will be performed in a manner that does not result in a "take" of threatened or endangered species or damage their critical habitat (USDOI 2010). Evaluation of an adequate fish screen to avoid potential impacts to listed fish is ongoing.

The razorback sucker is also a California Fully Protected species, meaning that the California Department of Fish and Game (CDFG) is unable to issue permits for take of this species [California Fish and Game section Code 5515(a)(1)], except in the following circumstances: 1) impacts are attributable to the implementation of the Quantification Settlement Agreement (QSA) (Fish and Game Code 2081.7); the QSA is the mechanism for Fully

Protected species authorized take under the LCR MSCP (CDFG ITP 2005), 2) a project is covered under a Natural Communities Conservation Plan (NCCP) (Fish and Game Code section 2835), or 3) for research purposes. A project specific NCCP would take a significant amount of time to develop. This project may be able to request coverage under the LCR MSCP via third-party take authorization or a Certificate of Inclusion if it could not be demonstrated that the intake would avoid take. However, regardless of possible LCR MSCP coverage, the Record of Decision states that the project is to be implemented in a manner that does not result in take of bonytail chub and razorback sucker or damage critical habitat.

In Arizona, the razorback sucker and bonytail chub are designated as Wildlife of Special Concern and species of greatest concern to the state from an "endangered species" perspective (Arizona Game and Fish Department, in prep). This designation is informative and nonregulatory, serving mainly as policy guidance for wildlife management (USFWS 2002).

In addition, flannelmouth sucker (*Catostomus latipinnis*) is a species of management concern (LCR MSCP 2008), overlapping with the two listed species in terms of habitat requirements and also previously known from Park Moabi (AECOM 2011). Given its similar habitat requirements, mitigation measures protective of razorback sucker and bonytail chub are likely to also provide protection of flannelmouth sucker.

III. Habitat Requirements

Razorback sucker and bonytail chub evolved to live in the fast, silty, turbulent water of the historical Colorado River (Fed. Register 1994; LCR MSCP 2008). As the character of the river has changed following the construction of dams and as invasive fish species have come to dominate the fish community, very low numbers of these endemic fish species still remain in the mainstem river. Unfortunately, these species were reduced to very low numbers prior to the advent of modern fisheries surveys and, as a result little is known of the habitat requirements for spawning in riverine conditions (USFWS 2002a,b).

Razorback sucker

Razorback sucker begin to reproduce at 3 to 4 years of age and may live for more than 40 years (UCREFRP 2012). In the Colorado River system, razorbacks are found from the Grand Canyon to near the border with Mexico, but these riverine populations are small, with recruitment (young surviving to maturity) being virtually nonexistent (Fed. Register 1994). Fish stocking efforts in the Lower Colorado River are forestalling this species extinction and it has been documented just downriver of the project area (AECOM 2011). Over their lifespan, razorback suckers occupy several distinct habitats consisting of both strong currents and backwaters (NDIS 2012). Exact habitat requirements for successful spawning in rivers are unknown, due to the small numbers of existing river spawners (NDIS 2012). From what can be gleaned from historical records and extant upper Colorado river populations, spawning occurs over cobble, gravel, and sand bars during high spring flows (USFWS 2002a) (spawning habitat) and larvae drift from there to backwaters and floodplain wetlands to rear (rearing habitat) (UCREFRP 2012; USFWS 2002a). Ripe, spawning razorback suckers have been captured in riffles with clean cobble, gravel, and sand (LCR MSCP 2008; Tyus and Karp 1990). Razorbacks have been observed spawning near a river's edge location at the mouth of a backwater of the Colorado River below Hoover dam in 1.2 to 2m water depth; the spawning habitats were depressions in the river bed composed of gravel and cobble substrates (Mueller 1989). The authors noted that the spawning areas did not consist of either the bedrock or sand substrates otherwise common in the area (Mueller 1989).

The juvenile fish rear in quiet backwaters, preferring shallow littoral zones for a few weeks after hatching, and then dispersing to deeper water (Fed. Register 1994). Older, adult fish frequent deep holes, eddies, and backwaters near the shore (adult, foraging, non-spawning habitat) (USFWS 2002a). Juvenile razorback suckers are presumably eaten by invasive predatory fish species and rearing is compromised by limited rearing habitat, which has led to overall low reproductive success, low survival of young, and little or no recruitment (USFWS 2002a).

Spawning fish have been known to spawn in 1 to 2 m depths of water (Mueller 1989) at a temperature range of 9 to 17 deg. C in the April – June period (Tyus and Karp 1990).

Bonytail chub

Historically, bonytail chub inhabited the turbid river and quiet, muddy backwaters of the Colorado River. They are now mostly relegated to survival in Lake Mohave (NDOW 2012) and the rarest native fish in the Colorado River basin, with recruitment being virtually nonexistent (Fed. Register 1994). As with razorback sucker, fish stocking efforts in the Lower Colorado River are forestalling this species extinction and it has been documented in the river adjacent to the project area (AECOM 2011). Spawning requirements have never been documented in riverine environments, however available data suggest that riverine habitats would be suitable for adults and young (Fed. Register 1994). Although little is known of actual bonytail habitat requirements, it is likely that this species of chub is similar to closely related species in spawning over rocky substrates (as has been observed in recent reservoir spawning) (USFWS 2002b). In Lake Mohave, bonytail have been observed to broadcast their adhesive eggs over a gravel shelf (USFWS 2002b). Recent information from the LCR MSCP has documented bonytails spawning on shoreline-associated riprap material (gravel/cobble/boulder) in 1 to 2m depth water at a temperature averaging 18 degrees Celsius in June and July (Fed. Register 1994; LCR MSCP 2008).

Flooded bottomland habitats are probably important to juvenile rearing and non-spawning adults are typically found in pools and shoreline eddies adjacent to swift currents (Valdez 1990 in USFWS 2002b). The young rear in backwater and floodplain nursery areas but the juvenile fish do not survive predation by invasive predator species (USFWS 2002b). The critical habitat designation for this species includes the Topock reach of the river and states that habitats required for its conservation include river channels and flooded, ponded, or inundated riverine habitats (Fed. Register 1994). The primary constituent elements (PCEs) for critical habitat focus on the physical habitat and food supply for the species: 1) Space for individual and population growth and for normal behavior; (2) Food, water, air, light, minerals, or other nutritional or physiological requirements; (3) Cover or shelter; (4) Sites for breeding, reproduction, rearing of offspring, germination, or seed dispersal; and generally; (5) Habitats that are protected from disturbance or are representative of the historical geographical and ecological distributions of a species (Fed. Register 1994).

IV. Methods

Four sites along the California bank of the Colorado River in the vicinity of the Topock Compressor Station were examined in detail to characterize fish habitats in the shallow, shorezone region during the morning of April 4, 2012. A location map of all 4 general site locations is depicted in Figure 1. Other possible sites along the shoreline were not considered due to access limitations, bank steepness, excessive shallowness, or conflict with other sensitive biological habitats (wetlands, etc.). Habitats were characterized as to depth, substrate type, and relative flow. Water surface elevations were taken from continuous records of the I-3 bridge transducer. Numerous water depths at precise locations and times were taken from boat sonar readings matched to Global Positioning System (GPS) coordinates. The area of shoreline examined at each site was at least 100 feet, in order to accommodate the placing of the intake and screen with a construction and operational footprint near 10 feet or less.

Substrate characteristics were recorded as visual observations of substrate type, as observed from the boat in shallow water or from a plexiglass view box held in the water over the side of the boat. Substrates were categorized as bedrock, boulder, small boulder, gravel, or sand (or mixtures). Several representative substrate photographs were taken through the view box window and presented below. When a location was too deep for observation (usually greater than approximately 10 feet water depth), a mini-Ponar dredge was used to bring up bottom material for direct observation. All Ponar deployments yielded sand with some gravel and no dredge deployments failed due to striking boulder or bedrock substrates. Representative Ponar dredge content photographs are included below.

Water depths were computed as depths below the lowest observed low water in the PG&E dataset (since January, 2004) of 450.4 ft. AMSL at Station I-3 Pipeline Bridge on March 9, 2005. The 49 individual water depths distributed among the four sites were plotted over aerial photographs of each site and hand drawn bathymetric contour lines were added to help define the approximate depth profiles as might occur during extreme low water conditions. Water levels were on average 6.6 feet higher on April 4, 2012 during this habitat survey as compared to the March 9, 2005 low water elevation.

V. Habitat Observations by Site

Substrates and Flow

Site 1, immediately upstream of the Southern California Gas Company pipeline bridge (Figure 1), was characterized by a steep bedrock bank and nearshore bedrock formations that graded in deeper water to boulder, cobble, and some sand. Some clam shells were visible in the gravel, sand mixtures. Flows were uniformly swift except for highly-localized back eddies around bedrock outcrops. Most of this site was over 10 feet in depth on April 4, 2012. This site appears to provide the potential for isolated areas of spawning and rearing habitat for suckers or chub. No underwater photos were taken at this site; however, it was adjacent and similar in character to Site 2.

An intake at this location would add some hard substrate (concrete), similar to the predominant bedrock. Depending on location it might eliminate a small area of potential spawning or rearing habitat.

Site 2, just upstream of Site 1 and immediately adjacent to the curve in the shore zone road (Figure 1), was characterized as steep bedrock on the bank that graded in deeper water to small and large boulders, cobble, sand, and a few clam shells. Immediately adjacent to the curve in the road, road gravels were prominent on the bottom substrate. Flows were uniformly swift except for highly-localized back eddies around bedrock outcrops. Most of this site was over 10 feet in depth on April 4, 2012. A representative photograph of the boulder/cobble/gravel at this location (as was also representative for areas of Site 1) is shown in Figure 2A. This site appears to provide the potential for isolated, pocket areas of potential spawning and rearing habitat for suckers or chub and is similar to Site 1.

An intake at this location would add some hard substrate (concrete), similar to the predominant bedrock. Depending on location it might eliminate a small area of potential spawning or rearing habitat.

Site 3, immediately upstream of the Topock Arched pipeline bridge, was the deepest site, with swift currents along this pronounced outer bend of the river having apparently produced a scour hole at this location. Despite the depth, current, and scour, the individual bedrock outcrops and larger back eddies at this location have produced substantial quiet water areas in shallow, inshore locations. The general nature of the site is one of steep drop off from the shore, dominated by bedrock and boulders that grade to small boulders, cobble and sand in deeper water. However, the back eddies and lower velocity locations produced a cobble/gravel/sand substrate with detritus and abundant perilithic diatom growths, indicating a general lack of current scour. In addition, hollowed-out gravel fish nests and close by large fish were seen at this location in depths of 10 feet of water or less, probably of spawning largemouth bass (Figure 2B). The nature of site 3 varies from sloped gravel/cobble substrates grading down from bedrock at the most upstream areas (Figure 2C) to steep bedrock dropoffs near the bridge (Figure 2D). Current velocities were generally high, but locally variable for inshore locations, such as the observed spawning locations. Most of this site was over 15 - 20 feet in depth on April 4, 2012. This site may offer isolated areas of spawning and rearing habitat for suckers or chub, similar to Sites 1 and 2.

An intake at this location would add some hard substrate (concrete), similar to the predominant bedrock. Depending on location it might eliminate a small area of potential spawning or rearing habitat.

Site 4, the most upstream site, between the mouth of Bat Cave Wash and Park Moabi lagoon (Figure 1), was markedly shallower and sandier than the other sites. There was some bedrock at the banks that quickly graded to cobble, gravel, and sand (Figure 3A), with sand and small amounts of gravel dominating all deeper locations at this site (Figures 3B, C, D). This site was unique in generally lacking inshore back eddies and low velocity refugia. The sand bottom was well washed and free of detritus and periphyton diatoms. Representative Ponar grab substrates for Site 4 deeper locations (over 10 feet deep) are shown in Figures 3C and 3D. Shallower Site 4 locations, showing mixed substrates are shown in Figure 3A, as well. This site appears to provide little opportunity for good spawning or rearing habitat for razorback suckers and bonytail chub, particularly at low water conditions where most of the site is reduced to well-washed sand. A shallow, sand beach environment dominates the most downstream end of the site (Figure 3B).

An intake at this location would add some hard substrate (concrete), similar to bedrock, which is relatively rare at this site.

Bathymetry

Figure 4 shows the point depths and resulting hand-drawn bathymetric contours that depict water depths below elevation 450.4 AMSL for all 4 sites (the lowest recently-recorded low water level). Note that for all sites, the change in water surface elevation as would occur for this extreme low water condition required a new "0 depth" shoreline to be hand drawn over the aerial photograph. The underlying photograph used for Figure 4 shows the approximate shoreline as it appeared for the April 4, 2012 survey which was 6.6 feet higher in water elevation than the 2005 lowest elevation used here as a planning boundary.

As was described above, Sites 1, 2, and 3 are similar in having a steep bedrock-dominated bank with deeper water close inshore for most of the shoreline. In contrast, Site 4 is generally shallower and sandier and at low water conditions is expected to be largely sand substrate with a low slope towards mid-channel. The only exception is the most upstream end of Site 4 where the depths drop off more quickly, closer to shore (Figure 4).

VI. Conclusions and Recommendations

The four sites can be compared with regard to their potential to provide spawning or rearing habitat for razorback sucker or bonytail chub. As documented above, little concrete information exists about the spawning habits of these fish in the main Colorado River because these species were essentially considered extirpated prior to modern fisheries surveys. Regardless, what little information exists indicates the likelihood that both species spawn over clean gravel/cobble/sand type of substrates that exist as main river bars and larval fish are washed from cobble or gravel bars in the fast current to rear in quiet and shallow backwaters and shorezone eddies. The non-spawning adults, as well, seem to prefer quieter waters than areas of consistently fast current (as evidenced by their documented presence, along with flannelmouth sucker, in Park Moabi and Topock lagoons, AECOM 2011).

Razorback sucker and bonytail chub currently spawn in shallow, rocky areas of Lake Mohave. Similar quiet, rocky types of environments were available in isolated locations at each of Sites 1, 2, and 3 (Figure 2) but less apparent at Site 4. Instead, Site 4 was dominated by highly washed sand (Figure 3); a substrate less likely to be stable enough for fish egg incubation than the shorezone gravels and cobbles that were more prevalent at the other three sites. For example, Mueller (1989) specifically mentioned that spawning razorback sucker in the river avoided areas of bedrock or sand.

For the high water condition observed in 2012, all four sites contained isolated pockets of gravel, cobble, or sandy substrates with minimal current scour that could be used as spawning habitat or possibly as larval rearing areas (although less likely for rearing, due to the dominant fast flows and relatively small size of these sites). Some of these pocket areas, in back eddies and the lee of outcrops were observed to have active fish nests (Figure 2B). As discussed above, for these small sized potential spawning areas, Site 4 had the least favorable habitat potential. The small areas of potential cobble/gravel spawning or rearing habitat observed for Sites 1, 2, and 3 included areas of favorable water depth (1 to 2m) for spawning. At Site 4 those depths (both as observed in 2012 and for lowest water levels) would be primarily sand.

For the potential lowest water conditions, as in the depth contours of Figure 4, Sites 1, 2, and 3 would retain their small pockets of potential spawning habitats in protected back eddies, but Site 4 would lose what little favorable habitat it had and become almost all well-washed sand.

References

AECOM 2011. Topock Compressor Station Final Remedy FEIR. CA Dept. of Toxic Substance Control.

Arizona Game and Fish Department. In prep. Wildlife of special concern in Arizona. Arizona Game and Fish Department Publication. Phoenix, Arizona. 32 pp.

CDFG 2012. Code 5515. Fully Protected Status for Razorback Sucker. http://www.leginfo.ca.gov/cgi-bin/displaycode?section=fgc&group=05001-06000&file=5500-5522

CDFG 2005. Lower Colorado River Multi-Species Conservation Program. Incidental Take Permit No. 2081-2005-008-006. http://www.lcrmscp.gov/publications/cdfg_permit.pdf

Fed. Register 1994. Endangered and Threatened Wildlife and Plants; Determination of Critical Habitat for the Colorado River Endangered Fishes: Razorback Sucker, Colorado Squawfish, Humpback Chub, and Bonytail Chub. Dept. of Interior, Fish and Wildlife Service. Fed. Reg. 59, No. 54 (21 March 1994) p. 13375, -76, -79, 13400.

LCR MSCP 2008. Species Accounts for the Lower Colorado River Multi-Species Conservation Program. Bureau of Reclamation, Lower Colorado Region, Boulder City, NV. http://www.lcrmscp.gov

Mueller, G. 1989. Observations of spawning razorback sucker (*Xyrauchen texanus*) utilizing riverine habitat in the lower Colorado River, Arizona-Nevada. Southwest. Nat. 34 (1): 147 – 149.

NDIS 2012. Natural Diversity Information Source. Wildlife Razorback Sucker Page. Colorado State University. http://ndis.nrel.colostate.edu/wildlifespx.asp?SpCode=010595

NDOW 2012. Nevada Department of Wildlife. Nevada Fauna Facts. Bonytail chub. http://www.ndow.org/wild/animals/facts/fish_bonytailed_chub.shtm

Tyus, H. M. and C. A. Karp 1990. Spawning and movements of razorback sucker, *Xyrauchen texanus*, in the Green River Basin of Colorado and Utah. Southwest. Nat. 35 (4): 427 - 433.

U.S. Department of the Interior 2010. Groundwater Remedy Record of Decision, Pacific Gas and Electric Company, Topock Compressor Station, Needles, San Bernardino County, California. ROD cover date is December 2010; signed/approved by DOI on January 20, 2011.

UCREFRP 2012. Upper Colorado River Endangered Fish Recovery Program. Razorback sucker (*Xyrauchen texanus*). http://www.coloradoriverrecovery.org/general-information/the-fish/razorback-sucker.html

USFWS 2002a. Razorback sucker (*Xyrauchen texanus*) Recovery Goals: amendment and supplement to the Razorback Sucker Recovery Plan. U.S. Fish and Wildlife Service, Mountain-Prairie Region (6), Denver, Colorado.

USFWS 2002b. Bonytail (*Gila elegans*) Recovery Goals: amendment and supplement to the Bonytail Chub Recovery Plan. U.S. Fish and Wildlife Service, Mountain-Prairie Region (6), Denver, Colorado.

USFWS 2002. Final Recovery Plan Southwestern Willow Flycatcher. Southwestern Willow Flycatcher Recovery Team Technical Subgroup. http://ecos.fws.gov/docs/recovery_plans/2002/020830c.pdf

FIGURE 1
TOPOCK COMPRESSOR STATION SHOWING THE FOUR POTENTIAL RIVER INTAKE LOCATIONS
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

CH2MHILL

Path: D:\Projects\Topock\MapFiles\2012\CMS\FishHabitat\RiverIntakeLocs.mxd Date Saved: 5/17/2012 11:46:44 AM

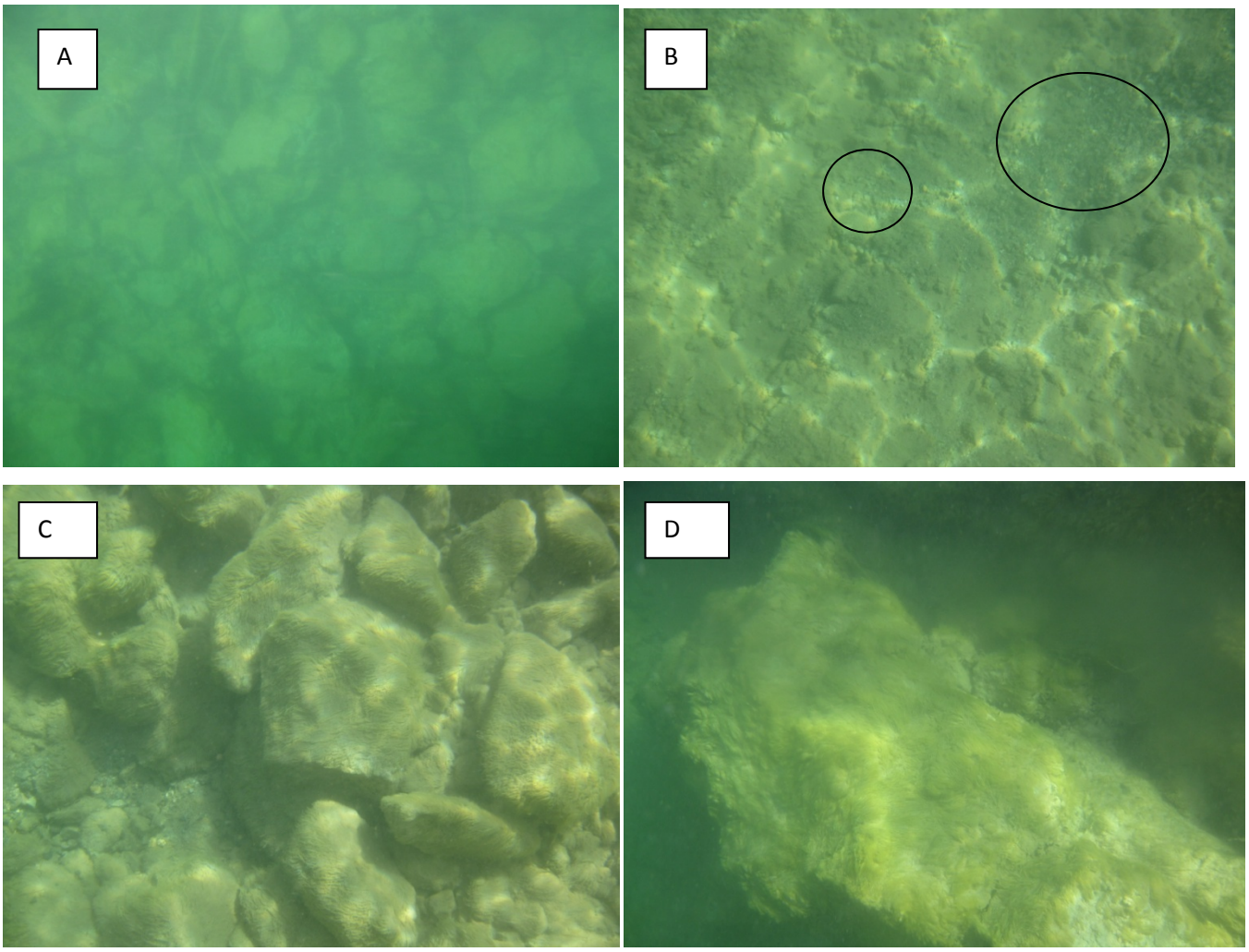


Figure 2.

A: Site 2, cobble/small boulder/sand at about 8 feet deep, mid-site.

B: Site 3, possible bass nests in 4 feet of water (circled), upstream end of site.

C: Site 3, boulder/cobble/gravel/sand in 3 feet of water, mid-site.

D: Site 3, bedrock drop-offs at downstream end.

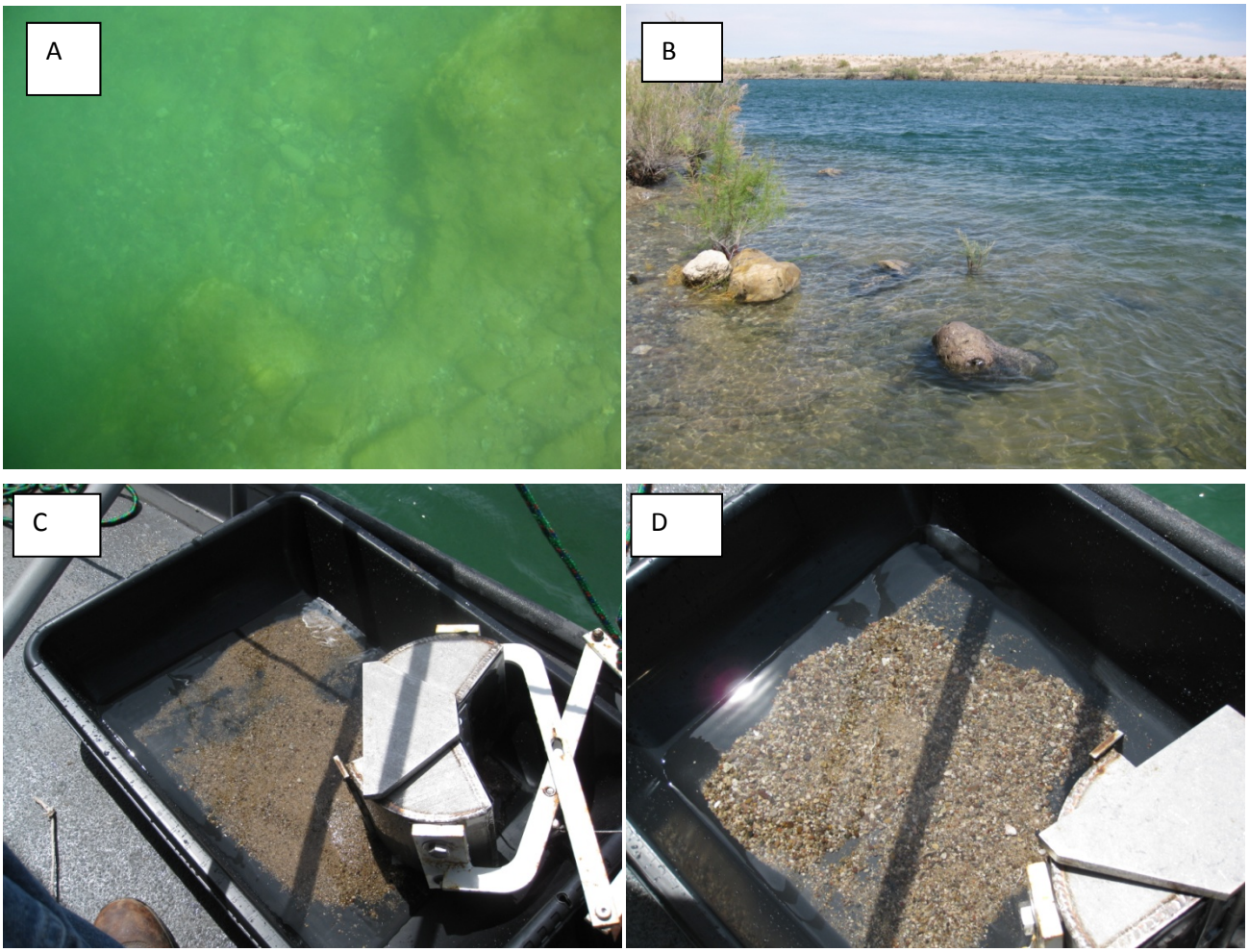


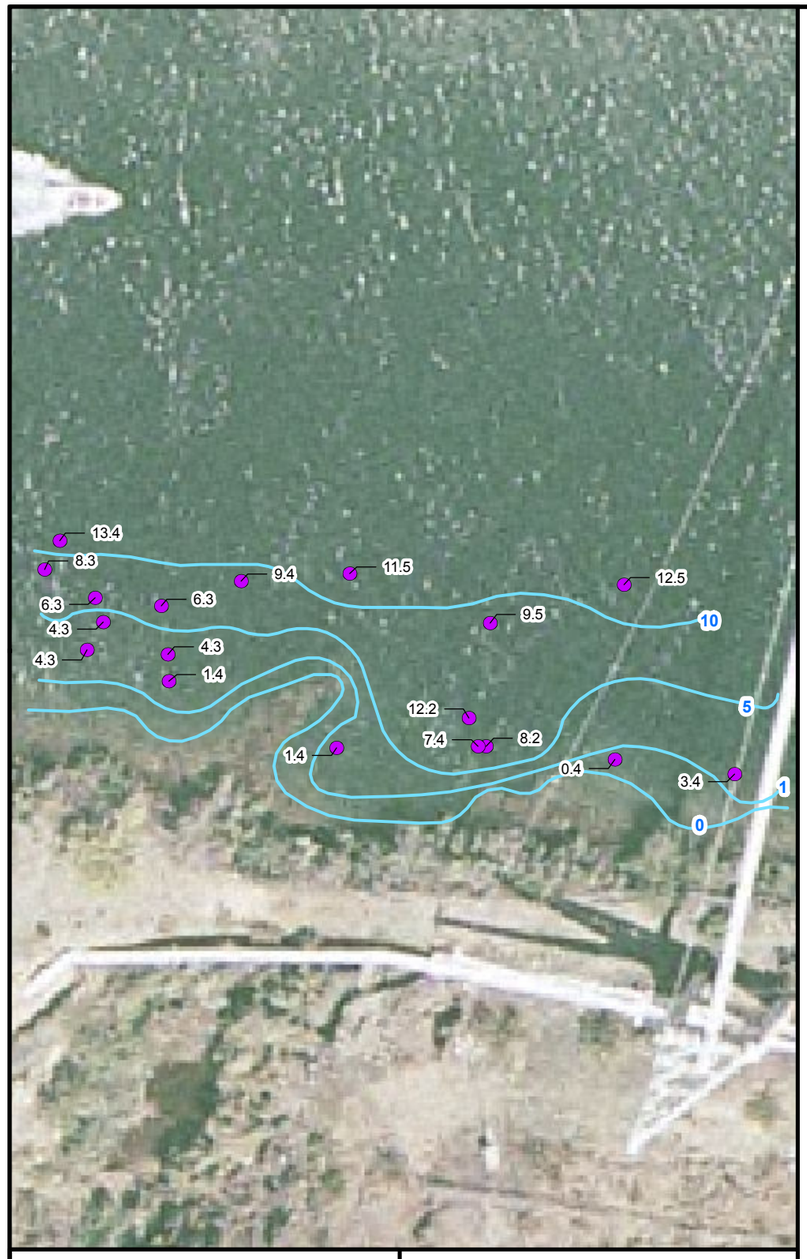
Figure 3. Site 4.

A: Bedrock grading to washed sand/gravel at about 5 feet depth, mid-site.

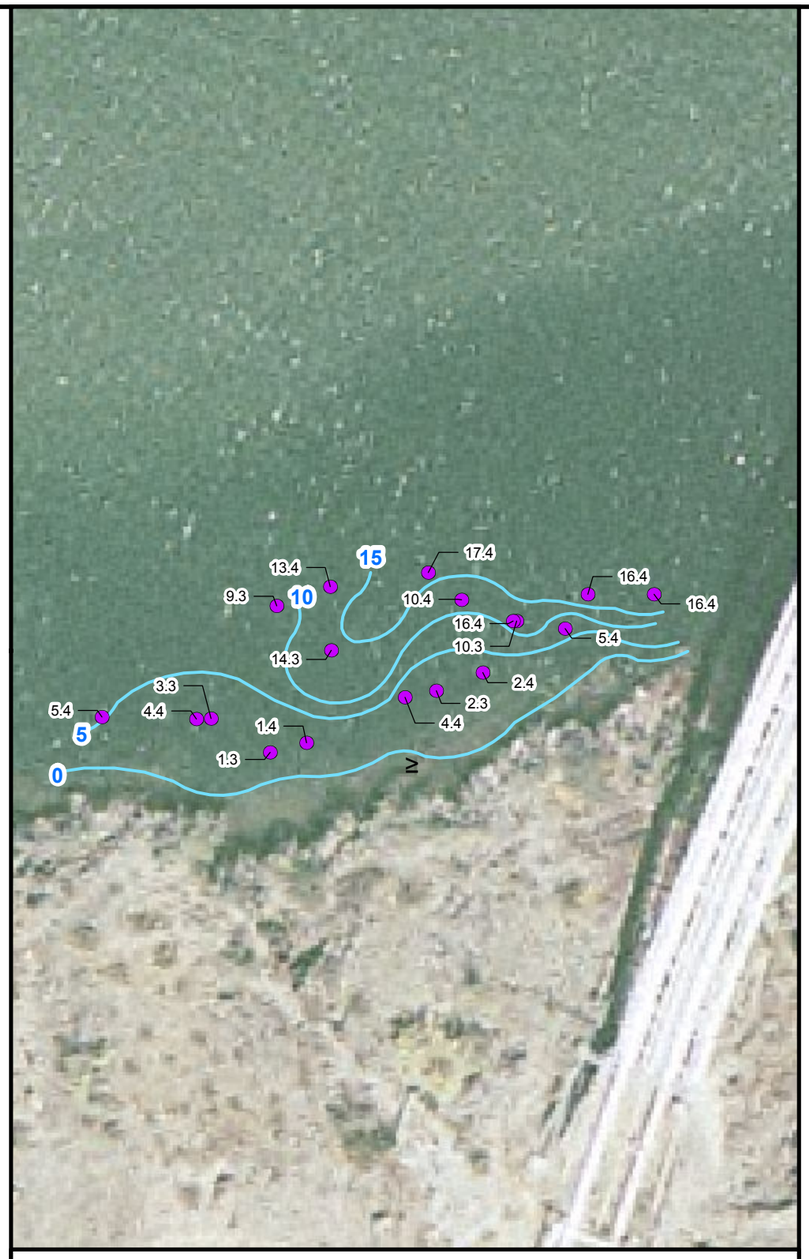
B: Shoreline view showing sand beach at downstream end.

C: Ponar dredge haul from 10+ feet depth showing clean sand substrate, upstream end of site.

D: Ponar dredge haul from 10+ feet depth showing clean sand, small gravel, and clam shell substrates, mid-site.

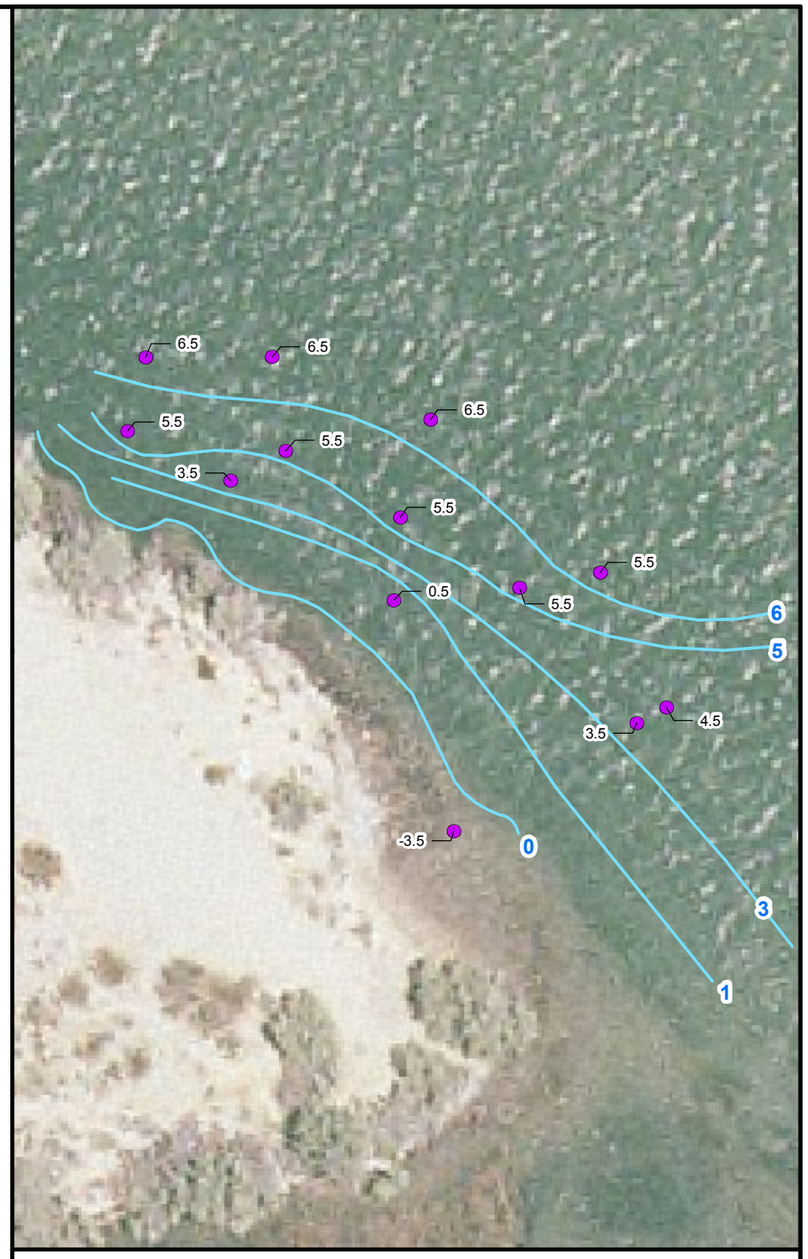


Potential River Intake Area 2



Potential River Intake Area 1

Potential River Intake Area 3



Potential River Intake Area 4

LEGEND

River Depth Measurement Point

River Depth Contour Line

N

0 37.5 75 150 Feet

Note:
Depth contours (feet) at each of the four sites using the low water value of 450.4 AMSL as water surface elevation; 6.6 feet lower than the day of the survey on April 4, 2012. Note that this choice of surface elevation results in some negative depths near the shoreline

FIGURE 4
RIVER DEPTH CONTOURS
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

CH2MHILL

Path: D:\Projects\Topock\MapFiles\2012\CMS\FishHabitat\Bathemetry.mxd Date Saved: 5/17/2012 11:46:04 AM

Appendix A7
Topock Groundwater Remediation Project
Ethnobotany Survey Report
(*on CD-ROM only*)

Topock Project Executive Abstract

Document Title:

Topock Groundwater Remediation Project Ethnobotany Survey Report

Submitting Agency: DTSC

Final Document? ☒ Yes ☐ No

Date of Document: March 29, 2013

Who Created this Document?: (i.e. PG&E, DTSC, DOI, Other) – PG&E

Priority Status: ☐ **HIGH** ☐ **MED** ☒ **LOW**
Is this time critical? ☐ Yes ☒ No

Type of Document:
☐ Draft ☒ Report ☐ Letter ☐ Memo

☐ Other / Explain:

Action Required:
☒ Information Only ☐ Review & Comment
Return to: _____

By Date:_____
☐ Other / Explain:

What does this information pertain to?
☐ Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA)/Preliminary Assessment (PA)
☐ RCRA Facility Investigation (RFI)/Remedial Investigation (RI) (including Risk Assessment)
☐ Corrective Measures Study (CMS)/Feasibility Study (FS)
☐ Corrective Measures Implementation (CMI)/Remedial Action
☒ California Environmental Quality Act (CEQA)/Environmental Impact Report (EIR)
☐ Interim Measures
☐ Other / Explain:

Is this a Regulatory Requirement?
☒ Yes
☐ No
If no, why is the document needed?

What is the consequence of NOT doing this item? What is the consequence of DOING this item?
This report presents data collected during surveys made in compliance with the EIR mitigation measure, and CUL-1a-5. If this work was not performed, it would constitute a non-compliance with the EIR mitigation measure.

Other Justification/s:
☐ Permit ☐ Other / Explain:

Brief Summary of attached document:
The Final Environmental Impact Report (EIR) for the Topock Compressor Station Groundwater Remediation Project prescribes mitigation measures to reduce impacts associated with the groundwater cleanup. Mitigation measure CUL-1a-5 for cultural resource protection required a survey for ethnobotanically significant plants, with data for use in remedy design planning. In order to collect this data, a comprehensive floristic survey was performed with field effort in August and November 2011, and March 2012. This report presents the results of the ethnobotanically significant plant findings and detailed maps of plant occurrence, as well as appendices of photographs and GPS data. Thirteen plants from the EIR list of 54 potentially occurring, ethnobotanically significant plants (ethnoplants) were found in the surveys; 5 of these are trees, 3 are shrubs, and 5 are herbs in growth habit. Because the EIR list of potentially occurring ethnoplants was based on a large region including areas in Arizona with higher elevations and greater precipitation, the occurrence of 13 of the 54 ethnoplants at the Topock project area is not surprising. Avoidance and restoration plans for ethnobotanically significant plant communities are included. The results of the comprehensive Floristic survey that was performed in three mobilizations from August 2011 to March 2012 in order to collect this data are presented in a separate Floristic and Rare Plant Survey Report. The data presented with this report will be considered in the remedy design.

Written by: PG&E

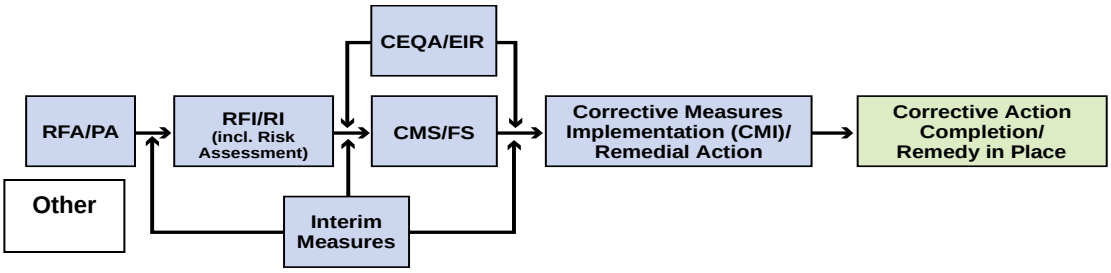
Recommendations:
This report is for your information only.

How is this information related to the Final Remedy or Regulatory Requirements:
This report presents data collected for use with the remedy design. The Ethnobotany Plant Survey collected data for compliance with EIR mitigation measure CUL-1a-5.

Other requirements of this information?
None.

Related Reports and Documents:

Click any boxes in the Regulatory Road Map (below) to be linked to the Documents Library on the DTSC Topock Web Site (www.dtsc-topock.com).



Legend
RFA/PA – RCRA Facility Assessment/Preliminary Assessment
RFI/RI – RCRA Facility Investigation/CERCLA Remedial Investigation (including Risk Assessment)
CMS/FS – RCRA Corrective Measure Study/CERCLA Feasibility Study
CEQA/EIR – California Environmental Quality Act/Environmental Impact Report

FINAL

Topock Groundwater Remediation Project Ethnobotany Survey Report

Prepared for

Pacific Gas and Electric Company

March 29, 2013

Prepared by:

Garcia and Associates (GANDA)

and

CH2M HILL

Contents

Tables

Figures

Appendices

Acronyms and Abbreviations

ADA	Arizona Department of Agriculture
BN&SF	Burlington Northern and Santa Fe
BLM	Bureau of Land Management
CCH	California Consortium of Herbaria
CDNPA	California Desert Native Plants Act
CEQA	California Environmental Quality Act
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CDFG	California Department of Fish and Game
CRPR	California Rare Plant Ranking
DTSC	California Department of Toxic Substance Control
EIR	Environmental Impact Report
ethnoplants	culturally significant plants
GPS	Global Positioning System
I-40	Interstate 40
PG&E	Pacific Gas and Electric Company
Project Area	PG&E Topock Groundwater Remediation Project Area
TCS	Topock Compressor Station
USFWS	U.S. Fish and Wildlife Service

SECTION 1

Introduction

Pacific Gas and Electric Company (PG&E) is implementing the final groundwater remedy to address chromium in groundwater near the PG&E Topock Compressor Station, located in eastern San Bernardino County 15 miles southeast of the city of Needles, California. The California Department of Toxic Substance Control (DTSC) is the state lead agency overseeing corrective actions at the compressor station. Pursuant to the California Environmental Quality Act (CEQA), DTSC (2011) prepared and certified an Environmental Impact Report (EIR) that evaluated and prescribed mitigation measures to lessen the potential environmental impacts of the final groundwater remedy. The location of the Compressor Station is indicated in Figure 1 and the Project Area is depicted in Figure 2. The EIR Mitigation Measure CUL-1a-5 requires PG&E to avoid, protect, and encourage the regeneration of the culturally significant plants listed in Appendix PLA of the EIR. The purpose of this report is to establish a comprehensive list of culturally significant plant species that occur in the PG&E Topock Groundwater Remediation Project Area (Project Area). These plants have played an important role in the lives of tribes, and it is therefore important to document their presence and distribution in the Project Area. The list of potential culturally significant plants or "ethnoplants" is derived from the Appendix PLA of the January 2011 EIR (DTSC, 2011) which in turn is derived principally from Castetter (1935) and Minnis (2000).

1.1 Project Area

The Topock Compressor Station (TCS) is located near the California and Arizona border in eastern San Bernardino County, approximately 12 miles southeast of the city of Needles, California (Figure 1). The town of Topock, Arizona is located approximately one-half mile to the east. Access to the compressor station is from the Park Moabi Road exit off of Interstate 40 (I-40). At Moabi Regional Park, the roadway connects to National Trails Highway, which extends eastward and then southward for approximately one mile along the Colorado River to the TCS.

1.2 Survey Area

The Survey Area encompasses the entire Project Area and totals approximately 780 acres. It varies in elevation from approximately 400 to 700 feet above sea level.[1] The survey team arbitrarily divided the Project Area into twelve segments (A—L). One of these, Segment K which contains new evaporation ponds in operational use by PG&E TCS, was excluded from the Survey Area after August and fall surveys were completed because this location is outside of the EIR project area. Of the remaining 11 segments, eight (A, B, C, D, E, H, I, and L) are located in San Bernardino County, California, and three (F, J, and G) are located in Mohave County, Arizona (Figure 2). Segments of the Project Area within California are primarily on land managed by the Bureau of Land Management (BLM) or U.S. Fish and Wildlife Service (USFWS); with the exception of portions of segments C and D, which are owned by the Fort Mojave Indian Tribe; and a portion of Segment H, which is owned by PG&E. On the Arizona side of the Colorado River, Segment F and most of Segment G are part of the USFWS Havasu National Wildlife Refuge, and land in Segment J and a portion of Segment G are on privately owned land.

[1] The Burlington Northern Santa Fe railroad and Interstate 40 rights-of-way are within the boundaries of the Project Area; however, they were not included in the Floristic Survey because the project is not anticipated to impact these right-of-way areas.

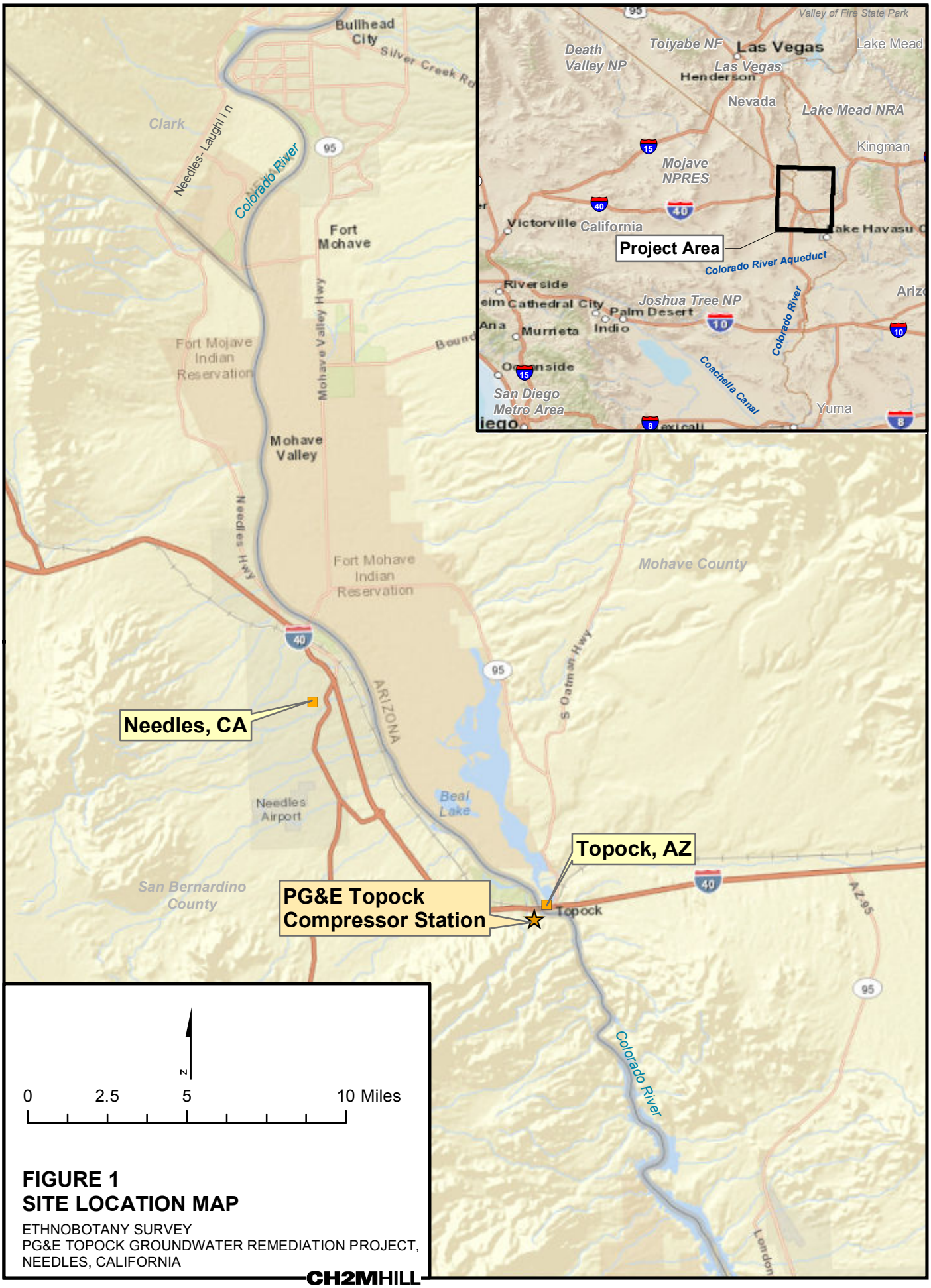
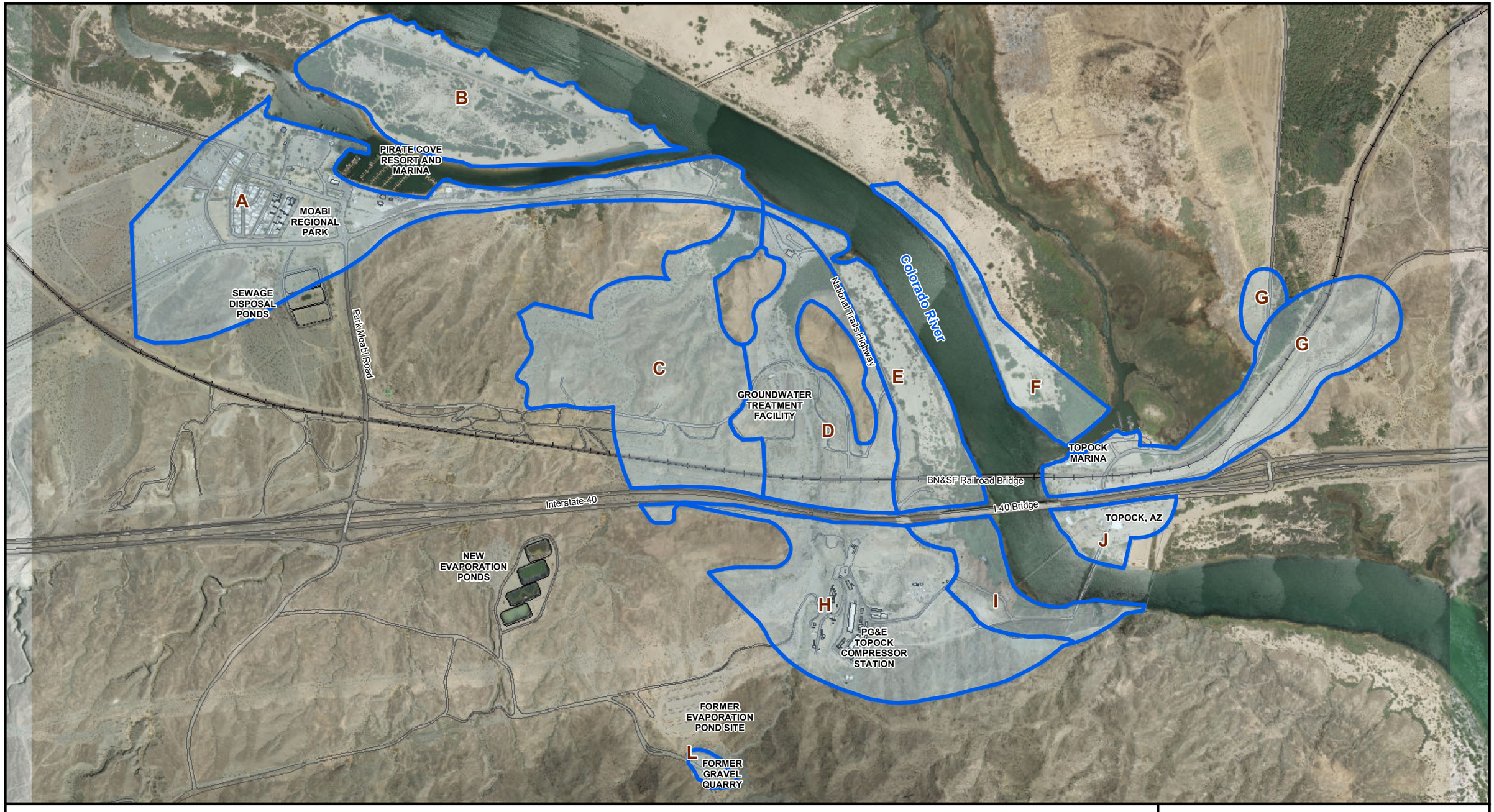


FIGURE 1
SITE LOCATION MAP

ETHNOBOTANY SURVEY
PG&E TOPOCK GROUNDWATER REMEDIATION PROJECT,
NEEDLES, CALIFORNIA

CH2MHILL

Path: D:\Projects\Topock\MapFiles\2013\Vegetation\EthnoBio\SiteLocation.mxd Date Saved: 3/27/2013 4:52:58 PM



LEGEND

Survey Segments

N

0 500 1,000 2,000 Feet

FIGURE 2
PROJECT AREA WITH BOTANICAL SURVEY SEGMENTS

ETHNOBOTANY SURVEY
PG&E TOPOCK GROUNDWATER REMEDIATION PROJECT,
NEEDLES, CALIFORNIA

CH2MHILL

D:\Projects\Topock\MapFiles\2011\CMS\BioSurveySegements

SECTION 2

Vegetation Communities of the Project Area

There are ten primary terrestrial plant community types, and three major wetland communities in the Project Area. The primary terrestrial plant community types are creosote bush scrub, tamarisk thickets, arrow weed thickets, blue palo verde woodlands, catclaw acacia thorn scrub, foothill palo verde scrub, allscale scrub, quailbush scrub, western honey mesquite bosque, and screwbean mesquite bosque (Sawyer et al. 2009). The primary wetland communities include California bulrush marshes, cattail marshes, and common reed marshes. Descriptions of these primary plant communities are provided in the following sections. A detailed vegetation map with additional community types found in the Project Area is provided in Figure 3.

2.1 Terrestrial Communities

2.1.1 Creosote Bush Scrub

The most common and widespread plant community in the Project Area is creosote bush scrub. This Vegetation type is characterized by widely-spaced creosote bush (*Larrea tridentata*) with associated species such as white bursage (*Ambrosia dumosa*), white ratany (*Krameria bicolor*), brittlebush (*Encelia farinosa*), beavertail cactus (*Opuntia basilaris* var*. basilaris*), and silver cholla (*Cylindropuntia echinocarpa*). Creosote brush scrub occurs throughout the dissected alluvial terraces in the Project Area (Appendix C, Plate 5, G-5).

2.1.2 Tamarisk Thicket

Tamarisk thicket is found primarily on the low sandy terraces adjacent to the Colorado River and Park Moabi Slough (Appendix C, Plate 3, E-1 and E-2). This vegetation type is also found near the terminus of the larger ephemeral washes associated with the dissected terraces south of the Colorado River (Appendix C, Plate 3, D-2). Vegetation is characterized by open to dense stands of the non-native and invasive salt cedar (*Tamarix ramosissima*). In many locations salt cedar trees and shrubs occur as monospecific stands; in other areas associated trees include athel (*Tamarix aphylla*), western honey mesquite (*Prosopis glandulosa* var. *torreyana*), screwbean mesquite (*Prosopis pubescens*), blue palo verde (*Parkinsonia florida*) and arrow weed (*Pluchea sericea*). Herbaceous vegetation is absent within dense thickets of salt cedar, but occurs in openings between such thickets where scattered individuals of fanleaf crincklemat (*Tiquilia plicata*), Spanish needle (*Palafoxia arida*) and *Cryptantha* spp. may be present.

2.1.3 Arrow Weed Thicket

Arrow weed thicket is also found on the low sandy terraces along the Colorado River and Park Moabi Slough (Appendix C, Plate 4, F-1). Arrow weed is the sole dominant shrub species occurring on the sandy terraces, with individuals widely scattered or aggregated into dense, nearly impenetrable stands. This type often inter-digitates with tamarisk thickets and mesquite bosque. Associated species include salt cedar, smoke tree (*Psorothamnus spinosus*), western honey mesquite, brittlebush, and broom baccharis (*Baccharis sarothroides*). Scattered herbaceous vegetation in the more open areas includes fanleaf crincklemat, Spanish needle, *Cryptantha* spp., and Mediterranean grass (*Schismus barbatus*).

2.1.4 Blue Palo Verde Woodland

Blue palo verde woodland is restricted to the edges and channel bottoms of the ephemeral washes in the dissected alluvial terraces that characterize the largest portion of the Project Area south of the Colorado River. Total vegetation cover is generally low, but species diversity is relatively high compared to the other vegetation types in the Project Area. Blue palo verde is the dominant tree with scattered individuals of salt cedar, athel, and smoke tree also present in some areas. Associated shrubs include catclaw acacia (*Senegalia greggi*), Anderson's desert- thorn (*Lycium andersonii*), brittlebush, sweetbush (*Bebbia juncea* var*. aspera*), cheesebush (*Ambrosia salsola*), climbing milkweed (*Funastrum hirtellum*), desert lavender (*Hyptis emoryi*), white bursage, white ratany, and creosote bush. Common herbaceous species include small-seeded spurge (*Chamaesyce polycarpa*), small-

flowered California poppy (*Eschscholzia minutiflora*), Emory rock daisy (*Perityle emoryi*), Spanish needle, and Arizona lupine (*Lupinus arizonicus*).

2.1.5 Catclaw Acacia Thorn Scrub

In the Project Area catclaw acacia thorn scrub is limited to the bottoms of moderate-sized ephemeral washes in the dissected terraces south of the National Trails Highway. This vegetation type is characterized by widely scattered shrubs dominated by catclaw acacia. Common associated species include Anderson's desert thorn, brittlebush, sweetbush, cheesebush, desert lavender, white bursage, white ratany and creosote bush. Herbaceous species include small-seeded spurge, Arizona lupine, and Spanish needle.

2.1.6 Foothill Palo Verde Scrub

Foothill palo verde scrub is restricted to a small area east of the compressor station along the slopes of the Chemehuevi Mountains (Appendix C, Plate 6, I-3). Vegetation in this area is characterized by scattered hillside palo verde (*Parkinsonia microphylla*). Associated species in this area include creosote bush, pygmy-cedar (*Peucephyllum schottii*), brittlebush, white rhatany, beavertail cactus, buckhorn cholla (*Cylindropuntia acanthocarpa*), California barrel cactus (*Ferocactus cylindraceus* var*. cylindraceus*), and inflated desert trumpet (*Eriogonum inflatum* var*. inflatum*).

2.1.7 Quailbush Scrub

Quailbush scrub is dominated by big saltbush (*Atriplex lentiformis*) and occurs on low-lying alkaline or saline soils (Sawyer et al. 2009). In the Project Area, it is most common in along Arizona County Road 10, formerly Route 66. On the north side of the road, it occurs on sandy saline/alkaline soils north of the Topock Marsh on the Havasu National Wildlife Refuge (Appendix C, Plate 4, G-3). The only common associate at this site is bush seepweed (*Suaeda moquinii*). Quailbush scrub also occurs in disturbed areas near the Colorado River around Park Moabi and on the edge of arrow weed thickets at the foot of the southernmost gas line bridge (Appendix C, Plate 6, J-1).

2.1.8 Allscale Scrub

Allscale scrub is dominated by cattle saltbush (*Atriplex polycarpa)* and is the most common alkaline tolerant shrubland alliance in the Project Area. In the Project Area, allscale scrub occupies a portion of a broad flat wash in south of the National Trails Highway (Appendix C, Plate 2, C-1) where it occurs with creosote bush. This alliance also occurs at other scattered locations along the National Trails Highway south of the Colorado River.

2.1.9 Western Honey Mesquite Bosque

In the Project Area western honey mesquite bosque is restricted to the low sandy terraces along the Colorado River. This community is dominated by western honey mesquite and often includes salt cedar and arrow weed as associates (Appendix C, Plate 4, F-2).

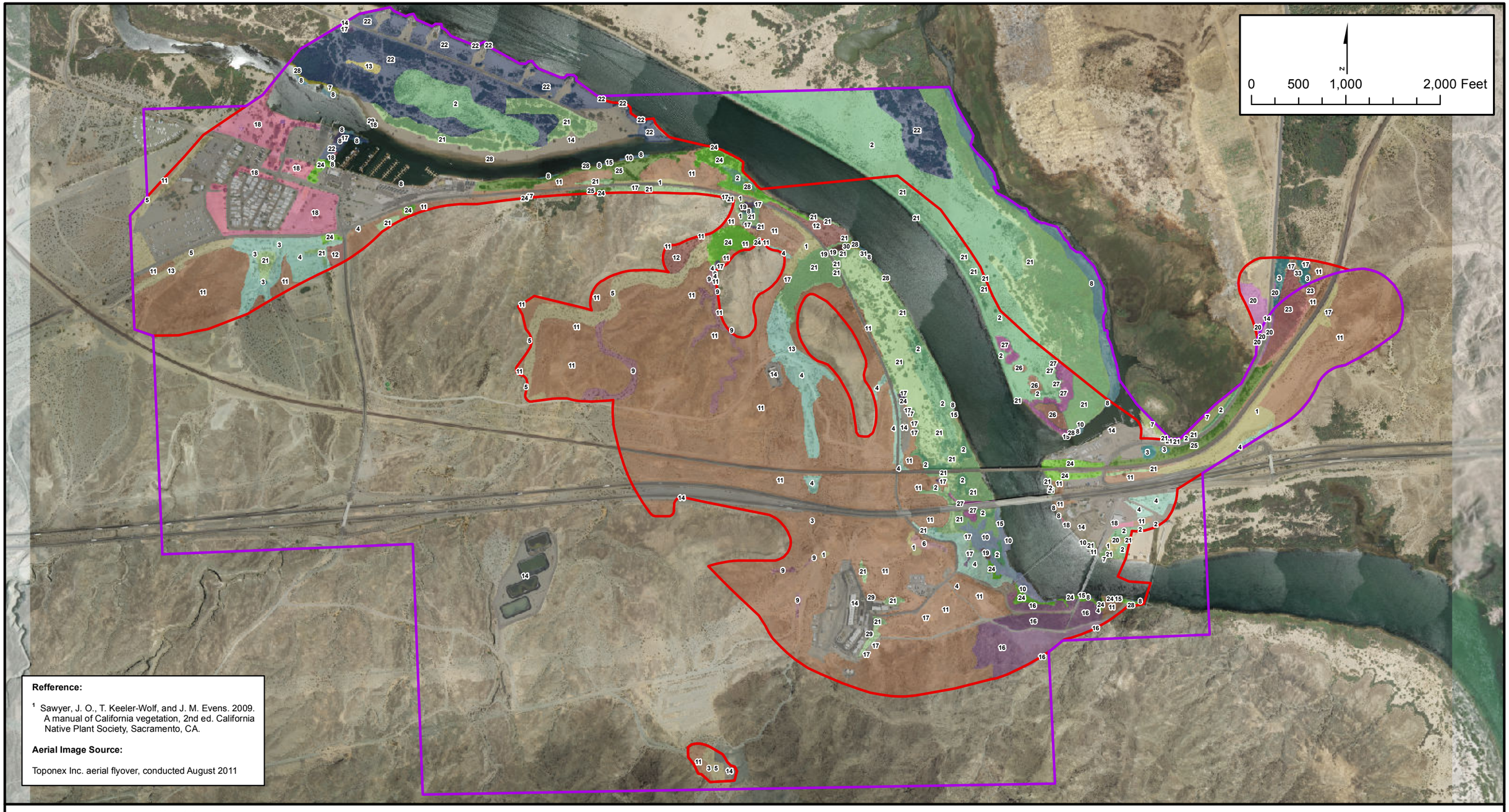
2.1.10 Screwbean Mesquite Bosque

Screwbean mesquite bosque is also restricted to the low sandy terraces along the Colorado River in the Project Area. This community is dominated by screwbean mesquite and is most abundant where the outlet from the Topock Marsh enters the Colorado River across from the Topock Marina (Appendix C, Plate 4, F-2). It is also a principal component of the screwbean/tamarisk thicket vegetation that covers the southern portion of the Park Moabi peninsula and is common near the Burlington Northern and Santa Fe (BN&SF) railroad bridge on the north side of the National Trails Highway.

2.2 Wetland Communities

Along the Colorado River and its inlets are patches of wetlands with various marsh plants forming three principal wetland communities, from the mostly submerged cattail (*Typha latifolia*) marshes and California bulrush (*Schoenoplectus californicus*) marshes, to the adjacent but somewhat drier common reed (*Phragmites australis*) marshes. The common reed marshes are concentrated and most extensive at the River's edge in south of the I-40 bridge (Appendix C, Plate 6, I-1), whereas the bulrush marshes occur in scattered locations along the Colorado

River and Park Moabi Slough throughout the Project Area. It is likely that the common reed species in the Project Area is an invasive, non-indigenous form of *Phragmites australis*.



Refference:

[1] Sawyer, J. O., T. Keeler-Wolf, and J. M. Evens. 2009. A manual of California vegetation, 2nd ed. California Native Plant Society, Sacramento, CA.

Aerial Image Source:

Toponex Inc. aerial flyover, conducted August 2011

LEGEND

- Area of Potential Effects (APE)
- Project Area

Vegetation Types

- Allscale Scrub (MCV2[1]: Allscale scrub) [1]
- Arrow Weed (MCV2: Arrow weed thickets)[2]
- Athel Tamarisk (MCV2: Tamarisk thickets)[3]
- Blue Paloverde (MCV2: Blue palo verde-Ironwood woodland)[4]
- Blue Paloverde/Catclaw Acacia (MCV2: Blue palo verde-Ironwood woodland)[5]
- Blue Paloverde/Honey Mesquite (MCV2: Blue palo verde woodland)[6]
- Broad-leaved Cattail (MCV2: Cattail marshes)[7]
- California Bullrush (MCV2: California bulrush marsh)[8]
- Catclaw Acacia (MCV2: Catclaw acacia thorn scrub)[9]
- Common Reed (MCV2: Common reed marshes)[10]
- Creosote bush scrub (MCV2:Creosote bush scrub)[11]
- Creosote Bush/Cattle Saltbush (MCV2: Allscale scrub)[12]
- Desert Smoke Tree (MCV2: Blue palo verde-Ironwood woodland)[13]
- Developed/Disturbed[14]
- Giant Reed (MCV2:Giant reed breaks)[15]
- Hillside Paloverde (MCV2: Foothill palo verde desert scrub)[16]
- Honey Mesquite (MCV2: Mesquite bosque)[17]
- Landscaped[18]
- Open Water [19]
- Quailbush Scrub (MCV2: Quailbush scrub)[20]
- Salt Cedar (MCV2: Tamarisk thickets)[21]
- Salt Cedar/Arrow Weed (MCV2: Tamarisk/Arrow weed thickets)[22]
- Salt Cedar/Athel Tamarisk (MCV2: Tamarisk thickets)[23]
- Salt Cedar/Honey Mesquite (MCV2: Tamarisk thickets/Mesquite bosque)[24]
- Salt Cedar/Honey Mesquite/Blue Paloverde (MCV2: Tamarisk thickets/Mesquite bosque/Blue palo verde-Ironwood woodland)[25]
- Salt Cedar/Screwbean Mesquite (MCV2: Tamarisk thickets/ Screwbean mesquite bosque)[26]
- Screwbean Mesquite (MCV2: Screwbean mesquite bosque)[27]
- Wetland [28]

FIGURE 3
VEGETATION COMMUNITIES IN PROJECT AREA
ETHNOBOTANY SURVEY
PG&E TOPOCK GROUNDWATER REMEDIATION PROJECT,
NEEDLES, CALIFORNIA

CH2MHILL

Path: D:\Projects\Topock\MapFiles\2013\Vegetation\EthnoBio\VegCommunities_11X17.mxd Date Saved: 3/27/2013 4:49:31 PM

SECTION 3

Survey Segments in the Project Area

Segment A: The western portion of Segment A north of National Trails Highway is developed and landscaped and is publicly owned (Moabi Regional Park) and privately (Pirates Cove Resort and Marina) owned. The developed portion of Moabi Regional Park includes offices, a mobile home park, RV storage lots, parking areas, camping areas, and a boat launch (Appendix C, Plate 1, A-4); whereas the Pirate's Cove portion includes the marina, a store, a restaurant, vacation housing, and paved and unpaved parking lots (Appendix C, Plate 1, A-5). The landscaped areas of Moabi Regional Park and Pirate's Cove are planted primarily with Mexican fan palm (*Washingtonia robusta*), but they also include California fan palm (*Washingtonia filifera*), honey mesquite, Fremont's cottonwood *(Populus fremontii*), eucalyptus (*Eucalyptus* spp.), and other native and exotic landscape plants (Appendix C, Plate 1, A-4). Undeveloped areas with natural vegetation are restricted primarily to areas to the south of National Trails Highway (Appendix C, Plate 1, A-1, A-2), with the exception of the sewage disposal ponds on the southwest corner of Park Moabi Road and National Trails Highway (Appendix C, Plate 1, A-3). On the south side of National Trails Highway, there is a broad dry wash that is partially channelized and includes blue palo verde, smoke tree, and creosote bush (Appendix C, Plate 1, A-1). This wash drains into a low-lying area covered with blue palo verde woodland, and tamarisk and athel thickets. The flat-topped hill to the south and west of the wash is covered with desert pavement on top and steep gravely slopes on the sides (Appendix C, Plate 1, A-2). This hill is with creosote bush scrub that is dominated almost exclusively by creosote bush and beavertail cactus.

The eastern portion of Segment A resembles a pan handle (Figure 2) and is covered primarily in creosote bush scrub on the prominent rocky hills. On the adjacent flats are small patches of a variety of other vegetation types including wetlands with California bulrush, common reed and giant reed (*Arundo donax*) along the edge of the cove. Away from the water's edge are tamarisk thickets, mixed honey mesquite/tamarisk thickets, screwbean mesquite thickets, arrow weed thickets, a cattail marsh, and creosote bush and allscale scrub. On the south side of National Trails Highway are hills covered in creosote bush scrub with the low areas characterized by tamarisk thickets or tamarisk/western honey mesquite thickets.

Segment B: This Segment is a peninsula that was partially created with dredge sands from the Colorado River. The central portion of the peninsula is dominated by arrow weed thickets (Appendix C, Plate 1, B-1) and tamarisk thickets with and fanleaf crinklemat, and open sandy areas with scattered individuals of honey mesquite, smoke tree, and creosote bush. The river's edge is mostly disturbed with a series of RV camping pads (Appendix C, Plate 2, B-2) and restrooms. Landscape plantings in this area include Fremont's cottonwood, eucalyptus, and athel. On the cove side is a small wetland area dominated by California bulrush, cattail, geniculate spike rush (*Eleocharis geniculata*), rough-glume bushy blue stem (*Andropogon glomeratus* ssp. *scabriglumis*) and other wetland plants. The majority of the cove side is characterized by a cleared and maintained beach (Appendix C, Plate 2, B-3).

Segment C: This Segment consists of alluvial terraces dissected by small natural drainage channels that converge on a single broad sandy wash. The wash is occupied primarily by blue palo verde woodland with catclaw acacia scrub, and an area of creosote bush mixed with cattle salt bush (Appendix C, Plate 2, C-1, C-2, C-3). There is also a large area containing tamarisk thickets near the National Trails Highway. The surrounding rocky hills are covered with creosote bush scrub dominated by creosote bush and white bursage. The tops of the hills are mostly flat and rocky with desert pavement.

Segment D: This Segment is similar to Segment C and dominated by one major wash system, (Bat Cave Wash). Most of this wash is dominated by blue palo verde woodland with occasional smoke trees (Appendix C, Plate 3, D-1), but it ends in an extensive tamarisk and mesquite bosque thicket (Appendix C, Plate 3, D-2) before passing under the road and emptying into the Colorado River (Appendix C, Plate 3, E-3).

Segment E: This Segment is mostly a sandy flood plain extending northward from the I-40 bridge to just beyond the outlet for Bat Cave Wash into the Colorado River. The sandy nature of the flood plain is due to dredge sands deposited during the channelization of the Colorado River. The major vegetation types in this Segment are arrow

weed and tamarisk thickets (Appendix C, Plate 3, E-1 and E-2). There are also some rocky upland slopes dominated by creosote bush scrub, with scattered individuals of blue palo verde and honey mesquite extending up to the National Trails Highway along the western edge of the Segment. There is also a small area of creosote bush scrub with a narrow strip of tamarisk thickets on the northwest of the Bat Cave Wash inlet (Appendix C, Plate 3, E-3 and E-4).

Segment F: This Segment is in Arizona, directly across the Colorado River from Segment E. Similar to Segment E, it consists mainly of dredge sands dominated by arrow weed thickets (Appendix C, Plate 4, F-1), tamarisk thickets or tamarisk thickets mixed with athel or screwbean mesquite. However, unlike Segment E, there are no areas of upland rocky hills with creosote bush scrub vegetation. Instead, this Segment has a lowland area at its southern tip that includes screwbean mesquite and tamarisk thickets, as well as a small wetland along the southern edge across from the Topock Marina (Appendix C, Plate 4, F-2). This wetland is dominated by California bulrush, common reed, and sand-bar willow (*Salix exigua*), with some marsh fleabane (*Pluchea odorata*), geniculate spikerush and other wetland species (Appendix C, Plate 4, F-3).

Segment G: This Segment in Arizona is bisected by the BN&SF railroad tracks. On the north side of the tracks at the western end is the Topock Marina with a mobile home park and associated parking areas. On the northwest side of the road at the eastern end is a small portion of the Topock marsh that is dominated by California bulrush (Appendix C, Plate 4, G-1). Between the road and the tracks is a strip of tamarisk/honey mesquite/blue palo verde thicket that grades into a denser stand of salt cedar as one progresses northeastward (Appendix C, Plate 4, G-2). Further along County Road 10 (formerly Route 66), there is a sandy alkaline/saline area dominated by big saltbush with scattered shrubs of bush seepweed (Appendix C, Plate 4, G-3). There is also a section of big saltbush scrub on the southeast side of the road. The largest portion of Segment G, however, consists of upland hills dominated by creosote bush scrub in the northeast portion of the Segment (Appendix C, Plate 5, G-5). Most of this area is accessed from a gravel road that goes to a small PG&E facility. The western part of this area south of the railroad tracks is sandy and flat and although disturbed by roads at its western end, is relatively rich in annuals and allscale scrub at the eastern end.

Segment H: This Segment is botanically interesting and diverse because it encompasses two areas of different geologic history that profoundly influence soils and vegetation (Appendix C, Plate 5, H-3). The northern two-thirds of the Segment consist of alluvial terraces primarily of tertiary origin, whereas the southern one-third consists of pre-tertiary metamorphic/igneous bedrock that forms the northernmost extension of the Chemehuevi Mountains. The TCS, its auxiliary structures and landscaping, are built on the alluvial terraces. The slopes around and just below the TCS are disturbed, highly eroded and mostly devoid of natural vegetation (Appendix C, Plate 5, H 1). Segment H also includes part of Bat Cave Wash, a major dry wash system that starts in Segment L and finishes in Segment E (Appendix C, Plate 5, H-2). The rocky north-facing slopes composed of metadiorite, gneiss, and granitic rocks provide a rich substrate for succulents, including California barrel cactus, buckhorn cholla, and corkseed mammillaria (*Mammillaria tetrancistra*) (Appendix C, Plate 5, H-4). These rocky slopes also provide habitat for hillside palo verde, and Pima rhatany (*Krameria erecta*); species that occur only on this rock formation. Two vegetatively similar species of *Asclepias* (*A. subulata* and *A. albicans*) that occur in this Segment, as do two similar species of *Krameria* (*K. bicolor* and *K. erecta*), and two similar species of *Parkinsonia* (*P. florida* and *P. microphylla* and possible hybrids) (Appendix D, Plate 1).

Segment I: Segment I runs along the Colorado River from the I-40 bridge in the north to the southernmost gas transmission line bridge in the south (Appendix C, Plate 6, I-2 and I-3). This Segment is similar to Segment H because it includes both the pre-tertiary bedrock of the Chemehuevi Mountains and the more recent tertiary alluvial terraces common in the more northerly Survey Segments (e.g., Segments A, C, D, G and E). Unlike Segment H, however, it includes a distinctive reddish Miocene conglomerate bedrock that is exposed below the Route 66 sign, as well as wetlands along the edge of the Colorado River that sit on recent (Quaternary) alluvial deposits (Appendix C, Plate 6, I-1). The Miocene conglomerate in this area includes the only known location for rock nettle (*Eucnide urens*) within the Project Area.

Segment J: This Segment is a small one that is developed and landscaped with private residences set back on the hills overlooking the Colorado River in Arizona. The slopes above the river are variously terraced and landscaped, yet there are a few patches of native vegetation that remain near the river's edge. These patches include common reed marsh, arrow weed thickets, quailbush scrub (Appendix C, Plate 6, J-1), and tamarisk thickets, as well as California bulrush and cattail marshes. There is also landscaping with Mexican fan palms and a variety of other cultivated plants on the river's edge (Appendix C, Plate 6, J-2). Segment J contains a small area of partially degraded slopes above a wash at the east end of the Segment that is accessed from a road that drops down to the south from the frontage road next to I-40. These slopes are characterized by degraded creosote bush scrub, while the wash has remnants of blue palo verde woodland.

Segment L. This Segment is located next to a quarry site in a small valley approximately 0.3 miles southwest of the compressor station and consists mainly of a flat, but gently sloping (to the northeast) dry wash which is a continuation of the Bat Cave Wash drainage system. The wash is characterized by scattered blue palo verde and catclaw acacia, whereas the surrounding hills are covered with creosote bush scrub vegetation. The eastern portion of Segment L is covered by rocks from the gravel quarry and is devoid of vegetation. These rocks have been taken from the pre-tertiary bedrock that forms the northern extension of the Chemehuevi Mountains (Appendix C, Plate 6, L-1).

SECTION 4

Methodology

4.1 Research and Literature Review

Pursuant to Mitigation Measure CUL-1a-5,

"Should any indigenous plants of traditional cultural significance and listed in Appendix PLA of this FEIR be identified within the project area, PG&E shall avoid, protect, and encourage the natural regeneration of the identified plants when developing the remediation design, final restoration plan, and IM-3 decommission plan…."

The purpose of the ethnobotany survey is to comply with Mitigation Measure CUL-1a-5, obtain a comprehensive inventory of plant species that occur in the Project Area, and to ensure that sensitive plants (i.e., special-status and culturally significant plant species as described below) are detected, mapped and recorded. Therefore, prior to conducting the survey, research was conducted to: 1) determine the appropriate times to conduct surveys to maximize the potential for identifying plants that occur in the East Mojave Desert, and 2) identify special-status and culturally significant plant species with a potential to occur in the Project Area.

Research included consideration of rainfall patterns in the East Mojave Desert, and specifically, the potential timing of fall and spring surveys. Rainfall in the East Mojave Desert exhibits a bimodal pattern, with most rainfall occurring in the winter and a significant proportion of annual rainfall occurring in the late-summer. To ensure the proper timing for both fall and spring surveys, a regional botanical expert and director of the University of California Riverside, Granite Mountains Research Center, Jim Andre, Ph.D., was contracted to review survey planning and timing. Dr. Andre was also consulted on the target plant lists, and joined the field survey team for a pre-survey reconnaissance and orientation towards locally occurring special-status plants. Based on late summer and early fall rainfall in 2011, it was decided to conduct a fall survey at the beginning of November. The spring survey 2012 was planned for mid-March based on preliminary observations made during a wetland delineation conducted by ecologist and botanist Russell Huddleston/CH2M HILL and senior botanist Kim Steiner/Garcia and Associates in mid-February and in consultation with Dr. Andre. Generally, the most productive timing for a spring survey in this area is mid- to late- March (Jim Andre, pers. comm.) and 2012 proved to fit this pattern. In some cases later than normal rains (e.g., February or March) can stimulate later than normal flowering and warrant a late spring survey. However in 2012, significant rainfall occurred too late to warrant an additional late spring survey (Jim Andre, pers. comm.).

4.2 Culturally Significant Plants

A plant species was considered culturally significant if it occurred on the list of Colorado River Indian Ethnobotany in the Appendix PLA in the EIR (DTSC, 2011).

Each species on the list of Colorado River Indian Ethnobotany in the Appendix PLA of the EIR was carefully considered with respect to potential to occur in the Project Area. The potential to occur in the Project Area or within 10 miles of the Project Area was based on the plant's known distribution, its elevation range and its habitat preference. A species was determined to have potential to occur within the Project Area if its known or expected geographic range included the Project Area or vicinity, and if its known or expected habitat was found within or adjacent to the Project Area.

The list of culturally significant plants was also cross checked against special-status plant species listed in the California Native Plant Society (CNPS) Inventory (CNPS,2012), the California Natural Diversity Database (CNDDB, 2012) RareFind3 database , the list of protected desert plants in the California Desert Native Plants Act (CDNPA, 1981), the Arizona rare plant field guide (Arizona Rare Plant Committee, 2001), the Arizona Department of Agriculture (ADA, 2012), the BLM special status plant list (BLM, 2011), and the Federal list of endangered plants (USFWS, 2011), in order to determine whether these culturally significant plants (ethnoplants) had additional legislated status (i.e., special-status) either federally, or by the states of California or Arizona. Each ethnoplant

species was searched for in the Jepson Online Interchange (2011), the database of the Consortium of California Herbaria (CCH, 2011), and in the Southwest Environmental Information Network (SEINet, 2011) to determine its distribution, habitat, and potential to occur in the Project Area.

In Appendix PLA of the EIR, staghorn cholla is listed as *Opuntia echinocarpa* (= *Cylindropuntia echinocarpa*), however, according to the Jepson Online Interchange (2011); the name staghorn cholla is not associated with this species. Instead, it notes that this common name has been associated with a variety of cholla species. CalFlora (2012) lists staghorn cholla as a common name for *C. echinocarpa*, but only as a less preferred secondary name. Searches of the common name staghorn cholla indicate that this name is most commonly associated with *Opuntia* (*Cylindropuntia*) *versicolor*, a species that is common in Arizona, but does not occur in California. Its succulent fruits have been recorded as an important food source for the indigenous tribes in Arizona (Castetter 1935). *O. echinocarpa*, alternatively, has a dry fruit that is not commonly eaten and this species is not mentioned as a food source of indigenous tribes by Castetter (1935). Therefore, it was concluded that an error was made in associating staghorn cholla with *Opuntia echinocarpa* in the list of culturally significant plants that is in the Appendix PLA. This error was corrected in Appendix A of this report.

Appendix PLA in the EIR lists 54 ethnoplants that presumably have the potential to occur in the Project Area. These species, along with data on flowering period, conservation status, habitat preferences, geographic distribution, and known locations in the vicinity of the Project Area, are presented in Appendix A.

4.3 Field Surveys

Transect-based protocol-level floristic surveys that conform to the guidelines of the California Department of Fish and Game[2] (CDFG, 2009), the USFWS (2000), and the CNPS (2001) were conducted in the fall (Oct 31-Nov 8, 2011) and in the spring (Mar 12-20, 2012). The fall survey was conducted in late October/early November 2011, because late summer rainfall in amounts sufficient to trigger germination and flowering of late-blooming species had been observed in the area (J. Andre, personal comm.). This late-season 2011 survey was targeted to areas within the Project Area that exhibited germination and flowering. These areas were decided upon after an initial field reconnaissance and in consultation with Dr. Andre. The main goal for the ethnobotany surveys was to generate a comprehensive list of all plant species that occur in the Project Area and to census, map, photograph, and record habitat data for the culturally significant species listed in Appendix A. Additional floristic surveys conducted for other purposes also contributed some data to this report: the Mature Plants survey completed August 18-25, 2011 (CH2M HILL 2012) and the limited vegetation surveys conducted during the wetlands survey (February 13-17, 2012).

The surveys used for determining the presence of culturally significant species were floristic and comprehensive in nature, meaning that all plants found were identified. Species that were not immediately recognizable to the surveyors were identified using the Jepson Manual (Baldwin et al., 2012) or the Jepson Online Interchange (2011), to the level necessary to determine whether they had ethnobotanical significance or special-status significance (i.e., CNPS list 1-4, listed by the CNDPA, considered sensitive by the BLM, listed by the ADA or by the Arizona Rare Plant Committee 2001).

The ability of surveyors to detect and identify plants efficiently and accurately in the field was enhanced by a field review of the common plant species in the Project Area prior to beginning the surveys. Surveyors also reviewed photographs of targeted plants on the Jepson Online Interchange (2011) prior to the floristic surveys. These materials supplemented the Jepson Manual (Baldwin et al., 2012), the primary resource used to identify culturally significant plants.

Trimble GeoXT and GeoXH global positioning systems (GPS) units with sub-meter accuracy were used to collect data on culturally significant plant species. The GPS units were equipped with data files for navigation and with

[2] California Department of Fish and Game has changed its name to the California Department of Fish and Wildlife, effective January 1, 2013

data dictionaries for data collection. Transect lines, spaced at 50 feet, were programmed into the GPS units and walked by surveyors. Surveyors walked meandering routes along each transect to ensure coverage of the entire Project Area, unless vegetation density or steep slopes precluded surveyors from accessing certain areas. To ensure that inaccessible areas were surveyed to the extent feasible, surveyors identified species by making observations from the margins of such areas or from nearby vantage points. In areas with dense vegetation, the lack of sunlight and/or high soil salinity invariably resulted in areas devoid of understory species.

A comprehensive list of all plant species observed was compiled for the Project Area during the surveys (Appendix B). Nomenclature for scientific names follows The Jepson Manual (Baldwin et al., 2012) or the Jepson Online Interchange (2011).

SECTION 5

Results

5.1 Survey Summaries

Mature plant and vegetation mapping (Aug 18-26, 2011). A preliminary checklist of 84 species was compiled by Kim Steiner and CH2M HILL ecologist Morgan King while mapping mature plants and vegetation, Due to the seasonal timing of these surveys most of the plants recorded were shrubs or trees and many of these were leafless, or in a vegetative condition [e.g., buckhorn cholla, blue palo verde, sweet bush, white bursage, among others.]. The relatively few perennial herbs encountered were mainly in wetland areas (e.g., marsh fleabane or catchfly gentian (*Eustoma exaltatum*). A few summer/fall annuals were already present and just starting to flower such as spiderling (*Boerhavia coccinea*), California kallstroemia (*Kallstroemia californica*), and chinch-weed (*Pectis papposa* var*. papposa*), but the few spring-flowering annuals such as chia (*Salvia columbariae)* and rigid spineflower (*Chorizanthe rigida*) were present only as dried skeletons.

Fall plant survey (Oct 31-Nov 8, 2011). The fall plant survey was conducted by Kim Steiner and Russell Huddleston. An additional 44 plant species, not detected during the August survey, were recorded during this survey. These included a variety of fall annuals including the grasses six-weeks three awn (*Aristida adsensionis*), needle gamma (*Bouteloua aristidoides*), and six weeks gamma (*Bouteloua barbata* ssp*. barbata*) as well as members of the four 'o clock family including sand verbena (*Abronia villosa*), trailing windmills (*Allionia incarnata* var*. incarnata*), and Wright's spiderling (*Boerhavia wrightii*). Some of these species can flower at almost any time, given adequate rainfall, but others flower only in fall and after late summer germination.

Wetland delineation (Feb 13-17, 2012). During a wetland delineation of the Project Area by Russell Huddleston and Kim Steiner, notes on spring-flowering annual species were begun. Many of the spring annuals were already in flower including *Cryptantha* spp*.,* desert sunflower (*Geraea canescens*)*,* combseeds (*Pectocarya* spp.)*, Phacelia* spp*.,* suncups (*Chylismia* and *Eremothera* spp.)*,* whereas some were just beginning to flower *e.g., Chaenactis* subsp*.,* white tackstem (*Calycoseris wrightii*), and gravel-ghost (*Atrichoseris platyphylla*). Other plant species *e.g.,* pedicillate phacelia (*Phacelia pedicillata*), bristly calico (*Langloisia setosissima* ssp. *setosissima*), and mousetail suncup (*Chylismia arenaria* subsp. *arenaria*) had not yet started flowering*.* Many of the trees (e.g., *Parkinsonia*), shrubs, and herbaceous perennials were not yet in flower, but most of these had already been identified during previous surveys. Notable new additions to the species list included desert lily (*Hesperocallis undulata*) in segment G, and rock nettle in segment I. The existence and location of the hybrid between brittle and button brittlebush (*Encelia frutescens*) on the flood plain in Segment E was also confirmed. In total, 32 species were added to the checklist, 27 of which were annual species that had not previously been detected during the surveys. Many of these were in early stages of flowering, but others were approaching their flowering peak.

Spring survey (March 12-20, 2012). This survey was conducted by Kim Steiner and Russell Huddleston. No significant rainfall occurred in the project area between the wetland delineation and the beginning of the spring survey. Although occurring only about 3-4 weeks after the wetland survey, the Project Area looked considerably drier and some species detected during the early survey were no longer flowering *e.g*., Bigelow's monkey flower (*Mimulus bigelovii*) and wedge-leaved draba (*Draba cuneifolia*) or were less abundant. Other species that had not been in flower earlier (*e.g*., mousetail suncup) were in full flower during this survey. This survey added an additional 33 species to the checklist for the Project Area for a total count of 193 species (Appendix B).

Of the 54 plant species listed in Appendix PLA (Colorado River Culture Ethnobotany), only about one fourth (13 of 53) were found to occur in the Project Area (Table 1; Appendices A and D). One reason for this may be that the original source of the list is a book about ethnobotanical plants in the American Southwest, with an emphasis on plants from Arizona, New Mexico, and northern Mexico (Castetter 1935). Many of the plants discussed by Castetter (1935) are from upland areas at higher elevations in northern or eastern Arizona and do not occur in California or lowland western Arizona. The Appendix PLA list also includes a variety of cultivated food plants including beans, crookneck squash, field pumpkin, tepary beans, Sauwi, and Indian woodoats that would not be

expected in uncultivated areas of vegetation such as those in the Project Area. Among the 13 species found on the Appendix PLA list are a variety of trees, shrubs and herbs.

Trees: Five of the nine tree species listed in the PLA were found in the Project Area (Table 1). These included two palo verde species (Hillside and Blue, two mesquites (western honey and screwbean) and Goodding's willow (*Salix gooddingii*). Of the species that were not found in the Project Area, honey mesquite (*Prosopis glandulosa* var. *glandulosa*) doesn't occur in Arizona or California and pinyon pine (*Pinus monophylla*) occurs at higher elevations than those present in the Project Area. The other two species, ironwood (*Olneya tessota*) and velvet mesquite (*Prosopis velutina*), could conceivably occur in the Project Area, but have not been found there. All species that had potential to occur in the Project Area are easily recognizable and would not have been missed during the surveys.

Shrubs: Three of the nineteen culturally significant shrubs (big saltbush, cattle saltbush and desert tobacco (*Nicotiana obtusifolia*) listed in the Appendix PLA occur in the Project Area. Of the remaining listed shrubs, 10 have distributional ranges far removed from the Project Area, three (Parry's Agave [*Agave parryi*], scrub live oak [*Quercus turbinella*] and candy barrel cactus [*Ferocactus wislizeni*]) are associated with habitats that do not occur in the Project Area and three, Mojave yucca (*Yucca schidigera*), mule's fat (*Baccharis salicifolia*), and iodine bush (*Allenrolfea occidentalis*) are absent despite the presence of suitable habitats. These latter species, if present, would have been found, because they are conspicuous and readily identifiable.

Herbs: Five of the 26 herbs listed in the Appendix PLA were found in the Project Area. Eighteen species occur well outside of the Project Area or occur in habitats that do not occur in the Project Area. The remaining three species, fragrant flatsedge (*Cyperus odoratus*), Jimson weed (*Datura wrightii*), and common sunflower (*Helianthus annus*) are annuals that could occur in the Project Area, but have not been found. The latter two species are common and conspicuous roadside weeds that normally come up even under dry conditions. Flatsedge, however, occurs in wet habitats. It flowers in late summer and could have potentially been missed during the only preliminary reconnaissance in August of 2011. If present, one would expect to find it in the wetlands of Segments A, B, or F.

TABLE 1
Plants from the Ethnobotany List in the Appendix PLA Found in the Project Area

Common Name	Scientific Name	Flowering Period
Trees		
Blue palo verde	*Parkinsonia florida*	Apr–May
Hillside (Yellow) palo verde	*Parkinsonia microphylla*	Apr-May
Goodding's willow	*Salix gooddingii*	Mar–Apr
Screwbean mesquite	*Prosopis pubescens*	Apr–Sep
Western honey mesquite	*Prosopis glandulosa* var. *torreyana*	Apr–Aug
Shrubs		
Big Saltbush	*Atriplex lentiformis*	Jul--Oct
Cattle saltbush	*Atriplex polycarpa*	Jul–Oct
Desert tobacco	*Nicotiana obtusifolia* var. *obtusifolia*	Mar–Jun
Herbs		
Broadleaf cattail	*Typha latifolia*	Jun–Jul
Golden suncup	*Chylismia brevipes* subsp. *brevipes*	Mar-May
Chia	*Salvia columbariae*	Mar–Jun
Common Reed	*Phragmites australis*	Jul--Nov
Desert lily	*Hesperocallis undulata*	Mar–May

5.2 Occurrence of Culturally Significant Plants in the Project Area

The distributions of all ethnoplants in the Project Area are mapped in Figures 4 and 5 based either on point, polygon, or survey segment data. Tree species distributions, as well as distributions of the shrubs desert tobacco and desert lily, are based on GPS point data. Distributions of the two saltbush shrubs, as well as cattail and common reed, are based on polygon data, whereas the distributions of annual species including golden suncup and chia are based on segment data from the Vascular Plant Checklist (Appendix B). Ethnoplants varied in their distribution across the Survey Segments in the Project Area. The average ethnoplant occurred in four different Survey Segments. Species such as blue palo verde, western honey mesquite, cattle saltbush, and common reed were widespread and found in up to 72% (i.e., 8 of 11) of the Survey Segments. At the other extreme were species occurring in a single Survey Segment. Desert lily, for example, was observed as a single plant in Survey Segment G. Location data for culturally significant plants are presented in Appendix F.

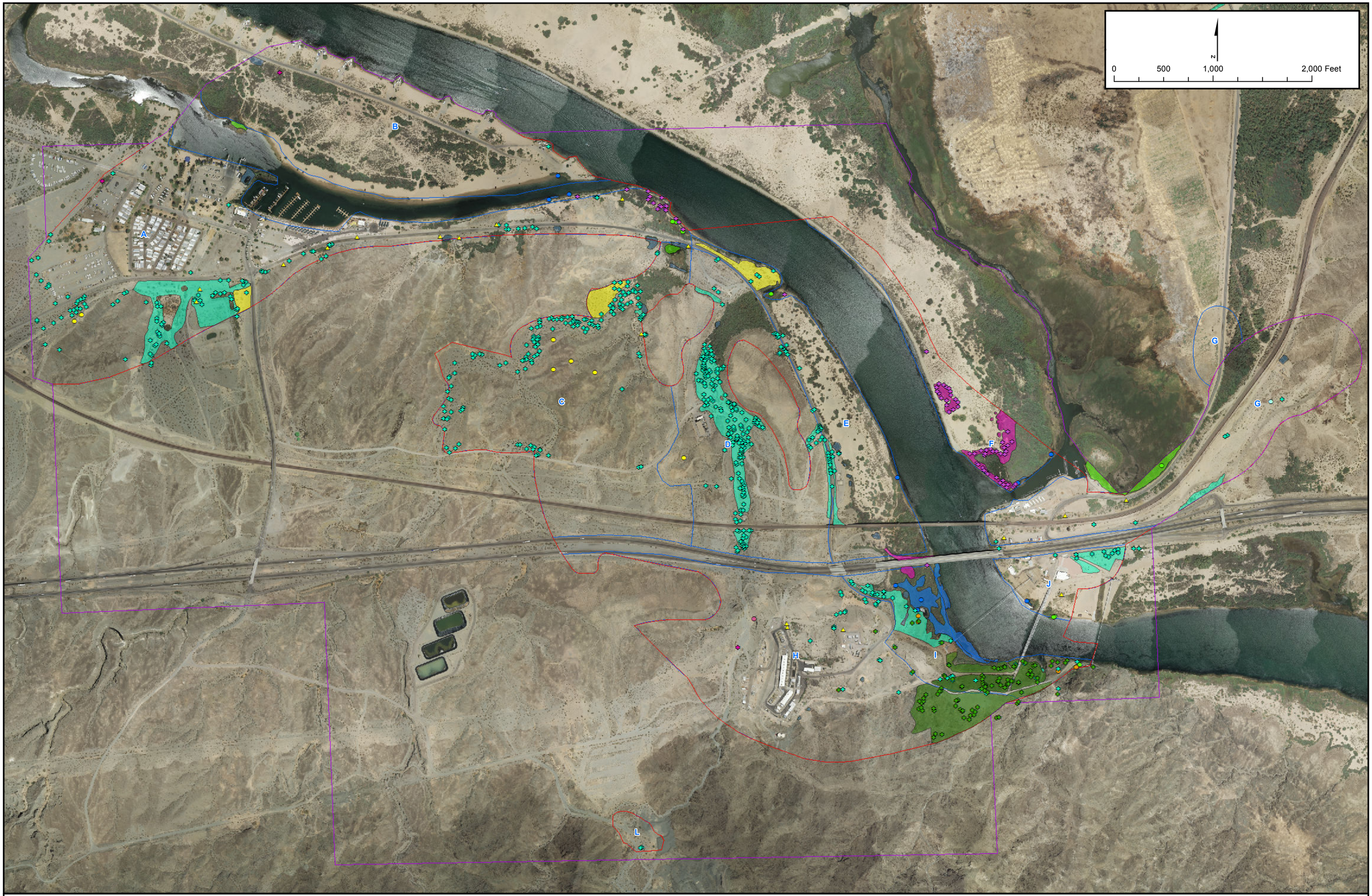
5.3 Probability of Missed Occurrences due to Below-average Rainfall

The 2011-2012 rainfall year (July through March), measured in the Project Area at IM-3 near Bat Cave Wash, was below average (2.75" versus 4.5") and this lack of precipitation affected the germination and growth of annuals and herbaceous perennials in the Project Area. However, there are only three annuals on the PLA list that had a reasonable potential to occur in the Project Area that were not identified during the 2011 and 2012 surveys. One of these annuals, fragrant flatsedge, is a wetland plant and would be relatively unaffected by rainfall, because of the buffering effects of the Colorado River and the other two annuals (common sunflower and Jimson weed) are weedy and probably less susceptible to below average rainfall conditions. Furthermore, their dried skeletons can persist in the environment for over a year and no such skeletons were observed during our August 2011 and subsequent surveys, despite identifying skeletons from other ethnoplants (e.g., chia and golden suncups) that had persisted since the spring of 2011. Therefore, it is unlikely that any culturally significant annual species were missed as a result of below-average rainfall. However, the dry conditions would have had an effect on the abundance of annual species in the various Survey Segments.

Additional floristic surveys will be completed in the spring of 2013 to focus on areas where culturally significant herbaceous plant species are most likely to be present within the Project Area. The purpose of these surveys is to obtain a better estimate on the size of and distribution of culturally significant annuals and herbaceous perennials plant populations during a more favorable rainfall year. The results of the 2013 spring surveys will be provided in an addendum to this report.

5.4 Culturally Significant versus Special-status Plants

Plants on the list in Appendix PLA of the EIR are protected first and foremost by virtue of their cultural significance to the Native American tribes, whether or not they have protection under any federal or state legislation. Most (9 of 13) of the ethnoplant species occurring in the Project Area have no special status under California or Arizona statutes and are not considered to be rare, endangered or threatened under federal laws. However, the remaining four species: blue palo verde; hillside palo verde; western honey mesquite; and screwbean mesquite are protected under the California Desert Native Plants Act (CDNPA). The intent of this Act is to protect California desert native plants from unlawful harvesting on both publicly and privately owned lands (CDNPA 1981). These four species are also protected in Arizona by the Arizona Department of Agriculture through category C of the Salvage Assessed Protected Native Plants (ADA, 2012).



LEGEND

- Area of Potential Effects (APE)
- Project Area
- Survey Segment

Shrubs

Common Name	Scientific Name	Survey Segment
Cattle Saltbush	*Atriplex polycarpa*	A, B, C, D, G, H, I, J
Big Saltbush	*Atriplex lentiformis*	A, G, I, J

Herbs

Common Name	Scientific Name	Survey Segment
Broad-leaved Cattail	*Typha latifolia*	A, C, E, G, I, J
Common Reed	*Phragmites australis*	A, B, E, F, G, I, J
Desert Tobacco	*Nicotiana obtusifolia*	H, I, L
Desert Lily	*Hesperocallis undulata*	G
Chia	*Salvia columbariae*	D,H
Golden suncup	*Chylismia brevipes*	A,C

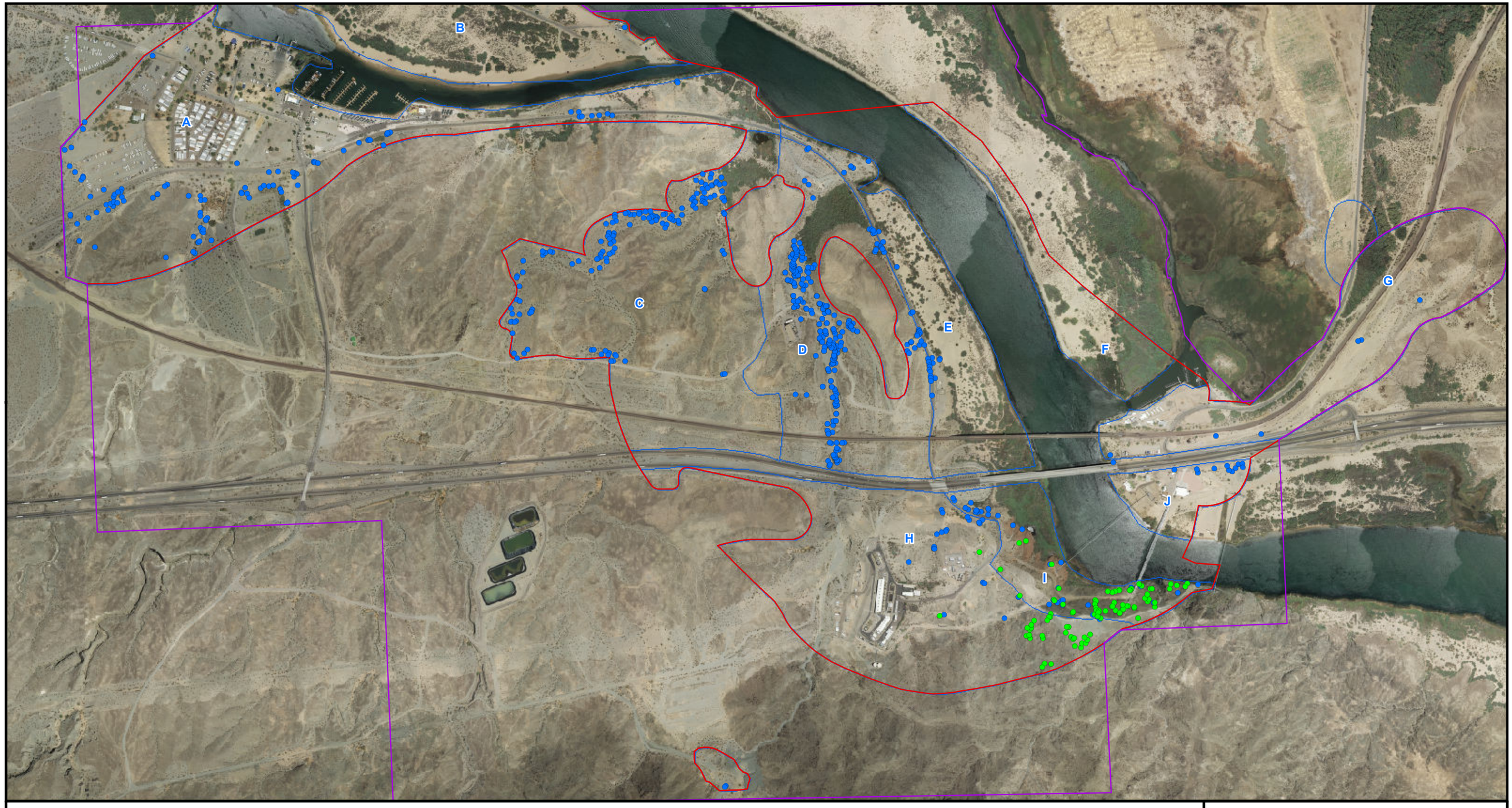
Trees

Common Name	Scientific Name	Survey Segment
Blue Palo Verde	*Parkinsonia florida*	A, C, E, G, I, J
Goodding's Willow	*Salix*	A, B, E, F, G, I, J
Hillside Palo Verde	*Parkinsonia microphylla*	H, I, L
Screw Bean Mesquite	*Prosopis pubescens*	A, E, F

FIGURE 4
MAP OF PLANTS WITH CULTURAL SIGNIFICANCE IN THE PROJECT AREA
ETHNOBOTANY SURVEY
PG&E TOPOCK GROUNDWATER REMEDIATION PROJECT,
NEEDLES, CALIFORNIA

CH2MHILL

Path: D:\Projects\Topock\MapFiles\2013\Vegetation\EthnoBio\EthnoBio.mxd Date Saved: 3/28/2013 10:32:27 AM



LEGEND

- Area of Potential Effects (APE)
- Project Area
- Survey Segments

PLANT SPECIES

Common Name:	Scientific Name:
Blue palo verde	*Parkinsonia florida*
Hillside palo verde	*Parkinsonia microphylla*

N

0 500 1,000 2,000 Feet

FIGURE 5
HILLSIDE PALO VERDE AND BLUE PALO VERDE IN THE PROJECT AREA

ETHNOBOTANY SURVEY
PG&E TOPOCK GROUNDWATER REMEDIATION PROJECT,
NEEDLES, CALIFORNIA

CH2MHILL

Path: D:\Projects\Topock\MapFiles\2013\Vegetation\EthnoBio\PaloVerde.mxd Date Saved: 3/27/2013 4:58:40 PM

SECTION 6

References

DTSC. 2011. Topock Compressor Station Final Remedy. FEIR, Vol. 1. Mitigation Monitoring and Reporting Program, Prepared by AECOM for the California Department of Toxic Substances Control.

Arizona Department of Agriculture (ADA). 2012. Protected native plants by category. Accessed at http://www.azda.gov/ESD/protplantlst.html.

Arizona Rare Plant Committee. 2001. Arizona rare plant field guide: A collaboration of agencies and organizations. Washington, DC: U.S. Government Printing Office. Available online at http://www.aznps.com/rareplants.html.

Baldwin, B. G., D. H. Goldman, D. J. Keil and R. Patterson (eds.). The Jepson Manual, 2nd ed. Univ. of California Press, Berkeley, California.

Bureau of Land Management (BLM). 2011. BLM Special Status Plants, California. Accessed at: http://www.blm.gov/ca/st/en/prog/ssp.html.

Calflora. 2012. Information on California plants for education, research and conservation, based on data contributed by dozens of public and private institutions and individuals, including the Consortium of Calif. Herbaria. Berkeley, California. Accessed at: http://www.calflora.org/.

California Department of Fish and Game (CDFG). 2009. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities. Sacramento, CA. Accessed at: http://www.dfg.ca.gov/bdb/pdfs/guideplt.pdf.

California Desert Native Plants Act (CDNPA). 1981. Accessed at: http://www.dfg.ca.gov/habcon/plant/cadesertplantact.html.

California Native Plant Society (CNPS). 2001. Botanical survey guidelines of the California Native Plant Society. 9 December 1983 (Revised 2 June 2001).

California Native Plant Society (CNPS). 2012. Inventory of Rare and Endangered Plants of California (online edition). Accessed at: http://www.rareplants.cnps.org/

California Natural Diversity Database (CNDDB). 2012. RareFind3, version 3.1.1. Electronic database. Sacramento, California.

Castetter, E. F. 1935 Ethnobiological Studies in the American Southwest I. Uncultivated Native Plants Used as Sources of Food. University of New Mexico Bulletin 4:1-44.

CH2M HILL, and Garcia and Associates (GANDA). 2012. *Topock Compressor Station Groundwater Remediation Mature Plants Survey Report*. January.

Consortium of California Herbaria (CCH). 2011. Data provided by the participants of the Consortium of California Herbaria. Accessed at: http://ucjeps.berkeley.edu/consortium/.

Jepson Online Interchange.2011. Accessed at: http://ucjeps.berkeley.edu/interchange.html.

Minnis, Paul E., 2000. Ethnobotany, A Reader, U of Oklahoma Press.

Sawyer, J. O., T. Keeler-Wolf, and J. M. Evens. 2009. A manual of California vegetation, 2nd ed. California Native Plant Society, Sacramento, CA.

Southwest Environmental Information Network, SEINet. 2011. Accessed at: http//:swbiodiversity.org/seinet/index.php.

U.S. Fish and Wildlife Service (USFWS) 2000. Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants. USFWS, January 2000. Accessed at: http://www.fws.gov/ventura/species_information/protocols_guidelines/docs/botanicalinventories.pdf

Appendix A
Target List of Culturally Significant Plant Species from Appendix PLA of the EIR with the Potential to Occur in the Project Area

APPENDIX A

Target List of Culturally Significant Plant Species from Appendix PLA of the EIR with the Potential to Occur in the Project Area

Species in **bold** are present in one or more of the survey segments of the Project Area

See below Table 1 for Sources, Conservation status abbreviations, and Occurrence potential definitions.

Common Name	Scientific Name	Status[1] BLM/CRPR/CDNPA/ADA	Flowering Period	Habitat	Potential to Occur[2]
TREES					
Blue palo verde	***Parkinsonia florida***	--/--/CDNPA/B	Apr–May	Creosote bush scrub; washes and floodplains	**Present.** This species is the most abundant native tree in the Project Area.
Desert ironwood	*Olneya tesota*	/--/--/CDNPA/--	Apr–May	Creosote bush scrub; desert washes	**Absent.** Suitable habitat for this tree occurs in the Project Area, but ironwood is not known to occur further north than the Whipple Mountains near Lake Havasu and it was not detected during the surveys.
Hillside (Yellow) palo verde	***Parkinsonia microphylla***	--/4.3/CDNPA/--	Apr–May	Creosote bush scrub; rocky or gravelly areas	**Present**. This woody shrub or small tree is locally common in the Project Area in Segments I and H.
Honey mesquite	*Prosopis glandulosa var. glandulosa*	NA	NA	NA	**Absent.** This variety of *Prosopis glandulosa* does not occur in California or Arizona.
Goodding's willow	***Salix gooddingii***	--/--/--/--	Mar–Apr	Streamside's, marshes, seepage areas, washes, meadows	**Present.** Uncommon large tree in Segment B of the Project Area.
Screwbean mesquite	***Prosopis pubescens***	--/--/CDNPA/C	Apr–Sep	Creosote bush scrub; creek, river bottoms, sandy or gravelly washes, ravines	**Present.** This medium to large tree is common under the highway and BN&SF bridges that cross the Colorado River, and on the Arizona side of the river opposite the Topock Marina.
Single leaf Pinyon (pinyon pine)	*Pinus monophylla*	--/--/--/--	Spring	Pinyon/juniper woodland	**Absent**. No suitable habitat in Project Area.
Velvet mesquite	*Prosopis velutina*	--/--/CDNPA/C-	Apr–Jun	Mojave desert scrub; sandy, rocky soils in canyons, washes; only naturalized in California, not native	**Absent.** A single occurrence of this tree is known from the Topock Marsh; however, it was not detected during multiple surveys of the Project Area.
Western honey mesquite	***Prosopis glandulosa var. torreyana***	--/--/CDNPA/B	Apr–Aug	Creosote bush scrub and alkali sink scrub; grasslands, alkali flats, washes, sandy alluvial flats, mesas	**Present.** This medium to large tree is common in the Project Area especially on the low sandy terraces along the Colorado River**.**

APPENDIX A

Target List of Culturally Significant Plant Species from Appendix PLA of the EIR with the Potential to Occur in the Project Area

Species in **bold** are present in one or more of the survey segments of the Project Area

See below Table 1 for Sources, Conservation status abbreviations, and Occurrence potential definitions.

Common Name	Scientific Name	Status[1] BLM/CRPR/CDNPA/ADA	Flowering Period	Habitat	Potential to Occur[2]
SHRUBS					
American agave	*Agave americana*	--/--/--/--	Jun–Aug	Original habitat unknown; grows wild in Mexico on cultivated lands and pine woodlands	**Absent**. Leaf succulent shrub, long cultivated by indigenous tribes, commonly occurs on agricultural lands. Not native to California or Arizona.
Arizona desert-thorn	*Lycium exsertum*	--/--/--/--	Jan–Feb	In washes and on mountain slopes	**Absent.** Does not occur in California or in western Arizona at low elevations
Big saltbush	***Atriplex lentiformis***	-/--/--/--	Jul–Oct	Alkaline or saline washes, dry lakes, scrub	**Present.** Occurs in Survey Segments A, G, I, and J
Cactus apple	*Opuntia engelmannii*	--/--/--/B	Apr–Jun	Desert scrub, dry oak woodland	**Absent.** Does not occur in California or western Arizona
Candy barrelcactus	*Ferocactus wislizeni*	--/--/CDNPA/B	May–Jun	Grassland and hills	**Absent**. No suitable habitat in Project Area; occurs at elevations higher than Project Area.
Cattle saltbush	***Atriplex polycarpa***	**--**/--/--/--	Jul–Oct	Creosote bush scrub, shadscale scrub, sagebrush scrub, and alkali sink scrub; dry lakes	**Present**. Locally common; occurs in Segments A, B, C, D, G, H, I, J of the Project Area.
Desert agave	*Agave deserti*	--/--/CDNPA/B	May–Jul	Rocky slopes, washes in desert scrub	**Absent**. Nearest occurrence in Whipple Mts. approximately 30 miles SW of Project Area, near Copper Basin.
Desert tobacco	***Nicotiana obtusifolia* var. *obtusifolia***	--/--/--/--	Mar–Jun	Creosote bush scrub and Joshua tree woodland; gravelly or rocky washes, slopes	**Present.** Known to occur in Segments H, I, and L of the Project Area.
Fremont's desertthorn	*Lycium fremontii*	--/--/--/--	Mar–Apr	Alkaline soils, flats	**Absent.** Nearest occurrences in Whipple Mountains near Cupcake Butte and Parker, approximately 28 miles SW of Project Area.
Jojoba	*Simmondsia chinensis*	--/--/--/--	Mar–May	Creosote bush scrub, Joshua tree woodland, chaparral	**Absent**. Suitable habitat; however, no known occurrences within 75 miles of the Project Area.

APPENDIX A
Target List of Culturally Significant Plant Species from Appendix PLA of the EIR with the Potential to Occur in the Project Area
Species in **bold** are present in one or more of the survey segments of the Project Area
See below Table 1 for Sources, Conservation status abbreviations, and Occurrence potential definitions.

Common Name	Scientific Name	Status[1] BLM/CRPR/CDNPA/ADA	Flowering Period	Habitat	Potential to Occur[2]
Indian rushpea	*Hoffmannseggia glauca*	--/--/--/--	Apr–Jun	Dry, alkaline flats in deserts and disturbed areas	**Absent**. Nearest occurrences approximately 52 miles NW of Project Area.
Iodine bush	*Allenrolfea occidentalis*	--/--/--/--	Jun–Aug	Alkali sink scrub (saline soils), flats, bluffs.	**Absent**. Suitable habitat; however, not known from Project Area, nearest occurrence is near Earp, 40 miles south of Topock.
Lotebush	*Ziziphus obtusifolia var. canescens*	--/--/--/--	Apr–Jun	Desert scrub	**Absent.** Occurrences known from Chemehuevi Wash in the Whipple Mountains 14 miles SW of Project Area.
Mojave yucca	*Yucca schidigera*	--/--/CDNPA/B	Apr–May	Chaparral, creosote bush scrub	**Absent**. Nearest known occurrence is 10 miles south of Needles.
Mule's fat	*Baccharis salicifolia*	--/--/--/--	All year	Coastal sage scrub, foothill woodland, valley grassland, moist streamsides, canyon bottoms, irrigation ditches	**Absent.** Not found during the surveys but known to occur in the Topock Marsh.
Parry's agave	*Agave parryi*	--/--/CDNPA/B	Jun–Aug	Rocky slopes, grasslands, oak woodland, pine forests, and chaparral	**Absent**. No suitable habitat; not known from California or Mohave County, Arizona.
Scrub live oak	*Quercus turbinella*	--/--/--/--	Apr–Jun	Pinyon/juniper woodland	**Absent**. No suitable habitat; known only from higher elevations.
Spiny chloracantha	*Chloracantha spinosa*	--/--/--/--	Jun–Dec	Creosote bush scrub and alkali sink scrub; seeps, moist streamsides, ditches, sometimes saline or drier areas	**Absent.** Habitat suitable**,** but not detected in surveys of the Project Area.
Staghorn cholla	*Cylindropuntia versicolor*[3]	--/--/--/B	May–Jun	Creosote bush scrub; gravelly or rocky places	**Absent**. This succulent shrub does not occur in California or in western Mojave County, Arizona.
HERBACEOUS PLANTS					
Awned cupgrass	*Eriochloa aristata*	--/--/--/--	Jun–Nov	Wetlands; seasonal streams, riverbanks	**Unlikely**. Annual grass, suitable habitat; however, no known occurrence within 100 miles of the Project Area.

APPENDIX A

Target List of Culturally Significant Plant Species from Appendix PLA of the EIR with the Potential to Occur in the Project Area

Species in **bold** are present in one or more of the survey segments of the Project Area

See below Table 1 for Sources, Conservation status abbreviations, and Occurrence potential definitions.

Common Name	Scientific Name	Status[1] BLM/CRPR/CDNPA/ADA	Flowering Period	Habitat	Potential to Occur[2]
Beans	*Phaseolus vulgaris*	--/--/--/--	Summer	Cultivated lands	**Absent** No suitable habitat, known only from cultivated lands.
Bearded cupgrass	*Eriochloa aristata*	--/--/--/--	Jun–Nov	Seasonal streams riverbanks	**Unlikely**. Suitable habitat, no occurrence within 100 miles of Project Area.
Blunt Tastymustard	*Descurainia obtusa*	--/--/--/--	May–Jun	Gravelly flats, open woods, lake margins	**Unlikely**. No suitable habitat and below normal elevation range.
Broadleaf arrowhead	*Sagittaria latifolia*	--/--/--/--	Jul–Aug	Freshwater wetlands ponds, slow streams, ditches	**Absent.** Perennial herb; however, no occurrences known for western Riverside or San Bernardino counties.
Broadleaf cattail	***Typha latifolia***	--/--/--/--	Jun–Jul	Freshwater wetlands and marshes	**Present.** Perennial herb, known to occur in Segments A, C, E, and I of the Project Area.
Careless weed	*Amaranthus palmeri*	--/--/--/--	Aug–Nov	Creosote bush scrub, roadside ditches, fields, arroyos	**Unlikely.** Short-lived perennial; no known occurrences within 90 miles of the Project Area.
Chia	***Salvia columbariae***	--/--/--/--	Mar–Jun	Creosote bush scrub chaparral, coastal sage scrub; dry, disturbed sites	**Present.** Annual herb that is present in Segments A and D (Bat Cave Wash) of the Project Area.
Common Reed	***Phragmites australis***	--/--/--/--	Jul–Nov	Wetlands along rivers	**Present.** Along Colorado River in Segments A, E, I, F.
Common sunflower	*Helianthus annuus*	--/--/--/--	Jul–Oct	Disturbed areas in shrublands and many habitats	**Absent**. Annual herb, known occurrences from Parker Dam Road 18 miles south of the Project Area.
Crookneck squash	*Cucurbita moschata*	--/--/--/--	Jun-Aug	Cultivated lands	**Absent**. No suitable habitat, known only from cultivated lands.
Datura (or Jimson) weed	*Datura wrightii*	--/--/--/--	Apr–Oct	Creosote bush scrub, coastal sage scrub, valley grassland, Joshua tree woodland, pinyon/juniper woodland; sandy or gravelly open areas	**Absent.** Annual weed, suitable habitat present, nearest known occurrence 13.3 miles northwest of Needles.

APPENDIX A
Target List of Culturally Significant Plant Species from Appendix PLA of the EIR with the Potential to Occur in the Project Area
Species in **bold** are present in one or more of the survey segments of the Project Area
See below Table 1 for Sources, Conservation status abbreviations, and Occurrence potential definitions.

Common Name	Scientific Name	Status[1] BLM/CRPR/CDNPA/ADA	Flowering Period	Habitat	Potential to Occur[2]
Desert lily	***Hesperocallis undulata***	--/--/--/B	Mar–May	Desert shrublands; sandy flats and washes	**Present.** Bulbous perennial, known to occur in sandy areas of Section G.
Fendler's groundcherry	*Physalis hederifolia* var. *fendleri*	--/--/--/--	May–Jul	Gravelly to rocky slopes	**Absent**. Not known to occur below 2900 feet elevation.
Field pumpkin	*Cucurbita pepo*	--/--/--/--	June–Aug	Cultivated lands	**Absent**. No suitable habitat, known only from cultivated lands.
Fragrant flatsedge	*Cyperus odoratus*	--/--/--/--	Jul–Oct	Wetlands; disturbed soils	**Possible**. Annual sedge, occurrence known from Needles.
Fremont's Goosefoot	*Chenopodium fremontii*	--/--/--/--	Jun–Oct	Shaded places, shrubland, coniferous forests	**Absent**. No suitable habitat; Project Area considerably below elevation range of the species.
Golden suncup	***Chylismia brevipes* subsp. *brevipes***	--/--/--/--	Mar–May	Sandy slopes, washes, alluvial fans	**Present.** Occurs in Segments A and D.
Indian woodoats	*Chasmanthium latifolium*	--/--/--/--	Jun–Aug	Woodlands; moist, fertile soils along creek and river banks	**Unlikely**. Perennial grass, no known occurrences in California or Mojave County, Arizona.
Mexican lovegrass	*Eragrostis mexicana* ssp. *mexicana*	--/--/--/--	Jul–Oct	Disturbed areas; generally open sites	**Unlikely**. Annual grass, suitable habitat present; however, no known occurrences near Topock.
Mexican panic grass	*Panicum hirticaule*	--/--/--/--	Jul–Oct	Creosote bush scrub; sandy soils, open sites	**Unlikely**. Annual grass, suitable habitat present; however, no known occurrences near Topock.
New Mexico Giant Hyssop	*Agastache pallidiflora* ssp. *neomexicana* var. *neomexicana*	--/--/--/--	Jul-Oct	Moist canyons at middle elevations	**Absent.** No suitable habitat; not known from California or Mohave County, Arizona.

APPENDIX A

Target List of Culturally Significant Plant Species from Appendix PLA of the EIR with the Potential to Occur in the Project Area

Species in **bold** are present in one or more of the survey segments of the Project Area

See below Table 1 for Sources, Conservation status abbreviations, and Occurrence potential definitions.

Common Name	Scientific Name	Status[1] BLM/CRPR/CDNPA/ADA	Flowering Period	Habitat	Potential to Occur[2]
Valley redstem	*Ammannia coccinea*	--/--/--/--	Jun–Aug	Many plant communities; wet places, drying ponds, lake and creek margins	**Unlikely**. Annual weed; however, no occurrences known within 100 miles of the Project Area.
Sandfood	*Pholisma sonorae*	S/1B.2/--/A	Apr–May	Dunes, sandy areas	**Absent**. Only known from Imperial County, California
Sauwi	*Panicum sonorum* (syn. *P. hirticaule* ssp. *hirticaule*)	--/--/--/--	Jun–Aug	Domesticated, river flood plains	**Absent**. Annual grass, cultivar of *P. hirticaule*; no known occurrences near the Project Area.
Tepary Bean	*Phaseolus acutifolius* var. *latifolius*	--/--/--/--	Jun—Aug	Cultivated lands	**Absent**. No suitable habitat, known only from cultivated lands.

APPENDIX A
Target List of Culturally Significant Plant Species from Appendix PLA of the EIR with the Potential to Occur in the Project Area
Species in **bold** are present in one or more of the survey segments of the Project Area
See below Table 1 for Sources, Conservation status abbreviations, and Occurrence potential definitions.

Common Name	Scientific Name	Status[1] BLM/CRPR/CDNPA/ADA	Flowering Period	Habitat	Potential to Occur[2]

[1] Conservation status abbreviations:

BLM designations

S - The California State Director has also conferred sensitive status on California State Endangered, Threatened, and Rare species, or species on List 1B (plants rare and endangered in California and elsewhere) of the CNPS' Inventory of Rare and Endangered Plants of California

California Rare Plant Ranks (formerly CNPS Lists)

1B.2 Plants rare, threatened or endangered in California and elsewhere and are considered to be fairly endangered in California.
4.3 Plants of limited distribution – a watch list; Not very endangered in California.

Department of Food and Agriculture designations:

CDNPA Plants that are protected by the California Desert Native Plants Act

Arizona Department of Agriculture designations:

B. Salvage Restricted Protected Native Plants
C. Salvage Assessed Protected Native Plants

[2] Potential to occur definitions:

Present: Species observed in one or more of the survey segments of the Project Area.
Possible: Species not observed on the site, however conditions suitable for occurrence.
Unlikely: Species not observed on the site, conditions marginal for occurrence.
Absent: Species or suitable habitat not observed on the site during protocol-level surveys

Sources:
California Native Plant Society 2011; California Natural Diversity Database 2011; Consortium of California Herbaria 2011; Jepson Online Interchange 2011; Calflora 2012.

Appendix B
Vascular Plant Species Observed in the Project Area

APPENDIX B
Vascular Plant Species Observed in the Project Area

Scientific name	Common name	Survey Segments
GYMNOSPERMS		
EPHEDRACEAE	**ephedra family**	
Ephedra nevadensis	joint fir	H, I
ANGIOSPERMS-DICOTS		
AIZOACEAE	**ice plant family**	
Trianthema portulacastrum	horse-purslane	G
AMARANTHACEAE	**amaranth family**	
Amaranthus fimbriatus	fringed amaranth	A, C, I
Tidestromia oblongifolia	honeysweet	A, B, C, D, E, F, G, H, I, J, K
APIACEAE	**carrot family**	
Hydrocotyle verticillata	marsh pennywort	A, B, E, F
APOCYNACEAE	**milkweed family**	
Asclepias albicans	white-stemmed milkweed	C, H, L
Asclepias subulata	rush milkweed	C, D, H, L
Funastrum hirtellum	climbing-milkweed	A, C, D, E, G, H, I
*Nerium oleander**	oleander	A, B, H
ASTERACEAE	**sunflower family**	
Adenophyllum porophylloides	San Felipe dyssodia	H, I
Ambrosia dumosa	white bursage	A, C, D, E, F, G, H, I, J, L
Ambrosia salsola	cheesebush	A, B, C, D, E, F, G, H, I, J, L
Atrichoseris platyphylla	gravel-ghost	A, C, D, F, G, H, I, L
Baccharis sarothroides	broom bacharis	A, B, E, F, I
Bebbia juncea var. *aspera*	sweetbush	A, C, D, E, G, H, I, J, L
Calycoseris wrightii	white tackstem	A, C, D, E, G, H, I, L
Chaenactis carphoclinia	pebble pincushion	A, C, D, E, G, H, I, J, L
Chaenactis stevioides	stevia pincushion	G, J
Encelia farinosa	brittlebush	A, B, C, D, E, F, G, H, J, L
Encelia farinosa x frutescens	brittlebush hybrid	E
Encelia frutescens	button brittlebush	E
Eriophyllum lanosum	white woolly eriophyllum	C, L
Geraea canescens	desert sunflower	A, C, D, E, G, H, I, J
Lactuca serriola	prickly lettuce	A
Malacothrix glabrata	smooth desert dandelion	A, D, G, H, L

APPENDIX B
Vascular Plant Species Observed in the Project Area

Scientific name	Common name	Survey Segments
Monoptilon bellioides	desert star	A, C, H, L
Palafoxia arida	Spanish needle	A, B, C, D, E, F, G, H, I, J
Pectis papposa var. *papposa*	chinch-weed	A, C, D, E, G, H
Perityle emoryi	Emory rock daisy	A, C, D, E, H, I, L
Peucephyllum schottii	pygmy-cedar	D, H, I
Pluchea odorata	marsh fleabane	A, B, F, G, I
Pluchea sericea	arrow weed	B, C, D, E, F, G, H, I, J
Porophyllum gracile	slender poreleaf	C, D, H, I
Pseudognaphalium luteoalbum	cudweed	I
Pulicaria paludosa	Spanish false-fleabane	B
Rafinesquia neomexicana	New Mexico desert chicory	G
Senecio mohavensis	Mojave groundsel	D, H, I
Sonchus asper	prickly sow-thistle	A, I
Stephanomeria pauciflora	skeletonweed	A, B, C, E, F, G, H, I, J
Stylocline micropoides	woolly-head nest straw	C, D, H
Trichoptilium incisum	yellowdome	D
Xanthisma spinulosum var. *gooddingii*	goldenweed	H, I
Xanthium strumarium	common cocklebur	B
BORAGINACEAE	**borage family**	
Amsinckia tessellata	devil's lettuce	A, C, D, E, H, J, L
Cryptantha angustifolia	narrow-leaved cryptantha	A, C, E, F, G, H, J, L
Cryptantha barbigera var. *barbigera*	bearded cryptantha	C, D, E, F, G, H, I, J, L
Cryptantha inaequata	Panamint cryptantha	D
Cryptantha maritima	Guadalupe cryptantha	A, C, D, E, F, G, H, I, J, L
Cryptantha micrantha	red-root cryptantha	A, B, E, F
Cryptantha nevadensis var. *rigida*	rigid cryptantha	D
Cryptantha pterocarya	winged-nut cryptantha	A, C, D, E, H, I, L
Heliotropium curassavicum	alkali heliotrope	A, B, I
Pectocarya heterocarpa	chuckwalla combseed	B, F
Pectocarya platycarpa	broadfruited combseed	C, D, E, F, G, H, I, L
Pectocarya recurvata	curvednut combseed	A, C, D, G, H, I
Phacelia crenulata ssp. *ambigua*	notch-leaved phacelia	A, C, D, E, F, G, H, I, J, L
Phacelia distans	distant phacelia	D

APPENDIX B
Vascular Plant Species Observed in the Project Area

Scientific name	Common name	Survey Segments
Phacelia pedicillata	pedicellate phacelia	D, L
Tiquilia plicata	fanleaf crinklemat	A, B, E, F, G, H, J
BRASSICACEAE	**mustard family**	
Brassica tournefortii	Saharan mustard	A, B, C, D, E, F, G, H, I, J, L
Descurainia pinnata	pinnate tansy mustard	A
Dithyrea californica	California spectacle pod	D
Draba cuneifolia	wedge-leaved draba	D
Guillenia lasiophylla	California mustard	D
Lepidium lasiocarpum	pepperweed	C, D, H, I, L
Sisymbrium orientale	Oriental hedge-mustard	A, B, E, F, G
CACTACEAE	**cactus family**	
Cylindropuntia acanthocarpa	buckhorn cholla	C, D, H, I
Cylindropuntia bigelovii	teddy-bear cholla	H
Cylindropuntia echinocarpa	silver cholla	A, C, D, E, G, H
Ferocactus cylindraceus var. *cylindraceus*	California barrel cactus	C, D, H, I
Opuntia basilaris var. *basilaris*	beavertail	A, C, D, E, G, H, I, L
Mammillaria tetrancistra	corkseed mammillaria	A, E, C, D, H
CARYOPHYLLACEAE	**carnation family**	
Achyronychia cooperi	onyx flower	B, E, F
CHENOPODIACEAE	**goosefoot family**	
Atriplex elegans var. *elegans*	wheelscale	A
Atriplex fruticulosa	ball saltbush	A
Atriplex hymenolytra	desert holly	A
Atriplex lentiformis	big saltbush	A, G, I, J
Atriplex polycarpa	cattle saltbush	A, B, C, D, G, H, I, J
Chenopodium album	white goosefoot	A, E, L
Dysphania ambrosioides	Mexican-tea goosefoot	A, G, L
Salsola tragus	Russian thistle	A, B, C, E, F, G, J
Suaeda moquinii	bush seepweed	A, G
CUCURBITACEAE	**gourd family**	
Cucurbita palmata	coyote gourd	G

APPENDIX B
Vascular Plant Species Observed in the Project Area

Scientific name	Common name	Survey Segments
EUPHORBIACEAE	**spurge family**	
Chamaesyce micromera	desert spurge	A, B, C, D, E, H, I
Chamaesyce polycarpa	small-seeded spurge	A, B, C, D, E, F, G, H, I, J, L
Chamaesyce setiloba	Yuma spurge	A, C, D, H, I, L
Ditaxis neomexicana	common ditaxis	A, H, L
Stillingia paucidentata	Mojave toothleaf	I
FABACEAE	**legume family**	
FABACEAE	**legume family**	
Acmispon maritimus var. *maritimus*	coastal bird's foot trefoil	D
Acmispon strigosus	strigose bird's foot trefoil	D, H, I, L
Dalea mollis	hairy indigo-pea	A, C, D, E, G, H, I, L
Dalea mollissima	downy dalea	D, F, G, I
Lupinus arizonicus	Arizona lupine	A, C, D, E, G, H, J, L
Marina parryi	Parry's marina	A
Parkinsonia aculeata	Mexican palo verde	A
Parkinsonia florida	blue palo verde	A, C, D, E, G, H, I, J, L
Parkinsonia microphylla	hillside palo verde	H, I
Prosopis glandulosa var. *torreyana*	honey mesquite	A, C, E, G, H, I, J
Prosopis pubescens	screwbean mesquite	A, E, F
Psorothamnus spinosus	smoke tree	A, B, C, D, J
Senegalia greggii	catclaw acacia	A, B, C, D, G, H, I
FOUQUIERIACEAE	**ocotillo family**	
Fouquieria splendens ssp. *splendens*	ocotillo	C, D, H, I
GENTIANACEAE	**gentian family**	
Eustoma exaltatum	catchfly gentian	B, F
GERANIACEAE	**geranium family**	
Erodium cicutarium	red-stemmed filaree	A, C, D, E, F, G, H, L
Erodium texanum	Texas filaree	I
KRAMERIACEAE	**rhatany family**	
Krameria bicolor	white rhatany	A, C, D, G, H, I, L
Krameria erecta	Pima rhatany	H, I
LAMIACEAE	**mint family**	
Hyptis emoryi	desert lavender	A, C, D, H, I, L

APPENDIX B
Vascular Plant Species Observed in the Project Area

Scientific name	Common name	Survey Segments
Salazaria mexicana	bladder sage	C
Salvia columbariae	chia	D, H, L
LOASACEAE		
Eucnide urens	rock nettle	I
Mentzelia albicaulis	white-stemmed blazing star	D, E, G, H, L
Mentzelia involucrata	white-bracted mentzelia	A, C, D
Mentzelia tricuspis	spiny-haired blazing star	G
MALVACEAE	**mallow family**	
Hibiscus denudatus	paleface hibiscus	I
Malva parviflora	small-flowered cheeseweed	A
Sphaeralcea ambigua var. *ambigua*	apricot mallow	C, G, H, L
Spaeralcea emoryi	Emory's globe mallow	G
MYRTACEAE	**myrtle family**	
*Eucalyptus sp.**	eucalyptus	A, B
NYCTAGINACEAE	**four-o-clock family**	
Abronia villosa	sand verbena	E, F, G, H, J
Allionia incarnata var. *incarnata*	trailing windmills	A, C, D, G, H, I, L
Boerhavia coccinea	spiderling	A, B, D, E
Boerhavia wrightii	Wright's spiderling	A, C, D, G, H, I, J, L
Mirabilis laevis var. *retrosa*	retrorse desert four-o'clock	A, C, D, H, I, L
ONAGRACEAE	**evening primrose family**	
Chylismia arenaria var. *arenaria*	mousetail suncup	C, D
Chylismia brevipes subsp. *brevipes*	golden suncup	A, C
Chylismia multijuga	multi-paired suncup	F, G
Eremothera boothii ssp. *condensata*	Booth's shreading suncup	C
Eremothera refracta	narrow-leaf suncup	C, D, G
Oenothera deltoides ssp. *deltoides*	bird-cage evening primrose	G
PAPAVERACEAE	**poppy family**	
Eschscholzia minutiflora	small-flowered California poppy	A, C, D, E, I, L
PHRYMACEAE	**lopseed family**	
Mimulus bigelovii	Bigelow's monkeyflower	D
PLANTAGINACEAE	**plantain family**	
Mohavea confertiflora	Mojave ghost-flower	D, H, I

APPENDIX B
Vascular Plant Species Observed in the Project Area

Scientific name	Common name	Survey Segments
Plantago ovata	ovate plantain	A, B, C, D, E, F, G, H, I, L
POLEMONIACEAE	**phlox family**	
Gilia scopulorum	rock gilia	D, F, I
Langloisia setosissima ssp. *setosissima*	bristly calico	D
POLYGONACEAE	**buckwheat family**	
Chorizanthe corrugata	wrinkled spineflower	A, C, H, I,
Chorizanthe brevicornu var. *brevicornu*	brittle spineflower	A, C, D, E, G, H, I, L
Chorizanthe rigida	rigid spineflower	A, C, D, G, H, I, L
Eriogonum deflexum var. *deflexum*	flat-crown buckwheat	A, B, F, G, H, I
Eriogonum inflatum var. *inflatum*	inflated desert trumpet	A, C, D, E, H, I, L
Eriogonum thomasii	Thomas's wild buckwheat	C, D, G, H, I, L
Eriogonum trichopes	little desert buckwheat	A, C, D, G, H, I, L
Polygonum argyrocoleon	silver-sheathed knotweed	H
RESEDACEAE	**mignonette family**	
Oligomeris linifolia	linear-leaved oligomeris	B
RUBIACEAE	**coffee family**	
Galium angustifolia	narrow-leaved bedstraw	I
SALICACEAE	**willow family**	
Salix exigua	sand-bar willow	B, E, F, G, I
Salix gooddingii	Goodding's willow	B
Populus fremontii	Fremont's cottonwood	A, B
SOLANACEAE	**nightshade family**	
Lycium andersonii	Anderson's desert-thorn	C, D, H, I
Nicotiana obtusifolia	desert tobacco	H, I, L
Physalis crassifolia	thick-leaf ground cherry	A, C, H, L
TAMARICACEAE	**tamarisk family**	
Tamarix ramosissima	salt cedar	A, B, C, D, E, F, G, H, I, J
Tamarix aphylla	athel tamarisk	A, B, D, F, G, L
URTICACEAE	**nettle family**	
Parietaria hespera var. *hespera*	western pellitory	D, I
VERBENACEAE	**verbena family**	
Phyla nodiflora	turkey-tangle frog-fruit	F

APPENDIX B
Vascular Plant Species Observed in the Project Area

Scientific name	Common name	Survey Segments
VISCACEAE	**mistletoe family**	
Phoradendron californicum	desert mistletoe	A, B, C, E, F, G, J
ZYGOPHYLLACEAE	**caltrop family**	
Fagonia laevis	smooth-stemmed fagonia	I
Kallstroemia californica	California kallstroemia	A, D, G
Larrea tridentata	creosote bush	A—L
Tribulus terrestris	puncture vine	A, C, D, G, H, J
MONOCOTS		
AGAVACEAE	**century-plant family**	
Hesperocallis undulata	desert lily	G
ARECACEAE	**palm family**	
*Washingtonia filifera**	California fan palm	A
Washingtonia robusta	Mexican fan palm	A, B, E, H, J
CYPERACEAE	**sedge family**	
Cyperus eragrostis	tall flat sedge	A
Eleocharis geniculata	geniculate spikerush	A, B, E, F
Schoenoplectus californicus	California bulrush	A, B, E, F, G, I, J
JUNCACEAE	**rush family**	
Juncus xiphioides	iris-leaved rush	B
Juncus sp.	rush	B, F
POACEAE	**grass family**	
Andropogon glomeratus ssp. *scabriglumis*	rough-glume bushy blue stem	A, B, G
Aristida adsensionis	six-weeks three awn	A, C, D, E, G, H, I, J, L
Aristida purpurea var. *wrightii*	purple three-awn	I
Arundo donax	giant reed	A, E, F, I, J
Bouteloua aristidoides	needle gamma	A, C, D, G, H, I, L
Bouteloua barbata ssp. *barbata*	six weeks gamma	A, C, D, G, H, I, L
Bromus arizonicus	Arizona brome	A, C, D, G, H, I
Bromus catharticus	rescue brome	D, H
Bromus madritensis ssp. *rubens*	red brome	A, C, D, E, G, H, I, L
Cynodon dactylon	Bermuda grass	A, B, D, E, G, H, J, I
Distichlis spicata	saltgrass	A, E, H

APPENDIX B
Vascular Plant Species Observed in the Project Area

Scientific name	Common name	Survey Segments
Erioneuron pulchellum	fluff grass	H, I
Hordeum murinum ssp. *glaucum*	glaucus barley	A, B, C, E, G, H, I, J
Muhlenbergia microsperma	small seeded muhlenbergia	F
Paspalum dilatatum	dallis grass	A, B, F, I
Pennisetum setaceum	feathertop	A, B, E, I
Phalaris minor	lesser canary grass	A, H
Phragmites australis	common reed	A, B, E, F, G, I, J
Pleuraphis rigida	big galeta	A, H
Schismus barbatus	Mediterranean grass	A, C, D, G, H, I, J, L
Setaria gracilis	knotroot bristlegrass	B
Triticum aestivum	wheat	G
Vulpia myuros	foxtail fescue	C, D
Vulpia octoflora	six weeks fescue	C, D
TYPHACEAE	**cattail family**	
Typha latifolia	broad-leaved cattail	A, C, E, G, I, J
Typha domingensis	southern cattail	A

*cultivated

Appendix C
Photographs from Survey Segments of the Project Area

APPENDIX C

Photographs from Survey Segments of the Project Area

Plate 1. Segments A and B. (A- 1) Dry wash south of the Park Moabi and the National Trails Highway with rocky hillside on south side; facing west. A-2) Rocky hills on the south side of National Trails Highway looking west with creosote bush scrub and big galeta grass in small valley between slopes. (A-3) Sewage disposal ponds SW of the intersection of Park Moabi Road and National Trails Highway. (A-4) Landscaped and developed camping areas in Park Moabi. (A-5) Pirate's Cove Resort development. (B-1) Arrow weed thickets in central portion of peninsula; tamarisk thicket in background.

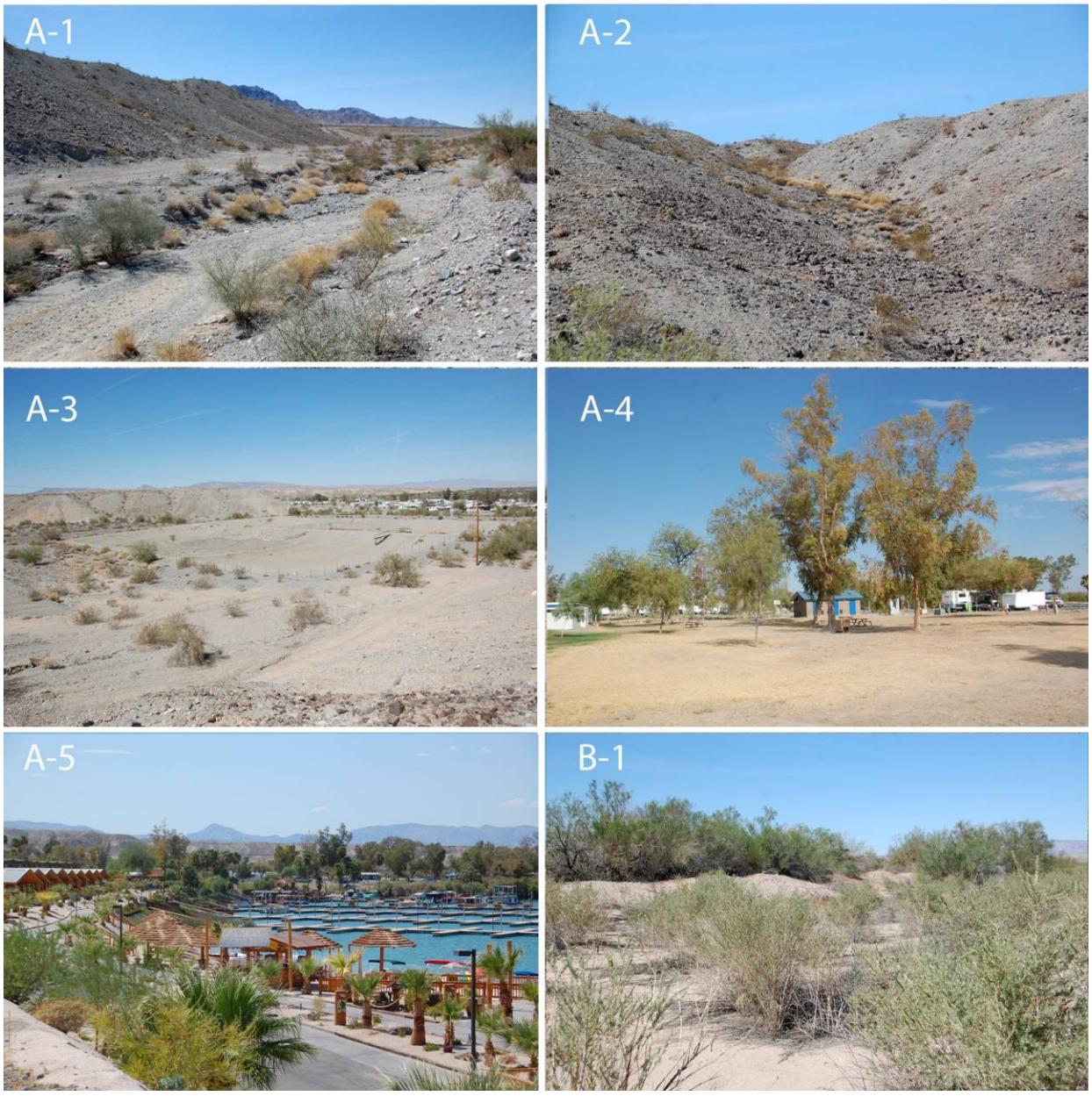


Plate 2. Segments B and C. (B-2) Camping pad on peninsula adjacent to Colorado River. (B-3) Maintained beach opposite Pirate's Cove Resort with western honey mesquite and salt cedar in background. (C-1) Broad wash at north end of Segment C with cattle saltbush and creosote bush. (C-2) Rocky slopes above wash with scattered creosote bush. (C-3) Broad wash at south end of Segment C with blue palo verde woodland and creosote bush scrub. C-4) Desert pavement on hills above washes with creosote bush scrub.

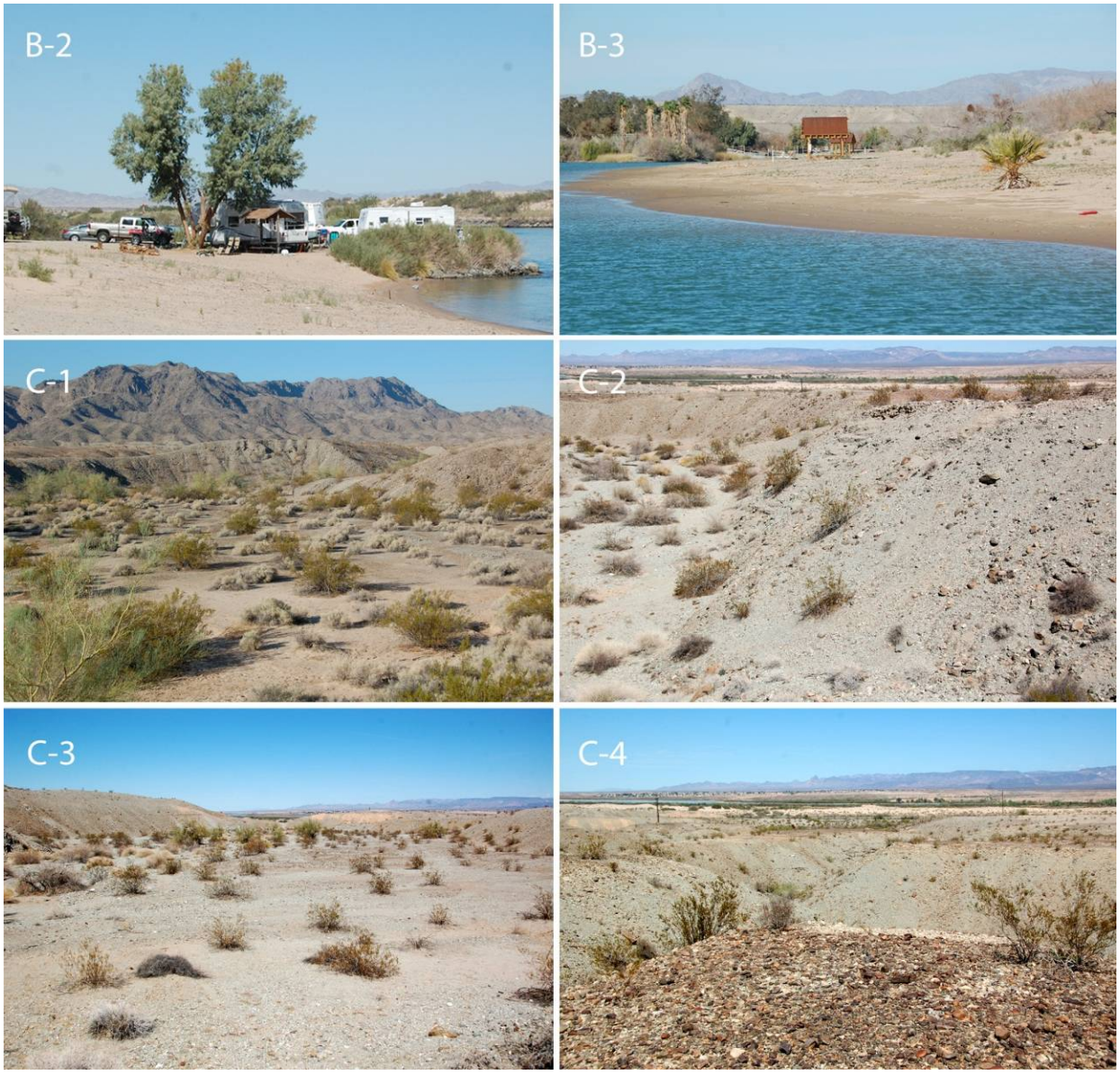


Plate 3. Segments D and E. D-1) Bat Cave Wash with blue palo verde woodland. (D-2). Tamarisk thicket mixed with western honey mesquite at north end of Bat Cave Wash south of National Trails Highway. (E-1) Colorado River and low terrace of dredged sands with tamarisk and arrow weed thickets. (E-2) Close-up of tamarisk thickets on dredged sands. (E-3) National Trails Highway bridge and wetland where Bat Cave Wash enters the Colorado River. (E-4) Upland area of Segment E with creosote bush scrub.

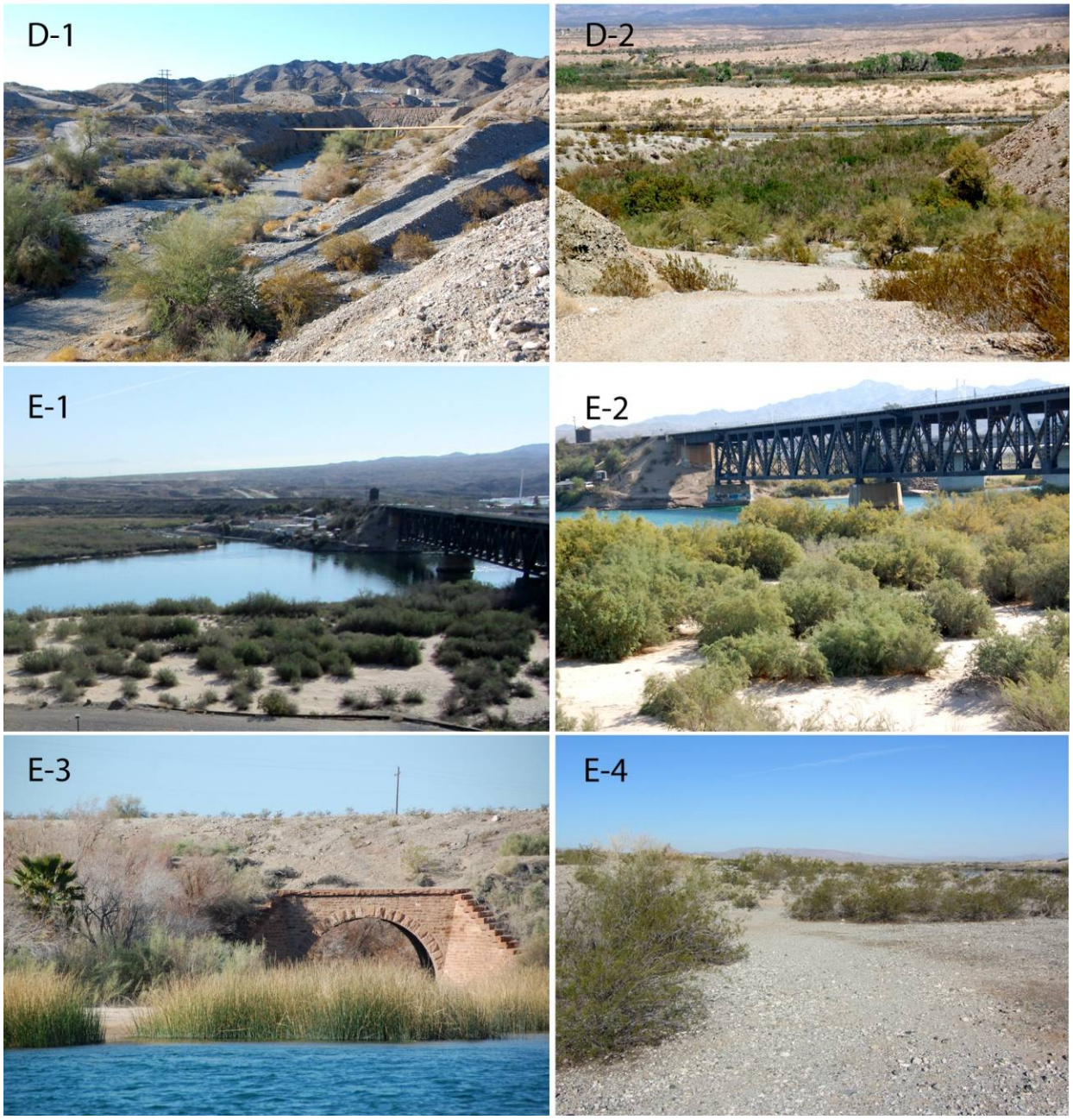


Plate 4. Segments F and G. (F-1) Arrow weed thicket on dredge sands looking north. (F-2) Western honey mesquite, screwbean and tamarisk thickets at southern end of Segment F with small wetland in the southeast corner of photo. (F-3) Close-up of wetland with common reed and sand-bar willow on drier land and California bulrush standing in water. (G-1) Edge of Topock Marsh next to Route 66; big saltbush and salt cedar on higher ground to the left and California bulrush in lower ground to the right. (G-2) Dense tamarisk thicket between BN&SF railroad tracks and Route 66. (G-3) Big saltbush on alkaline soils north of the Topock Marsh, west of County Road 10.

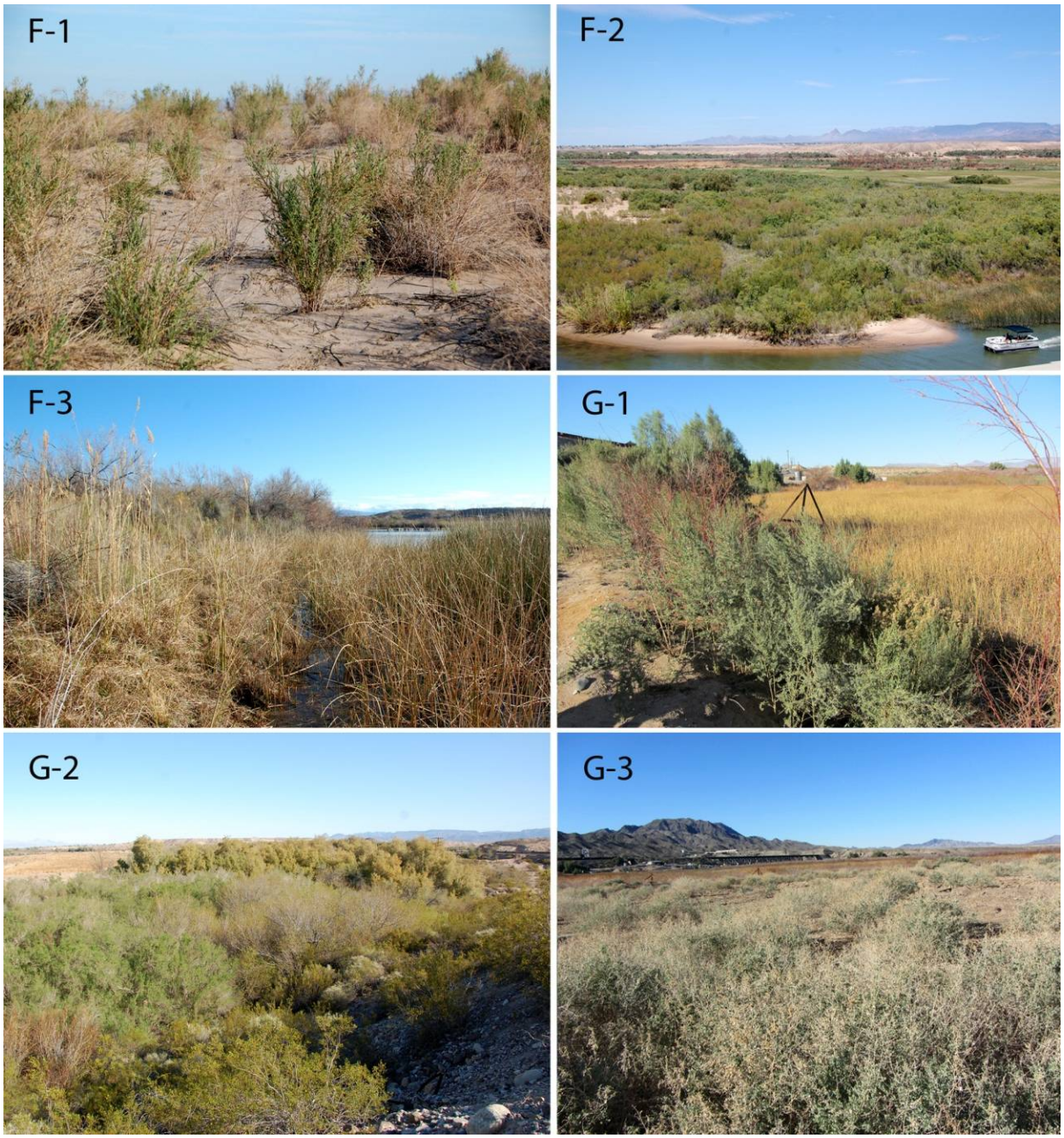


Plate 5. Segments G and H. (G-4) Sandy area with spring annuals including multi-paired suncup, stevia pincushion, brittle spineflower, *Cryptantha* spp., Spanish needles, and desert sunflower. (G-5) Upland rocky area dominated by creosote bush scrub. (H-1) Steep, disturbed, and eroded alluvial terraces below Topock Compressor Station. (H-2) Upper reaches of Bat Cave Wash below the compressor station. (H-3) Decomposing granitic bedrock of the Chemehuevi Mountains next to dissected alluvial terraces in Segment H. (H-4) Metamorphic rocks of the Chemehuevi Mountains in the eastern part of Segment H.

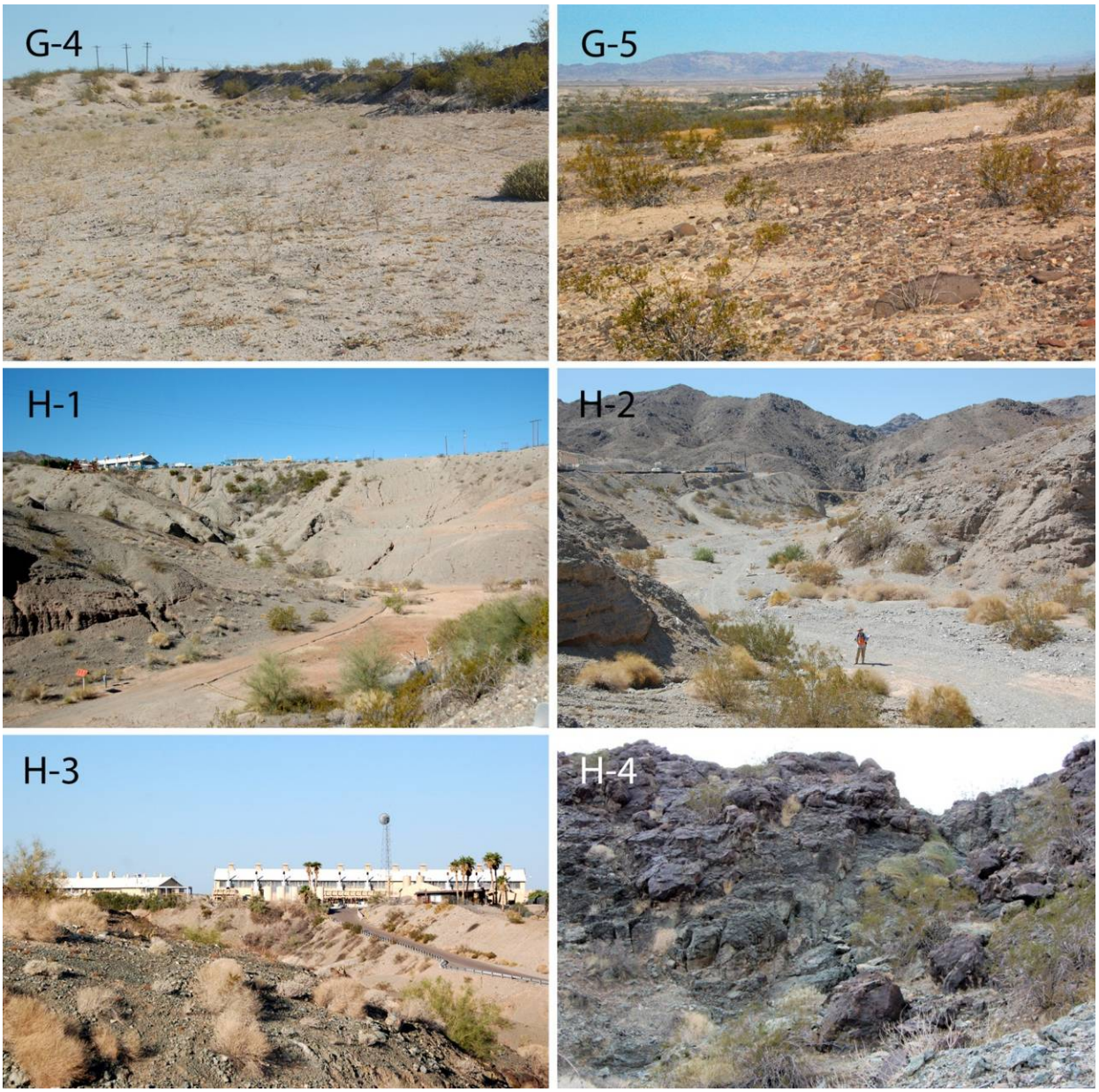
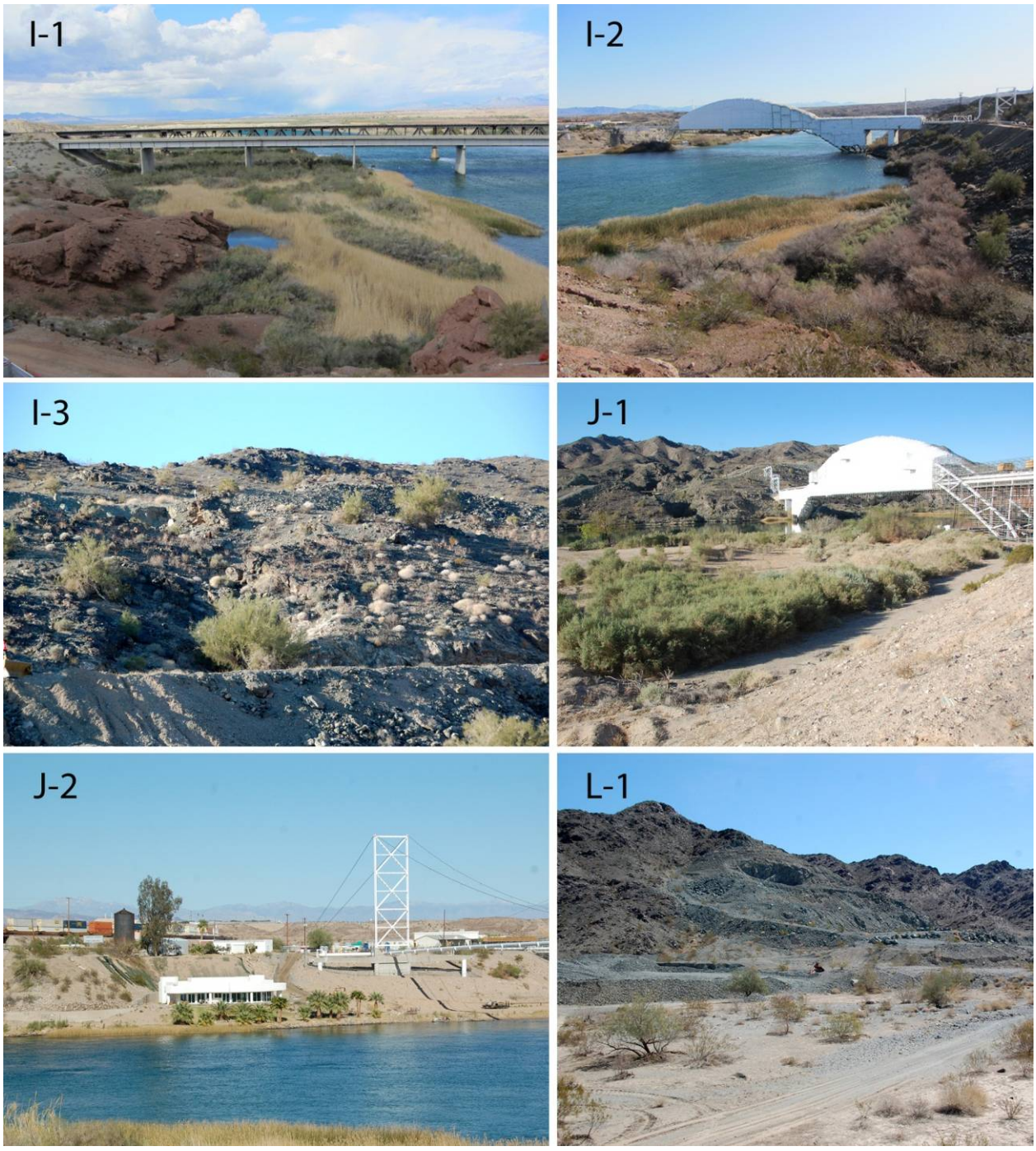


Plate 6. Segments I, J and L. (I-1) Common reed and California bulrush marshes at north end of Segment I with Miocene conglomerate outcrop in lower left of picture. (I-2) California bulrush marsh in river, honey mesquite at base of upland slope and hillside palo verde slightly higher up slope. (I-3) Hillside palo verde on slopes of Segment I above the Colorado River with white bursage and brittle bush. (J-1) Arrow weed and big saltbush in area below private residence along the Colorado River. (J-2) Private residence with landscaped areas (Mexican fan palms) and creosote bush scrub on slopes. (L-1) Blue palo verde woodland in sandy wash at quarry site; gravel piles visible at foot of Chemehuevi Mountains in background.



Appendix D
Photographs of Plants of Cultural Significance Found in the Project Area

APPENDIX D

Photographs of Plants of Cultural Significance Found in the Project Area

Plate 1. Ethnotrees: Palo verde. (1) Blue palo verde (*Parkinsonia florida*) showing characteristic growth habit. (2) Blue paloverde leaves with few, large bluish leaflets. (3) Close-up of blue palo verde flower. (4) Hillside palo verde (*Parkinsonia microphylla*) growth habit (5) Hillside palo verde leaves with many, small green leaflets. (6) Close-up of hillside palo verde flower.

Plate 2. Ethnotrees: Mesquites and willow. 1) Western honey mesquite (*Prosopis glandulosa* var. *torreyana*) branches. (2) Close-up of western honey mesquite fruit. (3) Screwbean mesquite (*Prosopis pubescens*) branches, leaves and fruit. (4) Fruiting branch of Goodding's willow (*Salix gooddingii*). (5) Leaves of Goodding's willow.

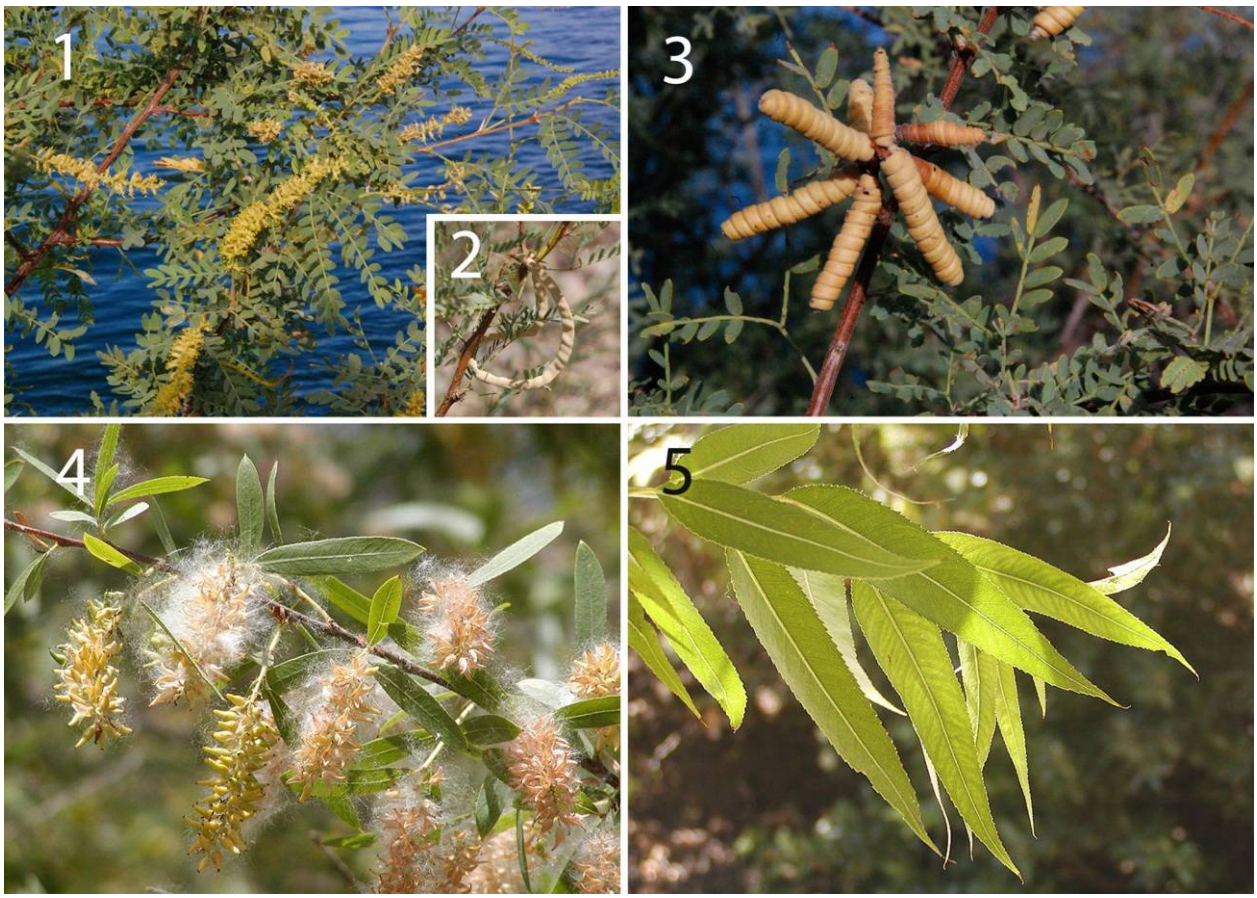


Plate 3. Ethnoshrubs. (1) Big saltbush (*Atriplex lentiformis*) population in Segment G. (2) Close-up of male big saltbush plant. (3) Habit of cattle saltbush (*Atriplex polycarpa*) in Segment G. (4) Close-up of branch of female cattle saltbush plant.

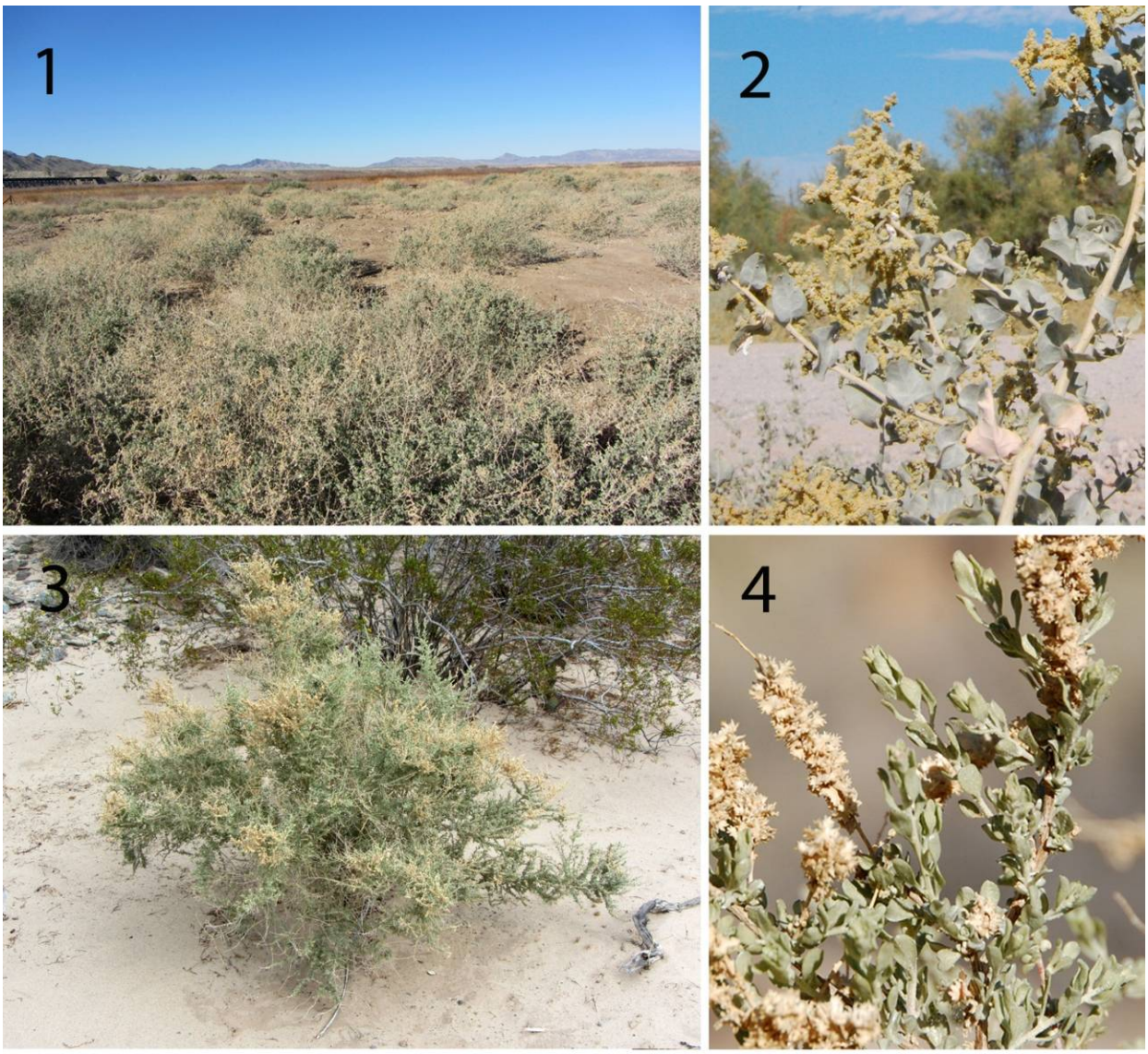


Plate 4. Ethnoherbs. (1) Dry skeletons of chia (*Salvia columbariae*) from spring 2011. (2) Chia flowers. (3) Desert tobacco (*Nicotiana obtusifolia*). (4) Desert lily (*Hesperocallis undulata*) flowers. (5) Desert lily flower close-up. (6) Golden suncup (*Chylismia brevipes* subsp. *brevipes*).

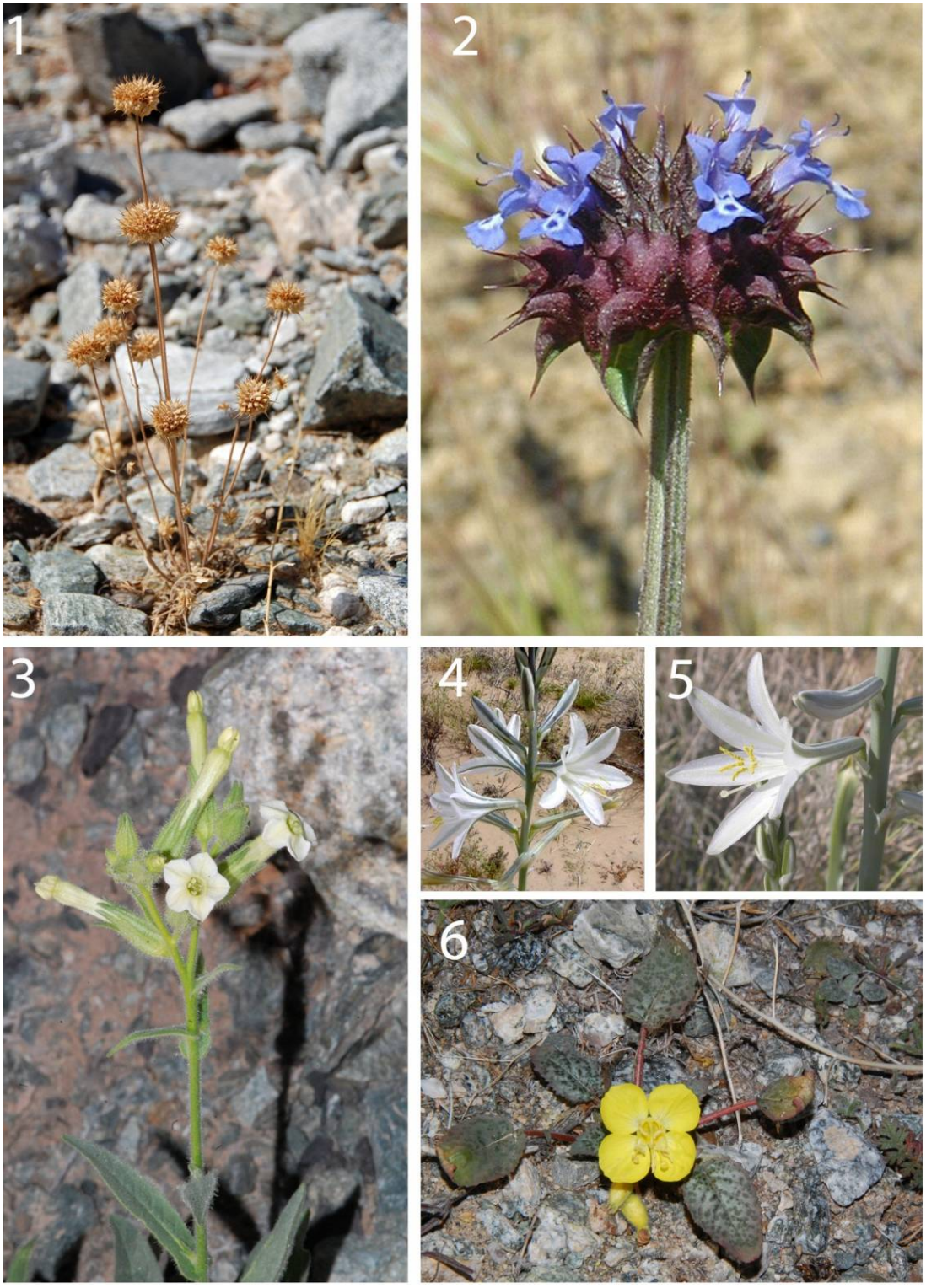


Plate 5. Ethnoherbs—wetland plants. (1) Broadleaf cattail (*Typha latifolia*) marsh in survey Segment C. (2) Close-up of broad-leaved cattail. (3) Common reed (*Phragmites australis*) marsh. (4) Close-up of common reed.

Appendix E
Avoidance and Restoration Plan for Culturally Significant Plant Species

APPENDIX E

Avoidance and Restoration Plan for Culturally Significant Plant Species

All efforts are to be made during the remediation process to avoid impacts to plants, especially to those of cultural significance listed in the Appendix PLA of the EIR.

Under Mitigation Number CUL-1a-5 in the mitigation monitoring and reporting program for the Topock Groundwater Remediation Project (DTSC, 2011), it is proposed that if any indigenous plants of traditional cultural significance listed in the Appendix PLA of the FEIR are identified in the project area, PG&E shall avoid, protect, and encourage the natural regeneration of the identified plants when developing the remediation design, final restoration plan and IM-3 decommission plan.

Furthermore, it states that in the event that identified plants cannot be avoided and such plants will be displaced, PG&E shall retain a qualified botanist who shall prepare a plant transplantation/monitoring plan which can be included as part of the Cultural Impact Mitigation Program either by:

1. Transplanting such indigenous plants to an on-site location, or
2. Providing a 2:1 ratio replacement to another location decided upon between PG&E and members of the Interested Tribes.

The mitigation measure also states that PG&E shall monitor all replanted and replacement plants for at least 3-5 years, and shall ensure at least a 75 percent survivorship during that time.

Mitigation for Culturally Significant Annual Plants

While suitable for trees, shrubs and herbaceous perennials, the mitigation measure outlined above is not appropriate for species that regenerate annually from seed stored in the soil. There are two such species on the PLA list that are known to occur in the Project Area, chia (*Salvia columbariae*) and golden suncup (*Chylismia brevipes* subsp. *brevipes*). No precise information is available on the abundance and distribution of these species in the Project Area, mainly because both species were rare during the spring survey of 2012. The only indication of their presence in the Project Area was the persistence of woody stalks in the case of chia and both woody stalks and a few live individuals in the case of golden suncup. Woody stalks from both species can remain in the environment for at least a year and possibly longer (Appendix D, Plate 4-1 and 4-6).

Live plants of golden suncup were observed during the fall survey of 2011 and spring survey of 2012, but individuals were very scattered and mostly on the rocky slopes above the dry washes of survey segments A, C and D. The dried stalks observed indicate that these plants can be quite common in an average or above average rainfall year.

Chia is known to occur in Segments D, H, and L, but may be more widespread than surveys from 2011-2012 suggest. Since chia has been observed to occur in Bat Cave wash in both Segments D and H, it is the species most likely to be impacted by the activities of the remediation project (e.g., trenching for pipelines, building of new access roads and the accessing of injection wells). It has been observed growing on the floor of Bat Cave Wash, especially around the injection wells in Section H. Chia typically occurs in dry, disturbed habitats (Baldwin et al. 2012), so that it is very likely that most small scale disturbance during construction activities would likely promote rather than hinder the establishment and reproduction of this species, at least for one or two years after completion of construction. Therefore, unless major disturbance to the floor of Bat Cave Wash is envisioned, it is unlikely that populations of this species will be adversely affected by the Topock Groundwater Remediation project.

In order to mitigate for annual species, such as chia or golden suncup, one should either collect and store seed prior to the disturbance and to re-seed post-construction or salvage the topsoil (3-4 inches) where construction or

disturbance will take place and store that soil until after construction. Topsoil salvaged from short-term disturbance areas should be piled to no more than 4 feet high and stabilized to prevent loss during storage. It should be re-spread during site rehabilitation as an initial procedure following construction. These measures will preserve a portion of the existing seed bank through construction. In short-term disturbance areas, the existing seed bank present in the topsoil has advantages over subsequently sown seed in that it is pre-conditioned to the soils environment.

Additional floristic surveys will be completed in the spring of 2013 to focus on areas where culturally significant plant species are likely to occur in the Project Area. The purpose of these surveys is to better document the size and distribution of these plant populations under more favorable rainfall conditions.

A full Avoidance and Restoration Plan for culturally significant plant species as required under Mitigation Number CUL-1a-5 of the Topock Groundwater Remediation Project (DTSC 2011) will be developed to address transplantation and planting methods, performance criteria, maintenance activities, frequency of monitoring and reporting requirements, and an adaptive management approach.

Appendix F
Locations for Culturally Significant Plants in the Project Area

APPENDIX F

Locations for Culturally Significant Plants in the Project Area[1]

Object ID	Common Name	Scientific Name	UTM Easting	UTM Northing
1. Blue and Hillside Palo Verde				
ID_1000	Blue Palo Verde	*Parkinsonia florida*	2386862.204	12617328.66
ID_1001	Blue Palo Verde	*Parkinsonia florida*	2387712.623	12616089.3
ID_1002	Blue Palo Verde	*Parkinsonia florida*	2387677.425	12616044.72
ID_1003	Blue Palo Verde	*Parkinsonia florida*	2387680.519	12616036.91
ID_1004	Blue Palo Verde	*Parkinsonia florida*	2387731.657	12616033.52
ID_1005	Blue Palo Verde	*Parkinsonia florida*	2387750.766	12615994.28
ID_1006	Blue Palo Verde	*Parkinsonia florida*	2387861.061	12616082.24
ID_1007	Blue Palo Verde	*Parkinsonia florida*	2387887.818	12616107.77
ID_1008	Blue Palo Verde	*Parkinsonia florida*	2387935.406	12616100.03
ID_1009	Blue Palo Verde	*Parkinsonia florida*	2387977.533	12616108.25
ID_1010	Blue Palo Verde	*Parkinsonia florida*	2388039.018	12616071.95
ID_1011	Blue Palo Verde	*Parkinsonia florida*	2388051.928	12616043.9
ID_1013	Blue Palo Verde	*Parkinsonia florida*	2388097.949	12615940.48
ID_1014	Blue Palo Verde	*Parkinsonia florida*	2388109.328	12615947.35
ID_1015	Blue Palo Verde	*Parkinsonia florida*	2388104.927	12615870.66
ID_1016	Blue Palo Verde	*Parkinsonia florida*	2388203.707	12616106.34
ID_1017	Blue Palo Verde	*Parkinsonia florida*	2388171.342	12616185.65
ID_1018	Blue Palo Verde	*Parkinsonia florida*	2388197.686	12616213.36
ID_1020	Blue Palo Verde	*Parkinsonia florida*	2388175.456	12616221.03
ID_1021	Blue Palo Verde	*Parkinsonia florida*	2388158.563	12616227.45
ID_1025	Blue Palo Verde	*Parkinsonia florida*	2388020.942	12616233.24
ID_1026	Blue Palo Verde	*Parkinsonia florida*	2387935.909	12616232.95
ID_1028	Blue Palo Verde	*Parkinsonia florida*	2396893.905	12613352.15
ID_1029	Blue Palo Verde	*Parkinsonia florida*	2396862.922	12613361.96
ID_1030	Blue Palo Verde	*Parkinsonia florida*	2396849.923	12613404.62
ID_1031	Blue Palo Verde	*Parkinsonia florida*	2396928.573	12613383.83
ID_1032	Blue Palo Verde	*Parkinsonia florida*	2396955.339	12613417.08
ID_1033	Blue Palo Verde	*Parkinsonia florida*	2396990.682	12613424.38
ID_1034	Blue Palo Verde	*Parkinsonia florida*	2396993.306	12613388.43
ID_1035	Blue Palo Verde	*Parkinsonia florida*	2397147.406	12613433.03
ID_1036	Blue Palo Verde	*Parkinsonia florida*	2397204.786	12613432.25

APPENDIX F

Locations for Culturally Significant Plants in the Project Area[1]

Object ID	Common Name	Scientific Name	UTM Easting	UTM Northing
ID_1039	Blue Palo Verde	*Parkinsonia florida*	2396730.188	12613379.22
ID_1040	Blue Palo Verde	*Parkinsonia florida*	2396573.85	12613341.77
ID_1041	Blue Palo Verde	*Parkinsonia florida*	2396564.289	12613374.24
ID_1042	Blue Palo Verde	*Parkinsonia florida*	2396355.104	12613371.47
ID_1048	Blue Palo Verde	*Parkinsonia florida*	2398110.705	12614565.09
ID_1114	Blue Palo Verde	*Parkinsonia florida*	2392063.798	12616174.78
ID_1115	Blue Palo Verde	*Parkinsonia florida*	2392057.279	12616134.77
ID_1116	Blue Palo Verde	*Parkinsonia florida*	2392073.556	12616069.22
ID_1117	Blue Palo Verde	*Parkinsonia florida*	2392065.188	12616067.71
ID_1118	Blue Palo Verde	*Parkinsonia florida*	2392010.814	12616073.59
ID_1119	Blue Palo Verde	*Parkinsonia florida*	2391980.389	12616038.55
ID_1120	Blue Palo Verde	*Parkinsonia florida*	2392029.87	12616042.72
ID_1121	Blue Palo Verde	*Parkinsonia florida*	2391996.397	12615999.47
ID_1122	Blue Palo Verde	*Parkinsonia florida*	2391969.564	12616099.71
ID_1123	Blue Palo Verde	*Parkinsonia florida*	2391923.084	12616174.78
ID_1124	Blue Palo Verde	*Parkinsonia florida*	2391983.994	12616173.34
ID_1125	Blue Palo Verde	*Parkinsonia florida*	2391922.031	12616114.46
ID_1126	Blue Palo Verde	*Parkinsonia florida*	2391787.349	12615857.1
ID_1127	Blue Palo Verde	*Parkinsonia florida*	2391786.15	12615793.79
ID_1128	Blue Palo Verde	*Parkinsonia florida*	2391693.799	12615787.6
ID_1129	Blue Palo Verde	*Parkinsonia florida*	2391628.841	12615802.32
ID_1130	Blue Palo Verde	*Parkinsonia florida*	2391606.479	12615717.2
ID_1131	Blue Palo Verde	*Parkinsonia florida*	2391611.28	12615799.98
ID_1132	Blue Palo Verde	*Parkinsonia florida*	2391557.186	12615773.86
ID_1133	Blue Palo Verde	*Parkinsonia florida*	2391544.79	12615781.95
ID_1134	Blue Palo Verde	*Parkinsonia florida*	2391535.269	12615780.88
ID_1135	Blue Palo Verde	*Parkinsonia florida*	2391518.633	12615788.53
ID_1136	Blue Palo Verde	*Parkinsonia florida*	2391504.7	12615796.55
ID_1137	Blue Palo Verde	*Parkinsonia florida*	2391499.671	12615781.76
ID_1138	Blue Palo Verde	*Parkinsonia florida*	2391491.938	12615832.63
ID_1139	Blue Palo Verde	*Parkinsonia florida*	2391445.401	12615827.98
ID_1140	Blue Palo Verde	*Parkinsonia florida*	2391337.187	12615803.26

APPENDIX F

Locations for Culturally Significant Plants in the Project Area[1]

Object ID	Common Name	Scientific Name	UTM Easting	UTM Northing
ID_1141	Blue Palo Verde	*Parkinsonia florida*	2391303.873	12615803.43
ID_1142	Blue Palo Verde	*Parkinsonia florida*	2391282.868	12615822.45
ID_1143	Blue Palo Verde	*Parkinsonia florida*	2391259.163	12615813.78
ID_1144	Blue Palo Verde	*Parkinsonia florida*	2391160.486	12615802.68
ID_1145	Blue Palo Verde	*Parkinsonia florida*	2391160.886	12615780.18
ID_1146	Blue Palo Verde	*Parkinsonia florida*	2391171.241	12615743.96
ID_1147	Blue Palo Verde	*Parkinsonia florida*	2391138.787	12615732.24
ID_1148	Blue Palo Verde	*Parkinsonia florida*	2391077.681	12615717.75
ID_1149	Blue Palo Verde	*Parkinsonia florida*	2391027.812	12615553.46
ID_1150	Blue Palo Verde	*Parkinsonia florida*	2391043.41	12615459.2
ID_1151	Blue Palo Verde	*Parkinsonia florida*	2391024.269	12615433.3
ID_1152	Blue Palo Verde	*Parkinsonia florida*	2391025.858	12615407.76
ID_1153	Blue Palo Verde	*Parkinsonia florida*	2390997.603	12615394.54
ID_1154	Blue Palo Verde	*Parkinsonia florida*	2390987.942	12615391.94
ID_1155	Blue Palo Verde	*Parkinsonia florida*	2390817.931	12615372.94
ID_1156	Blue Palo Verde	*Parkinsonia florida*	2390575.215	12615458.77
ID_1157	Blue Palo Verde	*Parkinsonia florida*	2390552.657	12615465.17
ID_1159	Blue Palo Verde	*Parkinsonia florida*	2390242.58	12615241.65
ID_1160	Blue Palo Verde	*Parkinsonia florida*	2390228.455	12615090.17
ID_1161	Blue Palo Verde	*Parkinsonia florida*	2390237.708	12615018.44
ID_1162	Blue Palo Verde	*Parkinsonia florida*	2390181.04	12614939.13
ID_1163	Blue Palo Verde	*Parkinsonia florida*	2390194.947	12614886.92
ID_1164	Blue Palo Verde	*Parkinsonia florida*	2390260.13	12614881.8
ID_1165	Blue Palo Verde	*Parkinsonia florida*	2390186.914	12614815.79
ID_1166	Blue Palo Verde	*Parkinsonia florida*	2390181.412	12614811.72
ID_1167	Blue Palo Verde	*Parkinsonia florida*	2390208.876	12614517.77
ID_1168	Blue Palo Verde	*Parkinsonia florida*	2390236.306	12614472.63
ID_1173	Blue Palo Verde	*Parkinsonia florida*	2391094.064	12614515.08
ID_1174	Blue Palo Verde	*Parkinsonia florida*	2391133.012	12614439.41
ID_1186	Blue Palo Verde	*Parkinsonia florida*	2392176.256	12615813.44
ID_1187	Blue Palo Verde	*Parkinsonia florida*	2392180.401	12615939.72
ID_1343	Blue Palo Verde	*Parkinsonia florida*	2394227.046	12612831.88

APPENDIX F

Locations for Culturally Significant Plants in the Project Area[1]

Object ID	Common Name	Scientific Name	UTM Easting	UTM Northing
ID_1344	Blue Palo Verde	*Parkinsonia florida*	2394108.832	12612675.66
ID_1345	Blue Palo Verde	*Parkinsonia florida*	2394104.297	12612661.92
ID_1346	Blue Palo Verde	*Parkinsonia florida*	2394110.345	12612655.61
ID_1350	Blue Palo Verde	*Parkinsonia florida*	2393210.218	12613469.22
ID_1351	Blue Palo Verde	*Parkinsonia florida*	2393231.876	12613493.59
ID_1352	Blue Palo Verde	*Parkinsonia florida*	2393227.388	12613589.14
ID_1353	Blue Palo Verde	*Parkinsonia florida*	2393202.652	12613580.44
ID_1354	Blue Palo Verde	*Parkinsonia florida*	2393208.335	12613605.65
ID_1362	Blue Palo Verde	*Parkinsonia florida*	2393125.778	12613485.87
ID_1363	Blue Palo Verde	*Parkinsonia florida*	2393137.254	12613443.61
ID_1364	Blue Palo Verde	*Parkinsonia florida*	2393138.643	12613442.25
ID_1365	Blue Palo Verde	*Parkinsonia florida*	2393143.549	12613453.89
ID_1401	Blue Palo Verde	*Parkinsonia florida*	2392142.638	12610462.7
ID_1440	Blue Palo Verde	*Parkinsonia florida*	2394618.189	12613016.67
ID_1441	Blue Palo Verde	*Parkinsonia florida*	2394615.859	12613025.45
ID_1442	Blue Palo Verde	*Parkinsonia florida*	2394549.837	12612996.83
ID_1443	Blue Palo Verde	*Parkinsonia florida*	2394616.209	12612971.77
ID_156	Blue Palo Verde	*Parkinsonia florida*	2394559.927	12612922.26
ID_157	Blue Palo Verde	*Parkinsonia florida*	2394535.632	12612888.26
ID_158	Blue Palo Verde	*Parkinsonia florida*	2394529.61	12612899.4
ID_159	Blue Palo Verde	*Parkinsonia florida*	2394435.463	12612919.41
ID_160	Blue Palo Verde	*Parkinsonia florida*	2394422.925	12612950.16
ID_1613	Blue Palo Verde	*Parkinsonia florida*	2395941.361	12612277.18
ID_166	Blue Palo Verde	*Parkinsonia florida*	2394134.012	12612792.76
ID_167	Blue Palo Verde	*Parkinsonia florida*	2393868.473	12612534.78
ID_169	Blue Palo Verde	*Parkinsonia florida*	2393204.568	12613490.6
ID_170	Blue Palo Verde	*Parkinsonia florida*	2393207.306	12613495.04
ID_171	Blue Palo Verde	*Parkinsonia florida*	2393197.961	12613516.06
ID_172	Blue Palo Verde	*Parkinsonia florida*	2393187.305	12613521.4
ID_173	Blue Palo Verde	*Parkinsonia florida*	2393190.147	12613543.76
ID_174	Blue Palo Verde	*Parkinsonia florida*	2393176.636	12613543.02
ID_175	Blue Palo Verde	*Parkinsonia florida*	2393160.909	12613649.56

APPENDIX F
Locations for Culturally Significant Plants in the Project Area[1]

Object ID	Common Name	Scientific Name	UTM Easting	UTM Northing
ID_176	Blue Palo Verde	*Parkinsonia florida*	2393206.176	12613656.44
ID_177	Blue Palo Verde	*Parkinsonia florida*	2393141.707	12613657.28
ID_178	Blue Palo Verde	*Parkinsonia florida*	2393278.721	12613656.14
ID_1780	Blue Palo Verde	*Parkinsonia florida*	2386204.21	12616209.66
ID_1781	Blue Palo Verde	*Parkinsonia florida*	2386186.543	12616177.99
ID_1782	Blue Palo Verde	*Parkinsonia florida*	2386127.522	12616250.31
ID_1784	Blue Palo Verde	*Parkinsonia florida*	2386203.908	12616195.76
ID_1787	Blue Palo Verde	*Parkinsonia florida*	2386248.737	12615819.76
ID_179	Blue Palo Verde	*Parkinsonia florida*	2393258.909	12613653.61
ID_1790	Blue Palo Verde	*Parkinsonia florida*	2386394.556	12616083.23
ID_1791	Blue Palo Verde	*Parkinsonia florida*	2386416.965	12615943.32
ID_1793	Blue Palo Verde	*Parkinsonia florida*	2386434.643	12615894.75
ID_1794	Blue Palo Verde	*Parkinsonia florida*	2386562.373	12616087.18
ID_1795	Blue Palo Verde	*Parkinsonia florida*	2386553.168	12616062.72
ID_1796	Blue Palo Verde	*Parkinsonia florida*	2386563.593	12616011.76
ID_1797	Blue Palo Verde	*Parkinsonia florida*	2386580.431	12615976.78
ID_1798	Blue Palo Verde	*Parkinsonia florida*	2386896.442	12616036.63
ID_1804	Blue Palo Verde	*Parkinsonia florida*	2388029.335	12616998.11
ID_1805	Blue Palo Verde	*Parkinsonia florida*	2387639.182	12616318.37
ID_1819	Blue Palo Verde	*Parkinsonia florida*	2391270.544	12617550.91
ID_1842	Blue Palo Verde	*Parkinsonia florida*	2391751.733	12617039.94
ID_1846	Blue Palo Verde	*Parkinsonia florida*	2387295.191	12616015.85
ID_1848	Blue Palo Verde	*Parkinsonia florida*	2387300.872	12615975.85
ID_1854	Blue Palo Verde	*Parkinsonia florida*	2386081.196	12615840.36
ID_1855	Blue Palo Verde	*Parkinsonia florida*	2390301.237	12614516.35
ID_1857	Blue Palo Verde	*Parkinsonia florida*	2390357.076	12614891.63
ID_1858	Blue Palo Verde	*Parkinsonia florida*	2390374.726	12614919.94
ID_1860	Blue Palo Verde	*Parkinsonia florida*	2390931.544	12614542.03
ID_1861	Blue Palo Verde	*Parkinsonia florida*	2391020.772	12614502.93
ID_1862	Blue Palo Verde	*Parkinsonia florida*	2391059.295	12614534.51
ID_1863	Blue Palo Verde	*Parkinsonia florida*	2391150.607	12614495.39
ID_1868	Blue Palo Verde	*Parkinsonia florida*	2388637.38	12616426.29

APPENDIX F

Locations for Culturally Significant Plants in the Project Area[1]

Object ID	Common Name	Scientific Name	UTM Easting	UTM Northing
ID_1871	Blue Palo Verde	*Parkinsonia florida*	2388865.203	12616518.33
ID_1873	Blue Palo Verde	*Parkinsonia florida*	2389039.018	12616576
ID_1874	Blue Palo Verde	*Parkinsonia florida*	2389058.338	12616580.24
ID_1885	Blue Palo Verde	*Parkinsonia florida*	2390761.428	12616764.16
ID_1887	Blue Palo Verde	*Parkinsonia florida*	2390834.409	12616763.39
ID_1888	Blue Palo Verde	*Parkinsonia florida*	2391144.237	12616727.61
ID_1894	Blue Palo Verde	*Parkinsonia florida*	2392960.498	12616391.64
ID_1897	Blue Palo Verde	*Parkinsonia florida*	2392933.085	12616102.22
ID_1898	Blue Palo Verde	*Parkinsonia florida*	2392971.811	12616066.92
ID_1899	Blue Palo Verde	*Parkinsonia florida*	2393011.232	12615940.14
ID_1902	Blue Palo Verde	*Parkinsonia florida*	2393303.234	12616172.21
ID_1903	Blue Palo Verde	*Parkinsonia florida*	2393385.73	12616215.68
ID_1905	Blue Palo Verde	*Parkinsonia florida*	2393367.234	12616233.23
ID_1907	Blue Palo Verde	*Parkinsonia florida*	2393531.846	12616277.92
ID_1910	Blue Palo Verde	*Parkinsonia florida*	2393621.256	12615622.44
ID_1911	Blue Palo Verde	*Parkinsonia florida*	2393555.201	12615634.04
ID_1912	Blue Palo Verde	*Parkinsonia florida*	2393567.142	12615603.7
ID_1913	Blue Palo Verde	*Parkinsonia florida*	2393533.137	12615642.07
ID_1915	Blue Palo Verde	*Parkinsonia florida*	2393660.371	12615521.49
ID_1917	Blue Palo Verde	*Parkinsonia florida*	2392827.761	12615494.82
ID_1925	Blue Palo Verde	*Parkinsonia florida*	2392160.995	12615454.83
ID_1926	Blue Palo Verde	*Parkinsonia florida*	2391992.856	12615096.9
ID_1927	Blue Palo Verde	*Parkinsonia florida*	2392151.955	12614304.4
ID_1932	Blue Palo Verde	*Parkinsonia florida*	2392886.371	12614812.88
ID_1934	Blue Palo Verde	*Parkinsonia florida*	2393328.527	12614740.74
ID_1935	Blue Palo Verde	*Parkinsonia florida*	2393348.326	12614723.18
ID_1936	Blue Palo Verde	*Parkinsonia florida*	2393371.614	12614707.32
ID_1937	Blue Palo Verde	*Parkinsonia florida*	2393369.588	12614765.52
ID_1938	Blue Palo Verde	*Parkinsonia florida*	2393022.726	12614465.91
ID_1943	Blue Palo Verde	*Parkinsonia florida*	2393170.21	12613754.1
ID_1944	Blue Palo Verde	*Parkinsonia florida*	2393177.77	12613815.68
ID_1946	Blue Palo Verde	*Parkinsonia florida*	2392828.139	12614110.07

APPENDIX F

Locations for Culturally Significant Plants in the Project Area[1]

Object ID	Common Name	Scientific Name	UTM Easting	UTM Northing
ID_1947	Blue Palo Verde	*Parkinsonia florida*	2392932.273	12614102.96
ID_1951	Blue Palo Verde	*Parkinsonia florida*	2393914.826	12614852.99
ID_1952	Blue Palo Verde	*Parkinsonia florida*	2393944.968	12614531.21
ID_1953	Blue Palo Verde	*Parkinsonia florida*	2393989.526	12614558.38
ID_1958	Blue Palo Verde	*Parkinsonia florida*	2394107.622	12614436.97
ID_1959	Blue Palo Verde	*Parkinsonia florida*	2394111.834	12614388.99
ID_1960	Blue Palo Verde	*Parkinsonia florida*	2394131.778	12614246.55
ID_1962	Blue Palo Verde	*Parkinsonia florida*	2394180.653	12614428.16
ID_1967	Blue Palo Verde	*Parkinsonia florida*	2393787.607	12615290.04
ID_1969	Blue Palo Verde	*Parkinsonia florida*	2394706.767	12612959.22
ID_1970	Blue Palo Verde	*Parkinsonia florida*	2394843.504	12612868.63
ID_1972	Blue Palo Verde	*Parkinsonia florida*	2394932.562	12612829.97
ID_1979	Blue Palo Verde	*Parkinsonia florida*	2395188.376	12612501.78
ID_1980	Blue Palo Verde	*Parkinsonia florida*	2395289.278	12612518.83
ID_1983	Blue Palo Verde	*Parkinsonia florida*	2395262.867	12612278.61
ID_1984	Blue Palo Verde	*Parkinsonia florida*	2395213.698	12612169.21
ID_1985	Blue Palo Verde	*Parkinsonia florida*	2395287.595	12612156.26
ID_1986	Blue Palo Verde	*Parkinsonia florida*	2395301.705	12612117.2
ID_1987	Blue Palo Verde	*Parkinsonia florida*	2395176.653	12612127.6
ID_1989	Blue Palo Verde	*Parkinsonia florida*	2394890.415	12612198.37
ID_1991	Blue Palo Verde	*Parkinsonia florida*	2395539.783	12612114.83
ID_1993	Blue Palo Verde	*Parkinsonia florida*	2395583.159	12612025.87
ID_1994	Blue Palo Verde	*Parkinsonia florida*	2395643.779	12611982.53
ID_1995	Blue Palo Verde	*Parkinsonia florida*	2396150.474	12612132.4
ID_1996	Blue Palo Verde	*Parkinsonia florida*	2396374.988	12612224.03
ID_2000	Blue Palo Verde	*Parkinsonia florida*	2394560.304	12612334.17
ID_2003	Blue Palo Verde	*Parkinsonia florida*	2394194.22	12612040.31
ID_2005	Blue Palo Verde	*Parkinsonia florida*	2394758.505	12612001.97
ID_2006	Blue Palo Verde	*Parkinsonia florida*	2394181.637	12613020.23
ID_2007	Blue Palo Verde	*Parkinsonia florida*	2394188.963	12612992.8
ID_2009	Blue Palo Verde	*Parkinsonia florida*	2394218.35	12612817.62
ID_2010	Blue Palo Verde	*Parkinsonia florida*	2394178.677	12612810.2

APPENDIX F

Locations for Culturally Significant Plants in the Project Area[1]

Object ID	Common Name	Scientific Name	UTM Easting	UTM Northing
ID_2042	Blue Palo Verde	*Parkinsonia florida*	2392133.443	12610453.23
ID_2059	Blue Palo Verde	*Parkinsonia florida*	2395758.73	12613514.17
ID_2060	Blue Palo Verde	*Parkinsonia florida*	2395787.582	12613446.59
ID_2064	Blue Palo Verde	*Parkinsonia florida*	2396746.547	12613681.32
ID_2065	Blue Palo Verde	*Parkinsonia florida*	2397169.775	12613696.39
ID_2070	Blue Palo Verde	*Parkinsonia florida*	2398082.537	12614557.29
ID_2076	Blue Palo Verde	*Parkinsonia florida*	2398661.201	12614929.23
ID_2091	Blue Palo Verde	*Parkinsonia florida*	2392218.074	12615642.21
ID_210	Blue Palo Verde	*Parkinsonia florida*	2394575.016	12612330.25
ID_214	Blue Palo Verde	*Parkinsonia florida*	2394516.943	12612993.45
ID_215	Blue Palo Verde	*Parkinsonia florida*	2394498.609	12612995.45
ID_216	Blue Palo Verde	*Parkinsonia florida*	2394511.551	12613010.49
ID_217	Blue Palo Verde	*Parkinsonia florida*	2394504.613	12613011.65
ID_218	Blue Palo Verde	*Parkinsonia florida*	2394430.462	12613020.76
ID_219	Blue Palo Verde	*Parkinsonia florida*	2394403.537	12613035.55
ID_220	Blue Palo Verde	*Parkinsonia florida*	2394301.926	12613106.21
ID_221	Blue Palo Verde	*Parkinsonia florida*	2394289.531	12613129.68
ID_222	Blue Palo Verde	*Parkinsonia florida*	2394456.804	12613084.51
ID_247	Blue Palo Verde	*Parkinsonia florida*	2392363.416	12616474.7
ID_248	Blue Palo Verde	*Parkinsonia florida*	2392359.321	12616463.61
ID_249	Blue Palo Verde	*Parkinsonia florida*	2392158.796	12616140.25
ID_250	Blue Palo Verde	*Parkinsonia florida*	2392114.299	12616099.01
ID_251	Blue Palo Verde	*Parkinsonia florida*	2392108.984	12616087.66
ID_252	Blue Palo Verde	*Parkinsonia florida*	2392140.653	12616073.48
ID_253	Blue Palo Verde	*Parkinsonia florida*	2392185.545	12616081.15
ID_254	Blue Palo Verde	*Parkinsonia florida*	2392162.708	12616012.48
ID_255	Blue Palo Verde	*Parkinsonia florida*	2392177.853	12615951.34
ID_256	Blue Palo Verde	*Parkinsonia florida*	2392161.564	12615948.15
ID_257	Blue Palo Verde	*Parkinsonia florida*	2392091.868	12615972.59
ID_258	Blue Palo Verde	*Parkinsonia florida*	2392055.307	12615954.11
ID_259	Blue Palo Verde	*Parkinsonia florida*	2392007.119	12615944.3
ID_260	Blue Palo Verde	*Parkinsonia florida*	2391977.499	12615953.9

APPENDIX F

Locations for Culturally Significant Plants in the Project Area[1]

Object ID	Common Name	Scientific Name	UTM Easting	UTM Northing
ID_261	Blue Palo Verde	*Parkinsonia florida*	2391978.732	12615920.03
ID_262	Blue Palo Verde	*Parkinsonia florida*	2391993.909	12615910.73
ID_263	Blue Palo Verde	*Parkinsonia florida*	2392007.205	12615900.8
ID_264	Blue Palo Verde	*Parkinsonia florida*	2391926.409	12615995.49
ID_265	Blue Palo Verde	*Parkinsonia florida*	2391895.164	12615955.68
ID_266	Blue Palo Verde	*Parkinsonia florida*	2391879.904	12615935.6
ID_267	Blue Palo Verde	*Parkinsonia florida*	2391897.661	12615914.53
ID_268	Blue Palo Verde	*Parkinsonia florida*	2391909.882	12615913.13
ID_269	Blue Palo Verde	*Parkinsonia florida*	2391890.592	12615879.74
ID_270	Blue Palo Verde	*Parkinsonia florida*	2391913.245	12615853.62
ID_272	Blue Palo Verde	*Parkinsonia florida*	2391756.309	12615716.55
ID_273	Blue Palo Verde	*Parkinsonia florida*	2391751.436	12615740.95
ID_274	Blue Palo Verde	*Parkinsonia florida*	2391708.056	12615743.78
ID_275	Blue Palo Verde	*Parkinsonia florida*	2391689.699	12615755.52
ID_276	Blue Palo Verde	*Parkinsonia florida*	2391668.996	12615762.86
ID_277	Blue Palo Verde	*Parkinsonia florida*	2391642.986	12615705.87
ID_278	Blue Palo Verde	*Parkinsonia florida*	2391627.231	12615675.84
ID_279	Blue Palo Verde	*Parkinsonia florida*	2391544.849	12615746.25
ID_280	Blue Palo Verde	*Parkinsonia florida*	2391504.779	12615733.82
ID_281	Blue Palo Verde	*Parkinsonia florida*	2391477.561	12615769.18
ID_282	Blue Palo Verde	*Parkinsonia florida*	2391426.927	12615769.33
ID_283	Blue Palo Verde	*Parkinsonia florida*	2391399.488	12615820.55
ID_284	Blue Palo Verde	*Parkinsonia florida*	2391387.215	12615821.84
ID_285	Blue Palo Verde	*Parkinsonia florida*	2391388.539	12615805.73
ID_286	Blue Palo Verde	*Parkinsonia florida*	2391297.406	12615707.41
ID_287	Blue Palo Verde	*Parkinsonia florida*	2391150.547	12615631.31
ID_288	Blue Palo Verde	*Parkinsonia florida*	2391146.906	12615609.63
ID_289	Blue Palo Verde	*Parkinsonia florida*	2391137.252	12615604.05
ID_290	Blue Palo Verde	*Parkinsonia florida*	2391136.981	12615567.26
ID_291	Blue Palo Verde	*Parkinsonia florida*	2391145.163	12615553.76
ID_292	Blue Palo Verde	*Parkinsonia florida*	2391101.69	12615637.1
ID_293	Blue Palo Verde	*Parkinsonia florida*	2391103.112	12615624.08

APPENDIX F

Locations for Culturally Significant Plants in the Project Area[1]

Object ID	Common Name	Scientific Name	UTM Easting	UTM Northing
ID_294	Blue Palo Verde	*Parkinsonia florida*	2391094.724	12615602.17
ID_295	Blue Palo Verde	*Parkinsonia florida*	2391108.568	12615580.73
ID_296	Blue Palo Verde	*Parkinsonia florida*	2391116.4	12615533.71
ID_297	Blue Palo Verde	*Parkinsonia florida*	2391157.584	12615492.06
ID_298	Blue Palo Verde	*Parkinsonia florida*	2391134.75	12615454.98
ID_299	Blue Palo Verde	*Parkinsonia florida*	2391106.783	12615435.34
ID_300	Blue Palo Verde	*Parkinsonia florida*	2391077.619	12615395
ID_301	Blue Palo Verde	*Parkinsonia florida*	2391079.784	12615368.01
ID_302	Blue Palo Verde	*Parkinsonia florida*	2391014.7	12615310.32
ID_303	Blue Palo Verde	*Parkinsonia florida*	2390935.199	12615280.82
ID_304	Blue Palo Verde	*Parkinsonia florida*	2390757.943	12615347.51
ID_305	Blue Palo Verde	*Parkinsonia florida*	2390484.644	12615430.77
ID_306	Blue Palo Verde	*Parkinsonia florida*	2390508.441	12615454.1
ID_307	Blue Palo Verde	*Parkinsonia florida*	2390481.055	12615468.94
ID_308	Blue Palo Verde	*Parkinsonia florida*	2390299.3	12615379.63
ID_309	Blue Palo Verde	*Parkinsonia florida*	2390296.887	12615275.22
ID_310	Blue Palo Verde	*Parkinsonia florida*	2390237.671	12615227.07
ID_311	Blue Palo Verde	*Parkinsonia florida*	2390264.32	12615144.02
ID_312	Blue Palo Verde	*Parkinsonia florida*	2390263.453	12615003.8
ID_313	Blue Palo Verde	*Parkinsonia florida*	2390380.469	12614926.74
ID_314	Blue Palo Verde	*Parkinsonia florida*	2390372.711	12614901.54
ID_315	Blue Palo Verde	*Parkinsonia florida*	2390232.084	12614817.34
ID_316	Blue Palo Verde	*Parkinsonia florida*	2390216.803	12614810.55
ID_317	Blue Palo Verde	*Parkinsonia florida*	2390195.132	12614708.56
ID_318	Blue Palo Verde	*Parkinsonia florida*	2390332.34	12614554.41
ID_319	Blue Palo Verde	*Parkinsonia florida*	2391241.566	12614433.8
ID_320	Blue Palo Verde	*Parkinsonia florida*	2391158.438	12614484.96
ID_321	Blue Palo Verde	*Parkinsonia florida*	2391086.668	12614495.07
ID_322	Blue Palo Verde	*Parkinsonia florida*	2390951.904	12614544.55
ID_323	Blue Palo Verde	*Parkinsonia florida*	2391112.102	12614435.8
ID_324	Blue Palo Verde	*Parkinsonia florida*	2391989.593	12615099.76
ID_325	Blue Palo Verde	*Parkinsonia florida*	2392175.944	12615424.39

APPENDIX F
Locations for Culturally Significant Plants in the Project Area[1]

Object ID	Common Name	Scientific Name	UTM Easting	UTM Northing
ID_327	Blue Palo Verde	*Parkinsonia florida*	2392233.655	12615643.38
ID_328	Blue Palo Verde	*Parkinsonia florida*	2392224.64	12615647.58
ID_329	Blue Palo Verde	*Parkinsonia florida*	2392184.688	12615798.27
ID_330	Blue Palo Verde	*Parkinsonia florida*	2392191.452	12615823.08
ID_331	Blue Palo Verde	*Parkinsonia florida*	2392199.607	12615832.03
ID_332	Blue Palo Verde	*Parkinsonia florida*	2392215.318	12615845.53
ID_335	Blue Palo Verde	*Parkinsonia florida*	2392180.849	12615921.01
ID_353	Blue Palo Verde	*Parkinsonia florida*	2395251.823	12612141.08
ID_354	Blue Palo Verde	*Parkinsonia florida*	2395304.394	12612166.17
ID_380	Blue Palo Verde	*Parkinsonia florida*	2391758.65	12617029.59
ID_41	Blue Palo Verde	*Parkinsonia florida*	2386969.564	12615445.07
ID_42	Blue Palo Verde	*Parkinsonia florida*	2386986.784	12616124.91
ID_43	Blue Palo Verde	*Parkinsonia florida*	2386963.132	12616111.63
ID_44	Blue Palo Verde	*Parkinsonia florida*	2386897.111	12616037.41
ID_45	Blue Palo Verde	*Parkinsonia florida*	2386851.739	12616002.92
ID_46	Blue Palo Verde	*Parkinsonia florida*	2387183.911	12616018.94
ID_48	Blue Palo Verde	*Parkinsonia florida*	2387236.683	12615485.05
ID_49	Blue Palo Verde	*Parkinsonia florida*	2387271.047	12615581.71
ID_50	Blue Palo Verde	*Parkinsonia florida*	2387281.869	12615595.58
ID_52	Blue Palo Verde	*Parkinsonia florida*	2387393.212	12615601.86
ID_53	Blue Palo Verde	*Parkinsonia florida*	2387356.617	12615812.33
ID_537	Blue Palo Verde	*Parkinsonia florida*	2393211.028	12614112.18
ID_538	Blue Palo Verde	*Parkinsonia florida*	2393199.801	12614137.72
ID_539	Blue Palo Verde	*Parkinsonia florida*	2393194.881	12614154.54
ID_54	Blue Palo Verde	*Parkinsonia florida*	2387293.848	12615859.19
ID_541	Blue Palo Verde	*Parkinsonia florida*	2393196.721	12614330.67
ID_543	Blue Palo Verde	*Parkinsonia florida*	2393205.24	12614396.86
ID_544	Blue Palo Verde	*Parkinsonia florida*	2393223.89	12614492.98
ID_545	Blue Palo Verde	*Parkinsonia florida*	2393226.672	12614535.15
ID_546	Blue Palo Verde	*Parkinsonia florida*	2393217.825	12614558.39
ID_547	Blue Palo Verde	*Parkinsonia florida*	2393208.53	12614630.78
ID_548	Blue Palo Verde	*Parkinsonia florida*	2393201.205	12614675.94

APPENDIX F

Locations for Culturally Significant Plants in the Project Area[1]

Object ID	Common Name	Scientific Name	UTM Easting	UTM Northing
ID_549	Blue Palo Verde	*Parkinsonia florida*	2393193.062	12614704.62
ID_55	Blue Palo Verde	*Parkinsonia florida*	2387337.569	12615977.96
ID_550	Blue Palo Verde	*Parkinsonia florida*	2393189.586	12614716.15
ID_551	Blue Palo Verde	*Parkinsonia florida*	2393198.779	12614845.17
ID_552	Blue Palo Verde	*Parkinsonia florida*	2393144.814	12614871.09
ID_553	Blue Palo Verde	*Parkinsonia florida*	2393131.572	12614931.56
ID_554	Blue Palo Verde	*Parkinsonia florida*	2393090.28	12614941.8
ID_555	Blue Palo Verde	*Parkinsonia florida*	2393068.093	12614948.7
ID_556	Blue Palo Verde	*Parkinsonia florida*	2392934.979	12614909.2
ID_557	Blue Palo Verde	*Parkinsonia florida*	2392940.104	12614904.63
ID_558	Blue Palo Verde	*Parkinsonia florida*	2392983.075	12614891.61
ID_559	Blue Palo Verde	*Parkinsonia florida*	2392990.306	12614862.96
ID_56	Blue Palo Verde	*Parkinsonia florida*	2388778.493	12616497.47
ID_560	Blue Palo Verde	*Parkinsonia florida*	2392910.107	12614965.94
ID_561	Blue Palo Verde	*Parkinsonia florida*	2392888.707	12614981.25
ID_562	Blue Palo Verde	*Parkinsonia florida*	2392881.405	12614998.68
ID_563	Blue Palo Verde	*Parkinsonia florida*	2392912.912	12615082.77
ID_565	Blue Palo Verde	*Parkinsonia florida*	2392931.931	12615125.5
ID_566	Blue Palo Verde	*Parkinsonia florida*	2392908.187	12615127.24
ID_568	Blue Palo Verde	*Parkinsonia florida*	2392895.175	12615143.86
ID_569	Blue Palo Verde	*Parkinsonia florida*	2392911.103	12615185.65
ID_570	Blue Palo Verde	*Parkinsonia florida*	2392983.627	12615159.5
ID_571	Blue Palo Verde	*Parkinsonia florida*	2392956.889	12615192.51
ID_572	Blue Palo Verde	*Parkinsonia florida*	2392948.887	12615258.68
ID_573	Blue Palo Verde	*Parkinsonia florida*	2392886.005	12615260.99
ID_574	Blue Palo Verde	*Parkinsonia florida*	2392875.784	12615277.65
ID_575	Blue Palo Verde	*Parkinsonia florida*	2392899.166	12615363.91
ID_576	Blue Palo Verde	*Parkinsonia florida*	2392926.223	12615376.15
ID_577	Blue Palo Verde	*Parkinsonia florida*	2392902.984	12615392.14
ID_578	Blue Palo Verde	*Parkinsonia florida*	2392909.355	12615427.4
ID_579	Blue Palo Verde	*Parkinsonia florida*	2392897.599	12615441.45
ID_580	Blue Palo Verde	*Parkinsonia florida*	2392894.88	12615477.4

APPENDIX F
Locations for Culturally Significant Plants in the Project Area[1]

Object ID	Common Name	Scientific Name	UTM Easting	UTM Northing
ID_581	Blue Palo Verde	*Parkinsonia florida*	2392881.318	12615521.94
ID_582	Blue Palo Verde	*Parkinsonia florida*	2392828.348	12615541.4
ID_583	Blue Palo Verde	*Parkinsonia florida*	2393018.616	12615314.21
ID_584	Blue Palo Verde	*Parkinsonia florida*	2393004.387	12615290.42
ID_585	Blue Palo Verde	*Parkinsonia florida*	2392987.928	12615289.16
ID_586	Blue Palo Verde	*Parkinsonia florida*	2392957.332	12615292.18
ID_587	Blue Palo Verde	*Parkinsonia florida*	2392960.396	12615247.01
ID_59	Blue Palo Verde	*Parkinsonia florida*	2389072.456	12616590.43
ID_592	Blue Palo Verde	*Parkinsonia florida*	2393107.606	12614865.59
ID_593	Blue Palo Verde	*Parkinsonia florida*	2393243.257	12614772.05
ID_594	Blue Palo Verde	*Parkinsonia florida*	2393273.713	12614689.62
ID_595	Blue Palo Verde	*Parkinsonia florida*	2393249.699	12614646.07
ID_596	Blue Palo Verde	*Parkinsonia florida*	2393261.457	12614589
ID_597	Blue Palo Verde	*Parkinsonia florida*	2393255.048	12614558.67
ID_598	Blue Palo Verde	*Parkinsonia florida*	2393293.461	12614522.9
ID_599	Blue Palo Verde	*Parkinsonia florida*	2386096.089	12616482.39
ID_60	Blue Palo Verde	*Parkinsonia florida*	2389047.368	12616584.76
ID_600	Blue Palo Verde	*Parkinsonia florida*	2386033.689	12616458.03
ID_602	Blue Palo Verde	*Parkinsonia florida*	2386079.345	12616305.64
ID_605	Blue Palo Verde	*Parkinsonia florida*	2386080.239	12615852.78
ID_606	Blue Palo Verde	*Parkinsonia florida*	2386143.113	12615764.94
ID_608	Blue Palo Verde	*Parkinsonia florida*	2386159.463	12615607.92
ID_609	Blue Palo Verde	*Parkinsonia florida*	2386268.727	12616020.92
ID_610	Blue Palo Verde	*Parkinsonia florida*	2386327.025	12615871.24
ID_612	Blue Palo Verde	*Parkinsonia florida*	2386306.651	12615547.21
ID_613	Blue Palo Verde	*Parkinsonia florida*	2386479.845	12615928.21
ID_614	Blue Palo Verde	*Parkinsonia florida*	2386455.175	12615949.4
ID_615	Blue Palo Verde	*Parkinsonia florida*	2386487.464	12615969.13
ID_616	Blue Palo Verde	*Parkinsonia florida*	2386485.095	12616015.5
ID_617	Blue Palo Verde	*Parkinsonia florida*	2386497.529	12616038.68
ID_618	Blue Palo Verde	*Parkinsonia florida*	2386526.338	12616058.9
ID_619	Blue Palo Verde	*Parkinsonia florida*	2386520.055	12615958.6

APPENDIX F

Locations for Culturally Significant Plants in the Project Area[1]

Object ID	Common Name	Scientific Name	UTM Easting	UTM Northing
ID_665	Blue Palo Verde	*Parkinsonia florida*	2393180.664	12613857.94
ID_666	Blue Palo Verde	*Parkinsonia florida*	2393204.419	12613861.08
ID_667	Blue Palo Verde	*Parkinsonia florida*	2393208.087	12613923.14
ID_668	Blue Palo Verde	*Parkinsonia florida*	2393206.026	12613996.37
ID_669	Blue Palo Verde	*Parkinsonia florida*	2393216.022	12614005.73
ID_670	Blue Palo Verde	*Parkinsonia florida*	2393198.235	12614019.04
ID_671	Blue Palo Verde	*Parkinsonia florida*	2393209.756	12614042.72
ID_672	Blue Palo Verde	*Parkinsonia florida*	2393204.819	12614068.9
ID_673	Blue Palo Verde	*Parkinsonia florida*	2393201.537	12614089.93
ID_674	Blue Palo Verde	*Parkinsonia florida*	2393176.477	12614079.98
ID_675	Blue Palo Verde	*Parkinsonia florida*	2393168.534	12614175.75
ID_676	Blue Palo Verde	*Parkinsonia florida*	2393158.885	12614231.9
ID_677	Blue Palo Verde	*Parkinsonia florida*	2393139.641	12614325.25
ID_678	Blue Palo Verde	*Parkinsonia florida*	2393136.371	12614341.47
ID_679	Blue Palo Verde	*Parkinsonia florida*	2393169.44	12614390.28
ID_68	Blue Palo Verde	*Parkinsonia florida*	2393582.862	12615610.17
ID_680	Blue Palo Verde	*Parkinsonia florida*	2393182.603	12614395.58
ID_681	Blue Palo Verde	*Parkinsonia florida*	2393187.941	12614425.76
ID_682	Blue Palo Verde	*Parkinsonia florida*	2393178.846	12614433.43
ID_683	Blue Palo Verde	*Parkinsonia florida*	2393198.128	12614445.73
ID_684	Blue Palo Verde	*Parkinsonia florida*	2393198.963	12614463.05
ID_685	Blue Palo Verde	*Parkinsonia florida*	2393193.478	12614459.89
ID_686	Blue Palo Verde	*Parkinsonia florida*	2393193	12614471.18
ID_687	Blue Palo Verde	*Parkinsonia florida*	2393202.211	12614509.27
ID_688	Blue Palo Verde	*Parkinsonia florida*	2393196.079	12614536.43
ID_689	Blue Palo Verde	*Parkinsonia florida*	2393195.942	12614545.85
ID_690	Blue Palo Verde	*Parkinsonia florida*	2393185.62	12614583.01
ID_691	Blue Palo Verde	*Parkinsonia florida*	2393179.974	12614564.25
ID_692	Blue Palo Verde	*Parkinsonia florida*	2393169.869	12614540.04
ID_693	Blue Palo Verde	*Parkinsonia florida*	2393145.949	12614566.98
ID_694	Blue Palo Verde	*Parkinsonia florida*	2393143.378	12614577.52
ID_695	Blue Palo Verde	*Parkinsonia florida*	2393149.985	12614586.06

APPENDIX F
Locations for Culturally Significant Plants in the Project Area[1]

Object ID	Common Name	Scientific Name	UTM Easting	UTM Northing
ID_696	Blue Palo Verde	*Parkinsonia florida*	2393151.578	12614612.06
ID_697	Blue Palo Verde	*Parkinsonia florida*	2393118.697	12614670.14
ID_698	Blue Palo Verde	*Parkinsonia florida*	2393115.015	12614683.47
ID_699	Blue Palo Verde	*Parkinsonia florida*	2393112.891	12614699.32
ID_700	Blue Palo Verde	*Parkinsonia florida*	2393128.578	12614771.76
ID_701	Blue Palo Verde	*Parkinsonia florida*	2393085.385	12614814.24
ID_704	Blue Palo Verde	*Parkinsonia florida*	2393094.342	12614901.84
ID_706	Blue Palo Verde	*Parkinsonia florida*	2393057.779	12614763.6
ID_707	Blue Palo Verde	*Parkinsonia florida*	2393064.584	12614696.23
ID_708	Blue Palo Verde	*Parkinsonia florida*	2393074.207	12614649.96
ID_709	Blue Palo Verde	*Parkinsonia florida*	2393089.515	12614641.2
ID_71	Blue Palo Verde	*Parkinsonia florida*	2393604.521	12615504.03
ID_710	Blue Palo Verde	*Parkinsonia florida*	2393061.752	12614623.24
ID_711	Blue Palo Verde	*Parkinsonia florida*	2393057.946	12614631.51
ID_713	Blue Palo Verde	*Parkinsonia florida*	2393083.568	12614596.03
ID_714	Blue Palo Verde	*Parkinsonia florida*	2393105.51	12614548.3
ID_715	Blue Palo Verde	*Parkinsonia florida*	2393099.237	12614513.39
ID_717	Blue Palo Verde	*Parkinsonia florida*	2393084.589	12614178.39
ID_718	Blue Palo Verde	*Parkinsonia florida*	2393123.067	12613831.48
ID_719	Blue Palo Verde	*Parkinsonia florida*	2393122.689	12613769.06
ID_72	Blue Palo Verde	*Parkinsonia florida*	2393635.322	12615484.55
ID_720	Blue Palo Verde	*Parkinsonia florida*	2393133.019	12613738.88
ID_721	Blue Palo Verde	*Parkinsonia florida*	2392852.363	12614933.27
ID_722	Blue Palo Verde	*Parkinsonia florida*	2392823.005	12614920.37
ID_723	Blue Palo Verde	*Parkinsonia florida*	2392842.667	12614955.07
ID_724	Blue Palo Verde	*Parkinsonia florida*	2392820.048	12614982.76
ID_725	Blue Palo Verde	*Parkinsonia florida*	2392857.984	12614979.66
ID_726	Blue Palo Verde	*Parkinsonia florida*	2392818.071	12615031.89
ID_727	Blue Palo Verde	*Parkinsonia florida*	2392833.641	12615120.29
ID_728	Blue Palo Verde	*Parkinsonia florida*	2392806.699	12615162.92
ID_729	Blue Palo Verde	*Parkinsonia florida*	2392823.957	12615148.72
ID_73	Blue Palo Verde	*Parkinsonia florida*	2393639.623	12615474.7

APPENDIX F

Locations for Culturally Significant Plants in the Project Area[1]

Object ID	Common Name	Scientific Name	UTM Easting	UTM Northing
ID_730	Blue Palo Verde	*Parkinsonia florida*	2392838.154	12615210.36
ID_731	Blue Palo Verde	*Parkinsonia florida*	2392829.692	12615227.66
ID_732	Blue Palo Verde	*Parkinsonia florida*	2392840.293	12615241.62
ID_733	Blue Palo Verde	*Parkinsonia florida*	2392836.792	12615245.49
ID_734	Blue Palo Verde	*Parkinsonia florida*	2392791.032	12615172.76
ID_735	Blue Palo Verde	*Parkinsonia florida*	2392767.814	12615179.02
ID_736	Blue Palo Verde	*Parkinsonia florida*	2392742.95	12615248.14
ID_737	Blue Palo Verde	*Parkinsonia florida*	2392863.85	12615219.26
ID_738	Blue Palo Verde	*Parkinsonia florida*	2392845.015	12615259.52
ID_739	Blue Palo Verde	*Parkinsonia florida*	2392818.667	12615268.54
ID_74	Blue Palo Verde	*Parkinsonia florida*	2393651.987	12615467.37
ID_740	Blue Palo Verde	*Parkinsonia florida*	2392806.704	12615283.06
ID_741	Blue Palo Verde	*Parkinsonia florida*	2392824.228	12615298.02
ID_742	Blue Palo Verde	*Parkinsonia florida*	2392828.811	12615312.13
ID_743	Blue Palo Verde	*Parkinsonia florida*	2392817.703	12615306.79
ID_744	Blue Palo Verde	*Parkinsonia florida*	2392806.557	12615324.21
ID_745	Blue Palo Verde	*Parkinsonia florida*	2392820.792	12615331.11
ID_746	Blue Palo Verde	*Parkinsonia florida*	2392820.633	12615350.01
ID_747	Blue Palo Verde	*Parkinsonia florida*	2392831.71	12615374.54
ID_748	Blue Palo Verde	*Parkinsonia florida*	2392795.674	12615393.36
ID_749	Blue Palo Verde	*Parkinsonia florida*	2392817.944	12615413.07
ID_75	Blue Palo Verde	*Parkinsonia florida*	2393930.5	12614866.29
ID_750	Blue Palo Verde	*Parkinsonia florida*	2392817.18	12615418.98
ID_751	Blue Palo Verde	*Parkinsonia florida*	2392849.206	12615398.23
ID_752	Blue Palo Verde	*Parkinsonia florida*	2392853.574	12615419.87
ID_753	Blue Palo Verde	*Parkinsonia florida*	2392850.787	12615440.69
ID_754	Blue Palo Verde	*Parkinsonia florida*	2392850.058	12615451.49
ID_755	Blue Palo Verde	*Parkinsonia florida*	2392841.206	12615471.66
ID_757	Blue Palo Verde	*Parkinsonia florida*	2393035.419	12615024.87
ID_758	Blue Palo Verde	*Parkinsonia florida*	2393063.1	12614956.67
ID_759	Blue Palo Verde	*Parkinsonia florida*	2393122.625	12614932.87
ID_76	Blue Palo Verde	*Parkinsonia florida*	2394006.049	12614592.56

APPENDIX F
Locations for Culturally Significant Plants in the Project Area[1]

Object ID	Common Name	Scientific Name	UTM Easting	UTM Northing
ID_760	Blue Palo Verde	*Parkinsonia florida*	2393139.899	12614880.64
ID_761	Blue Palo Verde	*Parkinsonia florida*	2393335.768	12614788.83
ID_762	Blue Palo Verde	*Parkinsonia florida*	2393329.482	12614766.24
ID_763	Blue Palo Verde	*Parkinsonia florida*	2393346.65	12614749.51
ID_764	Blue Palo Verde	*Parkinsonia florida*	2393355.526	12614740.02
ID_765	Blue Palo Verde	*Parkinsonia florida*	2393408.816	12614690.99
ID_766	Blue Palo Verde	*Parkinsonia florida*	2393180.664	12613857.94
ID_767	Blue Palo Verde	*Parkinsonia florida*	2393204.419	12613861.08
ID_768	Blue Palo Verde	*Parkinsonia florida*	2393208.087	12613923.14
ID_769	Blue Palo Verde	*Parkinsonia florida*	2393206.026	12613996.37
ID_77	Blue Palo Verde	*Parkinsonia florida*	2394035.271	12614559.02
ID_770	Blue Palo Verde	*Parkinsonia florida*	2393216.022	12614005.73
ID_771	Blue Palo Verde	*Parkinsonia florida*	2393198.235	12614019.04
ID_772	Blue Palo Verde	*Parkinsonia florida*	2393209.756	12614042.72
ID_773	Blue Palo Verde	*Parkinsonia florida*	2393204.819	12614068.9
ID_774	Blue Palo Verde	*Parkinsonia florida*	2393201.537	12614089.93
ID_775	Blue Palo Verde	*Parkinsonia florida*	2393176.477	12614079.98
ID_776	Blue Palo Verde	*Parkinsonia florida*	2393168.534	12614175.75
ID_777	Blue Palo Verde	*Parkinsonia florida*	2393158.885	12614231.9
ID_778	Blue Palo Verde	*Parkinsonia florida*	2393139.641	12614325.25
ID_779	Blue Palo Verde	*Parkinsonia florida*	2393136.371	12614341.47
ID_78	Blue Palo Verde	*Parkinsonia florida*	2394066.501	12614428.69
ID_780	Blue Palo Verde	*Parkinsonia florida*	2393169.44	12614390.28
ID_781	Blue Palo Verde	*Parkinsonia florida*	2393182.603	12614395.58
ID_782	Blue Palo Verde	*Parkinsonia florida*	2393187.941	12614425.76
ID_783	Blue Palo Verde	*Parkinsonia florida*	2393178.846	12614433.43
ID_784	Blue Palo Verde	*Parkinsonia florida*	2393198.128	12614445.73
ID_785	Blue Palo Verde	*Parkinsonia florida*	2393198.963	12614463.05
ID_786	Blue Palo Verde	*Parkinsonia florida*	2393193.478	12614459.89
ID_787	Blue Palo Verde	*Parkinsonia florida*	2393193	12614471.18
ID_788	Blue Palo Verde	*Parkinsonia florida*	2393202.211	12614509.27
ID_789	Blue Palo Verde	*Parkinsonia florida*	2393196.079	12614536.43

APPENDIX F

Locations for Culturally Significant Plants in the Project Area[1]

Object ID	Common Name	Scientific Name	UTM Easting	UTM Northing
ID_79	Blue Palo Verde	*Parkinsonia florida*	2394075.329	12614400.28
ID_790	Blue Palo Verde	*Parkinsonia florida*	2393195.942	12614545.85
ID_791	Blue Palo Verde	*Parkinsonia florida*	2393185.62	12614583.01
ID_792	Blue Palo Verde	*Parkinsonia florida*	2393179.974	12614564.25
ID_793	Blue Palo Verde	*Parkinsonia florida*	2393169.869	12614540.04
ID_794	Blue Palo Verde	*Parkinsonia florida*	2393145.949	12614566.98
ID_795	Blue Palo Verde	*Parkinsonia florida*	2393143.378	12614577.52
ID_796	Blue Palo Verde	*Parkinsonia florida*	2393149.985	12614586.06
ID_797	Blue Palo Verde	*Parkinsonia florida*	2393151.578	12614612.06
ID_798	Blue Palo Verde	*Parkinsonia florida*	2393118.697	12614670.14
ID_799	Blue Palo Verde	*Parkinsonia florida*	2393115.015	12614683.47
ID_80	Blue Palo Verde	*Parkinsonia florida*	2394080.123	12614368.02
ID_800	Blue Palo Verde	*Parkinsonia florida*	2393112.891	12614699.32
ID_801	Blue Palo Verde	*Parkinsonia florida*	2393128.578	12614771.76
ID_802	Blue Palo Verde	*Parkinsonia florida*	2393085.385	12614814.24
ID_805	Blue Palo Verde	*Parkinsonia florida*	2393094.342	12614901.84
ID_807	Blue Palo Verde	*Parkinsonia florida*	2393057.779	12614763.6
ID_808	Blue Palo Verde	*Parkinsonia florida*	2393064.584	12614696.23
ID_809	Blue Palo Verde	*Parkinsonia florida*	2393074.207	12614649.96
ID_81	Blue Palo Verde	*Parkinsonia florida*	2394083.593	12614352.1
ID_810	Blue Palo Verde	*Parkinsonia florida*	2393089.515	12614641.2
ID_811	Blue Palo Verde	*Parkinsonia florida*	2393061.752	12614623.24
ID_812	Blue Palo Verde	*Parkinsonia florida*	2393057.946	12614631.51
ID_814	Blue Palo Verde	*Parkinsonia florida*	2393083.568	12614596.03
ID_815	Blue Palo Verde	*Parkinsonia florida*	2393105.51	12614548.3
ID_816	Blue Palo Verde	*Parkinsonia florida*	2393099.237	12614513.39
ID_818	Blue Palo Verde	*Parkinsonia florida*	2393084.589	12614178.39
ID_819	Blue Palo Verde	*Parkinsonia florida*	2393123.067	12613831.48
ID_82	Blue Palo Verde	*Parkinsonia florida*	2394081.611	12614328.72
ID_820	Blue Palo Verde	*Parkinsonia florida*	2393122.689	12613769.06
ID_821	Blue Palo Verde	*Parkinsonia florida*	2393133.019	12613738.88
ID_822	Blue Palo Verde	*Parkinsonia florida*	2392852.363	12614933.27

APPENDIX F
Locations for Culturally Significant Plants in the Project Area[1]

Object ID	Common Name	Scientific Name	UTM Easting	UTM Northing
ID_823	Blue Palo Verde	*Parkinsonia florida*	2392823.005	12614920.37
ID_824	Blue Palo Verde	*Parkinsonia florida*	2392842.667	12614955.07
ID_825	Blue Palo Verde	*Parkinsonia florida*	2392820.048	12614982.76
ID_826	Blue Palo Verde	*Parkinsonia florida*	2392857.984	12614979.66
ID_827	Blue Palo Verde	*Parkinsonia florida*	2392818.071	12615031.89
ID_828	Blue Palo Verde	*Parkinsonia florida*	2392833.641	12615120.29
ID_829	Blue Palo Verde	*Parkinsonia florida*	2392806.699	12615162.92
ID_83	Blue Palo Verde	*Parkinsonia florida*	2394089.506	12614308.89
ID_830	Blue Palo Verde	*Parkinsonia florida*	2392823.957	12615148.72
ID_831	Blue Palo Verde	*Parkinsonia florida*	2392838.154	12615210.36
ID_832	Blue Palo Verde	*Parkinsonia florida*	2392829.692	12615227.66
ID_833	Blue Palo Verde	*Parkinsonia florida*	2392840.293	12615241.62
ID_834	Blue Palo Verde	*Parkinsonia florida*	2392836.792	12615245.49
ID_835	Blue Palo Verde	*Parkinsonia florida*	2392791.032	12615172.76
ID_836	Blue Palo Verde	*Parkinsonia florida*	2392767.814	12615179.02
ID_837	Blue Palo Verde	*Parkinsonia florida*	2392742.95	12615248.14
ID_838	Blue Palo Verde	*Parkinsonia florida*	2392863.85	12615219.26
ID_839	Blue Palo Verde	*Parkinsonia florida*	2392845.015	12615259.52
ID_84	Blue Palo Verde	*Parkinsonia florida*	2394090.907	12614267.56
ID_840	Blue Palo Verde	*Parkinsonia florida*	2392818.667	12615268.54
ID_841	Blue Palo Verde	*Parkinsonia florida*	2392806.704	12615283.06
ID_842	Blue Palo Verde	*Parkinsonia florida*	2392824.228	12615298.02
ID_843	Blue Palo Verde	*Parkinsonia florida*	2392828.811	12615312.13
ID_844	Blue Palo Verde	*Parkinsonia florida*	2392817.703	12615306.79
ID_845	Blue Palo Verde	*Parkinsonia florida*	2392806.557	12615324.21
ID_846	Blue Palo Verde	*Parkinsonia florida*	2392820.792	12615331.11
ID_847	Blue Palo Verde	*Parkinsonia florida*	2392820.633	12615350.01
ID_848	Blue Palo Verde	*Parkinsonia florida*	2392831.71	12615374.54
ID_849	Blue Palo Verde	*Parkinsonia florida*	2392795.674	12615393.36
ID_85	Blue Palo Verde	*Parkinsonia florida*	2394090.524	12614252.09
ID_850	Blue Palo Verde	*Parkinsonia florida*	2392817.944	12615413.07
ID_851	Blue Palo Verde	*Parkinsonia florida*	2392817.18	12615418.98

APPENDIX F

Locations for Culturally Significant Plants in the Project Area[1]

Object ID	Common Name	Scientific Name	UTM Easting	UTM Northing
ID_852	Blue Palo Verde	*Parkinsonia florida*	2392849.206	12615398.23
ID_853	Blue Palo Verde	*Parkinsonia florida*	2392853.574	12615419.87
ID_854	Blue Palo Verde	*Parkinsonia florida*	2392850.787	12615440.69
ID_855	Blue Palo Verde	*Parkinsonia florida*	2392850.058	12615451.49
ID_856	Blue Palo Verde	*Parkinsonia florida*	2392841.206	12615471.66
ID_858	Blue Palo Verde	*Parkinsonia florida*	2393035.419	12615024.87
ID_859	Blue Palo Verde	*Parkinsonia florida*	2393063.1	12614956.67
ID_86	Blue Palo Verde	*Parkinsonia florida*	2394094.707	12614222.9
ID_860	Blue Palo Verde	*Parkinsonia florida*	2393122.625	12614932.87
ID_861	Blue Palo Verde	*Parkinsonia florida*	2393139.899	12614880.64
ID_862	Blue Palo Verde	*Parkinsonia florida*	2393335.768	12614788.83
ID_863	Blue Palo Verde	*Parkinsonia florida*	2393329.482	12614766.24
ID_864	Blue Palo Verde	*Parkinsonia florida*	2393346.65	12614749.51
ID_865	Blue Palo Verde	*Parkinsonia florida*	2393355.526	12614740.02
ID_866	Blue Palo Verde	*Parkinsonia florida*	2393408.816	12614690.99
ID_87	Blue Palo Verde	*Parkinsonia florida*	2394103.512	12614088.78
ID_88	Blue Palo Verde	*Parkinsonia florida*	2394175.763	12614419.99
ID_897	Blue Palo Verde	*Parkinsonia florida*	2387230.298	12615385.58
ID_898	Blue Palo Verde	*Parkinsonia florida*	2387234.039	12615409.25
ID_899	Blue Palo Verde	*Parkinsonia florida*	2387223.889	12615496.08
ID_900	Blue Palo Verde	*Parkinsonia florida*	2387227.254	12615637.25
ID_901	Blue Palo Verde	*Parkinsonia florida*	2387294.867	12615719.58
ID_902	Blue Palo Verde	*Parkinsonia florida*	2387307.996	12615687.12
ID_903	Blue Palo Verde	*Parkinsonia florida*	2387319.618	12615676.78
ID_904	Blue Palo Verde	*Parkinsonia florida*	2387317.662	12615703.04
ID_905	Blue Palo Verde	*Parkinsonia florida*	2387346.302	12615785.21
ID_906	Blue Palo Verde	*Parkinsonia florida*	2387342.124	12615795.01
ID_907	Blue Palo Verde	*Parkinsonia florida*	2387293.802	12615827.16
ID_908	Blue Palo Verde	*Parkinsonia florida*	2388355.729	12616326
ID_909	Blue Palo Verde	*Parkinsonia florida*	2388361.942	12616317.63
ID_910	Blue Palo Verde	*Parkinsonia florida*	2388369.051	12616318.67
ID_911	Blue Palo Verde	*Parkinsonia florida*	2388397.058	12616313.72

APPENDIX F
Locations for Culturally Significant Plants in the Project Area[1]

Object ID	Common Name	Scientific Name	UTM Easting	UTM Northing
ID_913	Blue Palo Verde	*Parkinsonia florida*	2388872.189	12616522.29
ID_914	Blue Palo Verde	*Parkinsonia florida*	2388884.635	12616521.48
ID_917	Blue Palo Verde	*Parkinsonia florida*	2388962.896	12616442.98
ID_920	Blue Palo Verde	*Parkinsonia florida*	2389007.78	12616472.09
ID_926	Blue Palo Verde	*Parkinsonia florida*	2390839.351	12616720.95
ID_927	Blue Palo Verde	*Parkinsonia florida*	2390861.263	12616722.03
ID_929	Blue Palo Verde	*Parkinsonia florida*	2390956.222	12616728.65
ID_930	Blue Palo Verde	*Parkinsonia florida*	2391021.787	12616732.91
ID_933	Blue Palo Verde	*Parkinsonia florida*	2391101.082	12616745.06
ID_944	Blue Palo Verde	*Parkinsonia florida*	2392975.207	12616403.85
ID_945	Blue Palo Verde	*Parkinsonia florida*	2393553.096	12615641.86
ID_946	Blue Palo Verde	*Parkinsonia florida*	2393570.247	12615634.63
ID_947	Blue Palo Verde	*Parkinsonia florida*	2393668.744	12615428.98
ID_948	Blue Palo Verde	*Parkinsonia florida*	2393653.913	12615457.54
ID_950	Blue Palo Verde	*Parkinsonia florida*	2393583.757	12615432.65
ID_951	Blue Palo Verde	*Parkinsonia florida*	2393592.424	12615449.05
ID_952	Blue Palo Verde	*Parkinsonia florida*	2393985.383	12614702.57
ID_953	Blue Palo Verde	*Parkinsonia florida*	2393983.453	12614691.26
ID_954	Blue Palo Verde	*Parkinsonia florida*	2393991.791	12614687.52
ID_955	Blue Palo Verde	*Parkinsonia florida*	2393991.221	12614685.59
ID_956	Blue Palo Verde	*Parkinsonia florida*	2393994.88	12614672.05
ID_957	Blue Palo Verde	*Parkinsonia florida*	2393982.985	12614658.16
ID_958	Blue Palo Verde	*Parkinsonia florida*	2393971.047	12614656.31
ID_959	Blue Palo Verde	*Parkinsonia florida*	2393968.344	12614644.4
ID_960	Blue Palo Verde	*Parkinsonia florida*	2393876.935	12614561.49
ID_961	Blue Palo Verde	*Parkinsonia florida*	2393876.189	12614504.61
ID_962	Blue Palo Verde	*Parkinsonia florida*	2393892.764	12614484.44
ID_963	Blue Palo Verde	*Parkinsonia florida*	2393910.164	12614585.48
ID_964	Blue Palo Verde	*Parkinsonia florida*	2393912.364	12614587.91
ID_977	Blue Palo Verde	*Parkinsonia florida*	2392172.018	12614307.35
ID_982	Blue Palo Verde	*Parkinsonia florida*	2386206.664	12616649.95
ID_983	Blue Palo Verde	*Parkinsonia florida*	2386224.222	12616717.59

APPENDIX F

Locations for Culturally Significant Plants in the Project Area[1]

Object ID	Common Name	Scientific Name	UTM Easting	UTM Northing
ID_2153	Blue Palo Verde	*Parkinsonia florida*	2396565.62	12612298.85
ID_2177	Blue Palo Verde	*Parkinsonia florida*	2396032.005	12612284.75
ID_2235	Blue Palo Verde	*Parkinsonia florida*	2396368.991	12612022.04
ID 1403	Hillside Palo Verde	*Parkinsonia microphylla*	2395189.249	12611571.15
ID 1404	Hillside Palo Verde	*Parkinsonia microphylla*	2395126.11	12611575.74
ID 1405	Hillside Palo Verde	*Parkinsonia microphylla*	2395106.844	12611542.25
ID 1439	Hillside Palo Verde	*Parkinsonia microphylla*	2394725.007	12612460.41
ID 1566	Hillside Palo Verde	*Parkinsonia microphylla*	2395352.103	12611913.72
ID 1567	Hillside Palo Verde	*Parkinsonia microphylla*	2395598.745	12612029.41
ID 1568	Hillside Palo Verde	*Parkinsonia microphylla*	2395655.467	12611995.91
ID 1571	Hillside Palo Verde	*Parkinsonia microphylla*	2396001.826	12611992.33
ID 1574	Hillside Palo Verde	*Parkinsonia microphylla*	2396161.851	12612091.94
ID 1579	Hillside Palo Verde	*Parkinsonia microphylla*	2396727.36	12612239.09
ID 1585	Hillside Palo Verde	*Parkinsonia microphylla*	2396466.041	12612309.59
ID 1586	Hillside Palo Verde	*Parkinsonia microphylla*	2396446.604	12612283
ID 1593	Hillside Palo Verde	*Parkinsonia microphylla*	2396366.852	12612294.28
ID 1596	Hillside Palo Verde	*Parkinsonia microphylla*	2396312.936	12612305.59
ID 1598	Hillside Palo Verde	*Parkinsonia microphylla*	2396300.007	12612259.29
ID 1602	Hillside Palo Verde	*Parkinsonia microphylla*	2396094.811	12612144.19
ID 1603	Hillside Palo Verde	*Parkinsonia microphylla*	2396106.129	12612166.9
ID 1605	Hillside Palo Verde	*Parkinsonia microphylla*	2396160.792	12612131.44
ID 1606	Hillside Palo Verde	*Parkinsonia microphylla*	2396068.503	12612175.3
ID 1607	Hillside Palo Verde	*Parkinsonia microphylla*	2396092.152	12612212.94
ID 1608	Hillside Palo Verde	*Parkinsonia microphylla*	2396119.141	12612261.52
ID 1609	Hillside Palo Verde	*Parkinsonia microphylla*	2396137.479	12612264.08
ID 1611	Hillside Palo Verde	*Parkinsonia microphylla*	2396041.842	12612288.34
ID 1614	Hillside Palo Verde	*Parkinsonia microphylla*	2395943.737	12612266.57
ID 1615	Hillside Palo Verde	*Parkinsonia microphylla*	2395933.224	12612248.31
ID 1616	Hillside Palo Verde	*Parkinsonia microphylla*	2395926.345	12612252.85
ID 1617	Hillside Palo Verde	*Parkinsonia microphylla*	2395829.867	12612254.68
ID 1618	Hillside Palo Verde	*Parkinsonia microphylla*	2395831.944	12612248.52
ID 1619	Hillside Palo Verde	*Parkinsonia microphylla*	2395793.543	12612240.13

APPENDIX F

Locations for Culturally Significant Plants in the Project Area[1]

Object ID	Common Name	Scientific Name	UTM Easting	UTM Northing
ID 1620	Hillside Palo Verde	*Parkinsonia microphylla*	2395767.383	12612232.75
ID 1621	Hillside Palo Verde	*Parkinsonia microphylla*	2395723.02	12612241.96
ID 1622	Hillside Palo Verde	*Parkinsonia microphylla*	2395606.404	12612164.77
ID 1623	Hillside Palo Verde	*Parkinsonia microphylla*	2395614.322	12612152.24
ID 1624	Hillside Palo Verde	*Parkinsonia microphylla*	2395601.635	12612126.34
ID 1625	Hillside Palo Verde	*Parkinsonia microphylla*	2395611.402	12612090.79
ID 1626	Hillside Palo Verde	*Parkinsonia microphylla*	2395616.757	12612068.92
ID 1627	Hillside Palo Verde	*Parkinsonia microphylla*	2395638.941	12612063.98
ID 1628	Hillside Palo Verde	*Parkinsonia microphylla*	2395640.643	12612055.54
ID 1629	Hillside Palo Verde	*Parkinsonia microphylla*	2395631.995	12612047.76
ID 1630	Hillside Palo Verde	*Parkinsonia microphylla*	2395699.175	12612061.29
ID 1631	Hillside Palo Verde	*Parkinsonia microphylla*	2395763.129	12612100.85
ID 1632	Hillside Palo Verde	*Parkinsonia microphylla*	2395624.978	12612012.16
ID 1633	Hillside Palo Verde	*Parkinsonia microphylla*	2395626.311	12612012.98
ID 1634	Hillside Palo Verde	*Parkinsonia microphylla*	2395393.346	12612047.74
ID 1635	Hillside Palo Verde	*Parkinsonia microphylla*	2395353.558	12611915.85
ID 1636	Hillside Palo Verde	*Parkinsonia microphylla*	2395336.076	12611915.28
ID 1637	Hillside Palo Verde	*Parkinsonia microphylla*	2395328.773	12611859.99
ID 1638	Hillside Palo Verde	*Parkinsonia microphylla*	2395378.212	12611822.55
ID 1639	Hillside Palo Verde	*Parkinsonia microphylla*	2395397.422	12611803.34
ID 1640	Hillside Palo Verde	*Parkinsonia microphylla*	2395405.745	12611810.26
ID 1642	Hillside Palo Verde	*Parkinsonia microphylla*	2395411.541	12611734.87
ID 1643	Hillside Palo Verde	*Parkinsonia microphylla*	2395468.105	12611721.45
ID 1644	Hillside Palo Verde	*Parkinsonia microphylla*	2395478.97	12611762.49
ID 1645	Hillside Palo Verde	*Parkinsonia microphylla*	2395514.272	12611763.6
ID 1646	Hillside Palo Verde	*Parkinsonia microphylla*	2395527.737	12611795.84
ID 1647	Hillside Palo Verde	*Parkinsonia microphylla*	2395554.193	12611842.81
ID 1648	Hillside Palo Verde	*Parkinsonia microphylla*	2395501.309	12611816.77
ID 1649	Hillside Palo Verde	*Parkinsonia microphylla*	2395953.247	12611875.12
ID 1650	Hillside Palo Verde	*Parkinsonia microphylla*	2395967.041	12611894.14
ID 1651	Hillside Palo Verde	*Parkinsonia microphylla*	2395969.672	12612086.14
ID 1652	Hillside Palo Verde	*Parkinsonia microphylla*	2395970.33	12612093.5

APPENDIX F

Locations for Culturally Significant Plants in the Project Area[1]

Object ID	Common Name	Scientific Name	UTM Easting	UTM Northing
ID 1653	Hillside Palo Verde	*Parkinsonia microphylla*	2395911.229	12612102.51
ID 1654	Hillside Palo Verde	*Parkinsonia microphylla*	2395897.665	12612103.09
ID 1655	Hillside Palo Verde	*Parkinsonia microphylla*	2395857.493	12612073.09
ID 1656	Hillside Palo Verde	*Parkinsonia microphylla*	2395860.562	12612074.61
ID 1657	Hillside Palo Verde	*Parkinsonia microphylla*	2395866.444	12612075.53
ID 1658	Hillside Palo Verde	*Parkinsonia microphylla*	2395861.934	12612115.64
ID 1659	Hillside Palo Verde	*Parkinsonia microphylla*	2395781.571	12612135.21
ID 1660	Hillside Palo Verde	*Parkinsonia microphylla*	2395766.598	12612105.57
ID 1661	Hillside Palo Verde	*Parkinsonia microphylla*	2395792.814	12612063.66
ID 1662	Hillside Palo Verde	*Parkinsonia microphylla*	2395832.273	12612036.61
ID 1663	Hillside Palo Verde	*Parkinsonia microphylla*	2395833.342	12612039.09
ID 1664	Hillside Palo Verde	*Parkinsonia microphylla*	2395399.79	12612056.74
ID 336	Hillside Palo Verde	*Parkinsonia microphylla*	2395190.199	12612036.98
ID 337	Hillside Palo Verde	*Parkinsonia microphylla*	2395183.238	12612007.61
ID 338	Hillside Palo Verde	*Parkinsonia microphylla*	2395172.272	12612007.28
ID 339	Hillside Palo Verde	*Parkinsonia microphylla*	2395155.799	12611979.75
ID 340	Hillside Palo Verde	*Parkinsonia microphylla*	2395113.262	12611811.84
ID 341	Hillside Palo Verde	*Parkinsonia microphylla*	2395109.803	12611837.69
ID 342	Hillside Palo Verde	*Parkinsonia microphylla*	2394993.965	12611811.01
ID 343	Hillside Palo Verde	*Parkinsonia microphylla*	2394959.338	12611834.89
ID 344	Hillside Palo Verde	*Parkinsonia microphylla*	2394985.551	12611845.03
ID 345	Hillside Palo Verde	*Parkinsonia microphylla*	2394992.895	12611893.66
ID 346	Hillside Palo Verde	*Parkinsonia microphylla*	2395008.65	12611911.48
ID 347	Hillside Palo Verde	*Parkinsonia microphylla*	2394969.072	12611910.07
ID 348	Hillside Palo Verde	*Parkinsonia microphylla*	2395006.321	12611939.93
ID 349	Hillside Palo Verde	*Parkinsonia microphylla*	2395035.777	12611976.36
ID 350	Hillside Palo Verde	*Parkinsonia microphylla*	2394902.818	12612213.05
ID 351	Hillside Palo Verde	*Parkinsonia microphylla*	2395220.172	12612170.41
ID 352	Hillside Palo Verde	*Parkinsonia microphylla*	2395226.12	12612162.36
ID 355	Hillside Palo Verde	*Parkinsonia microphylla*	2395267.678	12612274.97
ID 356	Hillside Palo Verde	*Parkinsonia microphylla*	2395201.632	12612501.56
ID 357	Hillside Palo Verde	*Parkinsonia microphylla*	2395303.556	12612126.31

APPENDIX F
Locations for Culturally Significant Plants in the Project Area[1]

Object ID	Common Name	Scientific Name	UTM Easting	UTM Northing
ID 358	Hillside Palo Verde	*Parkinsonia microphylla*	2394965.257	12612723.26
ID 359	Hillside Palo Verde	*Parkinsonia microphylla*	2394902.037	12612703.23
ID 96	Hillside Palo Verde	*Parkinsonia microphylla*	2394531.043	12612621.87
ID 131	Hillside Palo Verde	*Parkinsonia microphylla*	2394152.869	12612030.84
ID 2120	Hillside Palo Verde	*Parkinsonia microphylla*	2395746.126	12611734.91
ID 2121	Hillside Palo Verde	*Parkinsonia microphylla*	2395769.59	12611740.78
ID 2152	Hillside Palo Verde	*Parkinsonia microphylla*	2396365.999	12611968.12
ID 2176	Hillside Palo Verde	*Parkinsonia microphylla*	2396014.425	12612307.97
2 Mesquites and Willow				
ID_1012	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2388085.602	12615975.39
ID_1019	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2388197.586	12616214
ID_1022	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2388155.536	12616251.94
ID_1023	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2388131.077	12616231.18
ID_1024	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2388077.812	12616231.97
ID_1027	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2396504.45	12612755.2
ID_1038	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2396877.853	12613283.76
ID_1043	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2398708.019	12615370.81
ID_1044	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2398731.992	12615340.51
ID_1045	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2398705.02	12615314.79
ID_1046	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2398664.51	12615317.76
ID_1185	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2392172.125	12615804.61
ID_1470	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2394969.629	12612811.14
ID_1473	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2394294.066	12614215.42
ID_1474	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2394515.495	12614770.85
ID_1476	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2393361.323	12616318.55
ID_1477	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2393101.023	12616420.51
ID_1478	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2393042.134	12616458.53
ID_1479	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2392984.705	12616472.82
ID_1481	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2392947.114	12616508.26
ID_1482	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2392869.554	12616545.01
ID_1483	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2392674.991	12616656.77
ID_1484	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2392657.609	12616667.33

APPENDIX F

Locations for Culturally Significant Plants in the Project Area[1]

Object ID	Common Name	Scientific Name	UTM Easting	UTM Northing
ID_1485	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2392514.286	12616785.22
ID_1489	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2392294.732	12617013.92
ID_1491	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2392354.609	12616962.26
ID_1497	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2392106.294	12617084.35
ID_1499	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2392015.142	12617118.45
ID_1500	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2391925.877	12617097.88
ID_1501	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2391900.938	12617096.49
ID_1502	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2391949.906	12617054.66
ID_1503	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2391856.167	12617069.01
ID_1504	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2391834.483	12617070.4
ID_1505	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2391790.787	12617085.86
ID_1506	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2391744.255	12617068.08
ID_1507	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2391660.539	12617065.12
ID_1508	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2391574.928	12617055.82
ID_1515	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2390502.841	12616843.53
ID_1516	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2390431.24	12616830.18
ID_1517	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2390399.684	12616818.1
ID_1518	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2390344.791	12616809.97
ID_1519	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2389725.193	12616777.59
ID_1520	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2389728.48	12616733.46
ID_1521	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2398481.282	12615512.5
ID_1522	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2398556.061	12615531.45
ID_1523	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2398651.942	12615335.9
ID_1524	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2396705.512	12614183.9
ID_154	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2394578.798	12612772.59
ID_155	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2394607.323	12612873.1
ID_1552	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2394020.838	12611907.26
ID_1553	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2393847.042	12611858.72
ID_1554	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2393754.739	12611766.36
ID_1555	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2393484.271	12611731.47
ID_161	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2394383.78	12612949.92
ID_1612	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2395989.504	12612322.83

APPENDIX F

Locations for Culturally Significant Plants in the Project Area[1]

Object ID	Common Name	Scientific Name	UTM Easting	UTM Northing
ID_162	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2394320.374	12612911.55
ID_163	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2394234.258	12612955.92
ID_164	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2394242.838	12612980.52
ID_165	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2394201.471	12612840.53
ID_1803	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2388147.817	12617355.11
ID_1813	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2389736.07	12618134.97
ID_1816	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2390265.377	12617985.33
ID_1829	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2390208.023	12617066.39
ID_1831	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2389487.362	12617163
ID_1832	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2389286.618	12617235.34
ID_1833	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2389072.514	12617273.94
ID_1834	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2388817.98	12617351.15
ID_1835	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2388730.223	12617345.95
ID_1836	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2388614.187	12617466.07
ID_1837	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2388565.177	12617654.65
ID_1838	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2388482.615	12617735.19
ID_1847	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2387294.983	12615995.01
ID_1869	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2388735.039	12616449.03
ID_1870	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2388799.602	12616470.79
ID_1875	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2389089.928	12616586.96
ID_1877	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2389751.898	12616694.49
ID_1878	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2390159.334	12616711.28
ID_1879	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2390151.448	12616664.99
ID_1882	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2390394.348	12616683.84
ID_1884	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2390539.121	12616694.04
ID_1889	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2391268.597	12616737.06
ID_189	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2393057.343	12611922.4
ID_1890	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2391309.117	12616794.89
ID_1891	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2391368.374	12616793.87
ID_1893	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2392693.163	12616526.55
ID_1904	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2393357.175	12616225.95
ID_1906	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2393354.54	12616323.24

APPENDIX F

Locations for Culturally Significant Plants in the Project Area[1]

Object ID	Common Name	Scientific Name	UTM Easting	UTM Northing
ID_1908	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2393592.341	12616050.06
ID_1909	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2393600.172	12615667.8
ID_1922	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2392331.09	12616627.63
ID_1923	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2392366.162	12616675.15
ID_1964	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2394523.432	12614797.29
ID_1965	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2394577.94	12614689.93
ID_1974	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2394571.806	12612744.12
ID_2001	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2394654.568	12612382.21
ID_2004	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2394006.245	12611895.25
ID_2008	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2394217.987	12612885.88
ID_2013	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2393557.613	12611553.57
ID_2014	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2393466.791	12611725.02
ID_2019	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2393052.718	12611843
ID_2020	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2393056.803	12611913.03
ID_2028	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2393239.074	12612758.41
ID_2036	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2392791.426	12612654.11
ID_2037	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2392924.233	12612648.61
ID_2046	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2395034.159	12615451.35
ID_2061	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2395724.984	12613613.51
ID_2066	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2397410.514	12613750.78
ID_2067	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2397819.513	12614216.16
ID_2072	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2398432.786	12615100.84
ID_2077	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2398800.238	12615636.45
ID_2079	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2396183.933	12613061.74
ID_208	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2394671.649	12612390.67
ID_2082	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2396491.821	12612743.62
ID_2084	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2387300.872	12616108.79
ID_209	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2394672.684	12612398.61
ID_211	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2394415.553	12612141.33
ID_326	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2392255.454	12615638.95
ID_333	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2392220.488	12615864.23
ID_334	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2392214.51	12615912.54

APPENDIX F
Locations for Culturally Significant Plants in the Project Area[1]

Object ID	Common Name	Scientific Name	UTM Easting	UTM Northing
ID_360	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2395124.887	12612118.19
ID_373	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2392354.033	12617054.89
ID_374	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2392333.609	12617069.94
ID_376	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2392169.433	12617135.97
ID_377	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2392136.965	12617146.37
ID_378	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2392019.099	12617010.18
ID_379	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2391820.397	12617033.1
ID_381	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2390902.247	12616814.08
ID_382	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2389933.575	12616701.28
ID_383	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2389765.372	12616693.39
ID_384	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2389621.909	12616685.16
ID_57	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2388781.73	12616501
ID_58	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2389101.383	12616597.3
ID_61	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2389017.91	12616526.36
ID_62	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2390900.375	12616691.48
ID_63	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2391080.532	12616716.1
ID_64	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2392523.59	12616594.37
ID_65	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2392543.606	12616586.08
ID_66	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2392601.54	12616572.94
ID_67	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2392617.331	12616562.32
ID_89	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2394155.773	12614471.28
ID_90	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2394127.016	12614489.23
ID_912	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2388732.548	12616480.82
ID_915	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2388901.253	12616513.09
ID_916	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2388939.097	12616465.37
ID_918	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2388972.696	12616484.34
ID_919	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2388983.727	12616477.36
ID_921	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2390166.773	12616673.27
ID_922	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2390389.465	12616688.3
ID_923	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2390411.617	12616691.45
ID_924	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2390547.285	12616702.99
ID_925	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2390816.608	12616728.06

APPENDIX F

Locations for Culturally Significant Plants in the Project Area[1]

Object ID	Common Name	Scientific Name	UTM Easting	UTM Northing
ID_928	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2390916.516	12616726.1
ID_931	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2391055.842	12616731.54
ID_932	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2391072.408	12616735.51
ID_934	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2391129.274	12616739.95
ID_935	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2391351.959	12616748.96
ID_936	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2391386.557	12616750.76
ID_937	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2392343.799	12616641.53
ID_938	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2392359.907	12616636.24
ID_939	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2392368.054	12616631.91
ID_940	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2392713.259	12616539.9
ID_941	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2392664.576	12616547.76
ID_942	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2392638.727	12616558.27
ID_943	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2392811.552	12616492.95
ID_949	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2393654.381	12615440.03
ID_965	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2394115.994	12614516.22
ID_966	Honey Mesquite	*Prosopis glandulosa var. torreyana*	2394049.43	12614652.74
ID_1071	Screw Bean Mesquite	*Prosopis pubescens*	2395499.575	12614408.76
ID_1072	Screw Bean Mesquite	*Prosopis pubescens*	2395571.738	12614311.15
ID_1073	Screw Bean Mesquite	*Prosopis pubescens*	2395582.4	12614299.21
ID_1074	Screw Bean Mesquite	*Prosopis pubescens*	2395632.094	12614259.87
ID_1075	Screw Bean Mesquite	*Prosopis pubescens*	2395655.837	12614226.93
ID_1076	Screw Bean Mesquite	*Prosopis pubescens*	2395668.717	12614221.51
ID_1077	Screw Bean Mesquite	*Prosopis pubescens*	2395681.167	12614204.19
ID_1078	Screw Bean Mesquite	*Prosopis pubescens*	2395767.779	12614167.48
ID_1079	Screw Bean Mesquite	*Prosopis pubescens*	2395804.859	12614112.76
ID_1080	Screw Bean Mesquite	*Prosopis pubescens*	2395880.062	12614091.08
ID_1081	Screw Bean Mesquite	*Prosopis pubescens*	2395870.6	12614062.47
ID_1082	Screw Bean Mesquite	*Prosopis pubescens*	2395938.054	12614069.46
ID_1083	Screw Bean Mesquite	*Prosopis pubescens*	2395951.103	12614076.2
ID_1084	Screw Bean Mesquite	*Prosopis pubescens*	2395959.841	12614094.24
ID_1085	Screw Bean Mesquite	*Prosopis pubescens*	2395549.475	12614408.46
ID_1086	Screw Bean Mesquite	*Prosopis pubescens*	2395617.927	12614434.48

APPENDIX F
Locations for Culturally Significant Plants in the Project Area[1]

Object ID	Common Name	Scientific Name	UTM Easting	UTM Northing
ID_1087	Screw Bean Mesquite	*Prosopis pubescens*	2395653.247	12614390.73
ID_1088	Screw Bean Mesquite	*Prosopis pubescens*	2395656.408	12614408.62
ID_1089	Screw Bean Mesquite	*Prosopis pubescens*	2395672.021	12614440.79
ID_1090	Screw Bean Mesquite	*Prosopis pubescens*	2395710.521	12614453.39
ID_1091	Screw Bean Mesquite	*Prosopis pubescens*	2395735.657	12614426.36
ID_1092	Screw Bean Mesquite	*Prosopis pubescens*	2395771.237	12614431.65
ID_1093	Screw Bean Mesquite	*Prosopis pubescens*	2395816.24	12614403.17
ID_1094	Screw Bean Mesquite	*Prosopis pubescens*	2395853.264	12614399.02
ID_1095	Screw Bean Mesquite	*Prosopis pubescens*	2395867.122	12614427.06
ID_1096	Screw Bean Mesquite	*Prosopis pubescens*	2395852.304	12614465.35
ID_1097	Screw Bean Mesquite	*Prosopis pubescens*	2395198.604	12615117.29
ID_1098	Screw Bean Mesquite	*Prosopis pubescens*	2395245.905	12615106.34
ID_1099	Screw Bean Mesquite	*Prosopis pubescens*	2395272.33	12615083.08
ID_1100	Screw Bean Mesquite	*Prosopis pubescens*	2395297.594	12615071.23
ID_1101	Screw Bean Mesquite	*Prosopis pubescens*	2395308.757	12615039.4
ID_1102	Screw Bean Mesquite	*Prosopis pubescens*	2395316.327	12615002.21
ID_1103	Screw Bean Mesquite	*Prosopis pubescens*	2395361.503	12614962.86
ID_1104	Screw Bean Mesquite	*Prosopis pubescens*	2395383.961	12614931.39
ID_1105	Screw Bean Mesquite	*Prosopis pubescens*	2395387.173	12614885.26
ID_1106	Screw Bean Mesquite	*Prosopis pubescens*	2395334.819	12614855.41
ID_1107	Screw Bean Mesquite	*Prosopis pubescens*	2395292.735	12614830.26
ID_1108	Screw Bean Mesquite	*Prosopis pubescens*	2395274.247	12614904.02
ID_1109	Screw Bean Mesquite	*Prosopis pubescens*	2395270.785	12614952.13
ID_1110	Screw Bean Mesquite	*Prosopis pubescens*	2395220.284	12614972.86
ID_1111	Screw Bean Mesquite	*Prosopis pubescens*	2395196.613	12615025.7
ID_1112	Screw Bean Mesquite	*Prosopis pubescens*	2395179.687	12615043.78
ID_1113	Screw Bean Mesquite	*Prosopis pubescens*	2395172.929	12615085.49
ID_1468	Screw Bean Mesquite	*Prosopis pubescens*	2395055.861	12613283.19
ID_1486	Screw Bean Mesquite	*Prosopis pubescens*	2392448.415	12616911.18
ID_1487	Screw Bean Mesquite	*Prosopis pubescens*	2392446.7	12616944.12
ID_1488	Screw Bean Mesquite	*Prosopis pubescens*	2392414.925	12617024.84
ID_1490	Screw Bean Mesquite	*Prosopis pubescens*	2392325.114	12616973.33

APPENDIX F

Locations for Culturally Significant Plants in the Project Area[1]

Object ID	Common Name	Scientific Name	UTM Easting	UTM Northing
ID_1492	Screw Bean Mesquite	*Prosopis pubescens*	2392395.306	12616948.77
ID_1493	Screw Bean Mesquite	*Prosopis pubescens*	2392404.118	12616933.25
ID_1494	Screw Bean Mesquite	*Prosopis pubescens*	2392367.979	12616911.3
ID_1495	Screw Bean Mesquite	*Prosopis pubescens*	2392276.357	12617008.26
ID_1496	Screw Bean Mesquite	*Prosopis pubescens*	2392291.72	12617036.51
ID_1498	Screw Bean Mesquite	*Prosopis pubescens*	2392056.776	12617115.69
ID_1509	Screw Bean Mesquite	*Prosopis pubescens*	2391557.133	12617045.85
ID_223	Screw Bean Mesquite	*Prosopis pubescens*	2395642.327	12614240.35
ID_225	Screw Bean Mesquite	*Prosopis pubescens*	2395837.898	12614092.59
ID_226	Screw Bean Mesquite	*Prosopis pubescens*	2395836.594	12614135.82
ID_228	Screw Bean Mesquite	*Prosopis pubescens*	2395832.115	12614519.63
ID_229	Screw Bean Mesquite	*Prosopis pubescens*	2395883.181	12614489.74
ID_230	Screw Bean Mesquite	*Prosopis pubescens*	2395925.665	12614524.27
ID_231	Screw Bean Mesquite	*Prosopis pubescens*	2395887.704	12614628.38
ID_234	Screw Bean Mesquite	*Prosopis pubescens*	2395070.572	12615443.93
ID_367	Screw Bean Mesquite	*Prosopis pubescens*	2393646.475	12616035.72
ID_368	Screw Bean Mesquite	*Prosopis pubescens*	2392627.688	12616706.77
ID_369	Screw Bean Mesquite	*Prosopis pubescens*	2392585.522	12616777.29
ID_370	Screw Bean Mesquite	*Prosopis pubescens*	2392551.057	12616812.82
ID_371	Screw Bean Mesquite	*Prosopis pubescens*	2392451.348	12616896.57
ID_372	Screw Bean Mesquite	*Prosopis pubescens*	2392457.022	12616940.01
ID_375	Screw Bean Mesquite	*Prosopis pubescens*	2392274.891	12617095.19
ID_1801	Goodding's Willow	*Salix gooddingii*	2386755.933	12617249.15
ID_1807	Goodding's Willow	*Salix gooddingii*	2388562.347	12618329.15
ID_2025	Goodding's Willow	*Salix gooddingii*	2393132.884	12612472.04
3 Shrubs and herbs				
	Cattle Saltbush	*Atriplex polycarpa*	2392014.351	12617015.7
	Cattle Saltbush	*Atriplex polycarpa*	2387697.312	12616022.27
	Cattle Saltbush	*Atriplex polycarpa*	2388585.175	12616389.82
	Cattle Saltbush	*Atriplex polycarpa*	2389026.318	12616556.33
	Cattle Saltbush	*Atriplex polycarpa*	2389326.297	12616660.93
	Cattle Saltbush	*Atriplex polycarpa*	2390171.571	12616658.27

APPENDIX F

Locations for Culturally Significant Plants in the Project Area[1]

Object ID	Common Name	Scientific Name	UTM Easting	UTM Northing
	Cattle Saltbush	*Atriplex polycarpa*	2390363.317	12616641.6
	Cattle Saltbush	*Atriplex polycarpa*	2390741.209	12616774.26
	Cattle Saltbush	*Atriplex polycarpa*	2392677.659	12616539.3
	Cattle Saltbush	*Atriplex polycarpa*	2394208.119	12612644.89
	Cattle Saltbush	*Atriplex polycarpa*	2393636.162	12612712.51
	Cattle Saltbush	*Atriplex polycarpa*	2393640.974	12612672.52
	Cattle Saltbush	*Atriplex polycarpa*	2395838.642	12613559.84
	Cattle Saltbush	*Atriplex polycarpa*	2396460.894	12613773.26
	Cattle Saltbush	*Atriplex polycarpa*	2397082.293	12613926.03
	Cattle Saltbush	*Atriplex polycarpa*	2396418.613	12612978.82
	Cattle Saltbush	*Atriplex polycarpa*	2387734.51	12616145.24
	Cattle Saltbush	*Atriplex polycarpa*	2392191.632	12615655.32
	Desert Tobacco	*Nicotiana obtusifolia*	2396373.201	12612203.43
	Desert Tobacco	*Nicotiana obtusifolia*	2394961.418	12612714.53
	Desert Tobacco	*Nicotiana obtusifolia*	2394962.834	12612717.2
	Desert Tobacco	*Nicotiana obtusifolia*	2394961.718	12612771.58
	Desert Tobacco	*Nicotiana obtusifolia*	2396553.752	12612242.86
	Desert Lilly	*Hesperocallis undulata*	2398547.156	12614903.62
	Chia	*Salvia columbariae*	2393301.666	12612759.09
	Common Reed	*Phragmites australis*	2395981.846	12614109.75
	Common Reed	*Phragmites australis*	2394737.096	12613084.3
	Common Reed	*Phragmites australis*	2394956.778	12612833.93
	Common Reed	*Phragmites australis*	2391476.765	12617068.39
	Common Reed	*Phragmites australis*	2391363.357	12617256.91
	Common Reed	*Phragmites australis*	2394768.18	12614173.09
	Common Reed	*Phragmites australis*	2394993.332	12612937.22
	Common Reed	*Phragmites australis*	2396323.931	12614396.19
	Common Reed	*Phragmites australis*	2396063.325	12612914.62
	Common Reed	*Phragmites australis*	2391273.675	12617017.84

Note:

[1]UTM NAD 83 Zone 11S.

Appendix A8:
Supplemental Baseline Sound Level Measurement Technical Memorandum
(*on CD-ROM only*)

PG&E Topock Groundwater Remediation Project

Supplemental Baseline Sound Level Measurement

PREPARED FOR: Pacific Gas and Electric

PREPARED BY: Mark Bastasch, P.E., INCE/CH2M HILL

DATE: March 18, 2013

As part of the continued effort to establish baseline site conditions to support implementation of the groundwater remedy, supplemental sound level measurements were conducted at three locations from August 2 through 16, 2012, and December 5, 2012, through January 17, 2013[1]. The two monitoring events were scheduled to capture the summer and winter conditions. The sound measurement locations were selected near the short-term measurement locations in the Final Environmental Impact Report (FEIR) (DTSC, 2011) (shown in Exhibit 4.9-2 as ST-1, ST-2, and ST-3) (see Figure 1). Photographs of the monitoring location are included in Appendix A.

Methodology

As discussed in the November 8, 2012, *PG&E Topock Groundwater Remediation Project Sound Level Measurements Protocol* (included as Appendix B), sound level measurements were collected using Larson Davis Model 831 and 820 American National Standards Institute (ANSI) S1.4 Type 1 (precision) sound level meters. Meters were field calibrated with a Larson Davis CAL200 field calibrator (94 dB at 1,000 Hz). Precise monitoring locations were selected in the field by a Licensed Professional Acoustical Engineer (P.E.)[2] to minimize the influence of atypical sounds (i.e., water features or areas with unusually high insect activity) and to ensure equipment was reasonably secure. All field work was conducted under the supervision of the Acoustical P.E.

Windscreens were used to limit the creation of wind-induced self noise, as wind may result in increased measured sound levels because of vegetative noise (rustling of leaves), as well as pseudo wind noise, which is also known as wind-induced self noise across the microphone. Wind-induced self noise may be substantial at high wind speeds. This is the noise one may hear when a TV weatherperson reports during a storm or home videos are recorded under windy conditions. Wind-induced noise is minimal when measurements are conducted in wind speeds under approximately 10 miles per hour (mph).

Summary Results

During the monitoring events, average and statistical sound level metrics (L_{eq}, L_{50}, and L_{90}) were continuously collected, as were onsite meteorological data (microphone height wind speed and precipitation). Table 1 presents the range in average hourly (L_{eq}) sound levels for each monitoring location during both the daytime (7 a.m. to 10 p.m.) and nighttime (10 p.m. to 7 a.m.) periods. Given the influence wind speed may have on the measurements, the corresponding wind speed is also presented. Note that although the wind speeds occasionally exceeded the ideal noise measurement conditions (10 mph or less) during the monitoring events, the maximum measured sound levels are considered to be reflective of the range in ambient noise conditions at the site.

Table 2 presents the range in sound levels measured at each location during the summer and winter 2012/2013 sound monitoring events as well as the short-term measurements presented in the EIR. The short-term measurements conducted for the EIR are within the range of the longer-term 2012 measurements.

[1] Note that the battery life during the winter event varied. The precise measurement duration at each monitoring location is provided in the referenced appendices.

[2] Oregon is the only state that issues a Professional Engineering license in Acoustics.

TABLE 1
Range in Hourly Average (L_{eq}) Sound Levels for Each Monitoring Location

		Daytime		Nighttime	
Date	Location	Max Hourly L_{eq} (dBA)/ Wind Speed (mph)	Min Hourly L_{eq} (dBA) /Wind Speed (mph)	Max Hourly L_{eq} (dBA)/Wind Speed (mph)	Min Hourly L_{eq} (dBA)/ Wind Speed (mph)
August 2012	ST-1	63 dBA/13 mph[a]	39 dBA/1 mph	61 dBA/15 mph[a]	40 dBA/1 mph
	ST-2	70 dBA/21 mph[a]	40 dBA/3 mph	62 dBA/20 mph[b]	37 dBA/1 mph
	ST-3	76 dBA/10 mph[a]	51 dBA/1 mph	64 dBA/2 mph[a]	50 dBA/1 mph
December 2012–January 2013	ST-1	63 dBA/21 mph[b]	42 dBA/1 mph	61 dBA/7 mph[b]	42 dBA/1 mph
	ST-2	75 dBA/18 mph[b]	39 dBA/1 mph	73 dBA/17 mph[b]	39 dBA/1 mph
	ST-3	69 dBA/2 mph[b]	40 dBA/1 mph	60 dBA/1 mph[b]	34 dBA/1 mph

[a] **August:**

Daytime. When the August daytime sound levels were highest at ST-1 (63 dBA) and ST-3 (76 dBA), the wind speeds were 13 mph and 10 mph, respectively. It is CH2M HILL's experience that under these conditions wind-induced self noise across the microphone is less than the measured sound levels of 63 to 76 dBA; therefore, the sound level values likely reflect a true ambient sound level condition (i.e., are not affected by wind). At ST-2, the maximum of 70 dBA occurred in 21 mph winds—this level may have been influenced by wind.

Nighttime. The August nighttime maximum level at ST-1 was similar to the daytime maximum in terms of level (61 dBA at night compared to 63 dBA during the day) and wind speed (15 mph at night compared to 13 mph during the day). These results are reasonable and not expected to have been adversely influenced by wind-induced self noise. At ST-2, the maximum of 62 dBA occurred when the winds were 20 mph which may have affected the measurements. The nighttime wind speed at ST-3 was less than 10 mph and would not be adversely impacted by wind-induced self noise.

[b] **December:**

Daytime. The December daytime maximum sound levels at ST-1 is the same (63 dBA) as the August maximum sound level, though the wind speed was substantially higher (21 mph compared to 13 mph in August). At ST-2, the maximum (75 dBA) occurred under a similar wind speed (18 mph) as the August maximum though the measured sound level was slightly louder (75 dBA) than the August measurements. At ST-3, the maximum (69 dBA) occurred under a low wind speed (2 mph) would not be adversely impacted by wind-induced self noise.

***Nighttime*.** The nighttime maximums during the December-January event at ST-1 (61 dBA) is the same as the August nighttime maximum, but occurred in slightly lower winds (7 mph). The nighttime maximum of 73 dBA at ST-2 both occurred in 17 mph winds which is noticeably louder than the nighttime maximum of 62 dBA reported in August under slightly stronger winds. There is no reason to expect louder sound levels under lower winds, therefore, the 73 dBA reported at ST-2 is likely reflective of the true ambient condition at that time. The nighttime wind sound level of 60 dBA at ST-3 of 1 mph and would not be adversely impacted by wind noise given 1 mph winds.

Detailed tabular and graphical results for each monitoring location are included in Appendix C (Location ST-1, August), Appendix D (Location ST-1, December), Appendix E (Location ST-2, August), Appendix F (Location ST-2, December), Appendix G (Location ST-3, August), and Appendix H (Location ST-3, December). There were a few brief periods of measureable precipitation during the December monitoring event as follows and were excluded from the above summaries:

14:00 on December 13 through 09:00 on December 14
21:00 to 23:00 on December 14
04:00 to 07:00 on December 15
15:00 to 16:00 on December 18

dBA = decibels (A-weighted).
L_{eq} = hourly average.
mph = miles per hour.

TABLE 2
Comparison of Average (L_{eq}) Sound Levels for Each Monitoring Location and EIR Measurements

		Daytime		Nighttime		EIR Data December 2008[a]
Date	Location	Max Hourly L_{eq} (dBA)	Min Hourly L_{eq} (dBA)	Max Hourly L_{eq} (dBA)	Min Hourly L_{eq} (dBA)	$L_{eq\ (15\ min)}$ dBA
August 2012	ST-1	63 dBA	39 dBA	61 dBA	40 dBA	47 dBA
	ST-2	70 dBA	40 dBA	62 dBA	37 dBA	41 dBA
	ST-3	76 dBA	51 dBA	64 dBA	50 dBA	58 dBA
December 2012–January 2013	ST-1	63 dBA	42 dBA	61 dBA	42 dBA	47 dBA
	ST-2	75 dBA	39 dBA	73 dBA	39 dBA	41 dBA
	ST-3	69 dBA	40 dBA	60 dBA	34 dBA	58 dBA

[a] A single 15-minute measurement was collected at these locations in December 2008 for the EIR (DTSC 2011).

dBA = decibels (A-weighted).
L_{eq} = hourly average.

Reference

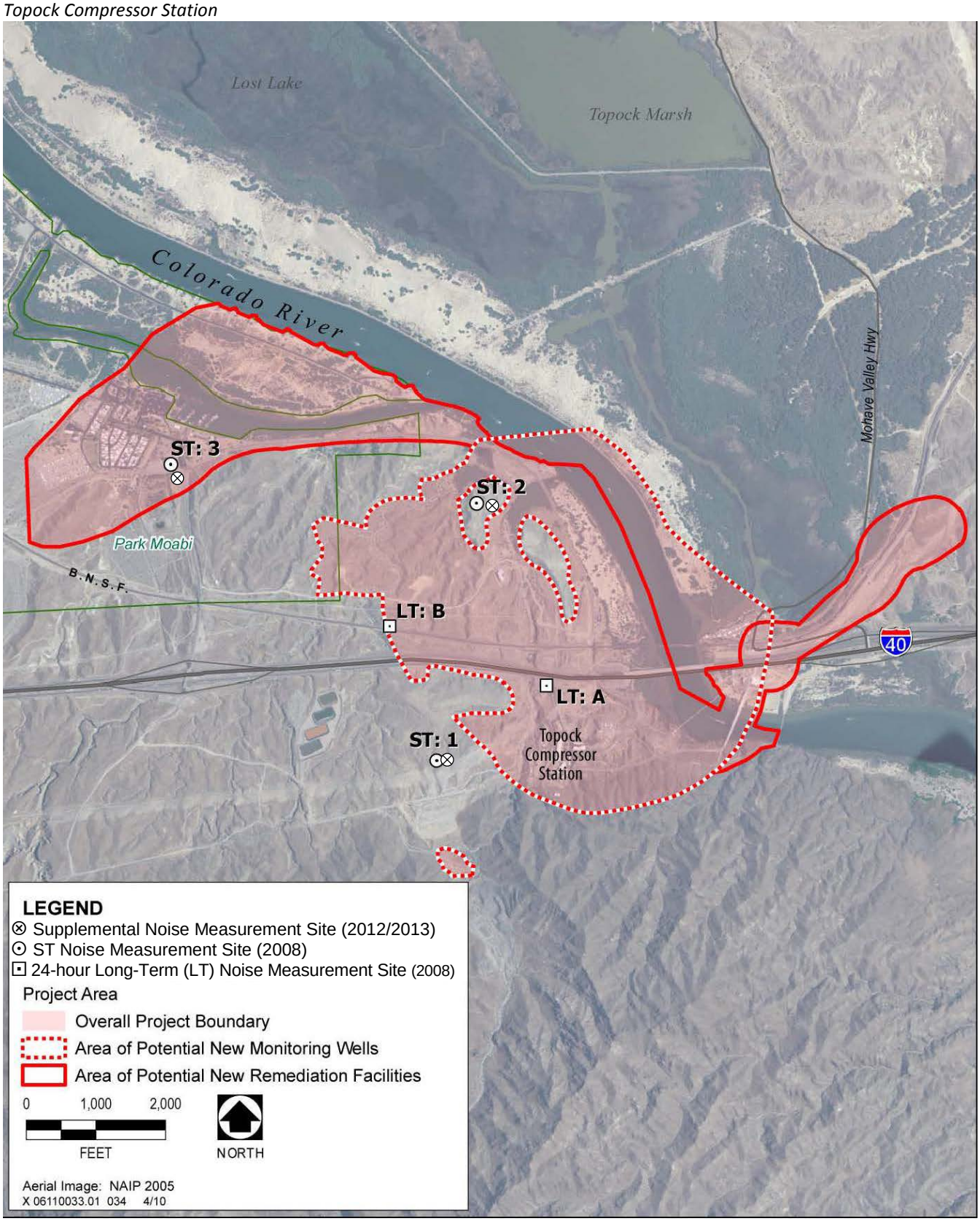
California Department of Toxic Substances Control (DTSC). 2011. *Final Environmental Impact Report for the Topock Compressor Station Groundwater Remediation Project*. January.

Figure

FIGURE 1

Noise Measurement Locations

Topock Compressor Station



Adapted by CH2M HILL, 2013

Source: Exhibit 4.9-2, California Department of Toxic Substances Control, *Final Environmental Impact Report for the Topock Compressor Station Groundwater Remediation Project,* January 2011.

CH2MHILL

Appendix A
Photographs of the Monitoring Location

Photo Log

ST-1 Looking East

ST-1 Looking North

ST-1 Looking West

ST-1 Panoramic View 1

ST-1 Panoramic View 2

ST-2 Looking East

ST-2 Looking West

ST-2 Looking West View 2

ST-2 Panoramic View 1

ST-2 Panoramic View 2

ST-2 December 2012 View 1

ST-2 December 2012 View 2

ST-3 Detail View

ST-3 South View 1

ST-3 South View 2

ST-3 South View 3

ST-3 West View

ST-3 Panoramic View 1

ST-3 Panoramic View 2

ST-3 South View 4

Appendix B
PG&E Topock Groundwater Remediation Project
Sound Level Measurements Protocol

PG&E Topock Groundwater Remediation Project Sound Level Measurements Protocol

TO: Pacific Gas and Electric

FROM: Mark Bastasch, P.E., INCE/CH2M HILL

DATE: November 8, 2012

As part of the continued effort to establish baseline site conditions to support implementation of the groundwater remedy, supplemental sound level measurements were conducted at three locations from August 2 through 16, 2012. The sound measurement locations were selected near the short term noise measurement locations in the Environmental Impact Report (EIR) (DTSC, 2011) (shown in Exhibit 4.9-2 as ST-1, ST-2, and ST-3).

Sound level measurements were collected using Larson Davis Model 831 and 820 American National Standards Institute (ANSI) S1.4 Type 1 (precision) sound level meters (see photos below). Meters were field calibrated with a Larson Davis CAL200 field calibrator (94 dBA at 1000 Hz). Precise monitoring locations were selected in the field by a Licensed Professional Acoustical Engineer (P.E.) to minimize the influence of atypical sounds (i.e., water features or areas with unusually high insect activity) and to ensure equipment was reasonably secure. All field work was conducted under the supervision of the Acoustical P.E. Average and statistical sound level metrics (L_{eq}, L_{50} and L_{90}) were continuously collected as was on-site meteorological data (microphone height wind speed and precipitation).

Additional measurements are planned for late 2012, the supplemental data will be combined with the existing noise data (collected as part of the certified EIR) and summarized in future reports.

Reference:

California Department of Toxic Substances Control (DTSC). 2011. *Final Environmental Impact Report for the Topock Compressor Station Groundwater Remediation Project.* January.

Photograph 1: Temporary Noise Monitoring Station set up in proximity to ST-3 noise measurement location in the certified EIR (DTSC, 2011), taken August 2012.

Photograph 2: Temporary Noise Monitoring Station set up in proximity to ST-1 noise measurement location in the certified EIR (DTSC, 2011), taken August 2012.

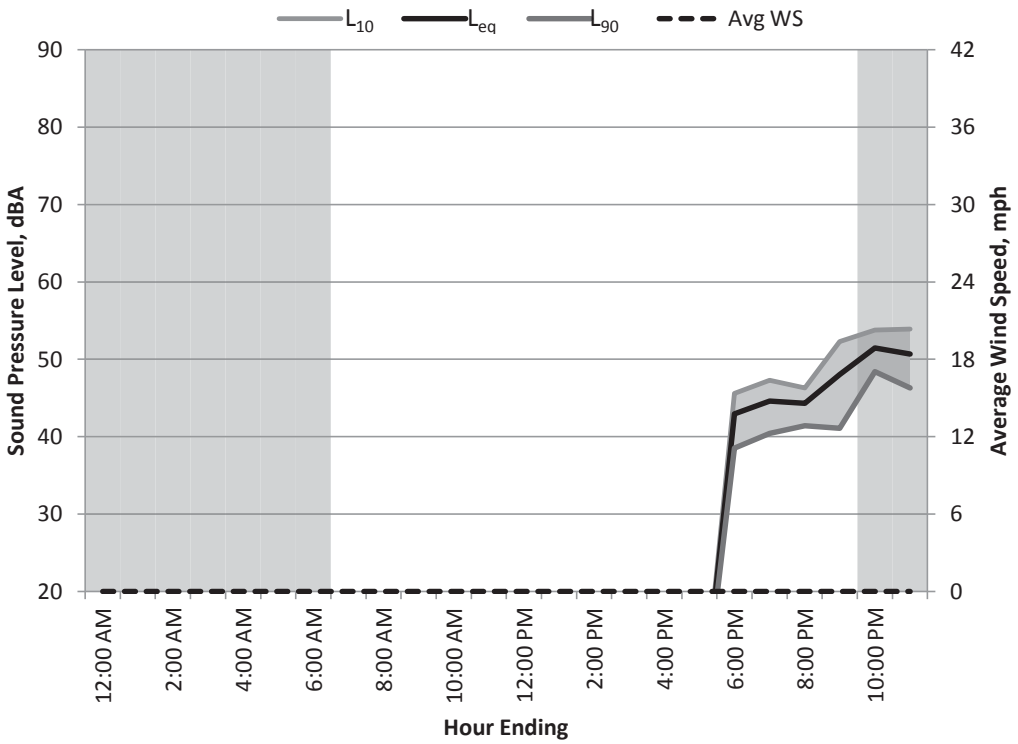
Appendix C
ST-1 August Measurements

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 8/2/2012

24hr Summary

L_{DN} = -- dBA C_{NEL} = -- dBA $L_{eq(24hr)}$ = -- dBA

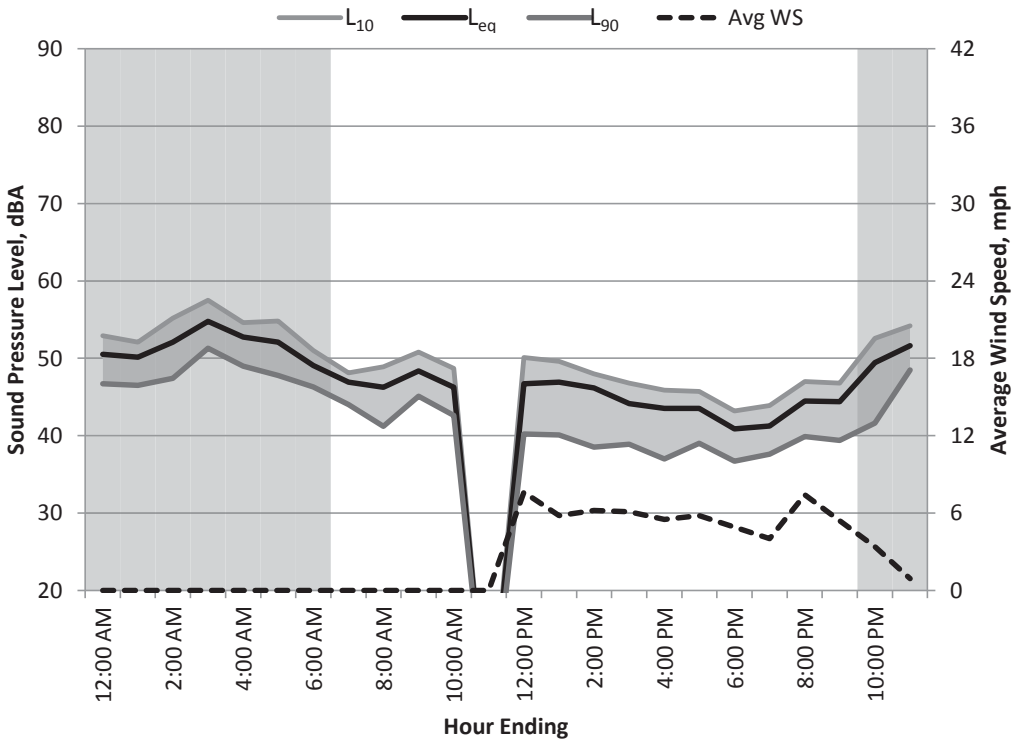


Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	--	--	--	--	--	--	--	--
1:00	Night	--	--	--	--	--	--	--	--
2:00	Night	--	--	--	--	--	--	--	--
3:00	Night	--	--	--	--	--	--	--	--
4:00	Night	--	--	--	--	--	--	--	--
5:00	Night	--	--	--	--	--	--	--	--
6:00	Night	--	--	--	--	--	--	--	--
7:00	Day	--	--	--	--	--	--	--	--
8:00	Day	--	--	--	--	--	--	--	--
9:00	Day	--	--	--	--	--	--	--	--
10:00	Day	--	--	--	--	--	--	--	--
11:00	Day	--	--	--	--	--	--	--	--
12:00	Day	--	--	--	--	--	--	--	--
13:00	Day	--	--	--	--	--	--	--	--
14:00	Day	--	--	--	--	--	--	--	--
15:00	Day	--	--	--	--	--	--	--	--
16:00	Day	--	--	--	--	--	--	--	--
17:00	Day	--	--	--	--	--	--	--	--
18:00	Day	43	58	36	51	46	41	39	--
19:00	Day	45	52	37	50	47	44	40	--
20:00	Day	44	53	39	50	46	44	41	--
21:00	Day	48	59	37	56	52	45	41	--
22:00	Night	51	58	47	56	54	51	48	--
23:00	Night	51	60	44	56	54	49	46	--
Overall	Max	--	--	--	--	--	--	--	--
	Median	--	--	--	--	--	--	--	--
	Min	--	--	--	--	--	--	--	--
Daytime	Max	--	--	--	--	--	--	--	--
7am-10pm	Median	--	--	--	--	--	--	--	--
	Min	--	--	--	--	--	--	--	--
Nighttime	Max	--	--	--	--	--	--	--	--
10pm-7am	Median	--	--	--	--	--	--	--	--
	Min	--	--	--	--	--	--	--	--

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 8/3/2012

24hr Summary

L_{DN} = -- dBA C_{NEL} = -- dBA $L_{eq(24hr)}$ = -- dBA



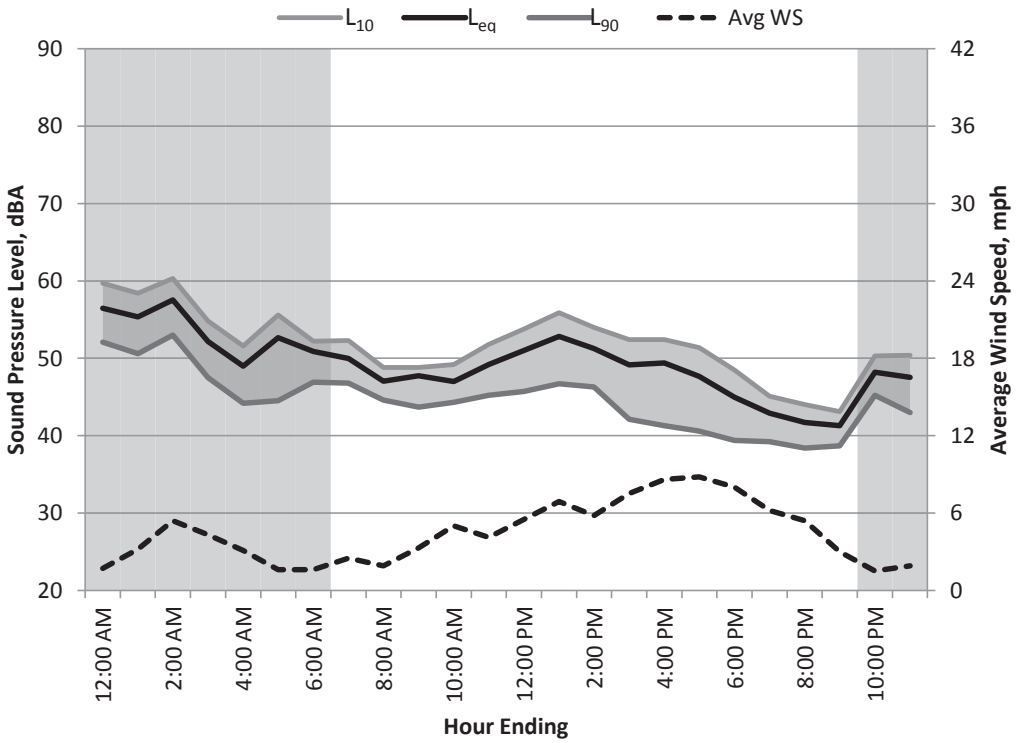
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	50	62	44	57	53	49	47	--
1:00	Night	50	61	44	55	52	50	47	--
2:00	Night	52	60	43	57	55	51	47	--
3:00	Night	55	60	49	60	58	54	51	--
4:00	Night	53	57	47	56	55	53	49	--
5:00	Night	52	66	46	57	55	51	48	--
6:00	Night	49	59	44	55	51	48	46	--
7:00	Day	47	57	41	52	48	47	44	--
8:00	Day	46	54	38	51	49	46	41	--
9:00	Day	48	55	42	53	51	48	45	--
10:00	Day	46	56	39	52	49	45	43	--
11:00	Day	--	--	--	--	--	--	--	--
12:00	Day	47	62	36	55	50	44	40	8
13:00	Day	47	57	36	53	50	46	40	6
14:00	Day	46	66	35	54	48	43	39	6
15:00	Day	44	57	35	51	47	43	39	6
16:00	Day	44	61	32	53	46	41	37	6
17:00	Day	44	58	36	52	46	41	39	6
18:00	Day	41	54	34	47	43	40	37	5
19:00	Day	41	53	34	48	44	40	38	4
20:00	Day	44	56	35	52	47	43	40	7
21:00	Day	44	58	35	53	47	43	39	5
22:00	Night	49	60	36	57	53	48	42	3
23:00	Night	52	58	45	57	54	51	49	1
Overall	Max	--	--	--	--	--	--	--	--
	Median	--	--	--	--	--	--	--	--
	Min	--	--	--	--	--	--	--	--
Daytime	Max	--	--	--	--	--	--	--	--
7am-10pm	Median	--	--	--	--	--	--	--	--
	Min	--	--	--	--	--	--	--	--
Nighttime	Max	55	66	49	60	58	54	51	--
10pm-7am	Median	52	60	44	57	54	51	47	--
	Min	49	57	36	55	51	48	42	--

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 8/4/2012

24hr Summary

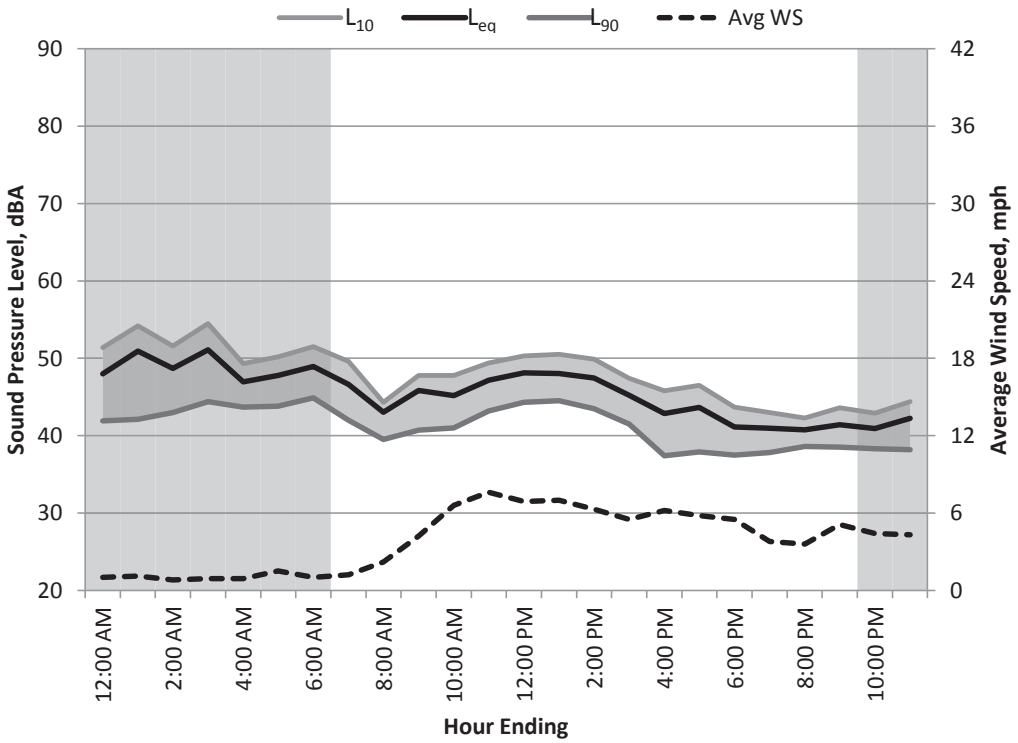
L_{DN} = 60 dBA C_{NEL} = 60 dBA $L_{eq(24hr)}$ = 51 dBA



Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	56	64	49	62	60	55	52	2
1:00	Night	55	63	45	61	58	54	51	3
2:00	Night	58	65	49	63	60	56	53	5
3:00	Night	52	64	44	59	55	51	48	4
4:00	Night	49	57	40	54	52	48	44	3
5:00	Night	53	63	37	60	56	52	45	2
6:00	Night	51	65	44	59	52	50	47	2
7:00	Day	50	60	45	56	52	49	47	3
8:00	Day	47	56	42	53	49	46	45	2
9:00	Day	48	64	42	58	49	46	44	3
10:00	Day	47	55	42	52	49	46	44	5
11:00	Day	49	57	42	55	52	48	45	4
12:00	Day	51	66	43	59	54	49	46	6
13:00	Day	53	62	43	59	56	52	47	7
14:00	Day	51	61	42	57	54	50	46	6
15:00	Day	49	61	37	58	52	47	42	8
16:00	Day	49	64	38	60	52	46	41	9
17:00	Day	48	61	36	57	51	45	41	9
18:00	Day	45	57	36	52	49	43	39	8
19:00	Day	43	54	37	49	45	42	39	6
20:00	Day	42	50	36	47	44	41	38	5
21:00	Day	41	47	35	46	43	41	39	3
22:00	Night	48	58	39	54	50	48	45	2
23:00	Night	48	56	39	54	50	46	43	2
Overall	Max	58	66	49	63	60	56	53	9
	Median	49	61	42	57	52	48	45	4
	Min	41	47	35	46	43	41	38	2
Daytime	Max	53	66	45	60	56	52	47	9
7am-10pm	Median	48	60	42	56	51	46	44	6
	Min	41	47	35	46	43	41	38	2
Nighttime	Max	58	65	49	63	60	56	53	5
10pm-7am	Median	52	63	44	59	55	51	47	2
	Min	48	56	37	54	50	46	43	2

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 8/5/2012

24hr Summary		
L_{DN} = 54 dBA	C_{NEL} = 54 dBA	$L_{eq(24hr)}$ = 47 dBA



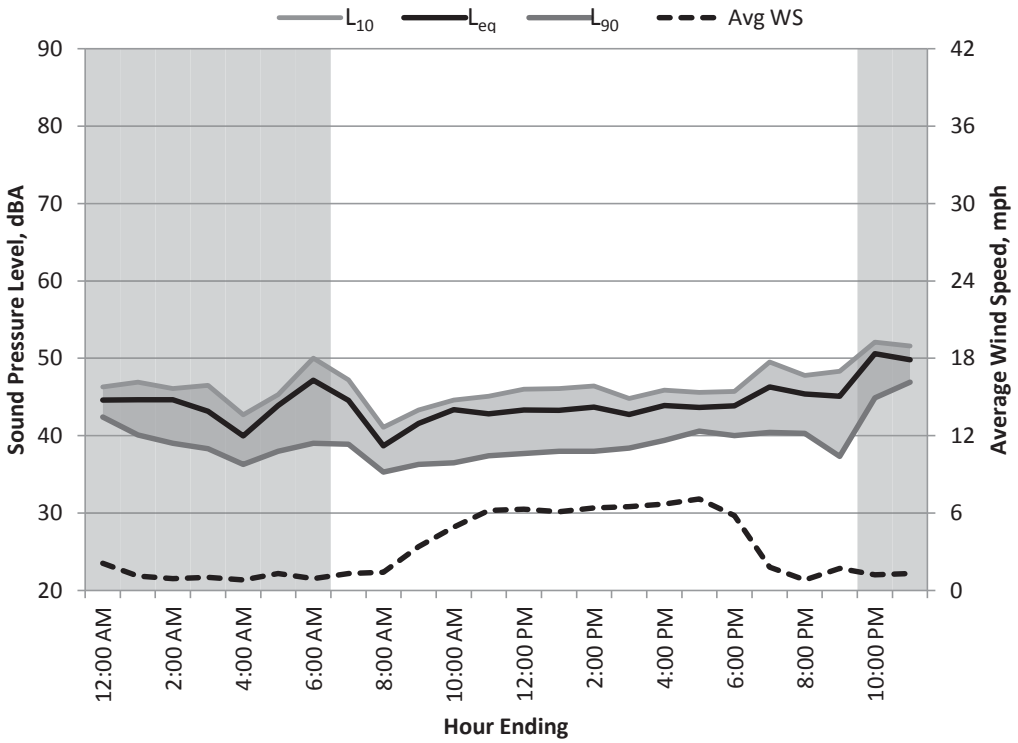
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	48	62	39	57	51	45	42	1
1:00	Night	51	62	39	59	54	49	42	1
2:00	Night	49	58	41	56	52	47	43	1
3:00	Night	51	61	41	58	55	50	44	1
4:00	Night	47	57	41	52	49	46	44	1
5:00	Night	48	59	41	53	50	47	44	2
6:00	Night	49	61	43	57	52	47	45	1
7:00	Day	47	59	40	55	50	44	42	1
8:00	Day	43	58	37	52	44	41	40	2
9:00	Day	46	63	39	55	48	43	41	4
10:00	Day	45	56	37	51	48	44	41	7
11:00	Day	47	58	40	54	49	46	43	8
12:00	Day	48	61	41	55	50	47	44	7
13:00	Day	48	58	42	54	51	47	45	7
14:00	Day	47	58	41	54	50	46	44	6
15:00	Day	45	57	38	52	47	44	42	6
16:00	Day	43	55	35	51	46	41	37	6
17:00	Day	44	60	34	51	47	42	38	6
18:00	Day	41	51	35	47	44	40	38	6
19:00	Day	41	50	34	47	43	40	38	4
20:00	Day	41	47	36	45	42	40	39	4
21:00	Day	41	50	36	47	44	41	39	5
22:00	Night	41	51	35	45	43	40	38	4
23:00	Night	42	52	36	49	44	41	38	4
Overall	Max	51	63	43	59	55	50	45	8
	Median	46	58	39	53	49	44	42	4
	Min	41	47	34	45	42	40	37	1
Daytime	Max	48	63	42	55	51	47	45	8
7am-10pm	Median	45	58	37	52	47	43	41	6
	Min	41	47	34	45	42	40	37	1
Nighttime	Max	51	62	43	59	55	50	45	4
10pm-7am	Median	48	59	41	56	51	47	43	1
	Min	41	51	35	45	43	40	38	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 8/6/2012

24hr Summary

L_{DN} = 53 dBA C_{NEL} = 53 dBA $L_{eq(24hr)}$ = 45 dBA



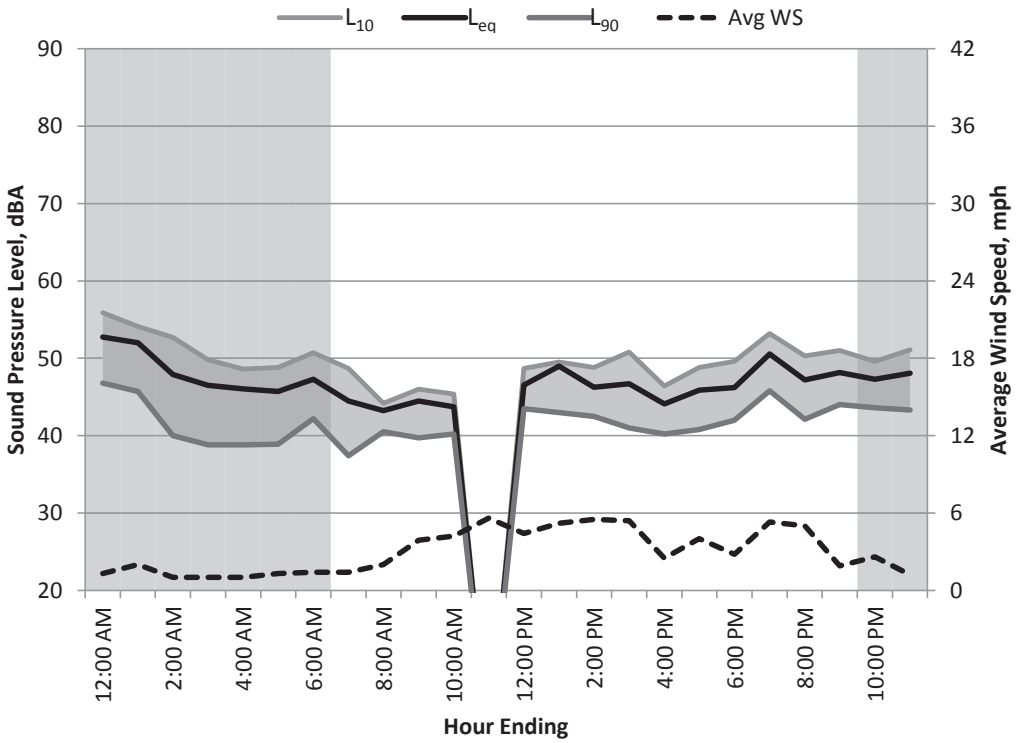
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	45	51	40	48	46	44	42	2
1:00	Night	45	53	36	49	47	44	40	1
2:00	Night	45	59	33	55	46	41	39	1
3:00	Night	43	52	36	51	47	41	38	1
4:00	Night	40	49	34	45	43	39	36	1
5:00	Night	44	58	34	55	45	41	38	1
6:00	Night	47	60	32	58	50	44	39	1
7:00	Day	45	59	36	53	47	43	39	1
8:00	Day	39	45	33	44	41	38	35	1
9:00	Day	42	57	33	51	43	39	36	3
10:00	Day	43	64	33	54	45	40	37	5
11:00	Day	43	61	33	51	45	41	37	6
12:00	Day	43	58	34	52	46	41	38	6
13:00	Day	43	56	35	53	46	41	38	6
14:00	Day	44	60	34	52	46	41	38	6
15:00	Day	43	56	36	51	45	41	38	7
16:00	Day	44	58	37	53	46	42	39	7
17:00	Day	44	52	36	49	46	43	41	7
18:00	Day	44	58	37	52	46	42	40	6
19:00	Day	46	60	37	56	50	43	40	2
20:00	Day	45	60	36	53	48	44	40	1
21:00	Day	45	57	31	53	48	43	37	2
22:00	Night	51	68	40	60	52	48	45	1
23:00	Night	50	60	44	55	52	49	47	1
Overall	Max	51	68	44	60	52	49	47	7
	Median	44	58	35	53	46	42	39	2
	Min	39	45	31	44	41	38	35	1
Daytime	Max	46	64	37	56	50	44	41	7
7am-10pm	Median	44	58	35	52	46	41	38	6
	Min	39	45	31	44	41	38	35	1
Nighttime	Max	51	68	44	60	52	49	47	2
10pm-7am	Median	45	58	36	55	47	44	39	1
	Min	40	49	32	45	43	39	36	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 8/7/2012

24hr Summary

L_{DN} = -- dBA C_{NEL} = -- dBA $L_{eq(24hr)}$ = -- dBA



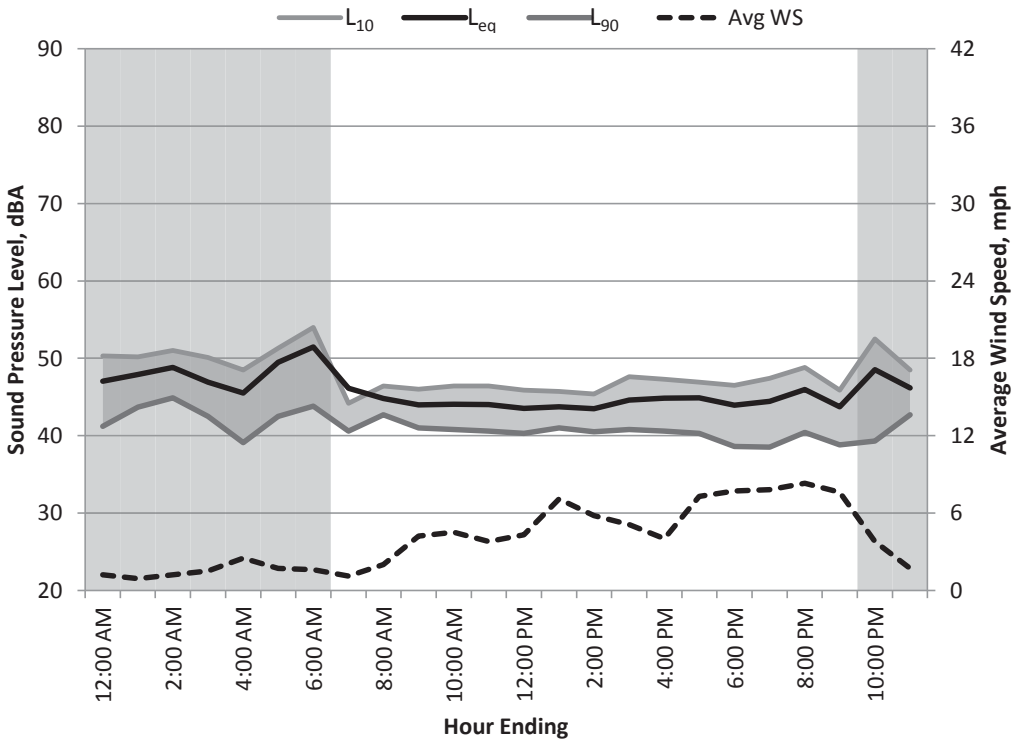
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	53	64	44	62	56	51	47	1
1:00	Night	52	65	42	60	54	51	46	2
2:00	Night	48	58	36	56	53	45	40	1
3:00	Night	47	61	36	56	50	43	39	1
4:00	Night	46	60	35	56	49	44	39	1
5:00	Night	46	56	35	53	49	44	39	1
6:00	Night	47	60	38	54	51	45	42	1
7:00	Day	44	60	34	54	49	40	37	1
8:00	Day	43	59	38	51	44	42	41	2
9:00	Day	44	64	36	54	46	42	40	4
10:00	Day	44	58	38	52	45	42	40	4
11:00	Day	--	--	--	--	--	--	--	6
12:00	Day	47	55	41	52	49	46	44	4
13:00	Day	49	71	40	61	50	46	43	5
14:00	Day	46	56	40	53	49	45	43	6
15:00	Day	47	57	38	55	51	44	41	5
16:00	Day	44	54	37	50	46	43	40	3
17:00	Day	46	57	39	53	49	44	41	4
18:00	Day	46	58	39	54	50	44	42	3
19:00	Day	51	58	43	56	53	50	46	5
20:00	Day	47	55	37	53	50	46	42	5
21:00	Day	48	57	41	54	51	47	44	2
22:00	Night	47	57	40	52	50	47	44	3
23:00	Night	48	58	38	54	51	47	43	1
Overall	Max	--	--	--	--	--	--	--	6
	Median	--	--	--	--	--	--	--	3
	Min	--	--	--	--	--	--	--	1
Daytime	Max	--	--	--	--	--	--	--	6
7am-10pm	Median	--	--	--	--	--	--	--	4
	Min	--	--	--	--	--	--	--	1
Nighttime	Max	53	65	44	62	56	51	47	3
10pm-7am	Median	47	60	38	56	51	45	42	1
	Min	46	56	35	52	49	43	39	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 8/8/2012

24hr Summary

L_{DN} = 54 dBA C_{NEL} = 55 dBA $L_{eq(24hr)}$ = 46 dBA



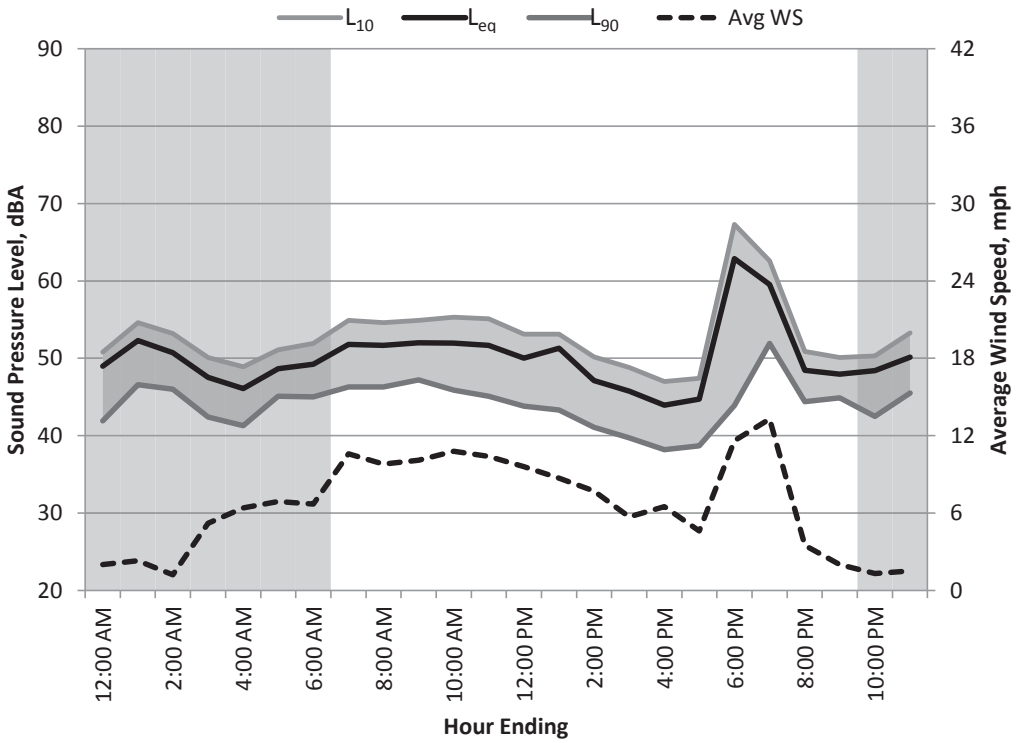
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	47	61	37	55	50	45	41	1
1:00	Night	48	57	41	52	50	48	44	1
2:00	Night	49	55	40	54	51	48	45	1
3:00	Night	47	54	39	52	50	45	43	2
4:00	Night	46	58	34	51	49	44	39	3
5:00	Night	49	68	40	59	51	47	43	2
6:00	Night	51	68	39	60	54	49	44	2
7:00	Day	46	64	38	60	44	42	41	1
8:00	Day	45	50	41	48	46	45	43	2
9:00	Day	44	51	39	49	46	43	41	4
10:00	Day	44	51	38	49	46	43	41	5
11:00	Day	44	53	38	50	46	43	41	4
12:00	Day	44	53	37	49	46	43	40	4
13:00	Day	44	51	37	49	46	43	41	7
14:00	Day	43	54	37	48	45	43	41	6
15:00	Day	45	54	38	51	48	43	41	5
16:00	Day	45	54	36	51	47	44	41	4
17:00	Day	45	60	35	53	47	43	40	7
18:00	Day	44	56	33	52	47	42	39	8
19:00	Day	44	56	31	52	47	43	39	8
20:00	Day	46	60	33	55	49	44	40	8
21:00	Day	44	59	33	51	46	43	39	8
22:00	Night	49	61	35	57	53	45	39	4
23:00	Night	46	55	41	51	49	45	43	2
Overall	Max	51	68	41	60	54	49	45	8
	Median	45	56	38	52	47	44	41	4
	Min	43	50	31	48	44	42	39	1
Daytime	Max	46	64	41	60	49	45	43	8
7am-10pm	Median	44	54	37	51	46	43	41	5
	Min	43	50	31	48	44	42	39	1
Nighttime	Max	51	68	41	60	54	49	45	4
10pm-7am	Median	48	58	39	54	50	45	43	2
	Min	46	54	34	51	49	44	39	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 8/9/2012

24hr Summary

L_{DN} = 57 dBA C_{NEL} = 58 dBA $L_{eq(24hr)}$ = 53 dBA



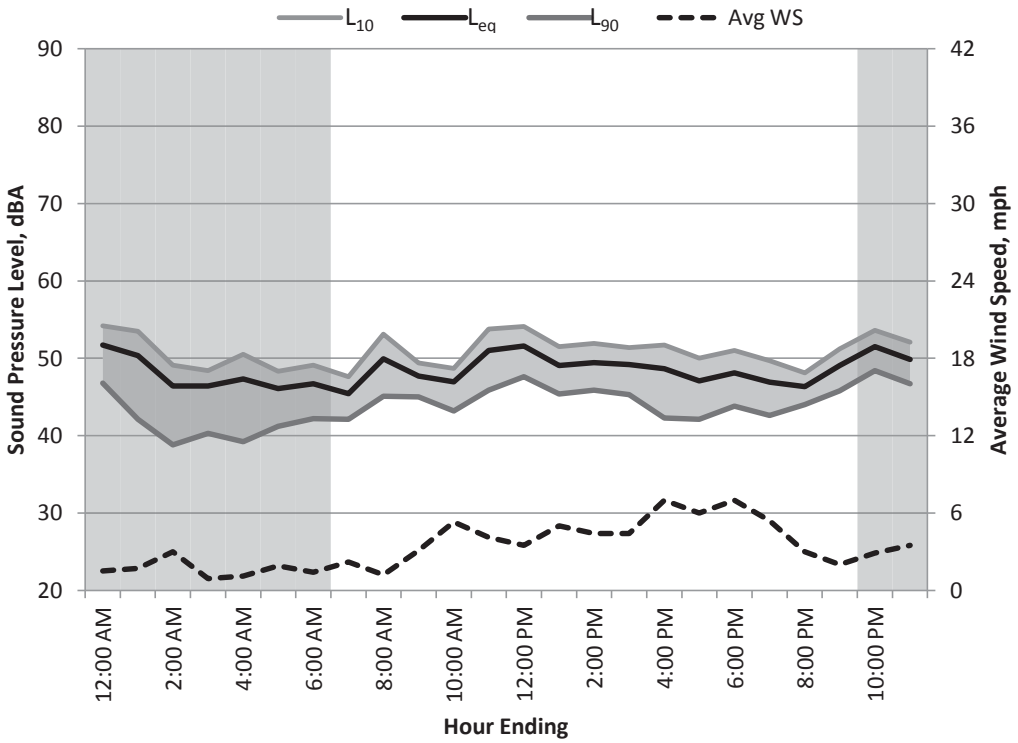
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	49	66	38	58	51	47	42	2
1:00	Night	52	65	40	62	55	50	47	2
2:00	Night	51	62	40	58	53	50	46	1
3:00	Night	48	58	38	53	50	47	42	5
4:00	Night	46	59	38	54	49	44	41	6
5:00	Night	49	57	42	54	51	48	45	7
6:00	Night	49	59	41	56	52	48	45	7
7:00	Day	52	65	41	59	55	50	46	11
8:00	Day	52	65	43	58	55	50	46	10
9:00	Day	52	63	43	59	55	51	47	10
10:00	Day	52	63	41	59	55	50	46	11
11:00	Day	52	63	41	60	55	50	45	10
12:00	Day	50	65	39	59	53	48	44	10
13:00	Day	51	74	39	61	53	48	43	9
14:00	Day	47	62	36	55	50	45	41	8
15:00	Day	46	60	36	52	49	44	40	6
16:00	Day	44	61	35	52	47	41	38	7
17:00	Day	45	58	35	53	47	43	39	5
18:00	Day	63	80	41	74	67	49	44	12
19:00	Day	60	74	47	70	63	56	52	13
20:00	Day	48	58	41	55	51	47	44	4
21:00	Day	48	55	42	54	50	47	45	2
22:00	Night	48	66	38	58	50	46	43	1
23:00	Night	50	61	41	57	53	48	46	2
Overall	Max	63	80	47	74	67	56	52	13
	Median	50	63	40	58	53	48	45	7
	Min	44	55	35	52	47	41	38	1
Daytime	Max	63	80	47	74	67	56	52	13
7am-10pm	Median	51	63	41	59	53	48	44	10
	Min	44	55	35	52	47	41	38	2
Nighttime	Max	52	66	42	62	55	50	47	7
10pm-7am	Median	49	61	40	57	51	48	45	2
	Min	46	57	38	53	49	44	41	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 8/10/2012

24hr Summary

L_{DN} = 55 dBA C_{NEL} = 56 dBA $L_{eq(24hr)}$ = 49 dBA



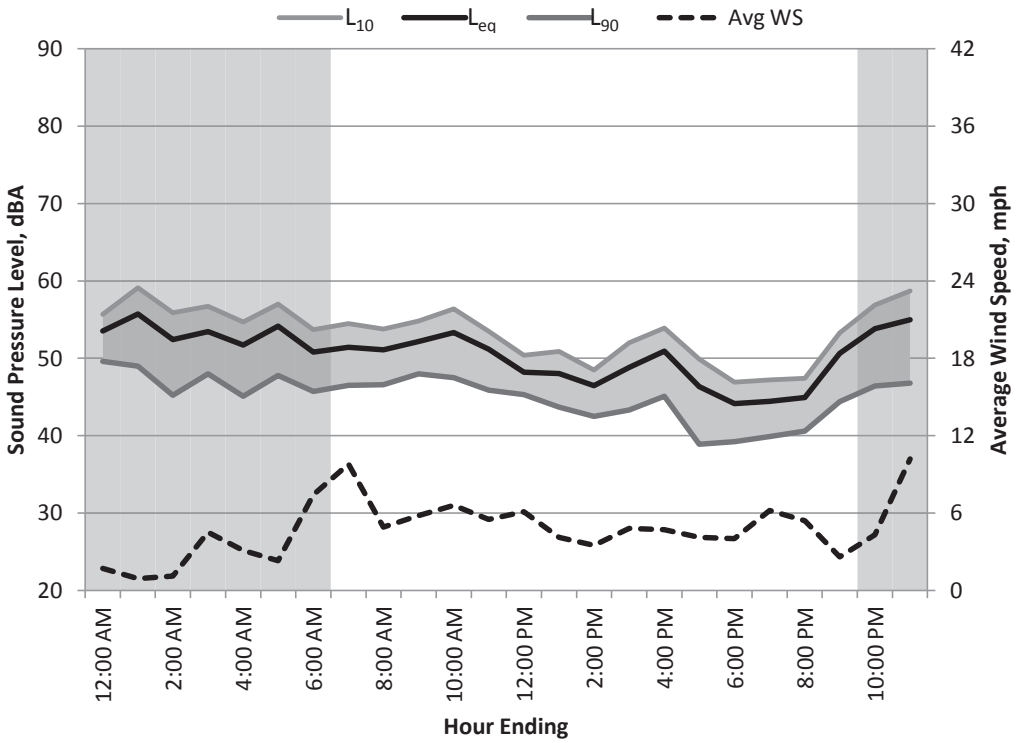
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	52	61	44	57	54	51	47	2
1:00	Night	50	62	36	57	54	49	42	2
2:00	Night	46	62	34	56	49	44	39	3
3:00	Night	46	62	37	57	48	44	40	1
4:00	Night	47	62	34	58	51	44	39	1
5:00	Night	46	61	36	54	48	45	41	2
6:00	Night	47	60	39	54	49	45	42	1
7:00	Day	45	56	39	51	48	45	42	2
8:00	Day	50	60	42	59	53	47	45	1
9:00	Day	48	59	43	54	49	47	45	3
10:00	Day	47	60	40	55	49	45	43	5
11:00	Day	51	60	41	57	54	50	46	4
12:00	Day	52	60	44	57	54	51	48	4
13:00	Day	49	57	43	55	52	48	45	5
14:00	Day	49	57	43	55	52	49	46	4
15:00	Day	49	65	42	57	51	48	45	4
16:00	Day	49	59	39	55	52	47	42	7
17:00	Day	47	57	39	54	50	46	42	6
18:00	Day	48	59	41	55	51	47	44	7
19:00	Day	47	56	39	53	50	46	43	5
20:00	Day	46	54	41	51	48	46	44	3
21:00	Day	49	61	44	54	51	48	46	2
22:00	Night	52	57	46	56	54	51	48	3
23:00	Night	50	56	43	55	52	49	47	4
Overall	Max	52	65	46	59	54	51	48	7
	Median	48	60	41	55	51	47	44	3
	Min	45	54	34	51	48	44	39	1
Daytime	Max	52	65	44	59	54	51	48	7
7am-10pm	Median	49	59	41	55	51	47	45	4
	Min	45	54	39	51	48	45	42	1
Nighttime	Max	52	62	46	58	54	51	48	4
10pm-7am	Median	47	61	37	56	51	45	42	2
	Min	46	56	34	54	48	44	39	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 8/11/2012

24hr Summary

L_{DN} = 60 dBA C_{NEL} = 60 dBA $L_{eq(24hr)}$ = 52 dBA

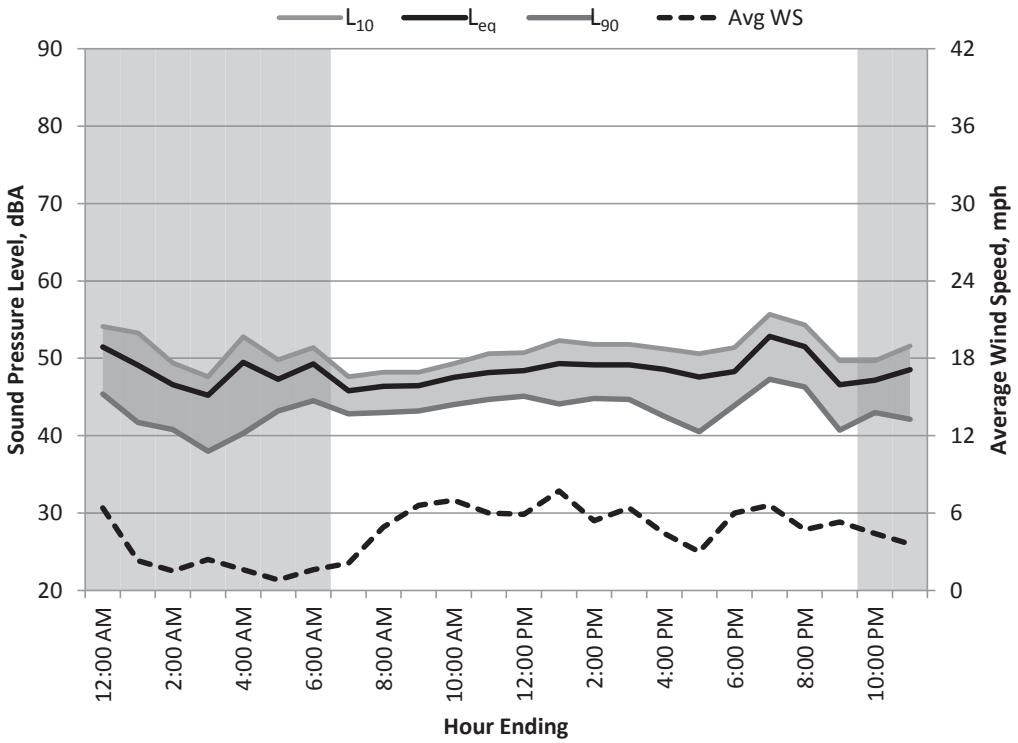


Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	54	61	45	58	56	53	50	2
1:00	Night	56	64	46	62	59	54	49	1
2:00	Night	52	61	40	59	56	50	45	1
3:00	Night	53	61	44	60	57	52	48	5
4:00	Night	52	65	42	59	55	50	45	3
5:00	Night	54	63	43	59	57	54	48	2
6:00	Night	51	62	41	58	54	49	46	7
7:00	Day	51	62	42	59	55	50	47	10
8:00	Day	51	61	43	57	54	50	47	5
9:00	Day	52	62	45	58	55	51	48	6
10:00	Day	53	62	42	60	56	52	48	7
11:00	Day	51	66	42	62	54	49	46	6
12:00	Day	48	55	43	53	50	48	45	6
13:00	Day	48	61	41	54	51	47	44	4
14:00	Day	46	61	40	55	49	45	43	4
15:00	Day	49	61	41	56	52	47	43	5
16:00	Day	51	60	41	57	54	50	45	5
17:00	Day	46	57	36	54	50	44	39	4
18:00	Day	44	56	37	51	47	43	39	4
19:00	Day	44	52	36	50	47	44	40	6
20:00	Day	45	55	33	50	47	44	41	5
21:00	Day	51	60	36	56	53	50	44	3
22:00	Night	54	66	42	60	57	53	46	4
23:00	Night	55	68	42	64	59	52	47	10
Overall	Max	56	68	46	64	59	54	50	10
	Median	51	61	42	58	54	50	46	5
	Min	44	52	33	50	47	43	39	1
Daytime	Max	53	66	45	62	56	52	48	10
7am-10pm	Median	49	61	41	56	52	48	44	5
	Min	44	52	33	50	47	43	39	3
Nighttime	Max	56	68	46	64	59	54	50	10
10pm-7am	Median	54	63	42	59	57	52	47	3
	Min	51	61	40	58	54	49	45	1

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 8/12/2012

24hr Summary

L_{DN} = 55 dBA C_{NEL} = 55 dBA $L_{eq(24hr)}$ = 49 dBA



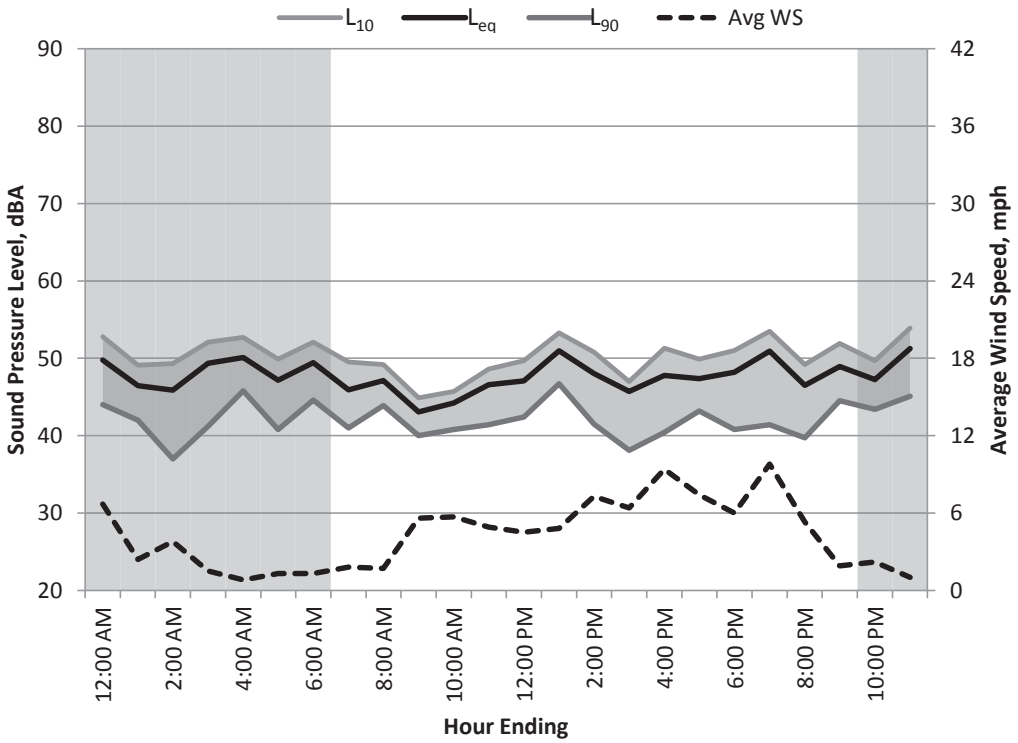
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	51	66	42	60	54	50	45	6
1:00	Night	49	59	38	57	53	46	42	2
2:00	Night	47	58	37	54	49	45	41	2
3:00	Night	45	58	34	52	48	45	38	2
4:00	Night	49	61	34	57	53	48	40	2
5:00	Night	47	61	42	55	50	46	43	1
6:00	Night	49	64	43	59	51	47	45	2
7:00	Day	46	54	41	53	48	45	43	2
8:00	Day	46	58	40	54	48	45	43	5
9:00	Day	46	60	39	52	48	46	43	7
10:00	Day	48	61	41	56	49	46	44	7
11:00	Day	48	58	43	55	51	47	45	6
12:00	Day	48	59	42	54	51	48	45	6
13:00	Day	49	59	41	56	52	48	44	8
14:00	Day	49	59	40	56	52	48	45	5
15:00	Day	49	58	41	55	52	48	45	6
16:00	Day	49	63	39	55	51	48	43	4
17:00	Day	48	58	37	55	51	46	41	3
18:00	Day	48	61	40	54	51	47	44	6
19:00	Day	53	62	42	59	56	52	47	7
20:00	Day	51	61	41	57	54	51	46	5
21:00	Day	47	60	36	55	50	44	41	5
22:00	Night	47	56	39	53	50	46	43	4
23:00	Night	49	60	38	55	52	47	42	4
Overall	Max	53	66	43	60	56	52	47	8
	Median	48	60	40	55	51	47	43	5
	Min	45	54	34	52	48	44	38	1
Daytime	Max	53	63	43	59	56	52	47	8
7am-10pm	Median	48	59	41	55	51	47	44	6
	Min	46	54	36	52	48	44	41	2
Nighttime	Max	51	66	43	60	54	50	45	6
10pm-7am	Median	49	60	38	55	51	46	42	2
	Min	45	56	34	52	48	45	38	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 8/13/2012

24hr Summary

L_{DN} = 55 dBA C_{NEL} = 55 dBA $L_{eq(24hr)}$ = 48 dBA



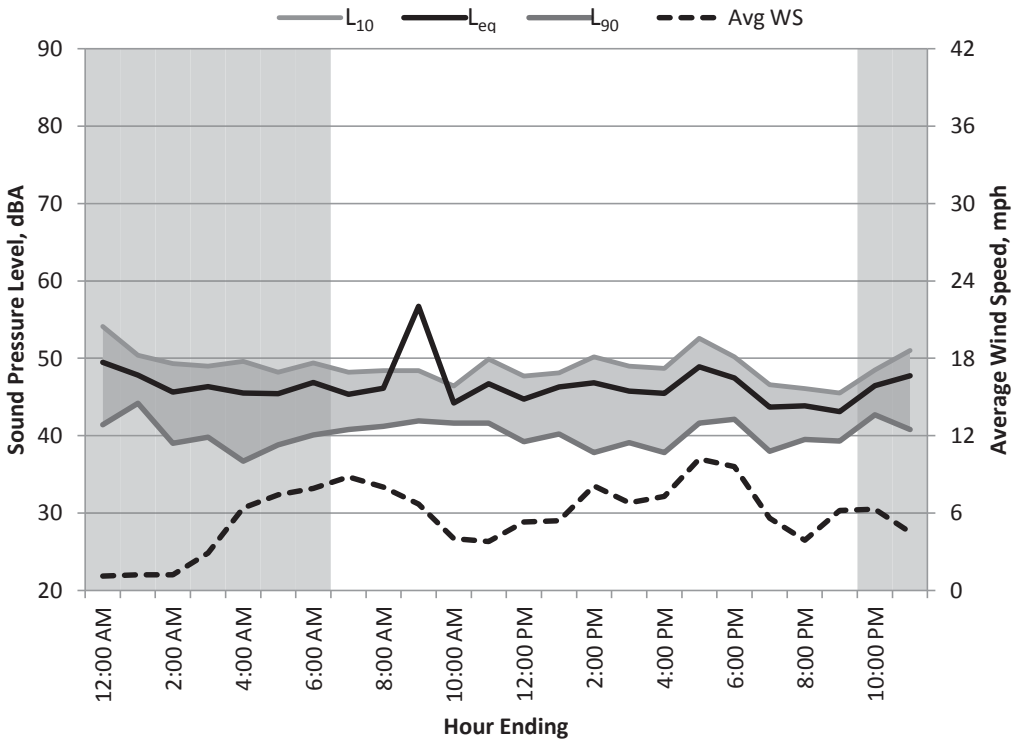
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	50	60	40	57	53	48	44	7
1:00	Night	46	57	37	52	49	46	42	2
2:00	Night	46	60	31	57	49	41	37	4
3:00	Night	49	63	38	59	52	47	41	2
4:00	Night	50	61	44	57	53	49	46	1
5:00	Night	47	58	37	54	50	46	41	1
6:00	Night	49	64	42	56	52	48	45	1
7:00	Day	46	57	37	53	50	44	41	2
8:00	Day	47	57	40	53	49	46	44	2
9:00	Day	43	55	37	50	45	42	40	6
10:00	Day	44	59	38	52	46	43	41	6
11:00	Day	47	62	38	54	49	46	41	5
12:00	Day	47	60	39	54	50	46	42	5
13:00	Day	51	67	42	57	53	50	47	5
14:00	Day	48	60	36	56	51	47	42	7
15:00	Day	46	64	36	57	47	42	38	6
16:00	Day	48	60	34	56	51	45	40	9
17:00	Day	47	59	37	55	50	46	43	7
18:00	Day	48	66	36	58	51	44	41	6
19:00	Day	51	71	35	60	54	47	41	10
20:00	Day	46	58	34	55	49	45	40	5
21:00	Day	49	57	41	54	52	48	45	2
22:00	Night	47	59	42	54	50	46	43	2
23:00	Night	51	64	40	60	54	49	45	1
Overall	Max	51	71	44	60	54	50	47	10
	Median	47	60	38	55	50	46	41	5
	Min	43	55	31	50	45	41	37	1
Daytime	Max	51	71	42	60	54	50	47	10
7am-10pm	Median	47	60	37	55	50	46	41	6
	Min	43	55	34	50	45	42	38	2
Nighttime	Max	51	64	44	60	54	49	46	7
10pm-7am	Median	49	60	40	57	52	47	43	2
	Min	46	57	31	52	49	41	37	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 8/14/2012

24hr Summary

L_{DN} = 54 dBA C_{NEL} = 54 dBA $L_{eq(24hr)}$ = 48 dBA



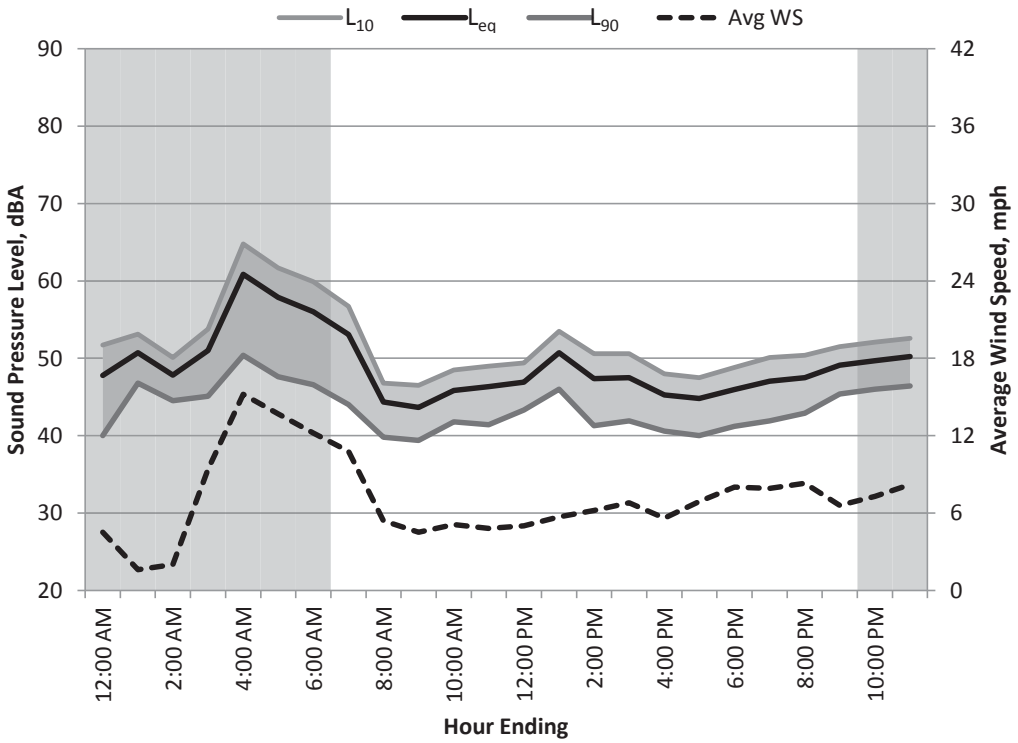
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	49	61	38	57	54	46	41	1
1:00	Night	48	57	38	53	50	47	44	1
2:00	Night	46	55	36	51	49	44	39	1
3:00	Night	46	62	34	55	49	44	40	3
4:00	Night	46	57	32	54	50	43	37	6
5:00	Night	45	63	33	54	48	43	39	7
6:00	Night	47	61	35	56	49	45	40	8
7:00	Day	45	55	36	51	48	45	41	9
8:00	Day	46	62	36	55	48	44	41	8
9:00	Day	57	85	39	64	48	45	42	7
10:00	Day	44	50	39	49	46	44	42	4
11:00	Day	47	56	39	53	50	45	42	4
12:00	Day	45	55	37	52	48	43	39	5
13:00	Day	46	63	36	58	48	43	40	5
14:00	Day	47	63	34	57	50	42	38	8
15:00	Day	46	58	35	55	49	43	39	7
16:00	Day	45	59	33	55	49	43	38	7
17:00	Day	49	62	36	57	53	46	42	10
18:00	Day	47	59	38	56	50	46	42	10
19:00	Day	44	52	31	50	47	43	38	6
20:00	Day	44	57	35	51	46	43	40	4
21:00	Day	43	54	36	49	46	42	39	6
22:00	Night	46	58	39	54	49	45	43	6
23:00	Night	48	59	36	56	51	45	41	5
Overall	Max	57	85	39	64	54	47	44	10
	Median	46	59	36	54	49	44	40	6
	Min	43	50	31	49	46	42	37	1
Daytime	Max	57	85	39	64	53	46	42	10
7am-10pm	Median	46	58	36	55	48	43	40	7
	Min	43	50	31	49	46	42	38	4
Nighttime	Max	49	63	39	57	54	47	44	8
10pm-7am	Median	46	59	36	54	49	45	40	5
	Min	45	55	32	51	48	43	37	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 8/15/2012

24hr Summary

L_{DN} = 61 dBA C_{NEL} = 61 dBA $L_{eq(24hr)}$ = 52 dBA



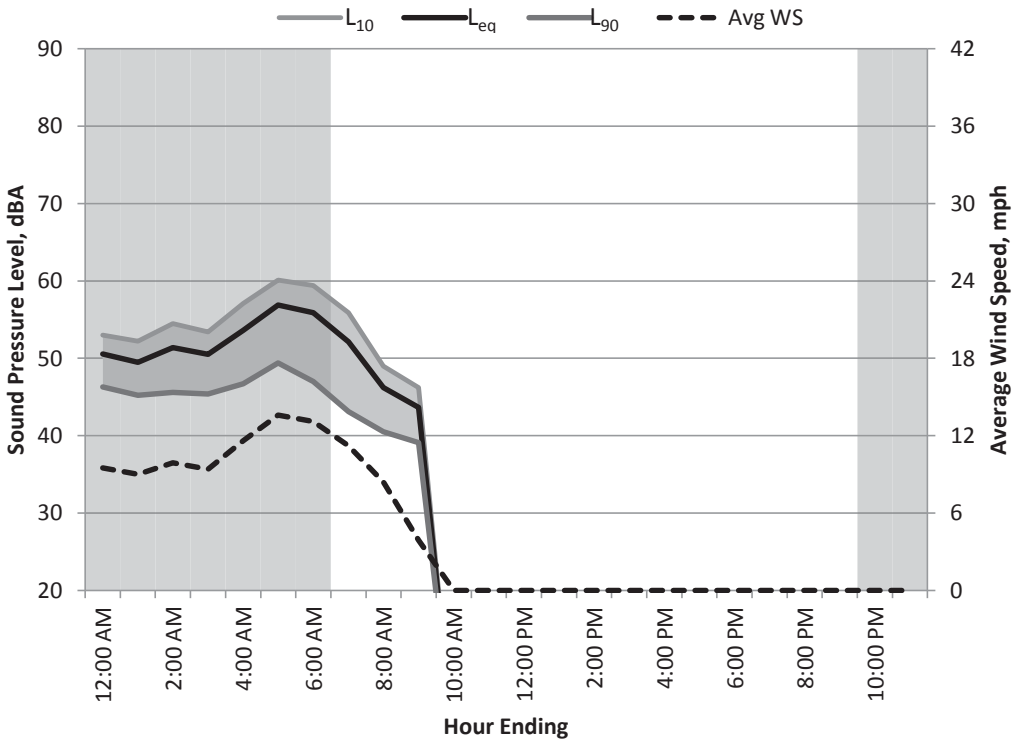
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	48	57	36	54	52	46	40	5
1:00	Night	51	56	43	55	53	50	47	2
2:00	Night	48	53	41	52	50	47	45	2
3:00	Night	51	67	41	60	54	49	45	9
4:00	Night	61	74	44	70	65	58	50	15
5:00	Night	58	73	40	67	62	55	48	14
6:00	Night	56	71	42	65	60	52	47	12
7:00	Day	53	66	40	63	57	50	44	11
8:00	Day	44	55	36	52	47	43	40	5
9:00	Day	44	54	36	50	47	42	39	5
10:00	Day	46	54	37	52	49	45	42	5
11:00	Day	46	58	39	53	49	45	41	5
12:00	Day	47	56	40	52	49	46	43	5
13:00	Day	51	62	41	57	54	50	46	6
14:00	Day	47	61	37	55	51	46	41	6
15:00	Day	47	58	37	54	51	46	42	7
16:00	Day	45	56	37	52	48	44	41	6
17:00	Day	45	55	36	51	48	44	40	7
18:00	Day	46	57	38	53	49	45	41	8
19:00	Day	47	60	37	55	50	45	42	8
20:00	Day	47	57	39	54	50	46	43	8
21:00	Day	49	57	40	55	52	49	45	7
22:00	Night	50	59	43	55	52	49	46	7
23:00	Night	50	60	43	56	53	49	46	8
Overall	Max	61	74	44	70	65	58	50	15
	Median	48	58	40	54	51	46	43	7
	Min	44	53	36	50	47	42	39	2
Daytime	Max	53	66	41	63	57	50	46	11
7am-10pm	Median	47	57	37	53	49	45	42	6
	Min	44	54	36	50	47	42	39	5
Nighttime	Max	61	74	44	70	65	58	50	15
10pm-7am	Median	51	60	42	56	53	49	46	8
	Min	48	53	36	52	50	46	40	2

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 8/16/2012

24hr Summary

L_{DN} = -- dBA C_{NEL} = -- dBA $L_{eq(24hr)}$ = -- dBA



Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	51	65	42	57	53	49	46	10
1:00	Night	49	61	41	56	52	48	45	9
2:00	Night	51	65	42	60	55	49	46	10
3:00	Night	51	64	42	59	53	48	45	9
4:00	Night	54	67	42	62	57	51	47	12
5:00	Night	57	74	43	65	60	55	49	14
6:00	Night	56	70	41	65	59	53	47	13
7:00	Day	52	67	38	61	56	49	43	11
8:00	Day	46	61	37	55	49	44	41	8
9:00	Day	44	65	36	51	46	42	39	4
10:00	Day	--	--	--	--	--	--	--	--
11:00	Day	--	--	--	--	--	--	--	--
12:00	Day	--	--	--	--	--	--	--	--
13:00	Day	--	--	--	--	--	--	--	--
14:00	Day	--	--	--	--	--	--	--	--
15:00	Day	--	--	--	--	--	--	--	--
16:00	Day	--	--	--	--	--	--	--	--
17:00	Day	--	--	--	--	--	--	--	--
18:00	Day	--	--	--	--	--	--	--	--
19:00	Day	--	--	--	--	--	--	--	--
20:00	Day	--	--	--	--	--	--	--	--
21:00	Day	--	--	--	--	--	--	--	--
22:00	Night	--	--	--	--	--	--	--	--
23:00	Night	--	--	--	--	--	--	--	--
Overall	Max	--	--	--	--	--	--	--	--
	Median	--	--	--	--	--	--	--	--
	Min	--	--	--	--	--	--	--	--
Daytime	Max	--	--	--	--	--	--	--	--
7am-10pm	Median	--	--	--	--	--	--	--	--
	Min	--	--	--	--	--	--	--	--
Nighttime	Max	--	--	--	--	--	--	--	--
10pm-7am	Median	--	--	--	--	--	--	--	--
	Min	--	--	--	--	--	--	--	--

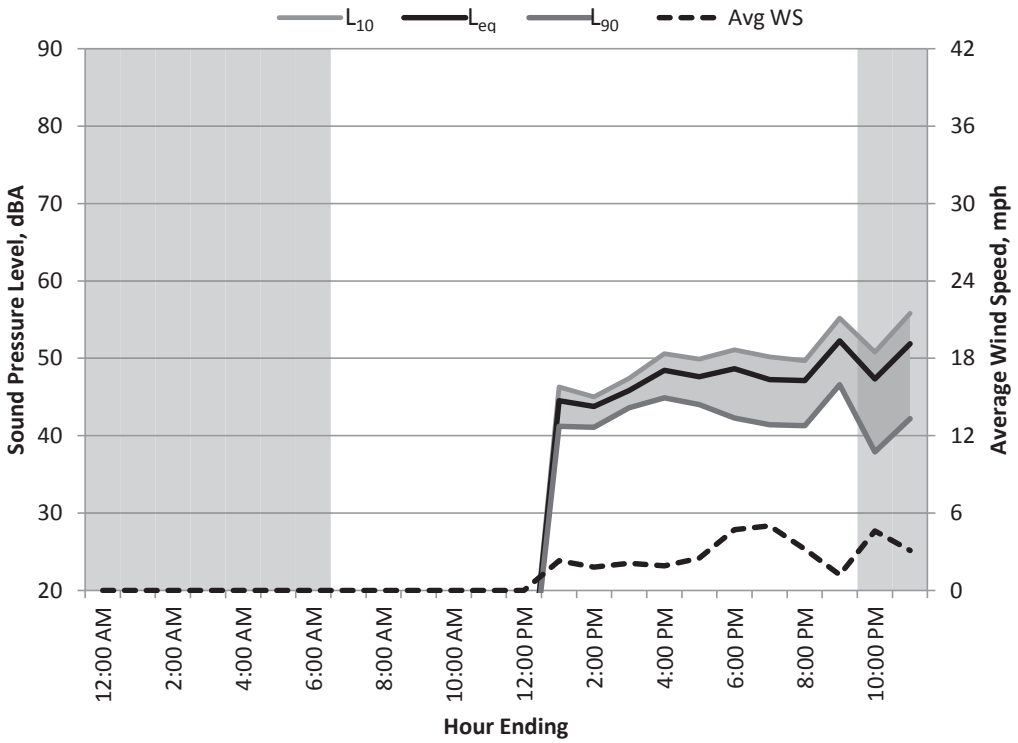
Appendix D
ST-1 December Measurements

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 12/5/2012

24hr Summary

L_{DN} = -- dBA C_{NEL} = -- dBA $L_{eq(24hr)}$ = -- dBA



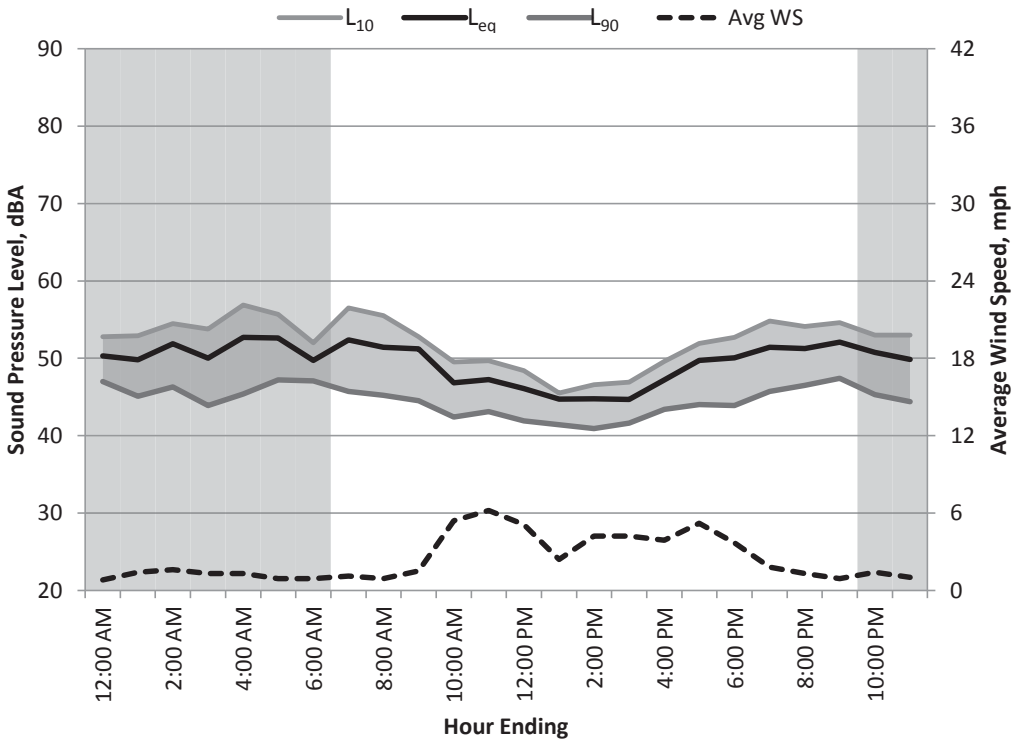
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	--	--	--	--	--	--	--	--
1:00	Night	--	--	--	--	--	--	--	--
2:00	Night	--	--	--	--	--	--	--	--
3:00	Night	--	--	--	--	--	--	--	--
4:00	Night	--	--	--	--	--	--	--	--
5:00	Night	--	--	--	--	--	--	--	--
6:00	Night	--	--	--	--	--	--	--	--
7:00	Day	--	--	--	--	--	--	--	--
8:00	Day	--	--	--	--	--	--	--	--
9:00	Day	--	--	--	--	--	--	--	--
10:00	Day	--	--	--	--	--	--	--	--
11:00	Day	--	--	--	--	--	--	--	--
12:00	Day	--	--	--	--	--	--	--	--
13:00	Day	45	56	39	52	46	43	41	2
14:00	Day	44	56	39	52	45	43	41	2
15:00	Day	46	55	42	52	47	45	44	2
16:00	Day	48	60	41	56	51	47	45	2
17:00	Day	48	55	41	53	50	47	44	3
18:00	Day	49	64	38	59	51	47	42	5
19:00	Day	47	57	35	54	50	46	41	5
20:00	Day	47	63	36	55	50	45	41	3
21:00	Day	52	60	42	58	55	51	47	1
22:00	Night	47	62	33	56	51	45	38	5
23:00	Night	52	61	34	59	56	50	42	3
Overall	Max	--	--	--	--	--	--	--	--
	Median	--	--	--	--	--	--	--	--
	Min	--	--	--	--	--	--	--	--
Daytime	Max	--	--	--	--	--	--	--	--
7am-10pm	Median	--	--	--	--	--	--	--	--
	Min	--	--	--	--	--	--	--	--
Nighttime	Max	--	--	--	--	--	--	--	--
10pm-7am	Median	--	--	--	--	--	--	--	--
	Min	--	--	--	--	--	--	--	--

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 12/6/2012

24hr Summary

L_{DN} = 57 dBA C_{NEL} = 58 dBA $L_{eq(24hr)}$ = 50 dBA



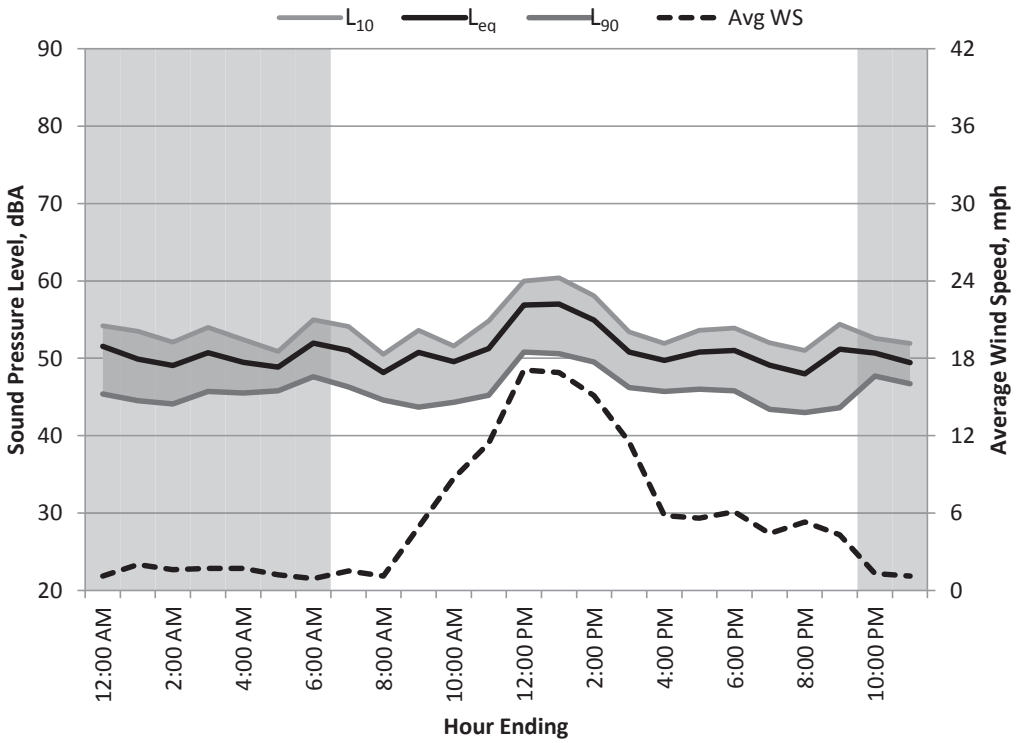
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	50	59	45	56	53	49	47	1
1:00	Night	50	62	42	58	53	48	45	1
2:00	Night	52	64	42	61	55	50	46	2
3:00	Night	50	59	41	57	54	48	44	1
4:00	Night	53	63	42	60	57	50	45	1
5:00	Night	53	63	44	60	56	51	47	1
6:00	Night	50	59	46	54	52	49	47	1
7:00	Day	52	65	44	61	57	50	46	1
8:00	Day	51	63	43	60	56	47	45	1
9:00	Day	51	71	43	62	53	46	45	2
10:00	Day	47	57	39	54	50	45	42	5
11:00	Day	47	59	39	54	50	46	43	6
12:00	Day	46	59	38	54	48	45	42	5
13:00	Day	45	62	39	53	46	43	41	2
14:00	Day	45	57	37	53	47	44	41	4
15:00	Day	45	52	38	49	47	44	42	4
16:00	Day	47	57	38	53	50	47	43	4
17:00	Day	50	64	38	59	52	48	44	5
18:00	Day	50	68	36	57	53	49	44	4
19:00	Day	51	63	39	59	55	49	46	2
20:00	Day	51	60	43	58	54	50	47	1
21:00	Day	52	65	44	60	55	51	47	1
22:00	Night	51	65	42	59	53	50	45	1
23:00	Night	50	62	41	57	53	48	44	1
Overall	Max	53	71	46	62	57	51	47	6
	Median	50	62	41	57	53	48	45	1
	Min	45	52	36	49	46	43	41	1
Daytime	Max	52	71	44	62	57	51	47	6
7am-10pm	Median	50	62	39	57	52	47	44	4
	Min	45	52	36	49	46	43	41	1
Nighttime	Max	53	65	46	61	57	51	47	2
10pm-7am	Median	50	62	42	58	53	49	45	1
	Min	50	59	41	54	52	48	44	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 12/7/2012

24hr Summary

L_{DN} = 57 dBA C_{NEL} = 57 dBA $L_{eq(24hr)}$ = 52 dBA



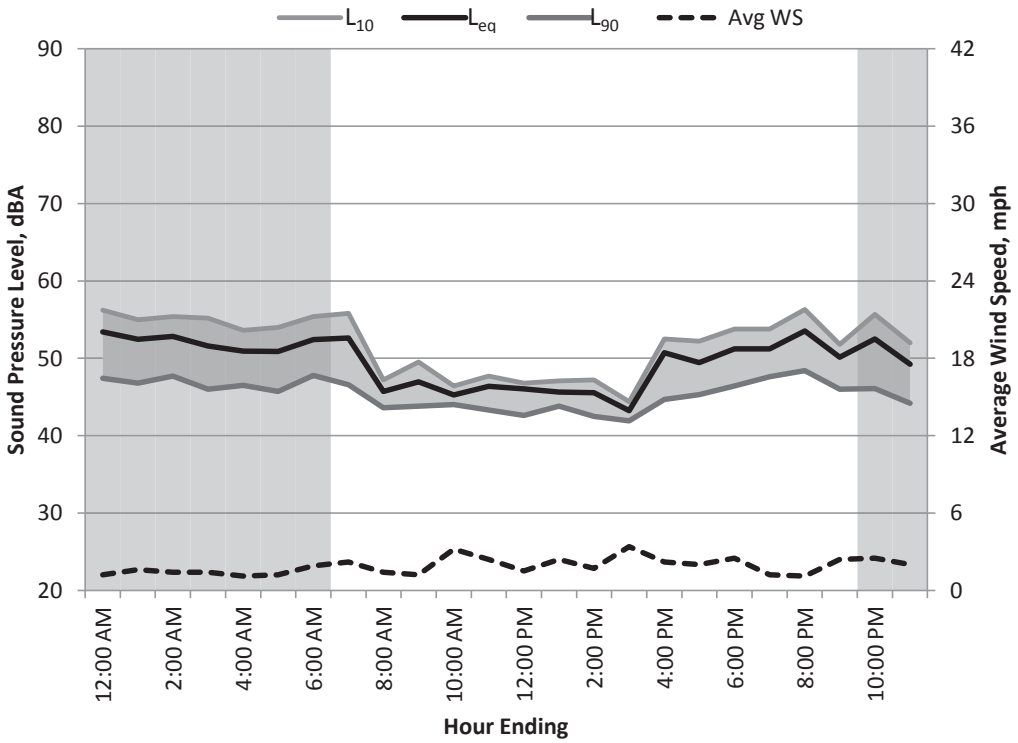
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	52	64	42	60	54	50	45	1
1:00	Night	50	62	42	57	54	47	45	2
2:00	Night	49	63	41	57	52	47	44	2
3:00	Night	51	62	43	59	54	48	46	2
4:00	Night	49	61	43	57	52	48	46	2
5:00	Night	49	63	43	55	51	48	46	1
6:00	Night	52	62	45	59	55	50	48	1
7:00	Day	51	64	44	59	54	49	46	2
8:00	Day	48	62	42	56	51	46	45	1
9:00	Day	51	67	38	61	54	48	44	5
10:00	Day	50	67	40	59	52	48	44	9
11:00	Day	51	62	41	59	55	49	45	11
12:00	Day	57	70	44	64	60	55	51	17
13:00	Day	57	68	44	64	60	55	51	17
14:00	Day	55	68	44	63	58	53	50	15
15:00	Day	51	61	42	57	53	50	46	12
16:00	Day	50	59	40	56	52	49	46	6
17:00	Day	51	61	42	57	54	50	46	6
18:00	Day	51	64	41	57	54	50	46	6
19:00	Day	49	64	39	55	52	48	43	4
20:00	Day	48	56	34	54	51	47	43	5
21:00	Day	51	64	37	60	54	48	44	4
22:00	Night	51	63	46	58	53	50	48	1
23:00	Night	49	58	45	55	52	49	47	1
Overall	Max	57	70	46	64	60	55	51	17
	Median	51	63	42	58	54	49	46	4
	Min	48	56	34	54	51	46	43	1
Daytime	Max	57	70	44	64	60	55	51	17
7am-10pm	Median	51	64	41	59	54	49	46	6
	Min	48	56	34	54	51	46	43	1
Nighttime	Max	52	64	46	60	55	50	48	2
10pm-7am	Median	50	62	43	57	53	48	46	1
	Min	49	58	41	55	51	47	44	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 12/8/2012

24hr Summary

L_{DN} = 58 dBA C_{NEL} = 58 dBA $L_{eq(24hr)}$ = 50 dBA



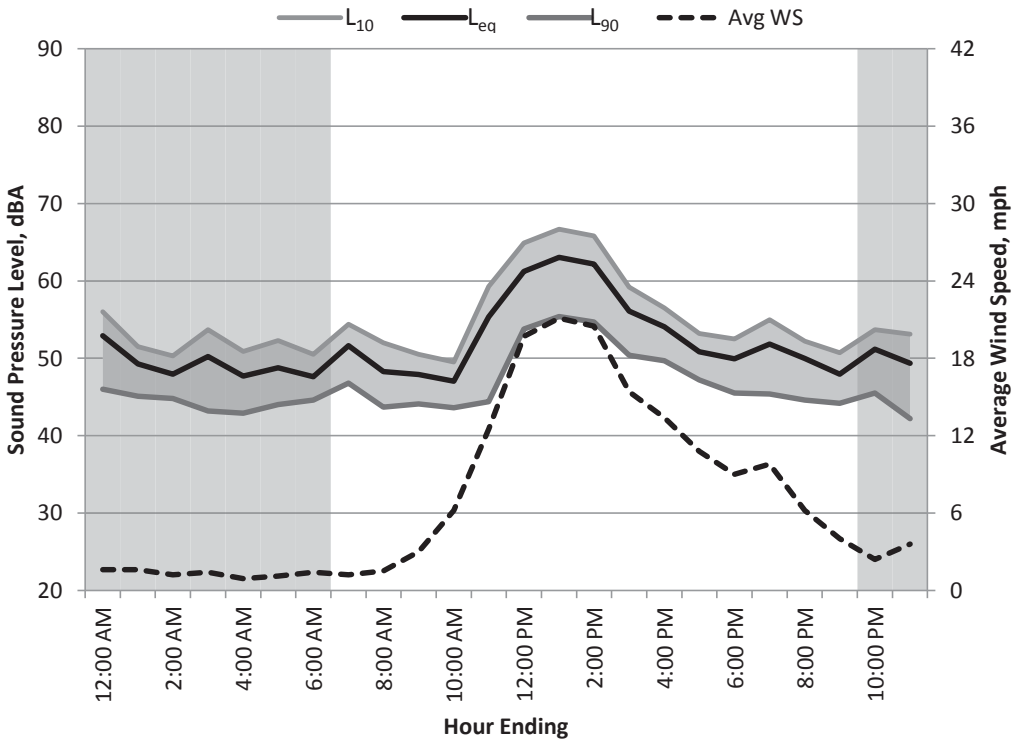
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	53	65	45	62	56	52	47	1
1:00	Night	52	67	44	60	55	51	47	2
2:00	Night	53	65	43	62	55	51	48	1
3:00	Night	52	63	43	59	55	49	46	1
4:00	Night	51	61	44	57	54	50	47	1
5:00	Night	51	64	43	59	54	49	46	1
6:00	Night	52	62	45	60	55	51	48	2
7:00	Day	53	63	43	61	56	51	47	2
8:00	Day	46	57	42	51	47	45	44	1
9:00	Day	47	56	42	54	50	45	44	1
10:00	Day	45	55	42	49	46	45	44	3
11:00	Day	46	63	41	54	48	45	43	2
12:00	Day	46	63	41	56	47	44	43	2
13:00	Day	46	59	42	51	47	45	44	2
14:00	Day	46	69	41	52	47	44	43	2
15:00	Day	43	49	40	46	44	43	42	3
16:00	Day	51	73	41	59	53	48	45	2
17:00	Day	49	62	43	55	52	48	45	2
18:00	Day	51	61	43	57	54	50	46	3
19:00	Day	51	59	45	56	54	50	48	1
20:00	Day	54	65	46	63	56	51	48	1
21:00	Day	50	64	43	59	52	49	46	2
22:00	Night	52	65	43	62	56	50	46	3
23:00	Night	49	63	42	58	52	47	44	2
Overall	Max	54	73	46	63	56	52	48	3
	Median	51	63	43	57	53	49	46	2
	Min	43	49	40	46	44	43	42	1
Daytime	Max	54	73	46	63	56	51	48	3
7am-10pm	Median	47	62	42	55	50	45	44	2
	Min	43	49	40	46	44	43	42	1
Nighttime	Max	53	67	45	62	56	52	48	3
10pm-7am	Median	52	64	43	60	55	50	47	1
	Min	49	61	42	57	52	47	44	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 12/9/2012

24hr Summary

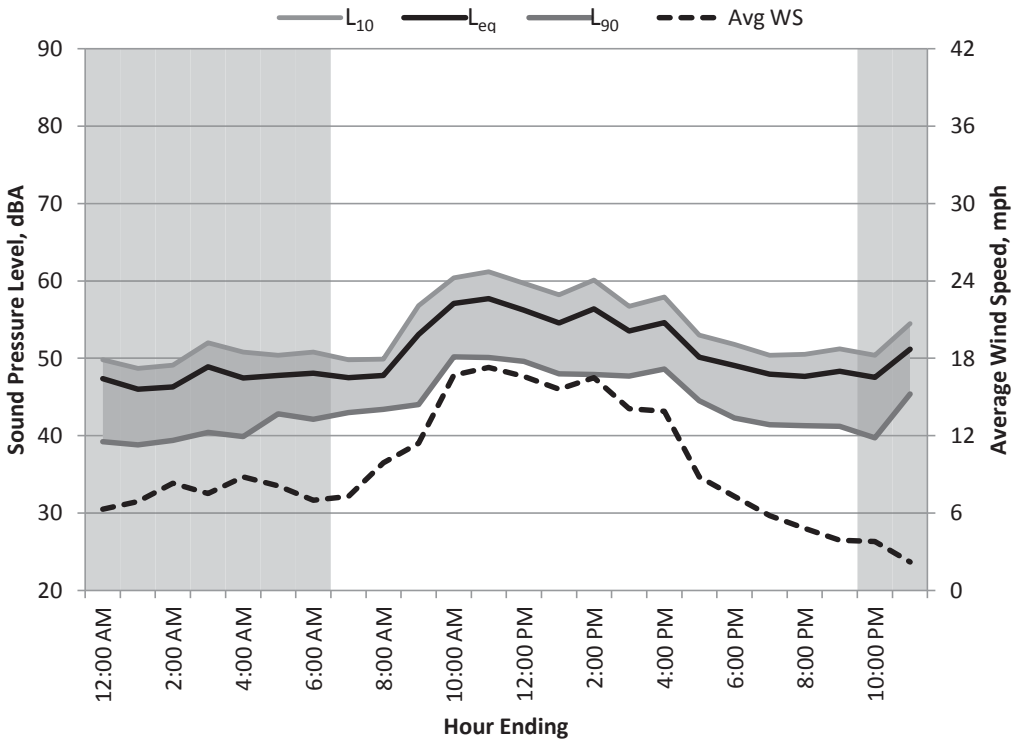
L_{DN} = 58 dBA C_{NEL} = 58 dBA $L_{eq(24hr)}$ = 55 dBA



Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	53	67	43	62	56	50	46	2
1:00	Night	49	61	43	57	52	48	45	2
2:00	Night	48	60	41	54	50	47	45	1
3:00	Night	50	60	41	58	54	47	43	1
4:00	Night	48	63	41	55	51	45	43	1
5:00	Night	49	57	42	56	52	46	44	1
6:00	Night	48	57	43	53	51	46	45	1
7:00	Day	52	64	43	60	54	49	47	1
8:00	Day	48	58	42	56	52	46	44	2
9:00	Day	48	60	42	55	51	47	44	3
10:00	Day	47	58	40	53	50	46	44	6
11:00	Day	55	73	40	65	59	49	44	13
12:00	Day	61	72	47	69	65	59	54	20
13:00	Day	63	72	47	70	67	61	55	21
14:00	Day	62	71	47	69	66	60	55	21
15:00	Day	56	71	46	64	59	54	50	15
16:00	Day	54	64	44	61	57	53	50	13
17:00	Day	51	61	42	56	53	50	47	11
18:00	Day	50	63	40	56	53	49	46	9
19:00	Day	52	63	41	60	55	50	45	10
20:00	Day	50	63	40	59	52	48	45	6
21:00	Day	48	57	41	55	51	46	44	4
22:00	Night	51	64	42	60	54	49	46	2
23:00	Night	49	63	37	58	53	46	42	4
Overall	Max	63	73	47	70	67	61	55	21
	Median	50	63	42	58	53	49	45	4
	Min	47	57	37	53	50	45	42	1
Daytime	Max	63	73	47	70	67	61	55	21
7am-10pm	Median	52	63	42	60	54	49	46	10
	Min	47	57	40	53	50	46	44	1
Nighttime	Max	53	67	43	62	56	50	46	4
10pm-7am	Median	49	61	42	57	52	47	45	1
	Min	48	57	37	53	50	45	42	1

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 12/10/2012

24hr Summary		
L_{DN} = 56 dBA	C_{NEL} = 56 dBA	$L_{eq(24hr)}$ = 52 dBA



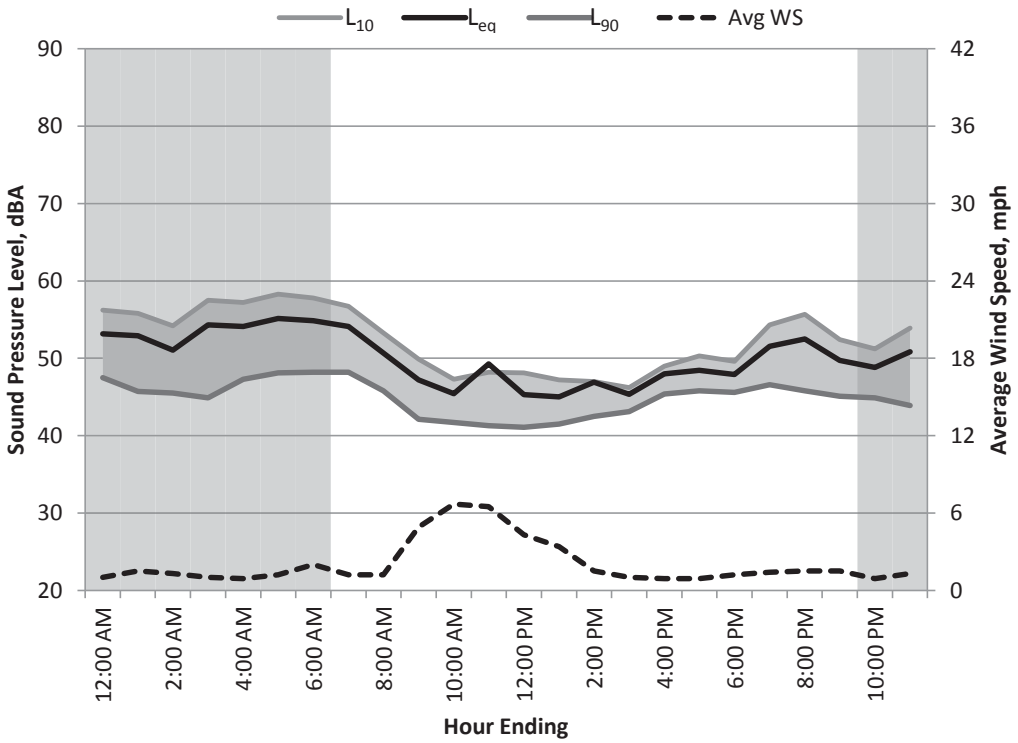
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	47	64	35	58	50	43	39	6
1:00	Night	46	62	35	56	49	44	39	7
2:00	Night	46	64	35	55	49	44	39	8
3:00	Night	49	63	36	59	52	45	40	8
4:00	Night	47	61	36	56	51	45	40	9
5:00	Night	48	59	38	56	50	46	43	8
6:00	Night	48	63	38	58	51	46	42	7
7:00	Day	47	61	40	54	50	46	43	7
8:00	Day	48	62	39	56	50	46	43	10
9:00	Day	53	69	41	64	57	48	44	11
10:00	Day	57	70	44	64	60	56	50	17
11:00	Day	58	70	45	65	61	56	50	17
12:00	Day	56	68	44	64	60	54	50	17
13:00	Day	55	65	42	62	58	53	48	16
14:00	Day	56	68	40	64	60	54	48	17
15:00	Day	54	65	42	61	57	52	48	14
16:00	Day	55	68	44	62	58	52	49	14
17:00	Day	50	62	39	58	53	49	45	9
18:00	Day	49	63	36	59	52	47	42	7
19:00	Day	48	64	34	56	50	46	41	6
20:00	Day	48	63	37	56	51	46	41	5
21:00	Day	48	63	36	56	51	47	41	4
22:00	Night	48	62	34	57	50	45	40	4
23:00	Night	51	62	42	58	55	49	45	2
Overall	Max	58	70	45	65	61	56	50	17
	Median	49	63	39	58	52	46	43	8
	Min	46	59	34	54	49	43	39	2
Daytime	Max	58	70	45	65	61	56	50	17
7am-10pm	Median	53	65	40	61	57	49	45	11
	Min	47	61	34	54	50	46	41	4
Nighttime	Max	51	64	42	59	55	49	45	9
10pm-7am	Median	48	62	36	57	50	45	40	7
	Min	46	59	34	55	49	43	39	2

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 12/11/2012

24hr Summary

L_{DN} = 59 dBA C_{NEL} = 59 dBA $L_{eq(24hr)}$ = 51 dBA



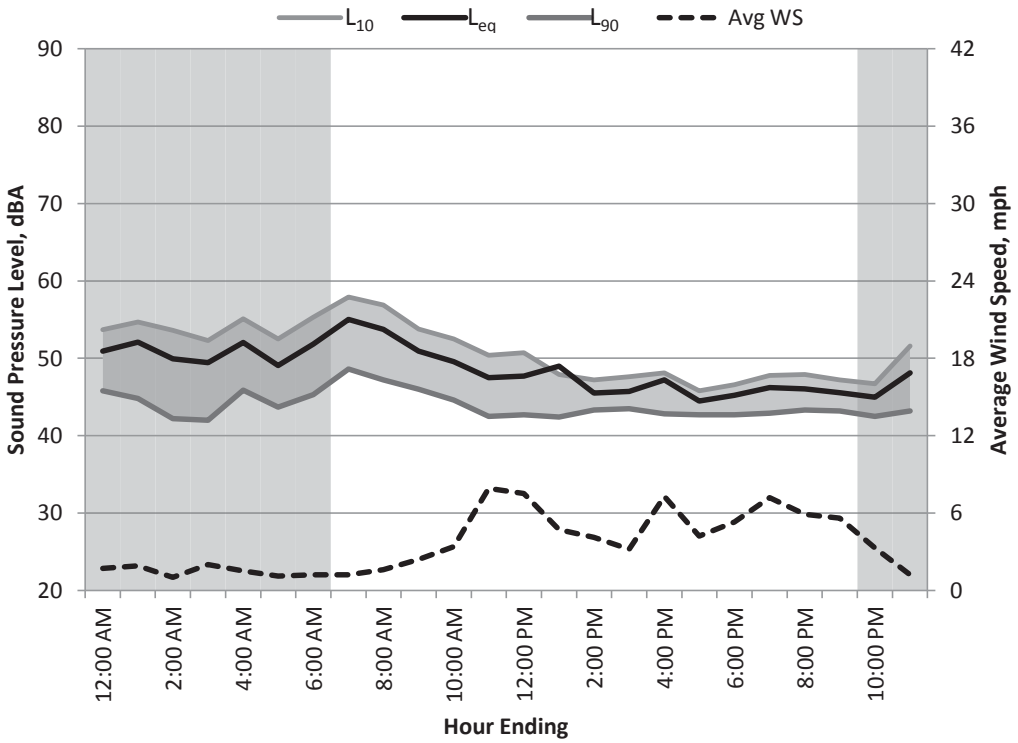
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	53	65	44	61	56	51	48	1
1:00	Night	53	68	42	63	56	50	46	2
2:00	Night	51	60	41	58	54	50	46	1
3:00	Night	54	72	41	66	58	49	45	1
4:00	Night	54	67	43	63	57	51	47	1
5:00	Night	55	72	43	62	58	53	48	1
6:00	Night	55	70	40	62	58	53	48	2
7:00	Day	54	70	44	61	57	52	48	1
8:00	Day	51	63	43	60	53	49	46	1
9:00	Day	47	61	38	54	50	46	42	5
10:00	Day	45	60	37	53	47	44	42	7
11:00	Day	49	69	38	63	48	44	41	7
12:00	Day	45	57	37	54	48	44	41	4
13:00	Day	45	55	37	51	47	44	42	3
14:00	Day	47	65	41	58	47	44	43	2
15:00	Day	45	57	42	53	46	44	43	1
16:00	Day	48	61	44	56	49	47	45	1
17:00	Day	48	58	44	55	50	48	46	1
18:00	Day	48	56	44	52	50	47	46	1
19:00	Day	52	63	43	60	54	50	47	1
20:00	Day	53	66	41	61	56	50	46	2
21:00	Day	50	61	43	58	52	48	45	2
22:00	Night	49	59	42	56	51	47	45	1
23:00	Night	51	64	41	58	54	49	44	1
Overall	Max	55	72	44	66	58	53	48	7
	Median	50	63	42	58	53	48	45	1
	Min	45	55	37	51	46	44	41	1
Daytime	Max	54	70	44	63	57	52	48	7
7am-10pm	Median	48	61	42	56	50	47	45	2
	Min	45	55	37	51	46	44	41	1
Nighttime	Max	55	72	44	66	58	53	48	2
10pm-7am	Median	53	67	42	62	56	50	46	1
	Min	49	59	40	56	51	47	44	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 12/12/2012

24hr Summary

L_{DN} = 57 dBA C_{NEL} = 57 dBA $L_{eq(24hr)}$ = 50 dBA



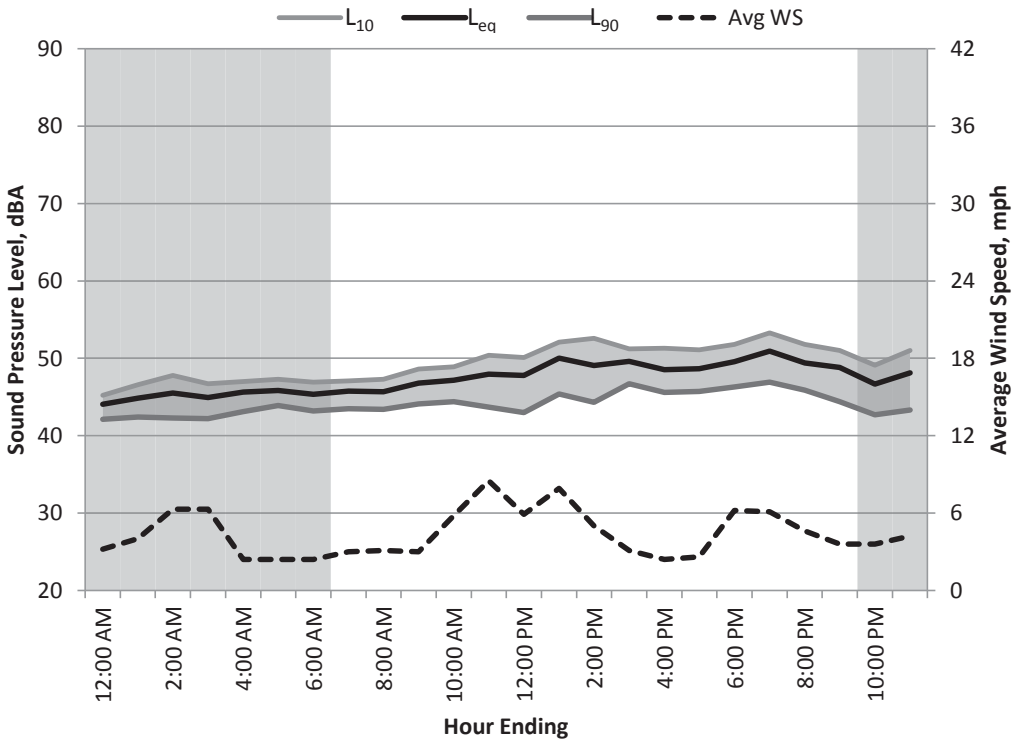
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	51	62	41	56	54	50	46	2
1:00	Night	52	68	41	63	55	49	45	2
2:00	Night	50	64	39	59	54	47	42	1
3:00	Night	49	62	39	59	52	47	42	2
4:00	Night	52	63	42	60	55	50	46	2
5:00	Night	49	63	41	57	53	47	44	1
6:00	Night	52	65	41	59	55	50	45	1
7:00	Day	55	66	43	63	58	54	49	1
8:00	Day	54	66	44	62	57	52	47	2
9:00	Day	51	66	44	59	54	49	46	2
10:00	Day	50	65	42	58	53	47	45	3
11:00	Day	48	62	38	56	50	45	43	8
12:00	Day	48	61	40	54	51	46	43	8
13:00	Day	49	76	40	55	48	45	42	5
14:00	Day	45	53	41	49	47	45	43	4
15:00	Day	46	53	42	50	48	45	44	3
16:00	Day	47	73	40	56	48	45	43	7
17:00	Day	44	56	39	49	46	44	43	4
18:00	Day	45	58	40	53	47	44	43	5
19:00	Day	46	60	39	55	48	45	43	7
20:00	Day	46	55	40	53	48	45	43	6
21:00	Day	46	54	40	51	47	45	43	6
22:00	Night	45	54	39	50	47	44	43	3
23:00	Night	48	59	41	56	52	46	43	1
Overall	Max	55	76	44	63	58	54	49	8
	Median	49	62	40	56	51	46	43	3
	Min	44	53	38	49	46	44	42	1
Daytime	Max	55	76	44	63	58	54	49	8
7am-10pm	Median	47	61	40	55	48	45	43	5
	Min	44	53	38	49	46	44	42	1
Nighttime	Max	52	68	42	63	55	50	46	3
10pm-7am	Median	50	63	41	59	54	47	44	2
	Min	45	54	39	50	47	44	42	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 12/13/2012

24hr Summary

L_{DN} = 53 dBA C_{NEL} = 53 dBA $L_{eq(24hr)}$ = 48 dBA



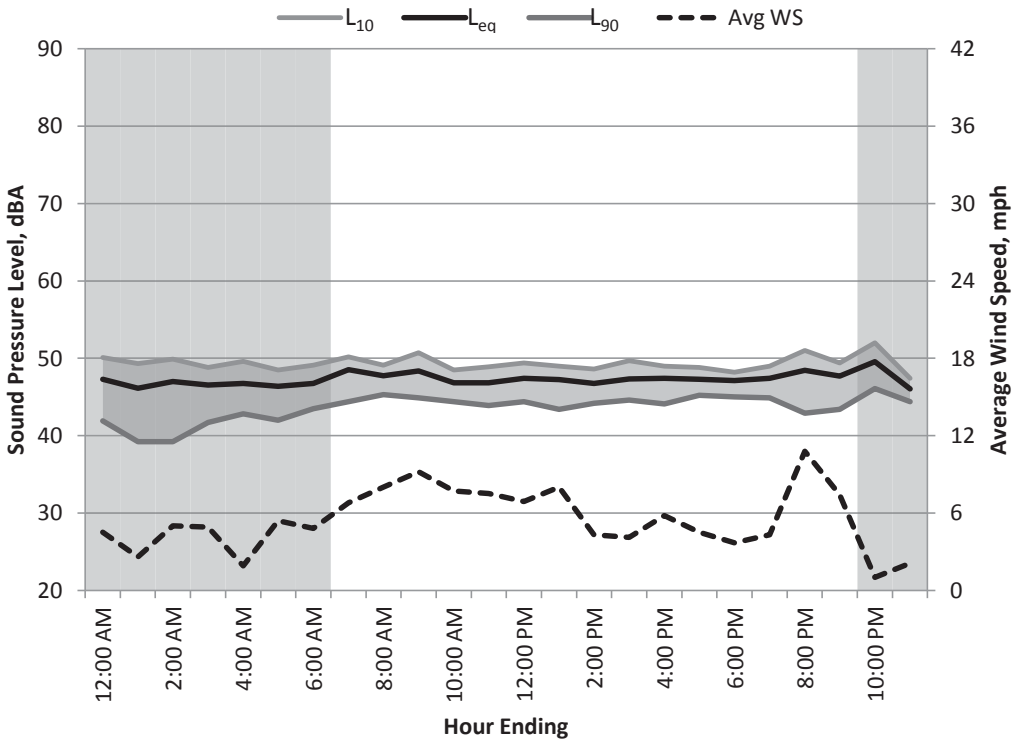
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	44	53	40	50	45	44	42	3
1:00	Night	45	53	40	50	47	44	42	4
2:00	Night	45	53	39	51	48	45	42	6
3:00	Night	45	57	40	51	47	44	42	6
4:00	Night	46	57	40	53	47	45	43	2
5:00	Night	46	50	41	49	47	46	44	2
6:00	Night	45	55	41	50	47	45	43	2
7:00	Day	46	58	41	52	47	45	44	3
8:00	Day	46	59	42	51	47	45	43	3
9:00	Day	47	56	41	53	49	46	44	3
10:00	Day	47	58	42	53	49	46	44	6
11:00	Day	48	62	40	56	50	46	44	9
12:00	Day	48	64	40	56	50	46	43	6
13:00	Day	50	64	42	59	52	48	45	8
14:00	Day	49	64	42	57	53	46	44	5
15:00	Day	50	59	43	56	51	49	47	3
16:00	Day	49	62	42	55	51	47	46	2
17:00	Day	49	56	39	54	51	48	46	3
18:00	Day	50	59	41	54	52	49	46	6
19:00	Day	51	62	43	58	53	50	47	6
20:00	Day	49	57	40	54	52	49	46	5
21:00	Day	49	63	41	57	51	47	44	4
22:00	Night	47	63	40	52	49	46	43	4
23:00	Night	48	59	39	55	51	47	43	4
Overall	Max	51	64	43	59	53	50	47	9
	Median	47	58	41	54	50	46	44	4
	Min	44	50	39	49	45	44	42	2
Daytime	Max	51	64	43	59	53	50	47	9
7am-10pm	Median	49	59	41	55	51	47	44	5
	Min	46	56	39	51	47	45	43	2
Nighttime	Max	48	63	41	55	51	47	44	6
10pm-7am	Median	45	55	40	51	47	45	43	4
	Min	44	50	39	49	45	44	42	2

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 12/14/2012

24hr Summary

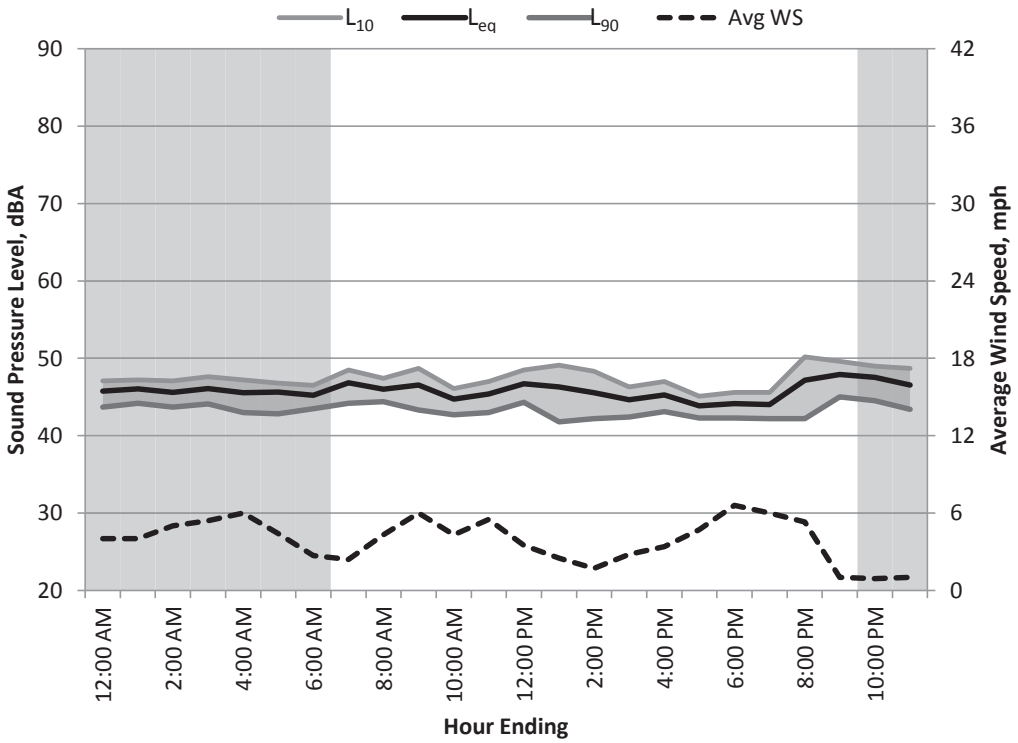
L_{DN} = 54 dBA C_{NEL} = 54 dBA $L_{eq(24hr)}$ = 47 dBA



Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	47	55	38	54	50	46	42	5
1:00	Night	46	62	37	55	49	43	39	3
2:00	Night	47	60	35	56	50	45	39	5
3:00	Night	47	63	38	55	49	45	42	5
4:00	Night	47	58	40	55	50	45	43	2
5:00	Night	46	58	38	54	49	45	42	5
6:00	Night	47	57	39	53	49	46	44	5
7:00	Day	49	68	42	56	50	47	44	7
8:00	Day	48	61	42	54	49	47	45	8
9:00	Day	48	60	42	55	51	47	45	9
10:00	Day	47	55	41	51	49	46	44	8
11:00	Day	47	55	40	53	49	46	44	8
12:00	Day	47	60	40	54	49	46	44	7
13:00	Day	47	61	40	56	49	46	43	8
14:00	Day	47	60	42	53	49	46	44	4
15:00	Day	47	60	42	54	50	46	45	4
16:00	Day	47	61	41	56	49	46	44	6
17:00	Day	47	55	42	53	49	47	45	5
18:00	Day	47	60	43	53	48	47	45	4
19:00	Day	47	63	41	53	49	47	45	4
20:00	Day	48	63	39	58	51	46	43	11
21:00	Day	48	74	38	53	49	47	43	7
22:00	Night	50	60	43	57	52	48	46	1
23:00	Night	46	49	43	48	47	46	44	2
Overall	Max	50	74	43	58	52	48	46	11
	Median	47	60	40	54	49	46	44	5
	Min	46	49	35	48	47	43	39	1
Daytime	Max	49	74	43	58	51	47	45	11
7am-10pm	Median	47	60	41	54	49	46	44	7
	Min	47	55	38	51	48	46	43	4
Nighttime	Max	50	63	43	57	52	48	46	5
10pm-7am	Median	47	58	38	55	49	45	42	5
	Min	46	49	35	48	47	43	39	1

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 12/15/2012

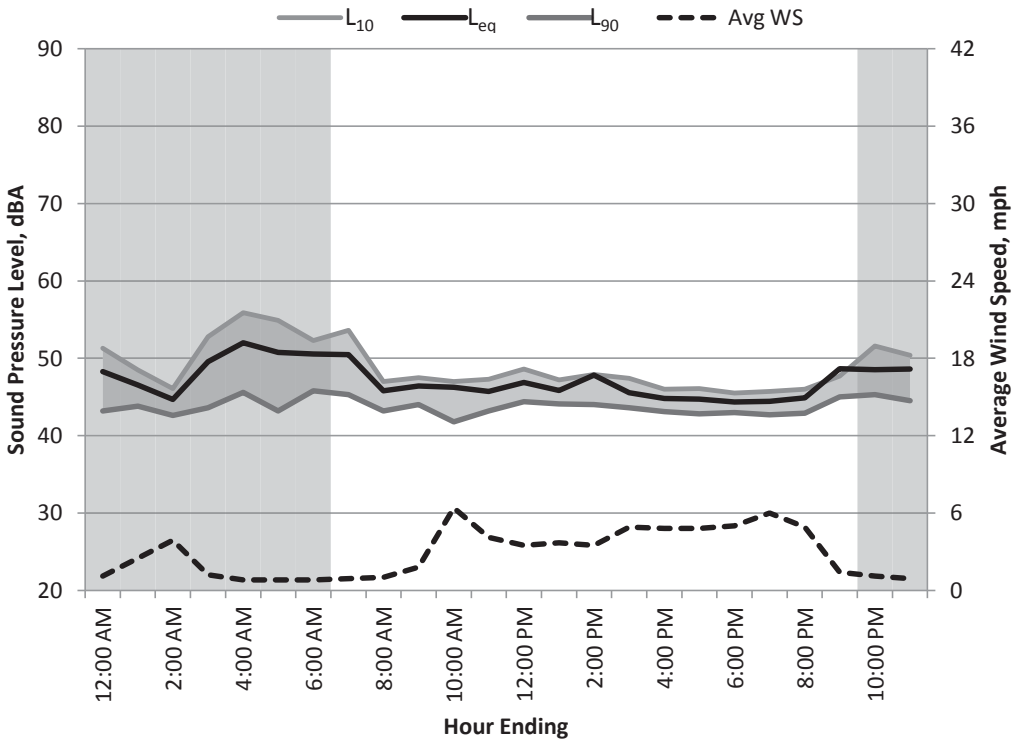
24hr Summary		
L_{DN} = 52 dBA	C_{NEL} = 53 dBA	$L_{eq(24hr)}$ = 46 dBA



Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	46	54	41	50	47	46	44	4
1:00	Night	46	55	41	52	47	46	44	4
2:00	Night	46	50	42	49	47	45	44	5
3:00	Night	46	56	41	51	48	46	44	5
4:00	Night	46	56	41	51	47	45	43	6
5:00	Night	46	60	39	54	47	45	43	4
6:00	Night	45	56	40	49	47	45	44	3
7:00	Day	47	59	41	53	49	46	44	2
8:00	Day	46	52	42	49	47	46	44	4
9:00	Day	47	56	41	51	49	46	43	6
10:00	Day	45	53	40	48	46	45	43	4
11:00	Day	45	55	40	50	47	45	43	6
12:00	Day	47	54	42	52	49	46	44	4
13:00	Day	46	54	39	52	49	45	42	3
14:00	Day	46	56	39	50	48	45	42	2
15:00	Day	45	51	39	49	46	44	42	3
16:00	Day	45	54	41	51	47	44	43	3
17:00	Day	44	50	40	46	45	44	42	5
18:00	Day	44	49	40	47	46	44	42	7
19:00	Day	44	49	39	47	46	44	42	6
20:00	Day	47	62	39	56	50	44	42	5
21:00	Day	48	58	42	53	50	48	45	1
22:00	Night	48	62	42	55	49	46	45	1
23:00	Night	47	56	41	52	49	46	43	1
Overall	Max	48	62	42	56	50	48	45	7
	Median	46	55	41	51	47	45	43	4
	Min	44	49	39	46	45	44	42	1
Daytime	Max	48	62	42	56	50	48	45	7
7am-10pm	Median	46	54	40	50	47	45	43	4
	Min	44	49	39	46	45	44	42	1
Nighttime	Max	48	62	42	55	49	46	45	6
10pm-7am	Median	46	56	41	51	47	46	44	4
	Min	45	50	39	49	47	45	43	1

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 12/16/2012

24hr Summary		
L_{DN} = 55 dBA	C_{NEL} = 56 dBA	$L_{eq(24hr)}$ = 48 dBA



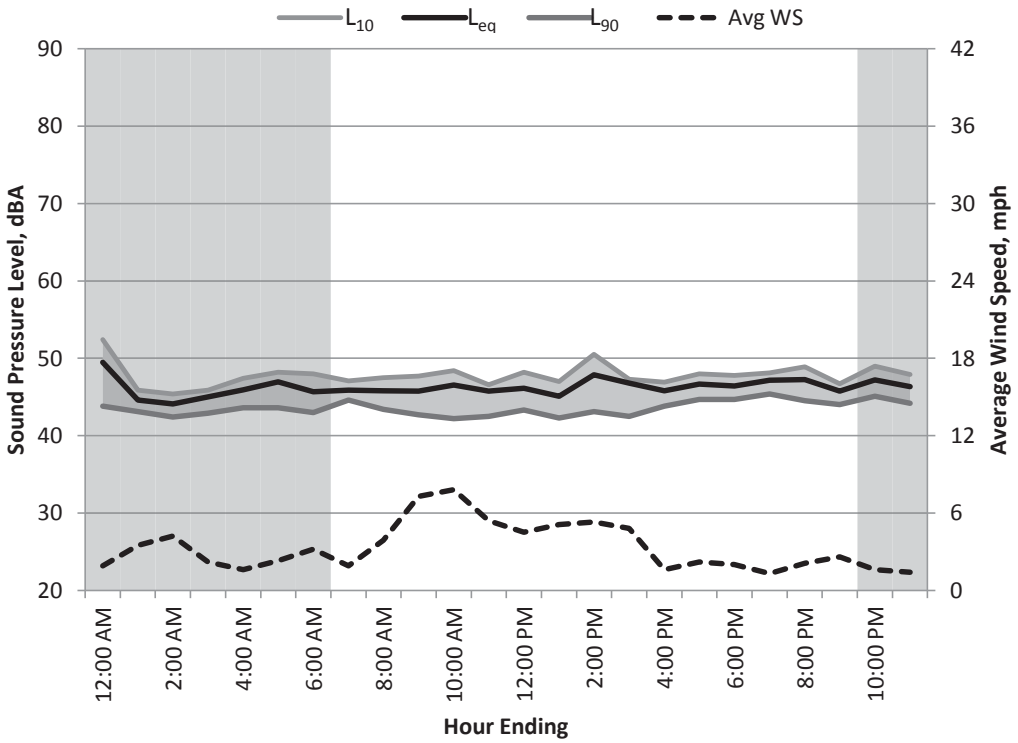
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	48	62	40	56	51	46	43	1
1:00	Night	47	54	41	51	49	46	44	3
2:00	Night	45	54	40	50	46	44	43	4
3:00	Night	50	65	41	59	53	46	44	1
4:00	Night	52	65	43	61	56	48	46	1
5:00	Night	51	66	39	60	55	47	43	1
6:00	Night	51	64	43	60	52	48	46	1
7:00	Day	50	62	43	58	54	49	45	1
8:00	Day	46	59	42	53	47	45	43	1
9:00	Day	46	58	39	54	48	46	44	2
10:00	Day	46	64	39	56	47	44	42	6
11:00	Day	46	53	40	51	47	45	43	4
12:00	Day	47	58	42	53	49	46	44	4
13:00	Day	46	56	42	50	47	46	44	4
14:00	Day	48	66	42	59	48	46	44	4
15:00	Day	46	53	41	49	47	45	44	5
16:00	Day	45	53	41	50	46	44	43	5
17:00	Day	45	53	41	49	46	44	43	5
18:00	Day	44	48	41	47	46	44	43	5
19:00	Day	44	53	41	49	46	44	43	6
20:00	Day	45	56	41	51	46	44	43	5
21:00	Day	49	67	43	59	48	46	45	1
22:00	Night	49	58	43	55	52	47	45	1
23:00	Night	49	63	42	58	50	46	45	1
Overall	Max	52	67	43	61	56	49	46	6
	Median	46	58	41	54	48	46	44	3
	Min	44	48	39	47	46	44	42	1
Daytime	Max	50	67	43	59	54	49	45	6
7am-10pm	Median	46	56	41	51	47	45	43	4
	Min	44	48	39	47	46	44	42	1
Nighttime	Max	52	66	43	61	56	48	46	4
10pm-7am	Median	49	63	41	58	52	46	44	1
	Min	45	54	39	50	46	44	43	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 12/17/2012

24hr Summary

L_{DN} = 53 dBA C_{NEL} = 53 dBA $L_{eq(24hr)}$ = 46 dBA

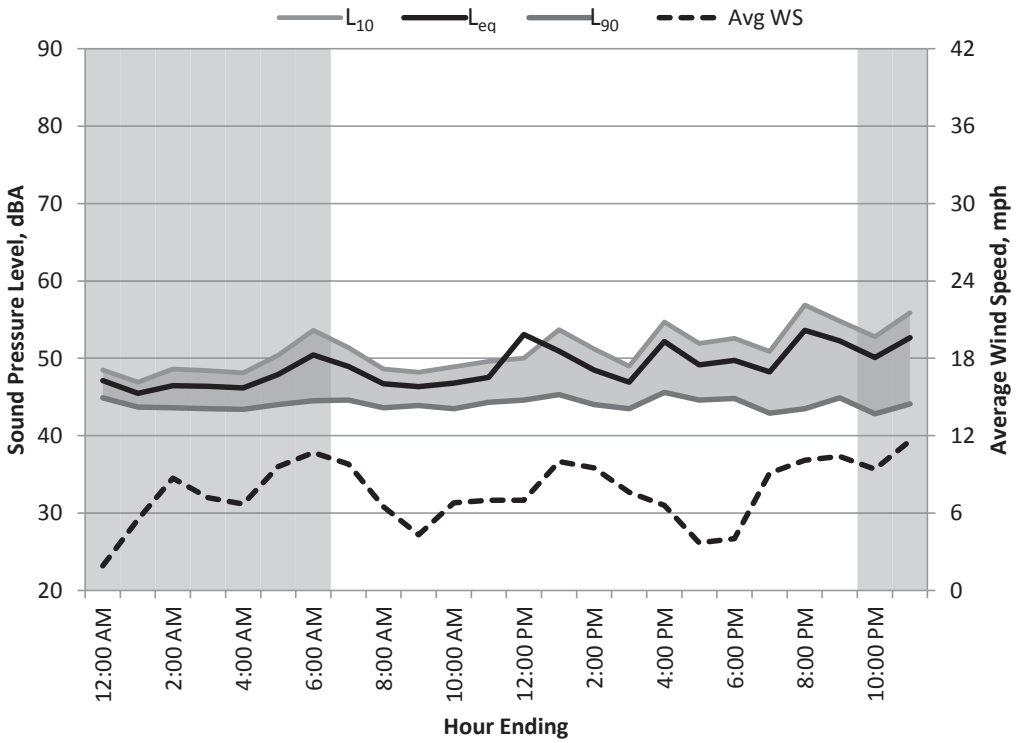


Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	49	60	41	58	52	47	44	2
1:00	Night	45	52	40	48	46	44	43	4
2:00	Night	44	52	39	48	45	44	42	4
3:00	Night	45	59	41	52	46	44	43	2
4:00	Night	46	57	42	52	47	45	44	2
5:00	Night	47	58	41	54	48	46	44	2
6:00	Night	46	56	41	51	48	45	43	3
7:00	Day	46	53	44	49	47	46	45	2
8:00	Day	46	55	41	51	48	45	43	4
9:00	Day	46	58	39	53	48	45	43	7
10:00	Day	47	64	39	54	48	45	42	8
11:00	Day	46	63	39	54	47	44	43	5
12:00	Day	46	53	41	52	48	45	43	5
13:00	Day	45	52	39	49	47	45	42	5
14:00	Day	48	70	40	56	51	46	43	5
15:00	Day	47	67	39	55	47	44	43	5
16:00	Day	46	57	41	52	47	45	44	2
17:00	Day	47	59	43	53	48	46	45	2
18:00	Day	46	54	43	51	48	46	45	2
19:00	Day	47	60	43	54	48	47	45	1
20:00	Day	47	57	42	54	49	46	45	2
21:00	Day	46	55	42	51	47	45	44	3
22:00	Night	47	53	43	51	49	47	45	2
23:00	Night	46	55	41	51	48	46	44	1
Overall	Max	49	70	44	58	52	47	45	8
	Median	46	57	41	52	48	45	44	2
	Min	44	52	39	48	45	44	42	1
Daytime	Max	48	70	44	56	51	47	45	8
7am-10pm	Median	46	57	41	53	48	45	43	4
	Min	45	52	39	49	47	44	42	1
Nighttime	Max	49	60	43	58	52	47	45	4
10pm-7am	Median	46	56	41	51	48	45	44	2
	Min	44	52	39	48	45	44	42	1

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 12/18/2012

24hr Summary

L_{DN} = 55 dBA C_{NEL} = 56 dBA $L_{eq(24hr)}$ = 50 dBA



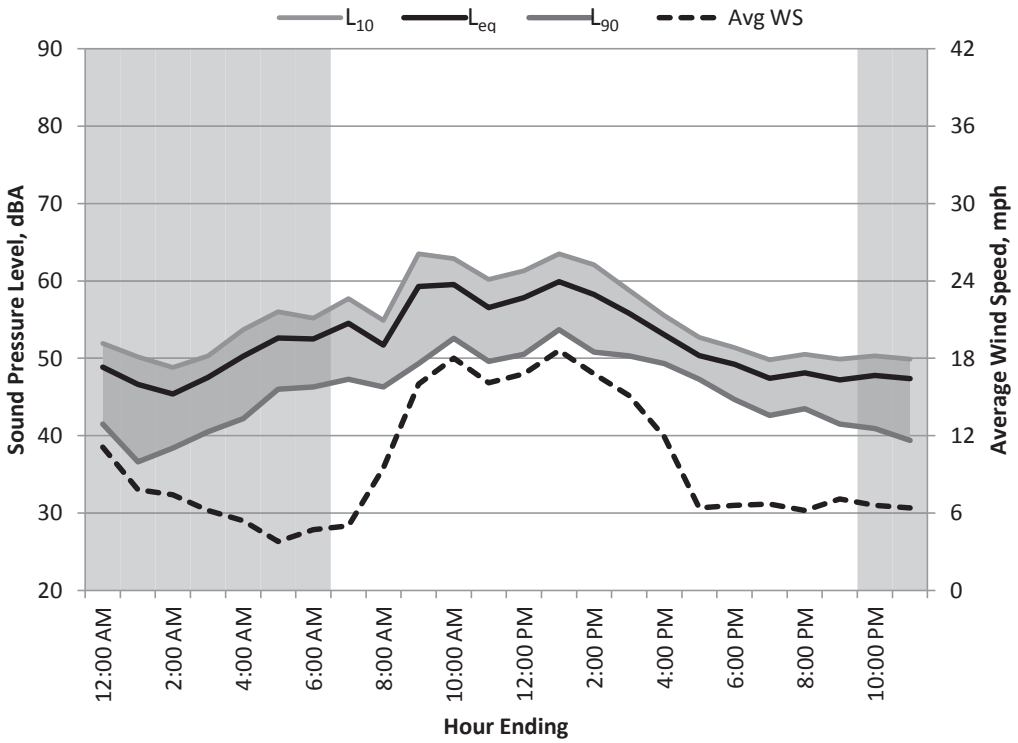
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	47	59	42	53	49	47	45	2
1:00	Night	45	50	41	49	47	45	44	6
2:00	Night	46	55	41	52	49	46	44	9
3:00	Night	46	58	41	52	48	46	44	7
4:00	Night	46	59	41	51	48	46	43	7
5:00	Night	48	58	40	55	50	47	44	10
6:00	Night	50	62	41	59	54	48	45	11
7:00	Day	49	61	41	56	51	47	45	10
8:00	Day	47	59	41	54	49	46	44	7
9:00	Day	46	53	42	51	48	46	44	4
10:00	Day	47	59	41	52	49	46	44	7
11:00	Day	48	58	42	54	50	47	44	7
12:00	Day	53	78	40	60	50	47	45	7
13:00	Day	51	67	42	60	54	48	45	10
14:00	Day	49	63	40	57	51	47	44	10
15:00	Day	47	62	41	53	49	46	44	8
16:00	Day	52	67	43	63	55	49	46	7
17:00	Day	49	60	41	56	52	48	45	4
18:00	Day	50	61	41	57	53	48	45	4
19:00	Day	48	61	38	55	51	47	43	9
20:00	Day	54	71	35	65	57	49	44	10
21:00	Day	52	67	37	62	55	49	45	10
22:00	Night	50	65	38	59	53	48	43	9
23:00	Night	53	67	37	62	56	50	44	12
Overall	Max	54	78	43	65	57	50	46	12
	Median	48	61	41	56	51	47	44	7
	Min	45	50	35	49	47	45	43	2
Daytime	Max	54	78	43	65	57	49	46	10
7am-10pm	Median	49	61	41	56	51	47	44	7
	Min	46	53	35	51	48	46	43	4
Nighttime	Max	53	67	42	62	56	50	45	12
10pm-7am	Median	47	59	41	53	49	47	44	9
	Min	45	50	37	49	47	45	43	2

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 12/19/2012

24hr Summary

L_{DN} = 58 dBA C_{NEL} = 58 dBA $L_{eq(24hr)}$ = 54 dBA

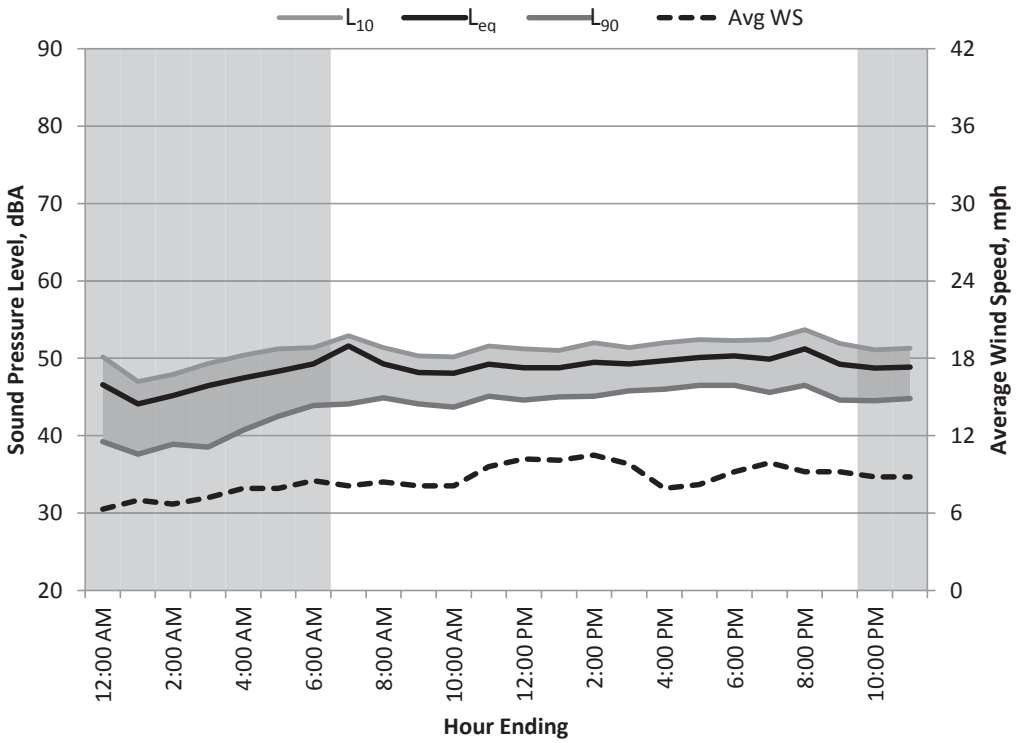


Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	49	63	36	57	52	47	42	11
1:00	Night	47	57	30	54	50	45	37	8
2:00	Night	45	55	33	52	49	44	38	7
3:00	Night	48	62	36	55	50	46	41	6
4:00	Night	50	64	37	59	54	48	42	5
5:00	Night	53	65	41	61	56	51	46	4
6:00	Night	52	67	41	61	55	50	46	5
7:00	Day	55	69	42	64	58	52	47	5
8:00	Day	52	65	41	59	55	50	46	10
9:00	Day	59	75	45	69	64	55	49	16
10:00	Day	60	70	46	66	63	58	53	18
11:00	Day	57	68	41	64	60	54	50	16
12:00	Day	58	70	46	66	61	56	51	17
13:00	Day	60	68	48	66	64	58	54	19
14:00	Day	58	71	46	66	62	56	51	17
15:00	Day	56	67	43	63	59	54	50	15
16:00	Day	53	61	44	58	56	52	49	12
17:00	Day	50	58	43	54	53	50	47	6
18:00	Day	49	65	41	56	51	48	45	7
19:00	Day	47	60	36	54	50	46	43	7
20:00	Day	48	61	38	55	51	47	44	6
21:00	Day	47	63	36	54	50	46	42	7
22:00	Night	48	61	35	57	50	46	41	7
23:00	Night	47	66	32	57	50	45	39	6
Overall	Max	60	75	48	69	64	58	54	19
	Median	51	65	41	58	54	50	46	7
	Min	45	55	30	52	49	44	37	4
Daytime	Max	60	75	48	69	64	58	54	19
7am-10pm	Median	55	67	43	63	58	52	49	12
	Min	47	58	36	54	50	46	42	5
Nighttime	Max	53	67	41	61	56	51	46	11
10pm-7am	Median	48	63	36	57	50	46	41	6
	Min	45	55	30	52	49	44	37	4

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 12/20/2012

24hr Summary

L_{DN} = 54 dBA C_{NEL} = 55 dBA $L_{eq(24hr)}$ = 49 dBA



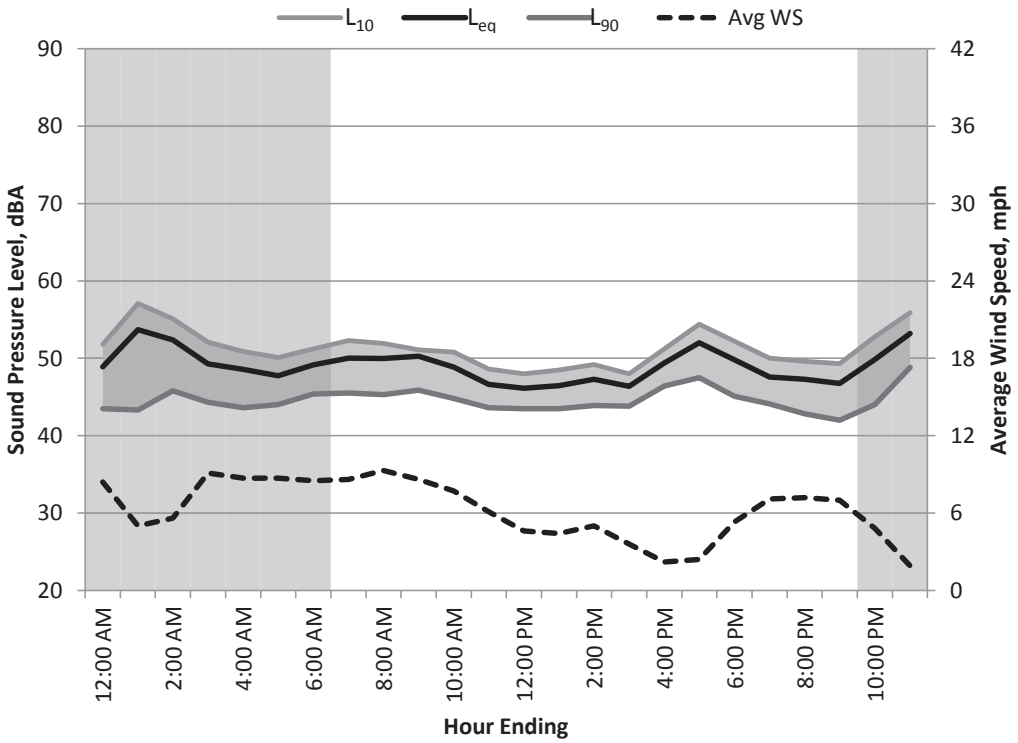
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	47	57	33	54	50	45	39	6
1:00	Night	44	57	32	52	47	42	38	7
2:00	Night	45	61	35	53	48	43	39	7
3:00	Night	46	62	32	55	49	44	39	7
4:00	Night	47	61	37	56	50	45	41	8
5:00	Night	48	61	36	57	51	47	43	8
6:00	Night	49	63	38	58	51	48	44	9
7:00	Day	52	78	37	60	53	48	44	8
8:00	Day	49	65	40	58	51	48	45	8
9:00	Day	48	60	39	55	50	47	44	8
10:00	Day	48	64	39	57	50	46	44	8
11:00	Day	49	62	40	56	52	48	45	10
12:00	Day	49	60	40	55	51	48	45	10
13:00	Day	49	60	41	55	51	48	45	10
14:00	Day	49	61	40	56	52	48	45	11
15:00	Day	49	61	38	55	51	49	46	10
16:00	Day	50	60	40	54	52	49	46	8
17:00	Day	50	61	43	56	52	49	47	8
18:00	Day	50	65	43	58	52	49	47	9
19:00	Day	50	63	42	56	52	49	46	10
20:00	Day	51	64	43	59	54	50	47	9
21:00	Day	49	62	41	56	52	48	45	9
22:00	Night	49	64	39	55	51	47	45	9
23:00	Night	49	60	41	55	51	48	45	9
Overall	Max	52	78	43	60	54	50	47	11
	Median	49	61	40	56	51	48	45	8
	Min	44	57	32	52	47	42	38	6
Daytime	Max	52	78	43	60	54	50	47	11
7am-10pm	Median	49	62	40	56	52	48	45	9
	Min	48	60	37	54	50	46	44	8
Nighttime	Max	49	64	41	58	51	48	45	9
10pm-7am	Median	47	61	36	55	50	45	41	8
	Min	44	57	32	52	47	42	38	6

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 12/21/2012

24hr Summary

L_{DN} = 57 dBA C_{NEL} = 57 dBA $L_{eq(24hr)}$ = 50 dBA



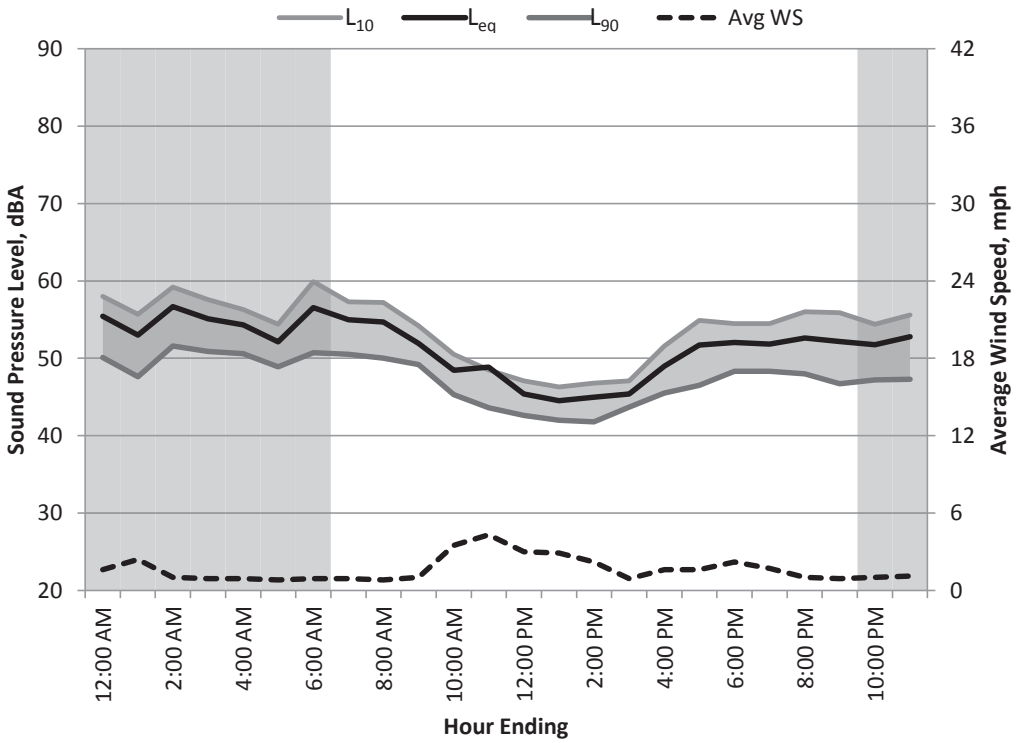
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	49	61	39	57	52	47	44	8
1:00	Night	54	62	37	59	57	53	43	5
2:00	Night	52	61	39	58	55	52	46	6
3:00	Night	49	61	40	57	52	48	44	9
4:00	Night	49	62	40	56	51	47	44	9
5:00	Night	48	58	39	53	50	47	44	9
6:00	Night	49	62	42	56	51	48	45	9
7:00	Day	50	62	42	58	52	49	46	9
8:00	Day	50	68	41	59	52	48	45	9
9:00	Day	50	75	42	58	51	48	46	9
10:00	Day	49	62	42	57	51	48	45	8
11:00	Day	47	60	40	53	49	46	44	6
12:00	Day	46	57	40	51	48	46	44	5
13:00	Day	46	55	41	51	49	46	44	4
14:00	Day	47	59	41	54	49	46	44	5
15:00	Day	46	58	41	51	48	46	44	4
16:00	Day	49	61	43	56	51	49	46	2
17:00	Day	52	64	43	60	54	50	48	2
18:00	Day	50	62	40	58	52	49	45	5
19:00	Day	48	58	40	53	50	47	44	7
20:00	Day	47	61	38	54	50	46	43	7
21:00	Day	47	54	36	52	49	46	42	7
22:00	Night	50	60	37	56	53	49	44	5
23:00	Night	53	65	46	59	56	52	49	2
Overall	Max	54	75	46	60	57	53	49	9
	Median	49	61	40	56	51	48	44	7
	Min	46	54	36	51	48	46	42	2
Daytime	Max	52	75	43	60	54	50	48	9
7am-10pm	Median	48	61	41	54	50	47	44	6
	Min	46	54	36	51	48	46	42	2
Nighttime	Max	54	65	46	59	57	53	49	9
10pm-7am	Median	49	61	39	57	52	48	44	8
	Min	48	58	37	53	50	47	43	2

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 12/22/2012

24hr Summary

L_{DN} = 61 dBA C_{NEL} = 61 dBA $L_{eq(24hr)}$ = 53 dBA



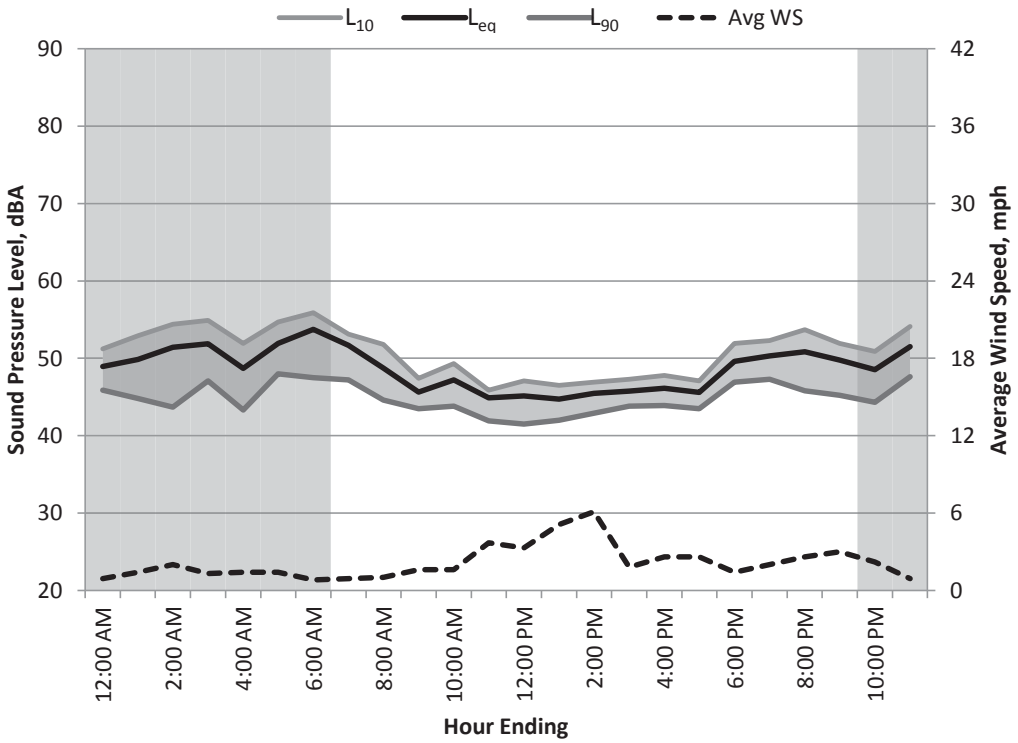
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	55	70	48	63	58	54	50	2
1:00	Night	53	61	42	59	56	52	48	2
2:00	Night	57	69	47	64	59	55	52	1
3:00	Night	55	65	48	61	58	54	51	1
4:00	Night	54	64	47	62	56	53	51	1
5:00	Night	52	61	47	58	54	51	49	1
6:00	Night	57	70	48	65	60	54	51	1
7:00	Day	55	69	46	62	57	54	51	1
8:00	Day	55	67	47	62	57	53	50	1
9:00	Day	52	60	47	56	54	51	49	1
10:00	Day	48	58	43	54	51	48	45	4
11:00	Day	49	74	40	56	49	46	44	4
12:00	Day	45	57	41	52	47	45	43	3
13:00	Day	45	56	40	50	46	44	42	3
14:00	Day	45	59	39	52	47	44	42	2
15:00	Day	45	50	42	49	47	45	44	1
16:00	Day	49	65	42	55	52	47	46	2
17:00	Day	52	64	44	59	55	50	47	2
18:00	Day	52	61	45	58	55	51	48	2
19:00	Day	52	58	46	57	55	51	48	2
20:00	Day	53	65	44	60	56	51	48	1
21:00	Day	52	64	44	61	56	49	47	1
22:00	Night	52	61	44	57	54	51	47	1
23:00	Night	53	66	44	62	56	51	47	1
Overall	Max	57	74	48	65	60	55	52	4
	Median	52	64	44	58	55	51	48	1
	Min	45	50	39	49	46	44	42	1
Daytime	Max	55	74	47	62	57	54	51	4
7am-10pm	Median	52	61	44	56	54	49	47	2
	Min	45	50	39	49	46	44	42	1
Nighttime	Max	57	70	48	65	60	55	52	2
10pm-7am	Median	54	65	47	62	56	53	50	1
	Min	52	61	42	57	54	51	47	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 12/23/2012

24hr Summary

L_{DN} = 57 dBA C_{NEL} = 57 dBA $L_{eq(24hr)}$ = 49 dBA



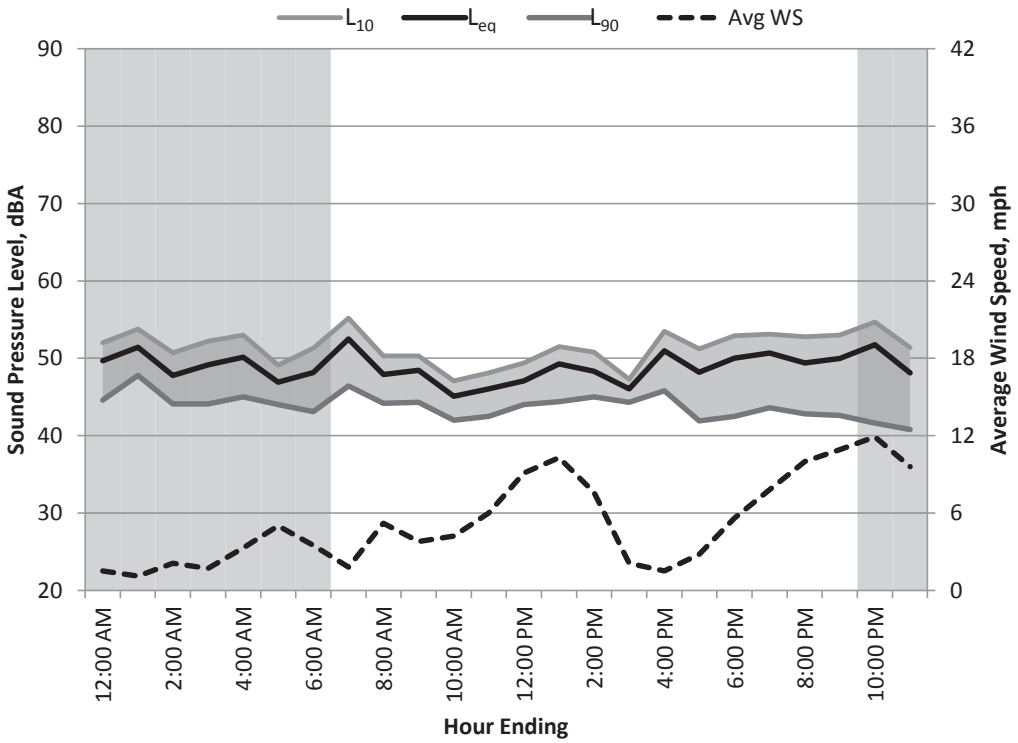
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	49	55	42	53	51	49	46	1
1:00	Night	50	61	42	58	53	48	45	1
2:00	Night	51	66	40	60	54	49	44	2
3:00	Night	52	62	43	59	55	50	47	1
4:00	Night	49	61	41	56	52	46	43	1
5:00	Night	52	63	44	59	55	50	48	1
6:00	Night	54	69	45	64	56	51	48	1
7:00	Day	52	66	45	62	53	50	47	1
8:00	Day	49	60	43	56	52	47	45	1
9:00	Day	46	54	42	51	47	45	44	2
10:00	Day	47	56	40	54	49	46	44	2
11:00	Day	45	59	40	53	46	44	42	4
12:00	Day	45	58	39	53	47	44	42	3
13:00	Day	45	54	40	50	47	44	42	5
14:00	Day	45	58	40	53	47	45	43	6
15:00	Day	46	54	42	50	47	45	44	2
16:00	Day	46	54	42	50	48	46	44	3
17:00	Day	46	55	41	51	47	45	44	3
18:00	Day	50	57	45	55	52	49	47	1
19:00	Day	50	64	45	58	52	49	47	2
20:00	Day	51	62	43	58	54	49	46	3
21:00	Day	50	57	40	54	52	50	45	3
22:00	Night	49	56	40	54	51	48	44	2
23:00	Night	52	62	45	59	54	50	48	1
Overall	Max	54	69	45	64	56	51	48	6
	Median	49	58	42	54	52	48	44	2
	Min	45	54	39	50	46	44	42	1
Daytime	Max	52	66	45	62	54	50	47	6
7am-10pm	Median	46	57	42	53	48	46	44	3
	Min	45	54	39	50	46	44	42	1
Nighttime	Max	54	69	45	64	56	51	48	2
10pm-7am	Median	51	62	42	59	54	49	46	1
	Min	49	55	40	53	51	46	43	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 12/24/2012

24hr Summary

L_{DN} = 56 dBA C_{NEL} = 56 dBA $L_{eq(24hr)}$ = 49 dBA



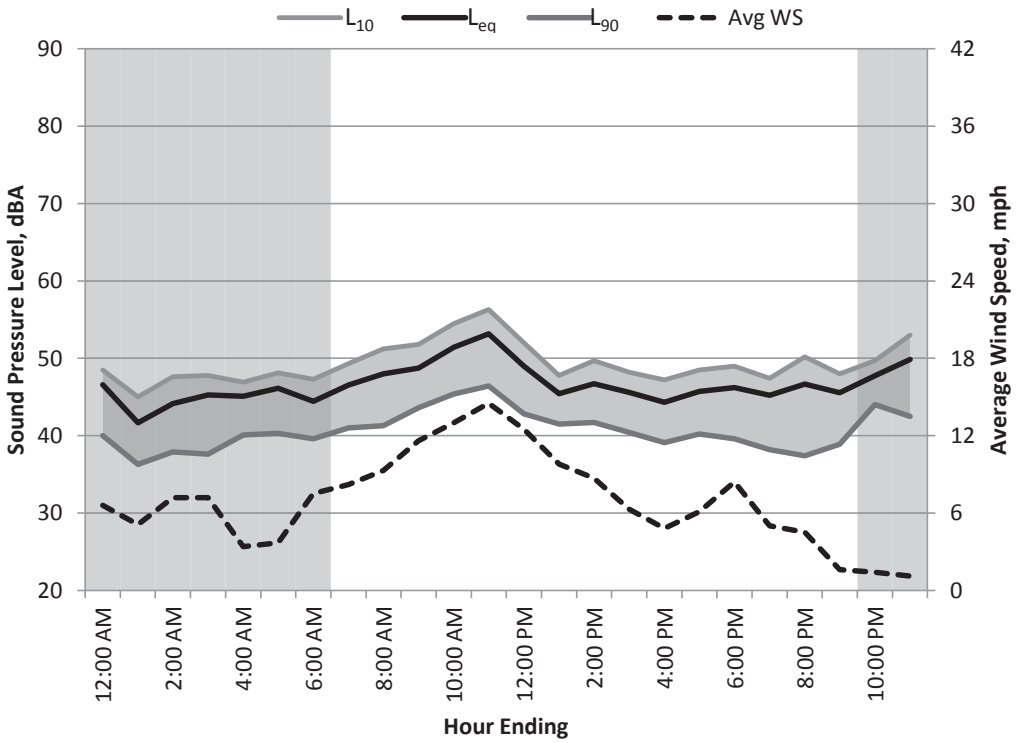
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	50	62	41	58	52	48	45	2
1:00	Night	51	60	45	56	54	51	48	1
2:00	Night	48	55	41	53	51	46	44	2
3:00	Night	49	61	40	57	52	47	44	2
4:00	Night	50	58	41	56	53	49	45	3
5:00	Night	47	55	41	52	49	46	44	5
6:00	Night	48	59	38	55	51	47	43	4
7:00	Day	52	70	39	61	55	50	46	2
8:00	Day	48	60	40	54	50	47	44	5
9:00	Day	48	61	41	55	50	48	44	4
10:00	Day	45	54	39	50	47	45	42	4
11:00	Day	46	61	39	53	48	45	43	6
12:00	Day	47	56	41	53	49	46	44	9
13:00	Day	49	67	40	57	52	47	44	10
14:00	Day	48	61	42	55	51	47	45	8
15:00	Day	46	53	43	49	47	46	44	2
16:00	Day	51	63	40	60	54	49	46	2
17:00	Day	48	60	38	56	51	46	42	3
18:00	Day	50	64	38	61	53	47	43	6
19:00	Day	51	67	39	61	53	48	44	8
20:00	Day	49	63	39	58	53	47	43	10
21:00	Day	50	66	37	59	53	47	43	11
22:00	Night	52	67	38	63	55	47	42	12
23:00	Night	48	64	38	57	51	45	41	10
Overall	Max	52	70	45	63	55	51	48	12
	Median	49	61	40	56	51	47	44	5
	Min	45	53	37	49	47	45	41	1
Daytime	Max	52	70	43	61	55	50	46	11
7am-10pm	Median	48	61	39	56	51	47	44	6
	Min	45	53	37	49	47	45	42	2
Nighttime	Max	52	67	45	63	55	51	48	12
10pm-7am	Median	49	60	41	56	52	47	44	3
	Min	47	55	38	52	49	45	41	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 12/25/2012

24hr Summary

L_{DN} = 53 dBA C_{NEL} = 53 dBA $L_{eq(24hr)}$ = 47 dBA

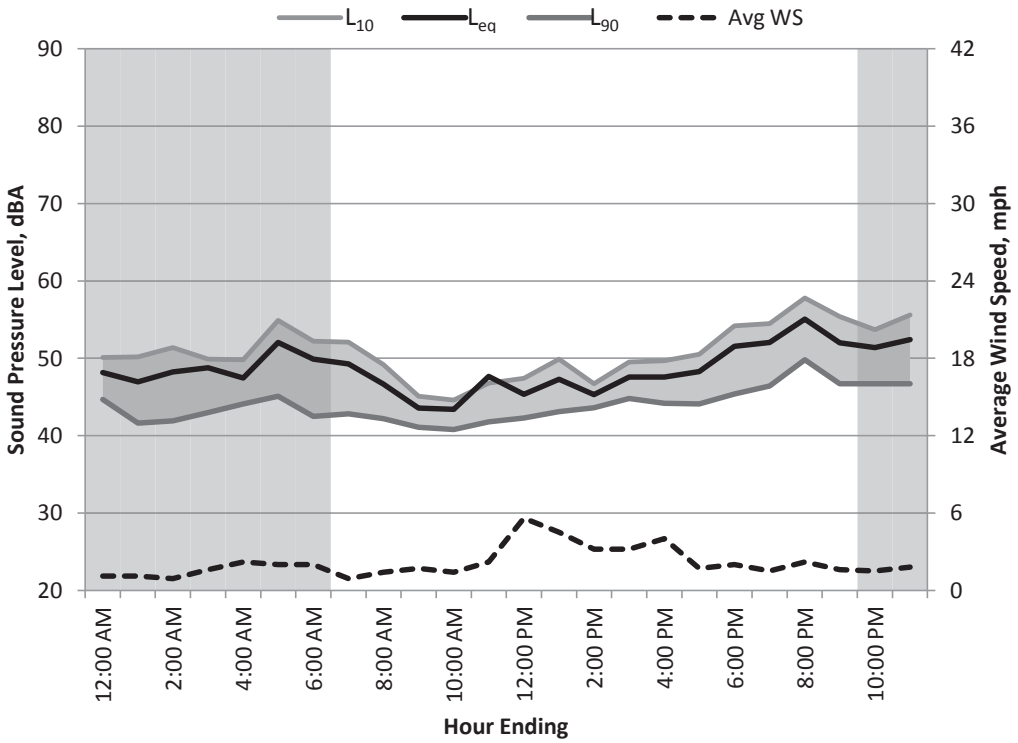


Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	47	63	36	57	49	43	40	7
1:00	Night	42	55	34	49	45	39	36	5
2:00	Night	44	56	34	53	48	41	38	7
3:00	Night	45	62	34	56	48	41	38	7
4:00	Night	45	62	37	55	47	42	40	3
5:00	Night	46	62	37	56	48	44	40	4
6:00	Night	44	55	36	51	47	43	40	8
7:00	Day	47	62	36	54	49	45	41	8
8:00	Day	48	61	36	57	51	46	41	9
9:00	Day	49	60	38	56	52	47	44	12
10:00	Day	51	64	40	59	55	50	45	13
11:00	Day	53	65	40	61	56	51	46	15
12:00	Day	49	59	36	56	52	48	43	13
13:00	Day	45	59	38	51	48	45	42	10
14:00	Day	47	60	36	55	50	45	42	9
15:00	Day	46	60	37	55	48	44	40	6
16:00	Day	44	54	32	50	47	43	39	5
17:00	Day	46	59	35	55	49	44	40	6
18:00	Day	46	61	35	56	49	44	40	8
19:00	Day	45	63	34	55	47	42	38	5
20:00	Day	47	63	32	56	50	43	37	5
21:00	Day	46	58	34	52	48	45	39	2
22:00	Night	48	60	42	56	50	46	44	1
23:00	Night	50	64	39	57	53	48	43	1
Overall	Max	53	65	42	61	56	51	46	15
	Median	46	60	36	55	49	44	40	7
	Min	42	54	32	49	45	39	36	1
Daytime	Max	53	65	40	61	56	51	46	15
7am-10pm	Median	47	60	36	55	49	45	41	8
	Min	44	54	32	50	47	42	37	2
Nighttime	Max	50	64	42	57	53	48	44	8
10pm-7am	Median	45	62	36	56	48	43	40	5
	Min	42	55	34	49	45	39	36	1

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 12/26/2012

24hr Summary

L_{DN} = 56 dBA C_{NEL} = 57 dBA $L_{eq(24hr)}$ = 50 dBA



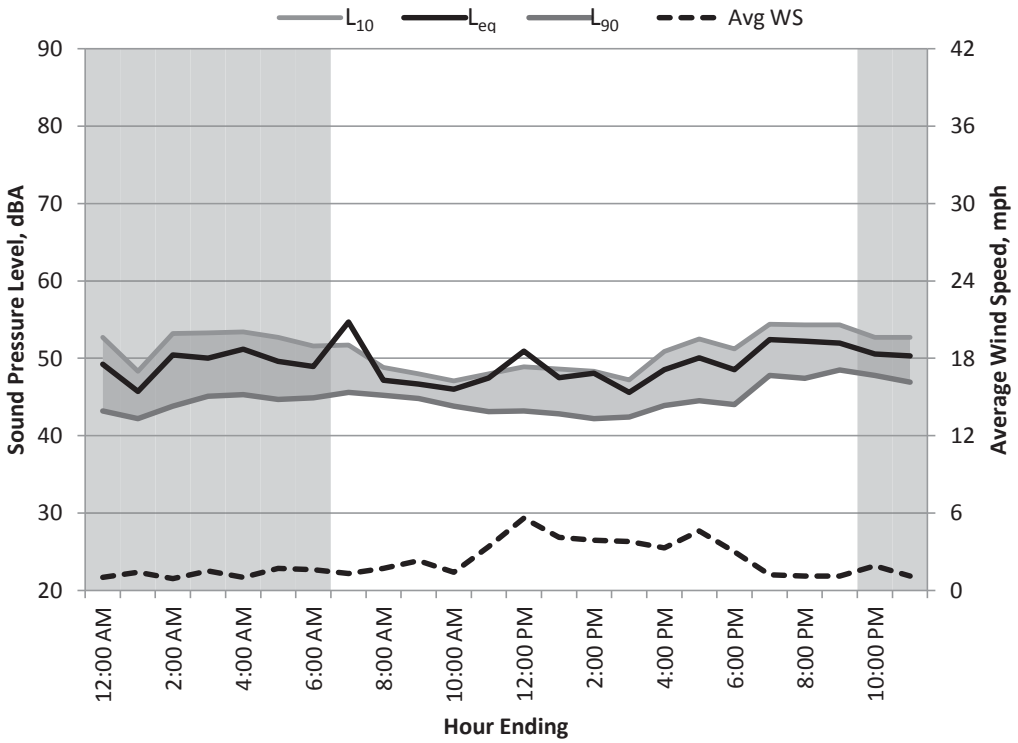
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	48	64	42	56	50	47	45	1
1:00	Night	47	58	39	53	50	46	42	1
2:00	Night	48	62	38	57	51	46	42	1
3:00	Night	49	66	40	59	50	45	43	2
4:00	Night	47	55	42	52	50	47	44	2
5:00	Night	52	63	41	61	55	50	45	2
6:00	Night	50	65	39	61	52	46	43	2
7:00	Day	49	61	41	58	52	47	43	1
8:00	Day	47	58	40	55	49	45	42	1
9:00	Day	44	52	38	47	45	43	41	2
10:00	Day	43	56	39	50	45	43	41	1
11:00	Day	48	68	39	60	47	43	42	2
12:00	Day	45	53	39	50	47	45	42	6
13:00	Day	47	59	38	55	50	46	43	5
14:00	Day	45	52	41	49	47	45	44	3
15:00	Day	48	63	42	53	50	47	45	3
16:00	Day	48	58	41	52	50	47	44	4
17:00	Day	48	61	42	56	51	47	44	2
18:00	Day	52	66	41	60	54	49	45	2
19:00	Day	52	64	43	57	55	52	46	2
20:00	Day	55	65	47	62	58	54	50	2
21:00	Day	52	62	44	58	55	51	47	2
22:00	Night	51	63	43	59	54	50	47	2
23:00	Night	52	63	44	60	56	51	47	2
Overall	Max	55	68	47	62	58	54	50	6
	Median	48	62	41	56	50	47	44	2
	Min	43	52	38	47	45	43	41	1
Daytime	Max	55	68	47	62	58	54	50	6
7am-10pm	Median	48	61	41	55	50	47	44	2
	Min	43	52	38	47	45	43	41	1
Nighttime	Max	52	66	44	61	56	51	47	2
10pm-7am	Median	49	63	41	59	51	47	44	2
	Min	47	55	38	52	50	45	42	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 12/27/2012

24hr Summary

L_{DN} = 56 dBA C_{NEL} = 57 dBA $L_{eq(24hr)}$ = 50 dBA



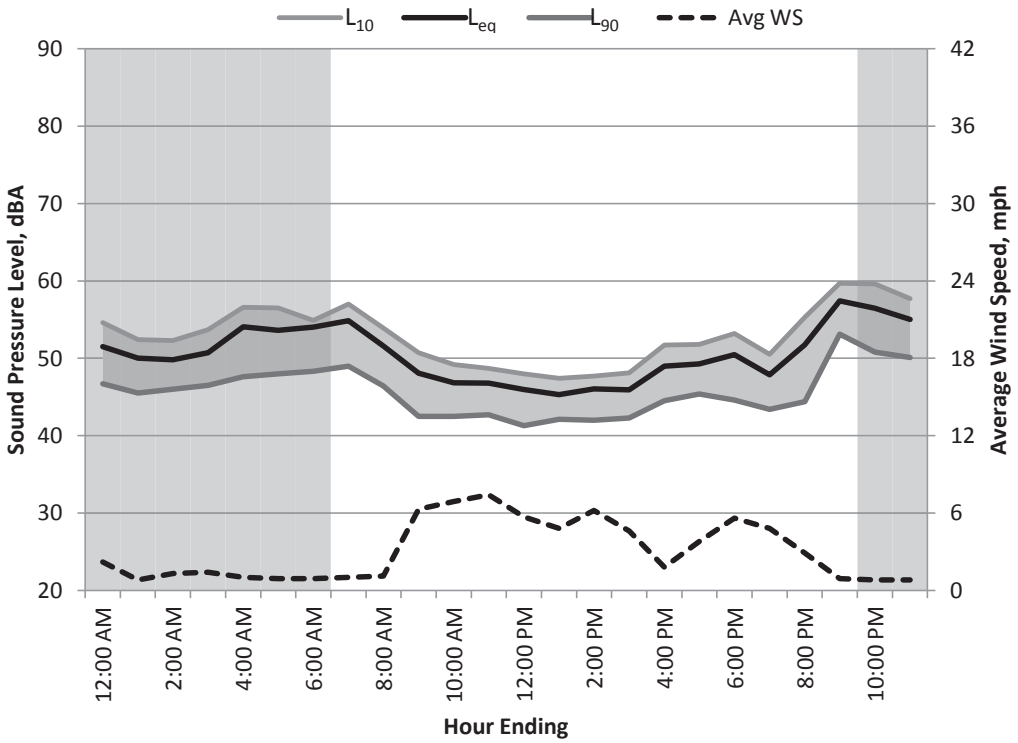
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	49	63	41	58	53	46	43	1
1:00	Night	46	55	39	51	48	45	42	1
2:00	Night	50	67	41	59	53	47	44	1
3:00	Night	50	61	42	56	53	49	45	2
4:00	Night	51	67	42	62	53	48	45	1
5:00	Night	50	62	41	56	53	48	45	2
6:00	Night	49	60	41	54	52	48	45	2
7:00	Day	55	81	43	55	52	50	46	1
8:00	Day	47	57	43	53	49	47	45	2
9:00	Day	47	54	43	52	48	46	45	2
10:00	Day	46	61	42	52	47	45	44	1
11:00	Day	47	73	40	54	48	45	43	3
12:00	Day	51	73	40	64	49	46	43	6
13:00	Day	47	72	40	56	49	45	43	4
14:00	Day	48	69	39	60	48	44	42	4
15:00	Day	46	66	39	52	47	45	42	4
16:00	Day	49	58	40	56	51	47	44	3
17:00	Day	50	62	40	59	53	49	45	5
18:00	Day	49	56	39	54	51	48	44	3
19:00	Day	52	66	44	62	54	50	48	1
20:00	Day	52	69	44	61	54	50	47	1
21:00	Day	52	59	45	57	54	51	49	1
22:00	Night	51	62	46	56	53	50	48	2
23:00	Night	50	57	45	55	53	50	47	1
Overall	Max	55	81	46	64	54	51	49	6
	Median	49	62	41	56	52	47	45	2
	Min	46	54	39	51	47	44	42	1
Daytime	Max	55	81	45	64	54	51	49	6
7am-10pm	Median	49	66	40	56	49	47	44	3
	Min	46	54	39	52	47	44	42	1
Nighttime	Max	51	67	46	62	53	50	48	2
10pm-7am	Median	50	62	41	56	53	48	45	1
	Min	46	55	39	51	48	45	42	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 12/28/2012

24hr Summary

L_{DN} = 59 dBA C_{NEL} = 60 dBA $L_{eq(24hr)}$ = 52 dBA



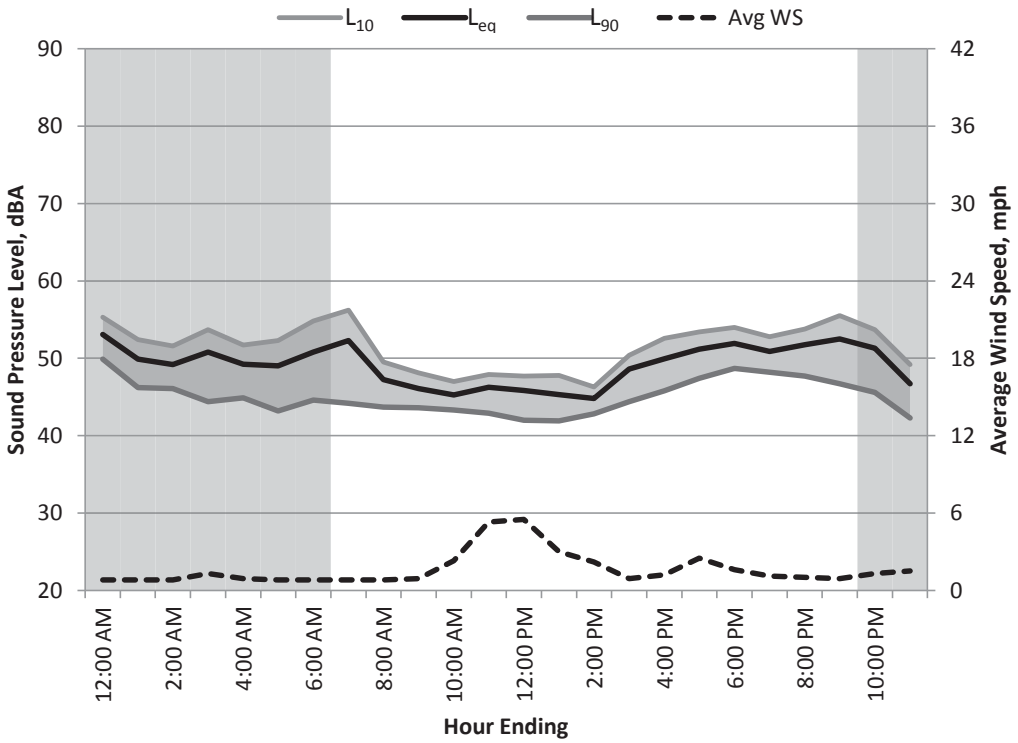
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	51	64	45	60	55	49	47	2
1:00	Night	50	65	43	60	52	47	46	1
2:00	Night	50	60	43	56	52	49	46	1
3:00	Night	51	62	43	58	54	49	47	1
4:00	Night	54	68	44	64	57	52	48	1
5:00	Night	54	68	45	62	57	52	48	1
6:00	Night	54	72	46	64	55	52	48	1
7:00	Day	55	70	45	64	57	53	49	1
8:00	Day	52	64	39	60	54	50	46	1
9:00	Day	48	62	38	56	51	46	43	6
10:00	Day	47	60	38	54	49	46	43	7
11:00	Day	47	59	39	54	49	46	43	7
12:00	Day	46	61	37	54	48	44	41	6
13:00	Day	45	56	38	50	47	45	42	5
14:00	Day	46	61	38	55	48	45	42	6
15:00	Day	46	58	38	52	48	45	42	5
16:00	Day	49	59	40	55	52	48	45	2
17:00	Day	49	56	41	54	52	49	45	4
18:00	Day	50	64	40	59	53	49	45	6
19:00	Day	48	59	40	54	51	47	43	5
20:00	Day	52	62	39	58	55	50	44	3
21:00	Day	57	72	50	64	60	56	53	1
22:00	Night	56	64	45	63	60	55	51	1
23:00	Night	55	68	48	60	58	54	50	1
Overall	Max	57	72	50	64	60	56	53	7
	Median	50	62	41	58	53	49	45	2
	Min	45	56	37	50	47	44	41	1
Daytime	Max	57	72	50	64	60	56	53	7
7am-10pm	Median	48	61	39	55	51	47	43	5
	Min	45	56	37	50	47	44	41	1
Nighttime	Max	56	72	48	64	60	55	51	2
10pm-7am	Median	54	65	45	60	55	52	48	1
	Min	50	60	43	56	52	47	46	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 12/29/2012

24hr Summary

L_{DN} = 57 dBA C_{NEL} = 57 dBA $L_{eq(24hr)}$ = 50 dBA

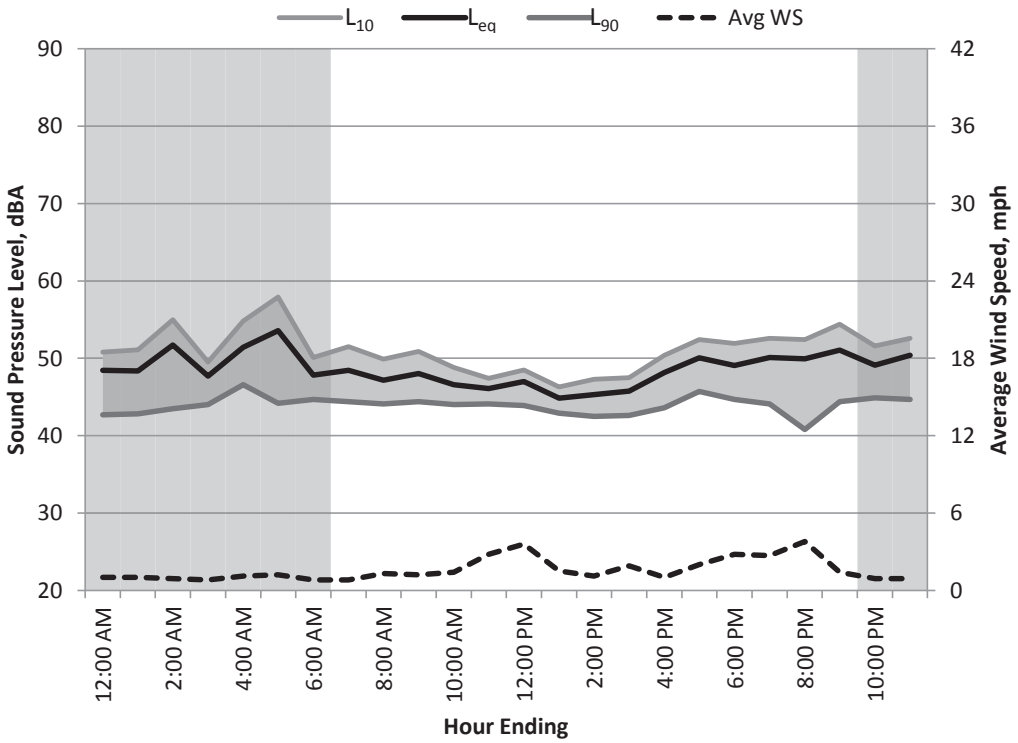


Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	53	59	46	57	55	53	50	1
1:00	Night	50	61	44	56	52	49	46	1
2:00	Night	49	57	44	53	52	49	46	1
3:00	Night	51	60	40	57	54	50	44	1
4:00	Night	49	59	40	55	52	48	45	1
5:00	Night	49	59	41	56	52	47	43	1
6:00	Night	51	64	42	59	55	47	45	1
7:00	Day	52	67	41	60	56	49	44	1
8:00	Day	47	57	42	55	50	46	44	1
9:00	Day	46	57	42	53	48	45	44	1
10:00	Day	45	52	41	49	47	45	43	2
11:00	Day	46	62	39	53	48	45	43	5
12:00	Day	46	59	39	53	48	45	42	6
13:00	Day	45	58	40	52	48	44	42	3
14:00	Day	45	54	41	50	46	44	43	2
15:00	Day	49	65	43	56	50	46	44	1
16:00	Day	50	59	44	56	53	49	46	1
17:00	Day	51	61	43	56	53	51	47	3
18:00	Day	52	62	44	57	54	51	49	2
19:00	Day	51	62	46	57	53	50	48	1
20:00	Day	52	62	44	58	54	51	48	1
21:00	Day	53	64	44	62	56	50	47	1
22:00	Night	51	67	41	60	54	49	46	1
23:00	Night	47	57	39	54	49	46	42	2
Overall	Max	53	67	46	62	56	53	50	6
	Median	50	60	42	56	52	48	45	1
	Min	45	52	39	49	46	44	42	1
Daytime	Max	53	67	46	62	56	51	49	6
7am-10pm	Median	49	61	42	56	50	46	44	1
	Min	45	52	39	49	46	44	42	1
Nighttime	Max	53	67	46	60	55	53	50	2
10pm-7am	Median	50	59	41	56	52	49	45	1
	Min	47	57	39	53	49	46	42	1

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 12/30/2012

24hr Summary

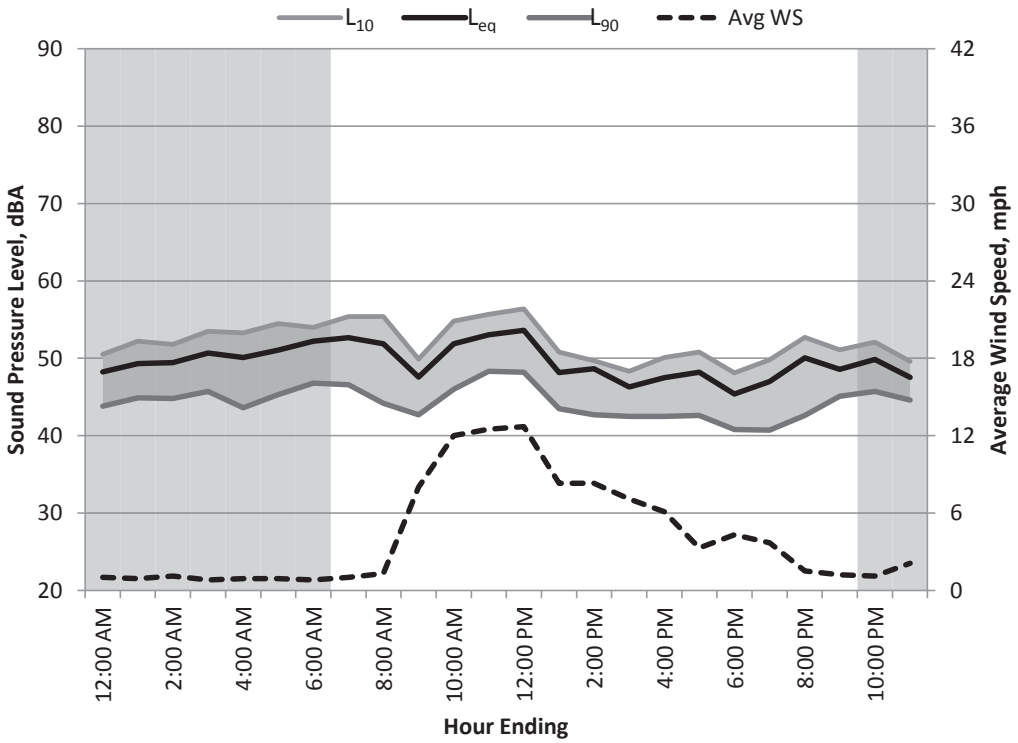
L_{DN} = 56 dBA C_{NEL} = 57 dBA $L_{eq(24hr)}$ = 49 dBA



Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	48	64	40	58	51	46	43	1
1:00	Night	48	64	40	56	51	46	43	1
2:00	Night	52	68	42	64	55	45	44	1
3:00	Night	48	62	42	56	50	46	44	1
4:00	Night	51	66	43	60	55	49	47	1
5:00	Night	54	65	39	62	58	49	44	1
6:00	Night	48	56	41	54	50	47	45	1
7:00	Day	48	64	42	55	52	46	44	1
8:00	Day	47	61	42	54	50	46	44	1
9:00	Day	48	62	43	56	51	46	44	1
10:00	Day	47	58	43	53	49	46	44	1
11:00	Day	46	57	41	51	47	46	44	3
12:00	Day	47	62	41	55	49	46	44	4
13:00	Day	45	55	41	50	46	44	43	2
14:00	Day	45	58	41	52	47	44	43	1
15:00	Day	46	59	40	54	48	44	43	2
16:00	Day	48	64	41	56	50	46	44	1
17:00	Day	50	63	42	58	52	49	46	2
18:00	Day	49	57	40	55	52	48	45	3
19:00	Day	50	63	39	58	53	49	44	3
20:00	Day	50	66	34	60	52	47	41	4
21:00	Day	51	61	39	58	54	49	44	1
22:00	Night	49	62	42	57	52	47	45	1
23:00	Night	50	64	43	60	53	47	45	1
Overall	Max	54	68	43	64	58	49	47	4
	Median	48	62	41	56	51	46	44	1
	Min	45	55	34	50	46	44	41	1
Daytime	Max	51	66	43	60	54	49	46	4
7am-10pm	Median	48	61	41	55	50	46	44	2
	Min	45	55	34	50	46	44	41	1
Nighttime	Max	54	68	43	64	58	49	47	1
10pm-7am	Median	49	64	42	58	52	47	44	1
	Min	48	56	39	54	50	45	43	1

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 12/31/2012

24hr Summary		
L_{DN} = 56 dBA	C_{NEL} = 57 dBA	$L_{eq(24hr)}$ = 50 dBA



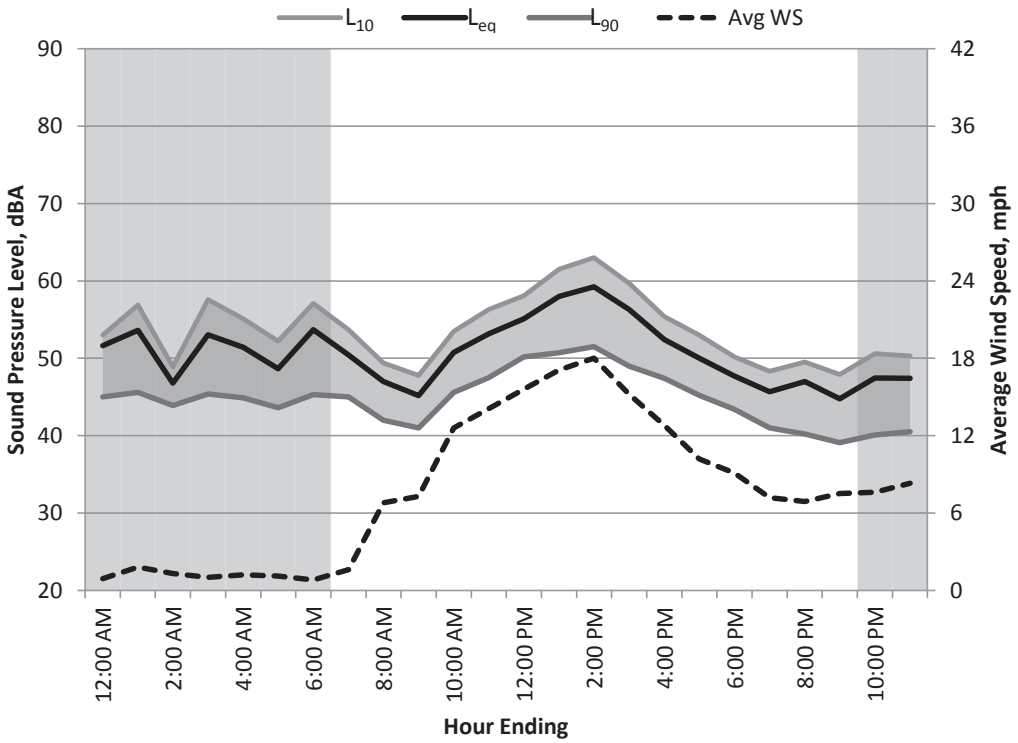
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	48	60	41	56	51	47	44	1
1:00	Night	49	62	43	57	52	48	45	1
2:00	Night	49	61	41	58	52	48	45	1
3:00	Night	51	63	43	57	54	50	46	1
4:00	Night	50	63	40	59	53	47	44	1
5:00	Night	51	61	42	57	55	49	45	1
6:00	Night	52	68	43	62	54	50	47	1
7:00	Day	53	67	44	63	55	50	47	1
8:00	Day	52	62	38	59	55	50	44	1
9:00	Day	48	64	39	55	50	46	43	8
10:00	Day	52	64	42	60	55	50	46	12
11:00	Day	53	65	44	60	56	52	48	13
12:00	Day	54	66	40	62	56	52	48	13
13:00	Day	48	59	40	56	51	47	44	8
14:00	Day	49	66	39	58	50	45	43	8
15:00	Day	46	58	39	54	48	45	43	7
16:00	Day	47	60	39	54	50	46	43	6
17:00	Day	48	61	38	57	51	47	43	3
18:00	Day	45	59	37	52	48	44	41	4
19:00	Day	47	63	37	55	50	45	41	4
20:00	Day	50	65	37	61	53	47	43	2
21:00	Day	49	59	43	55	51	47	45	1
22:00	Night	50	59	42	56	52	49	46	1
23:00	Night	48	55	41	53	50	47	45	2
Overall	Max	54	68	44	63	56	52	48	13
	Median	49	62	41	57	52	47	44	2
	Min	45	55	37	52	48	44	41	1
Daytime	Max	54	67	44	63	56	52	48	13
7am-10pm	Median	49	63	39	57	51	47	43	6
	Min	45	58	37	52	48	44	41	1
Nighttime	Max	52	68	43	62	55	50	47	2
10pm-7am	Median	50	61	42	57	52	48	45	1
	Min	48	55	40	53	50	47	44	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 1/1/2013

24hr Summary

L_{DN} = 58 dBA C_{NEL} = 58 dBA $L_{eq(24hr)}$ = 53 dBA



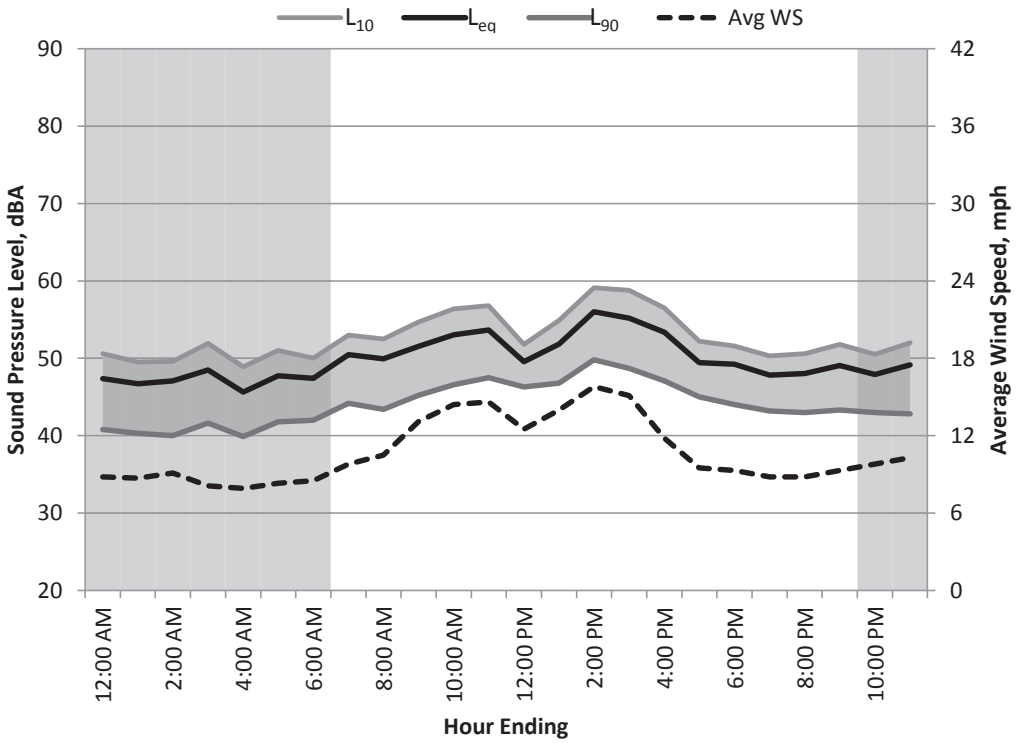
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	52	69	42	62	53	48	45	1
1:00	Night	54	68	44	64	57	48	46	2
2:00	Night	47	57	42	53	49	46	44	1
3:00	Night	53	68	43	63	58	48	45	1
4:00	Night	51	62	42	59	55	48	45	1
5:00	Night	49	62	42	58	52	45	44	1
6:00	Night	54	70	42	62	57	50	45	1
7:00	Day	50	63	40	57	54	49	45	2
8:00	Day	47	63	37	54	49	45	42	7
9:00	Day	45	57	35	51	48	44	41	7
10:00	Day	51	62	41	58	54	50	46	13
11:00	Day	53	65	43	60	56	51	48	14
12:00	Day	55	65	45	62	58	54	50	16
13:00	Day	58	70	45	66	62	56	51	17
14:00	Day	59	70	45	67	63	57	52	18
15:00	Day	56	68	43	64	60	55	49	15
16:00	Day	52	64	43	59	55	51	47	13
17:00	Day	50	60	39	56	53	49	45	10
18:00	Day	48	56	39	53	50	47	43	9
19:00	Day	46	55	36	51	48	45	41	7
20:00	Day	47	62	35	57	50	44	40	7
21:00	Day	45	60	34	51	48	43	39	8
22:00	Night	47	60	35	57	51	44	40	8
23:00	Night	47	64	35	57	50	45	41	8
Overall	Max	59	70	45	67	63	57	52	18
	Median	51	63	42	58	53	48	45	7
	Min	45	55	34	51	48	43	39	1
Daytime	Max	59	70	45	67	63	57	52	18
7am-10pm	Median	50	63	40	57	54	49	45	10
	Min	45	55	34	51	48	43	39	2
Nighttime	Max	54	70	44	64	58	50	46	8
10pm-7am	Median	51	64	42	59	53	48	45	1
	Min	47	57	35	53	49	44	40	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 1/2/2013

24hr Summary

L_{DN} = 55 dBA C_{NEL} = 55 dBA $L_{eq(24hr)}$ = 51 dBA



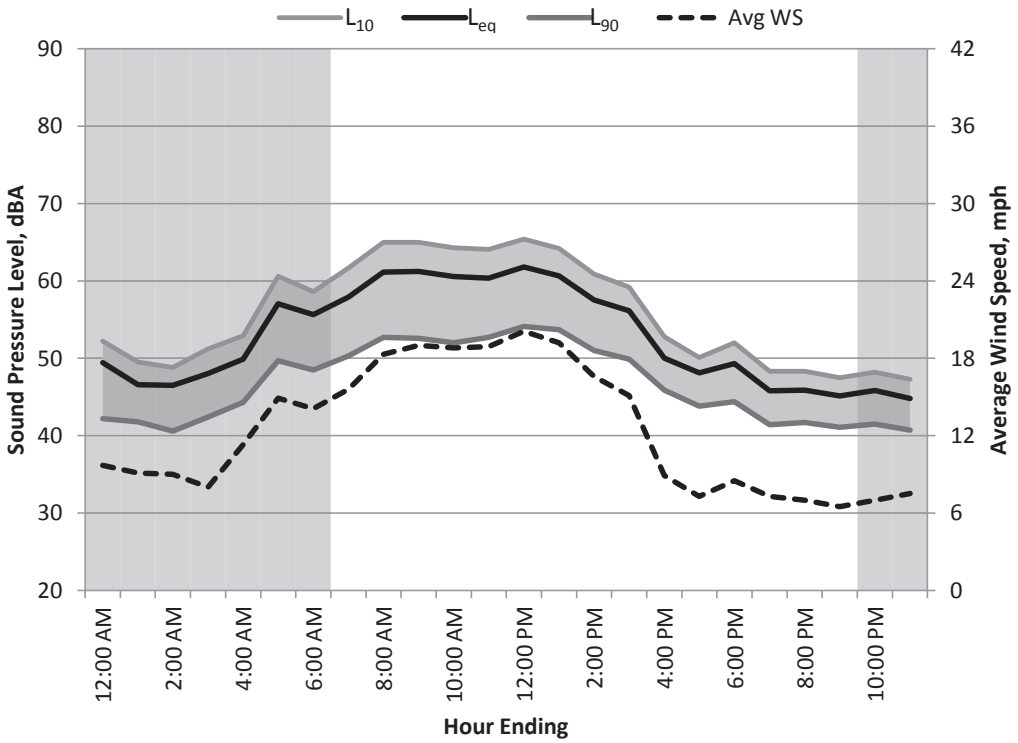
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	47	60	35	55	51	46	41	9
1:00	Night	47	58	34	56	50	45	40	9
2:00	Night	47	66	35	57	50	44	40	9
3:00	Night	48	61	37	57	52	46	42	8
4:00	Night	46	58	36	52	49	44	40	8
5:00	Night	48	62	36	56	51	46	42	8
6:00	Night	47	63	37	56	50	45	42	9
7:00	Day	50	68	40	59	53	48	44	10
8:00	Day	50	64	38	59	53	48	43	11
9:00	Day	52	65	40	60	55	50	45	13
10:00	Day	53	66	41	60	56	51	47	14
11:00	Day	54	64	42	62	57	52	48	15
12:00	Day	50	59	43	55	52	49	46	13
13:00	Day	52	66	42	59	55	50	47	14
14:00	Day	56	67	44	64	59	54	50	16
15:00	Day	55	67	44	63	59	53	49	15
16:00	Day	53	69	43	63	57	50	47	12
17:00	Day	49	63	41	55	52	48	45	10
18:00	Day	49	65	40	57	52	48	44	9
19:00	Day	48	61	39	55	50	47	43	9
20:00	Day	48	60	39	56	51	47	43	9
21:00	Day	49	65	39	57	52	47	43	9
22:00	Night	48	60	38	55	51	47	43	10
23:00	Night	49	64	38	58	52	47	43	10
Overall	Max	56	69	44	64	59	54	50	16
	Median	49	64	39	57	52	47	43	10
	Min	46	58	34	52	49	44	40	8
Daytime	Max	56	69	44	64	59	54	50	16
7am-10pm	Median	50	65	41	59	53	49	45	12
	Min	48	59	38	55	50	47	43	9
Nighttime	Max	49	66	38	58	52	47	43	10
10pm-7am	Median	47	61	36	56	51	46	42	9
	Min	46	58	34	52	49	44	40	8

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 1/3/2013

24hr Summary

L_{DN} = 60 dBA C_{NEL} = 60 dBA $L_{eq(24hr)}$ = 57 dBA



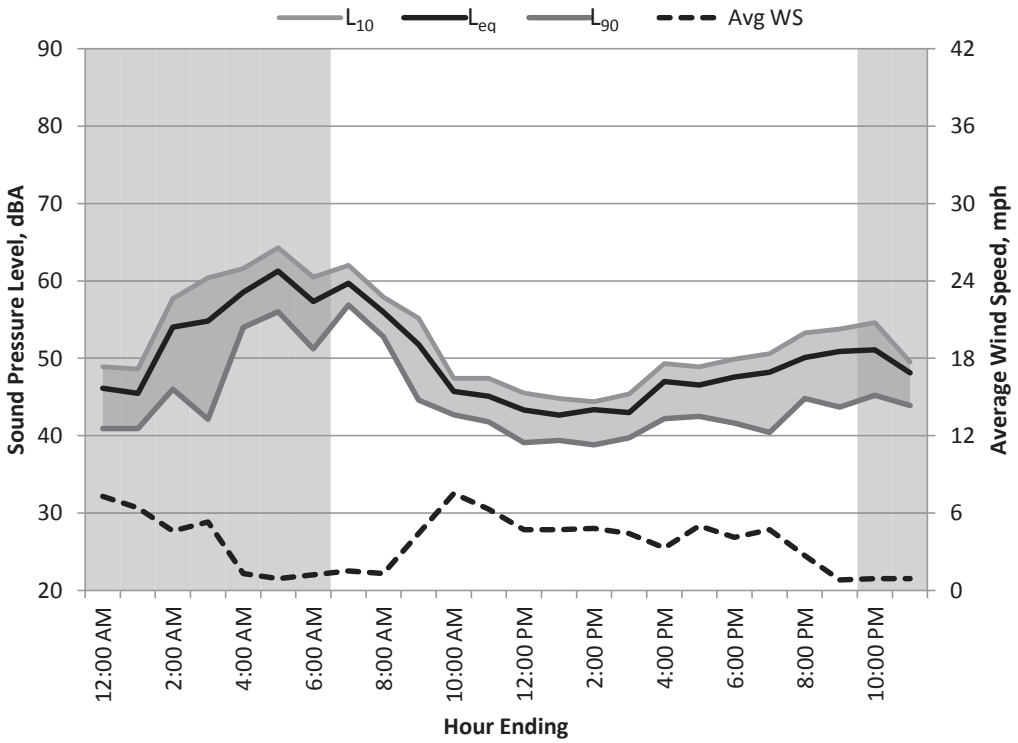
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	49	66	38	59	52	46	42	10
1:00	Night	47	57	38	53	50	45	42	9
2:00	Night	47	68	36	55	49	44	41	9
3:00	Night	48	60	39	55	51	46	42	8
4:00	Night	50	64	40	57	53	48	44	11
5:00	Night	57	70	44	66	61	54	50	15
6:00	Night	56	74	43	65	59	53	49	14
7:00	Day	58	70	44	66	62	55	50	16
8:00	Day	61	75	48	70	65	58	53	18
9:00	Day	61	72	48	69	65	59	53	19
10:00	Day	61	70	47	68	64	59	52	19
11:00	Day	60	72	45	67	64	58	53	19
12:00	Day	62	74	48	69	65	60	54	20
13:00	Day	61	71	47	67	64	59	54	19
14:00	Day	58	69	46	65	61	55	51	17
15:00	Day	56	68	46	65	59	54	50	15
16:00	Day	50	60	43	57	53	49	46	9
17:00	Day	48	62	41	57	50	47	44	7
18:00	Day	49	63	41	58	52	48	44	9
19:00	Day	46	61	37	51	48	45	41	7
20:00	Day	46	61	39	51	48	45	42	7
21:00	Day	45	58	37	51	48	44	41	7
22:00	Night	46	59	37	53	48	45	42	7
23:00	Night	45	55	37	50	47	44	41	8
Overall	Max	62	75	48	70	65	60	54	20
	Median	50	67	42	59	53	48	45	11
	Min	45	55	36	50	47	44	41	7
Daytime	Max	62	75	48	70	65	60	54	20
7am-10pm	Median	58	69	45	65	61	55	50	16
	Min	45	58	37	51	48	44	41	7
Nighttime	Max	57	74	44	66	61	54	50	15
10pm-7am	Median	48	64	38	55	51	46	42	9
	Min	45	55	36	50	47	44	41	7

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 1/4/2013

24hr Summary

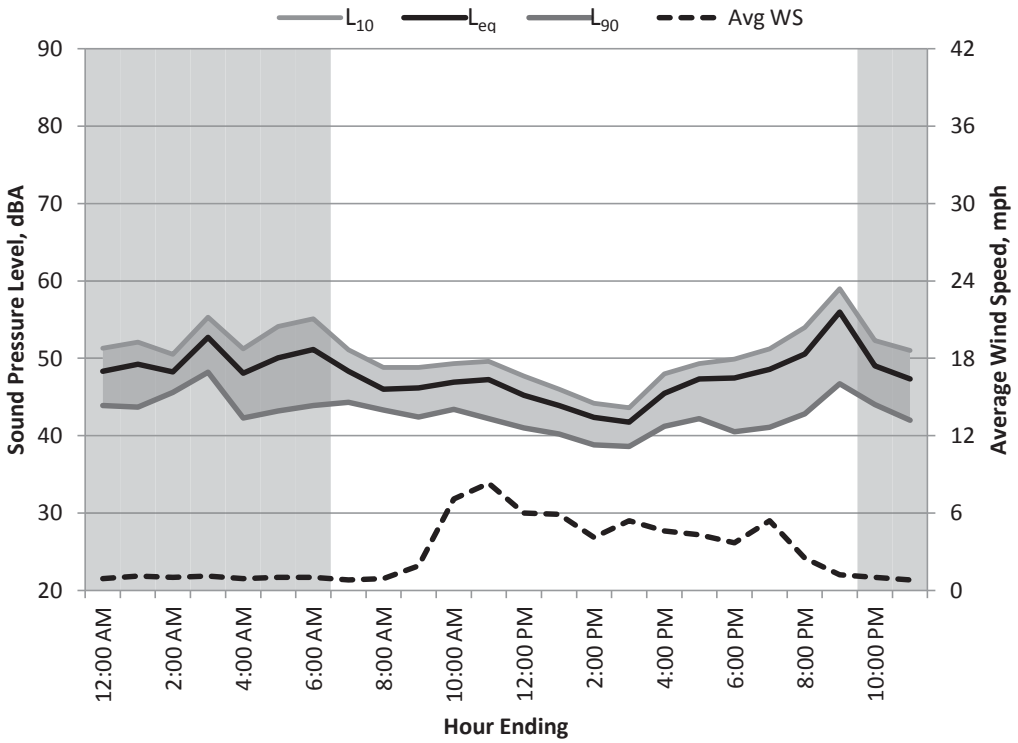
L_{DN} = 62 dBA C_{NEL} = 62 dBA $L_{eq(24hr)}$ = 54 dBA



Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	46	58	37	54	49	44	41	7
1:00	Night	45	55	38	52	49	44	41	6
2:00	Night	54	63	42	60	58	53	46	5
3:00	Night	55	65	38	64	60	48	42	5
4:00	Night	59	72	51	65	62	57	54	1
5:00	Night	61	71	53	67	64	60	56	1
6:00	Night	57	68	47	64	61	56	51	1
7:00	Day	60	64	53	64	62	59	57	2
8:00	Day	56	72	51	64	58	55	53	1
9:00	Day	52	61	41	57	55	50	45	4
10:00	Day	46	59	40	51	47	45	43	8
11:00	Day	45	56	39	51	47	44	42	6
12:00	Day	43	57	35	51	46	42	39	5
13:00	Day	43	54	36	49	45	42	39	5
14:00	Day	43	59	34	54	44	42	39	5
15:00	Day	43	54	35	49	45	42	40	4
16:00	Day	47	61	39	55	49	45	42	3
17:00	Day	47	55	38	52	49	46	43	5
18:00	Day	48	67	36	55	50	46	42	4
19:00	Day	48	66	37	59	51	45	40	5
20:00	Day	50	59	41	56	53	49	45	3
21:00	Day	51	61	41	57	54	50	44	1
22:00	Night	51	62	41	58	55	49	45	1
23:00	Night	48	60	40	58	50	46	44	1
Overall	Max	61	72	53	67	64	60	57	8
	Median	48	61	40	57	50	46	43	4
	Min	43	54	34	49	44	42	39	1
Daytime	Max	60	72	53	64	62	59	57	8
7am-10pm	Median	47	59	39	55	49	45	42	4
	Min	43	54	34	49	44	42	39	1
Nighttime	Max	61	72	53	67	64	60	56	7
10pm-7am	Median	54	63	41	60	58	49	45	1
	Min	45	55	37	52	49	44	41	1

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 1/5/2013

24hr Summary		
L_{DN} = 56 dBA	C_{NEL} = 56 dBA	$L_{eq(24hr)}$ = 49 dBA



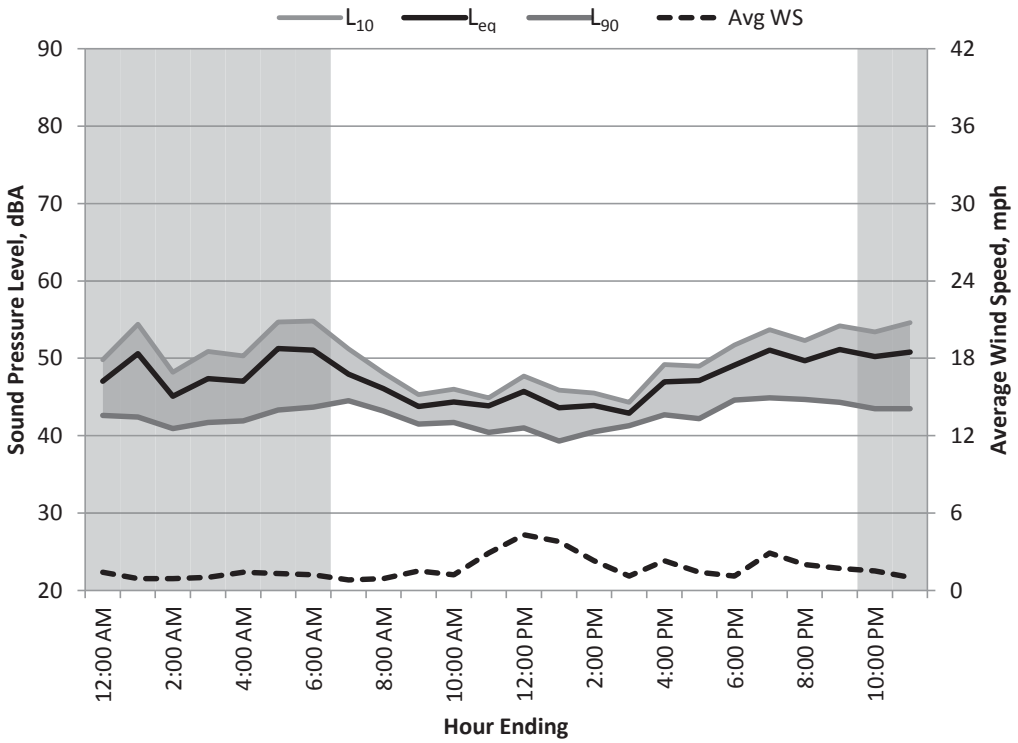
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	48	59	43	56	51	46	44	1
1:00	Night	49	60	41	58	52	47	44	1
2:00	Night	48	55	44	52	51	48	46	1
3:00	Night	53	60	46	57	55	52	48	1
4:00	Night	48	59	39	58	51	45	42	1
5:00	Night	50	62	40	58	54	47	43	1
6:00	Night	51	64	41	60	55	47	44	1
7:00	Day	48	59	42	55	51	47	44	1
8:00	Day	46	53	41	51	49	45	43	1
9:00	Day	46	60	40	54	49	44	42	2
10:00	Day	47	57	40	53	49	46	43	7
11:00	Day	47	61	38	57	50	45	42	8
12:00	Day	45	56	38	53	48	44	41	6
13:00	Day	44	56	37	51	46	43	40	6
14:00	Day	42	57	36	48	44	42	39	4
15:00	Day	42	53	34	48	44	41	39	5
16:00	Day	45	58	37	52	48	44	41	5
17:00	Day	47	64	38	55	49	46	42	4
18:00	Day	47	61	33	57	50	45	41	4
19:00	Day	49	64	33	58	51	46	41	5
20:00	Day	51	62	36	57	54	49	43	3
21:00	Day	56	73	41	66	59	52	47	1
22:00	Night	49	60	40	57	52	47	44	1
23:00	Night	47	58	38	54	51	45	42	1
Overall	Max	56	73	46	66	59	52	48	8
	Median	48	59	39	56	51	46	43	2
	Min	42	53	33	48	44	41	39	1
Daytime	Max	56	73	42	66	59	52	47	8
7am-10pm	Median	47	59	38	54	49	45	42	4
	Min	42	53	33	48	44	41	39	1
Nighttime	Max	53	64	46	60	55	52	48	1
10pm-7am	Median	49	60	41	57	52	47	44	1
	Min	47	55	38	52	51	45	42	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 1/6/2013

24hr Summary

L_{DN} = 56 dBA C_{NEL} = 56 dBA $L_{eq(24hr)}$ = 48 dBA



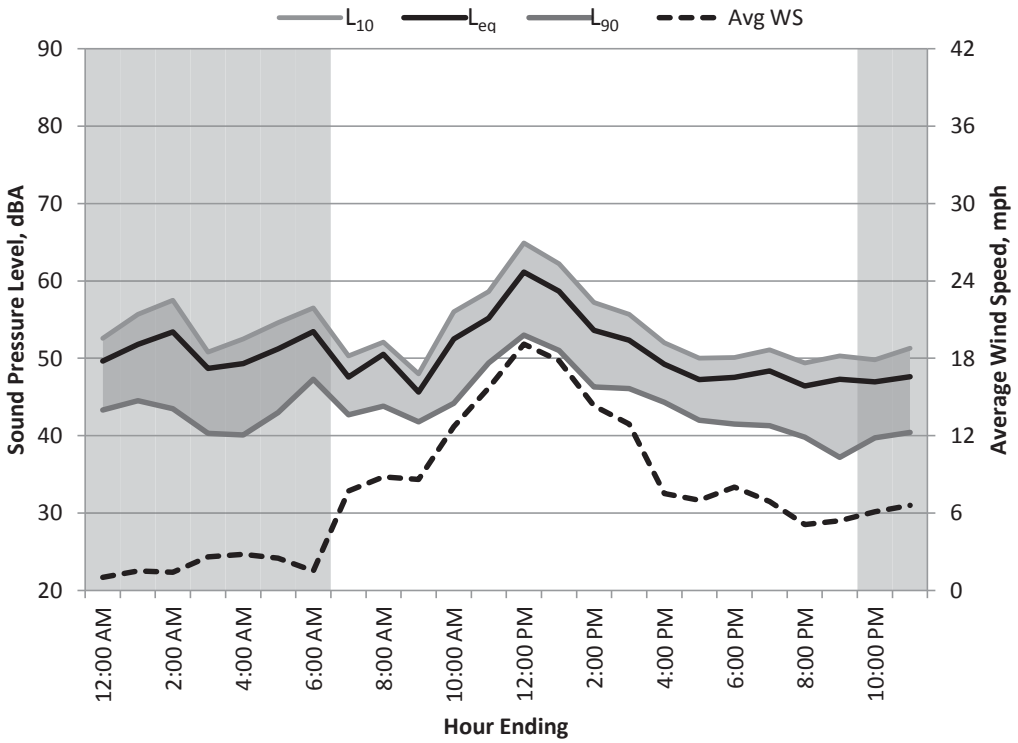
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	47	60	36	54	50	45	43	1
1:00	Night	51	64	40	61	54	46	42	1
2:00	Night	45	57	39	53	48	43	41	1
3:00	Night	47	63	40	55	51	45	42	1
4:00	Night	47	58	40	55	50	45	42	1
5:00	Night	51	66	38	61	55	48	43	1
6:00	Night	51	66	39	60	55	48	44	1
7:00	Day	48	60	43	55	51	46	45	1
8:00	Day	46	57	42	52	48	45	43	1
9:00	Day	44	58	40	48	45	43	42	2
10:00	Day	44	60	40	52	46	43	42	1
11:00	Day	44	59	37	53	45	42	40	3
12:00	Day	46	60	38	56	48	43	41	4
13:00	Day	44	57	37	52	46	42	39	4
14:00	Day	44	59	38	53	46	42	41	2
15:00	Day	43	49	39	47	44	42	41	1
16:00	Day	47	59	38	55	49	46	43	2
17:00	Day	47	61	38	56	49	45	42	1
18:00	Day	49	61	41	55	52	48	45	1
19:00	Day	51	66	40	60	54	49	45	3
20:00	Day	50	64	42	57	52	48	45	2
21:00	Day	51	64	40	61	54	48	44	2
22:00	Night	50	63	40	59	53	47	44	2
23:00	Night	51	65	41	61	55	47	44	1
Overall	Max	51	66	43	61	55	49	45	4
	Median	47	60	40	55	50	45	43	1
	Min	43	49	36	47	44	42	39	1
Daytime	Max	51	66	43	61	54	49	45	4
7am-10pm	Median	46	60	40	55	48	45	42	2
	Min	43	49	37	47	44	42	39	1
Nighttime	Max	51	66	41	61	55	48	44	2
10pm-7am	Median	50	63	40	59	53	46	43	1
	Min	45	57	36	53	48	43	41	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 1/7/2013

24hr Summary

L_{DN} = 58 dBA C_{NEL} = 58 dBA $L_{eq(24hr)}$ = 53 dBA



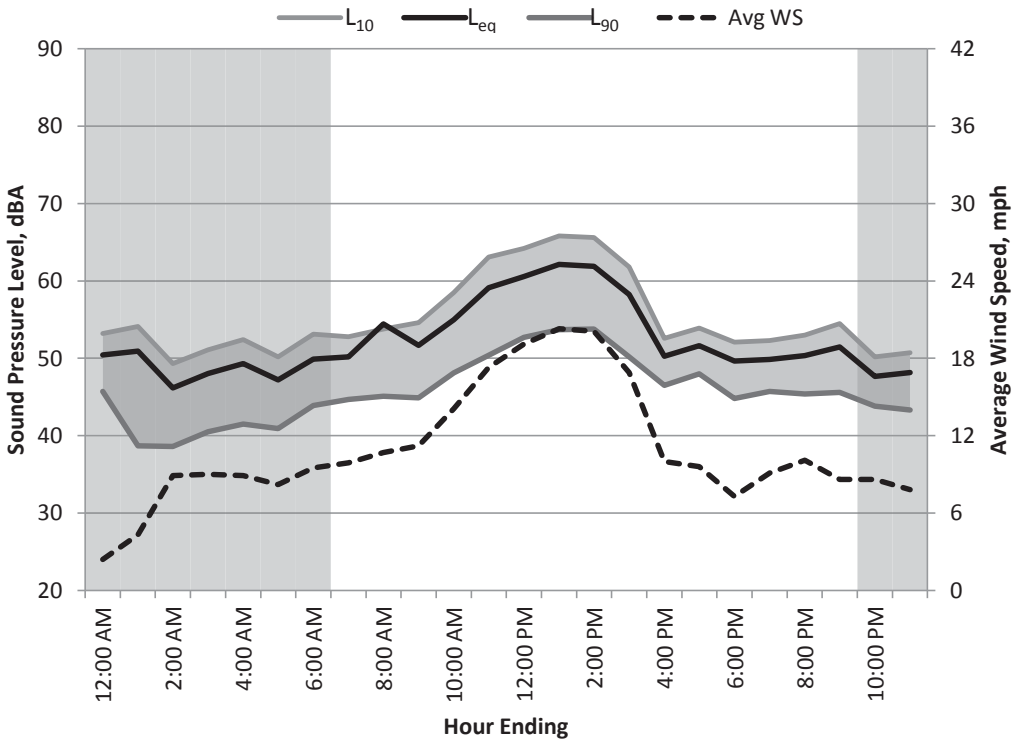
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	50	61	41	58	53	48	43	1
1:00	Night	52	65	42	62	56	48	45	2
2:00	Night	53	70	39	63	58	49	44	1
3:00	Night	49	66	35	60	51	45	40	3
4:00	Night	49	65	35	59	53	47	40	3
5:00	Night	51	61	38	58	55	50	43	3
6:00	Night	53	65	40	63	57	51	47	2
7:00	Day	48	58	37	54	50	46	43	8
8:00	Day	50	74	39	60	52	47	44	9
9:00	Day	46	54	37	51	48	45	42	9
10:00	Day	53	65	39	61	56	50	44	13
11:00	Day	55	65	44	62	59	53	49	16
12:00	Day	61	75	48	69	65	58	53	19
13:00	Day	59	75	45	66	62	56	51	18
14:00	Day	54	65	40	62	57	51	46	14
15:00	Day	52	63	41	60	56	50	46	13
16:00	Day	49	63	40	57	52	48	44	8
17:00	Day	47	56	38	54	50	46	42	7
18:00	Day	48	62	37	55	50	46	42	8
19:00	Day	48	63	38	58	51	46	41	7
20:00	Day	46	62	34	54	49	44	40	5
21:00	Day	47	64	32	58	50	43	37	5
22:00	Night	47	62	34	55	50	45	40	6
23:00	Night	48	60	35	55	51	45	40	7
Overall	Max	61	75	48	69	65	58	53	19
	Median	49	64	38	59	52	47	43	7
	Min	46	54	32	51	48	43	37	1
Daytime	Max	61	75	48	69	65	58	53	19
7am-10pm	Median	49	63	39	58	52	47	44	9
	Min	46	54	32	51	48	43	37	5
Nighttime	Max	53	70	42	63	58	51	47	7
10pm-7am	Median	50	65	38	59	53	48	43	3
	Min	47	60	34	55	50	45	40	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 1/8/2013

24hr Summary

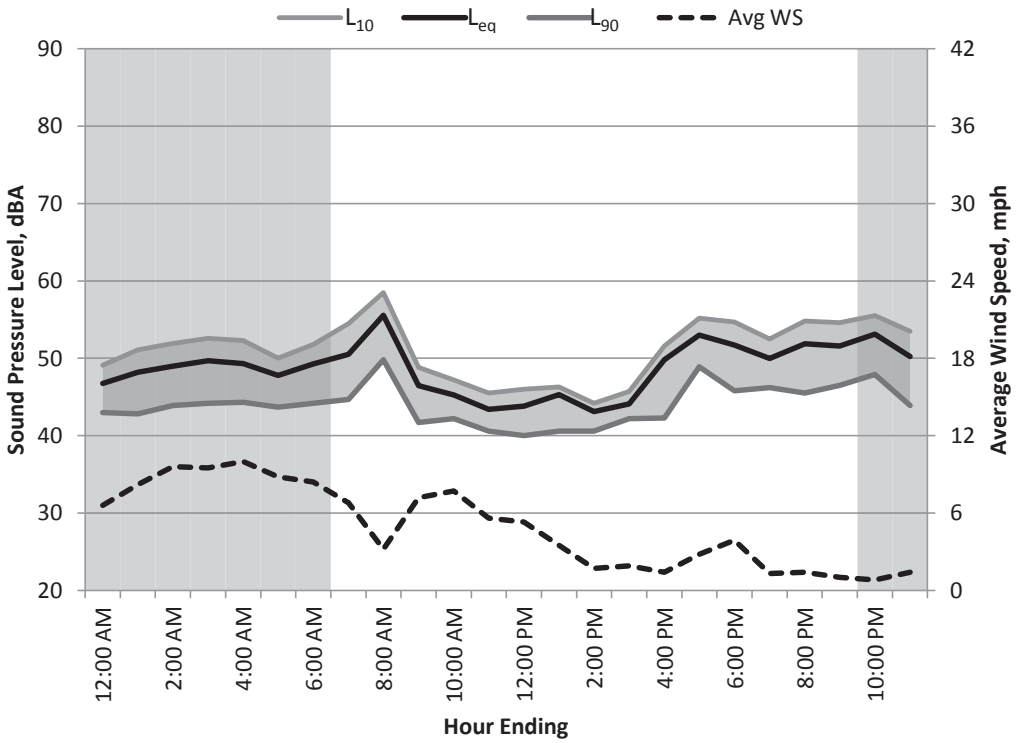
L_{DN} = 58 dBA C_{NEL} = 58 dBA $L_{eq(24hr)}$ = 55 dBA



Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	50	60	41	57	53	49	46	2
1:00	Night	51	69	33	61	54	46	39	4
2:00	Night	46	59	34	54	49	44	39	9
3:00	Night	48	63	35	57	51	46	41	9
4:00	Night	49	65	37	59	52	46	42	9
5:00	Night	47	61	35	55	50	45	41	8
6:00	Night	50	65	38	58	53	48	44	10
7:00	Day	50	66	38	59	53	48	45	10
8:00	Day	54	79	40	63	54	49	45	11
9:00	Day	52	65	40	61	55	50	45	11
10:00	Day	55	66	44	63	59	53	48	14
11:00	Day	59	72	43	68	63	56	50	17
12:00	Day	61	71	47	68	64	59	53	19
13:00	Day	62	74	45	70	66	60	54	20
14:00	Day	62	75	47	70	66	59	54	20
15:00	Day	58	72	45	67	62	55	50	17
16:00	Day	50	61	41	55	53	50	47	10
17:00	Day	52	63	45	58	54	51	48	10
18:00	Day	50	62	40	58	52	48	45	7
19:00	Day	50	62	42	56	52	49	46	9
20:00	Day	50	62	40	57	53	49	45	10
21:00	Day	51	65	41	60	55	49	46	9
22:00	Night	48	59	42	54	50	47	44	9
23:00	Night	48	63	40	56	51	47	43	8
Overall	Max	62	79	47	70	66	60	54	20
	Median	50	65	40	58	53	49	45	10
	Min	46	59	33	54	49	44	39	2
Daytime	Max	62	79	47	70	66	60	54	20
7am-10pm	Median	52	66	42	61	55	50	47	11
	Min	50	61	38	55	52	48	45	7
Nighttime	Max	51	69	42	61	54	49	46	10
10pm-7am	Median	48	63	37	57	51	46	42	9
	Min	46	59	33	54	49	44	39	2

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 1/9/2013

24hr Summary		
L_{DN} = 56 dBA	C_{NEL} = 56 dBA	$L_{eq(24hr)}$ = 50 dBA



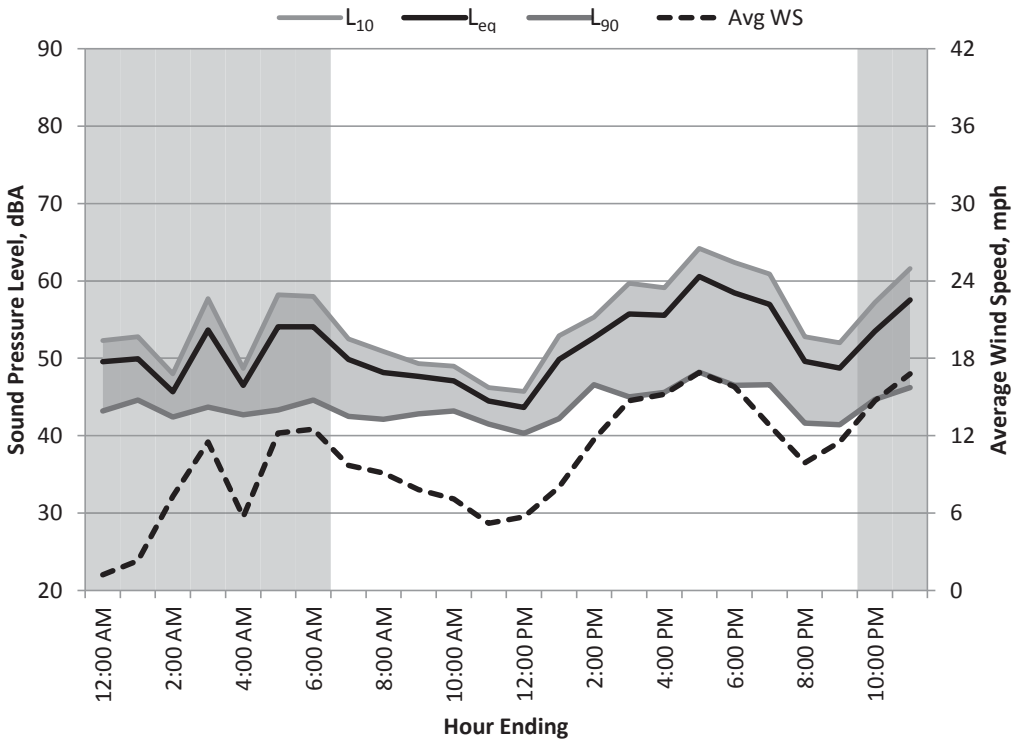
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	47	55	40	52	49	46	43	7
1:00	Night	48	61	39	56	51	47	43	8
2:00	Night	49	62	41	56	52	48	44	10
3:00	Night	50	63	41	57	53	48	44	10
4:00	Night	49	62	41	57	52	48	44	10
5:00	Night	48	62	40	55	50	47	44	9
6:00	Night	49	64	40	57	52	48	44	8
7:00	Day	51	64	41	58	55	48	45	7
8:00	Day	56	62	45	60	59	55	50	3
9:00	Day	46	60	37	55	49	45	42	7
10:00	Day	45	57	38	50	47	45	42	8
11:00	Day	43	56	37	48	46	43	41	6
12:00	Day	44	57	37	52	46	42	40	5
13:00	Day	45	68	37	54	46	43	41	4
14:00	Day	43	55	38	50	44	42	41	2
15:00	Day	44	53	40	48	46	44	42	2
16:00	Day	50	66	40	62	52	47	42	1
17:00	Day	53	66	45	62	55	51	49	3
18:00	Day	52	64	43	60	55	50	46	4
19:00	Day	50	58	44	55	53	49	46	1
20:00	Day	52	69	42	59	55	50	46	1
21:00	Day	52	63	44	59	55	50	47	1
22:00	Night	53	68	44	60	56	52	48	1
23:00	Night	50	57	39	56	54	49	44	1
Overall	Max	56	69	45	62	59	55	50	10
	Median	49	62	40	56	52	48	44	5
	Min	43	53	37	48	44	42	40	1
Daytime	Max	56	69	45	62	59	55	50	8
7am-10pm	Median	50	62	40	55	52	47	42	3
	Min	43	53	37	48	44	42	40	1
Nighttime	Max	53	68	44	60	56	52	48	10
10pm-7am	Median	49	62	40	56	52	48	44	8
	Min	47	55	39	52	49	46	43	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 1/10/2013

24hr Summary

L_{DN} = 60 dBA C_{NEL} = 60 dBA $L_{eq(24hr)}$ = 54 dBA



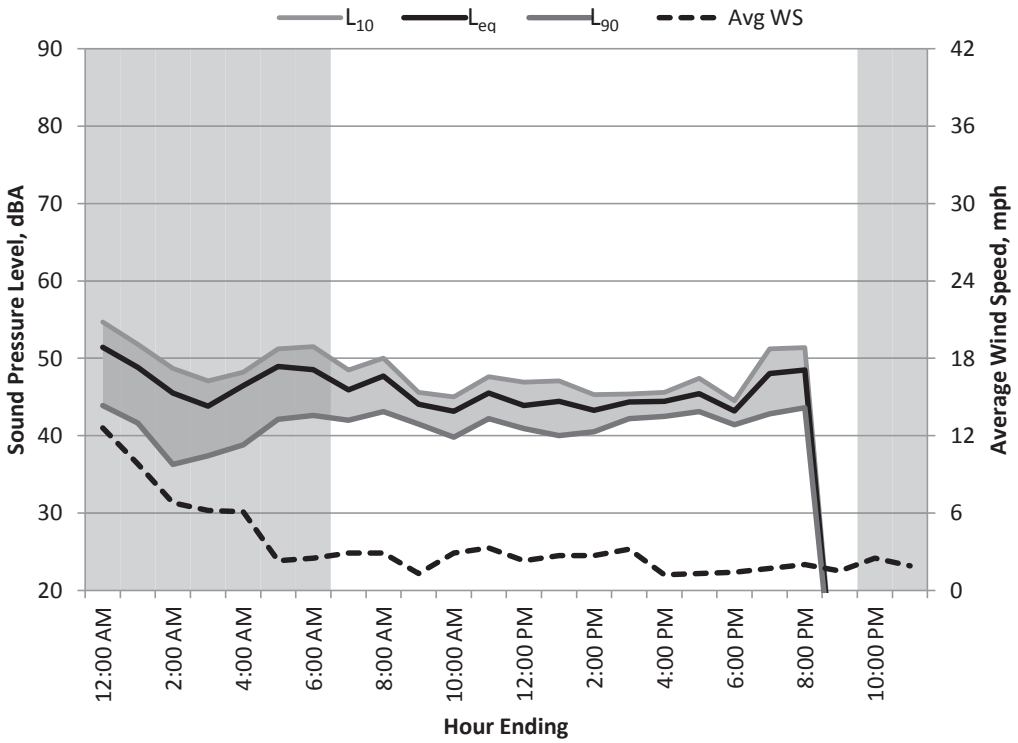
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	50	58	39	56	52	49	43	1
1:00	Night	50	61	39	57	53	48	45	2
2:00	Night	46	55	39	52	48	45	42	7
3:00	Night	54	67	39	64	58	49	44	12
4:00	Night	46	59	38	53	49	46	43	6
5:00	Night	54	68	39	63	58	50	43	12
6:00	Night	54	68	40	64	58	50	45	13
7:00	Day	50	67	39	61	53	46	43	10
8:00	Day	48	64	38	58	51	45	42	9
9:00	Day	48	68	39	57	49	45	43	8
10:00	Day	47	64	40	55	49	46	43	7
11:00	Day	44	58	39	50	46	44	42	5
12:00	Day	44	52	37	48	46	43	40	6
13:00	Day	50	63	39	59	53	47	42	8
14:00	Day	53	67	39	62	55	50	47	12
15:00	Day	56	71	37	66	60	51	45	15
16:00	Day	56	71	40	66	59	51	46	15
17:00	Day	61	75	42	71	64	56	48	17
18:00	Day	58	73	41	68	62	54	47	16
19:00	Day	57	71	41	66	61	54	47	13
20:00	Day	50	65	35	59	53	46	42	10
21:00	Day	49	65	37	57	52	46	41	12
22:00	Night	53	67	39	63	57	49	45	15
23:00	Night	58	70	39	67	62	53	46	17
Overall	Max	61	75	42	71	64	56	48	17
	Median	50	67	39	60	53	48	43	11
	Min	44	52	35	48	46	43	40	1
Daytime	Max	61	75	42	71	64	56	48	17
7am-10pm	Median	50	67	39	59	53	46	43	10
	Min	44	52	35	48	46	43	40	5
Nighttime	Max	58	70	40	67	62	53	46	17
10pm-7am	Median	53	67	39	63	57	49	44	12
	Min	46	55	38	52	48	45	42	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-1
DATE: 1/11/2013

24hr Summary

L_{DN} = -- dBA C_{NEL} = -- dBA $L_{eq(24hr)}$ = -- dBA



Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	51	65	37	61	55	49	44	13
1:00	Night	49	62	34	58	52	46	42	10
2:00	Night	46	60	30	56	49	42	36	7
3:00	Night	44	55	34	51	47	42	37	6
4:00	Night	46	69	35	58	48	43	39	6
5:00	Night	49	62	35	59	51	47	42	2
6:00	Night	49	64	40	57	52	46	43	3
7:00	Day	46	54	38	51	49	45	42	3
8:00	Day	48	66	41	56	50	45	43	3
9:00	Day	44	57	40	51	46	43	42	1
10:00	Day	43	57	37	50	45	42	40	3
11:00	Day	46	62	39	52	48	44	42	3
12:00	Day	44	55	39	51	47	42	41	2
13:00	Day	44	57	37	52	47	43	40	3
14:00	Day	43	54	37	49	45	43	41	3
15:00	Day	44	58	40	52	45	44	42	3
16:00	Day	44	56	41	51	46	44	43	1
17:00	Day	45	55	41	52	47	44	43	1
18:00	Day	43	55	39	48	45	43	41	1
19:00	Day	48	60	39	55	51	46	43	2
20:00	Day	48	59	41	56	51	47	44	2
21:00	Day	--	--	--	--	--	--	--	2
22:00	Night	--	--	--	--	--	--	--	3
23:00	Night	--	--	--	--	--	--	--	2
Overall	Max	--	--	--	--	--	--	--	13
	Median	--	--	--	--	--	--	--	3
	Min	--	--	--	--	--	--	--	1
Daytime	Max	--	--	--	--	--	--	--	3
7am-10pm	Median	--	--	--	--	--	--	--	2
	Min	--	--	--	--	--	--	--	1
Nighttime	Max	--	--	--	--	--	--	--	13
10pm-7am	Median	--	--	--	--	--	--	--	6
	Min	--	--	--	--	--	--	--	2

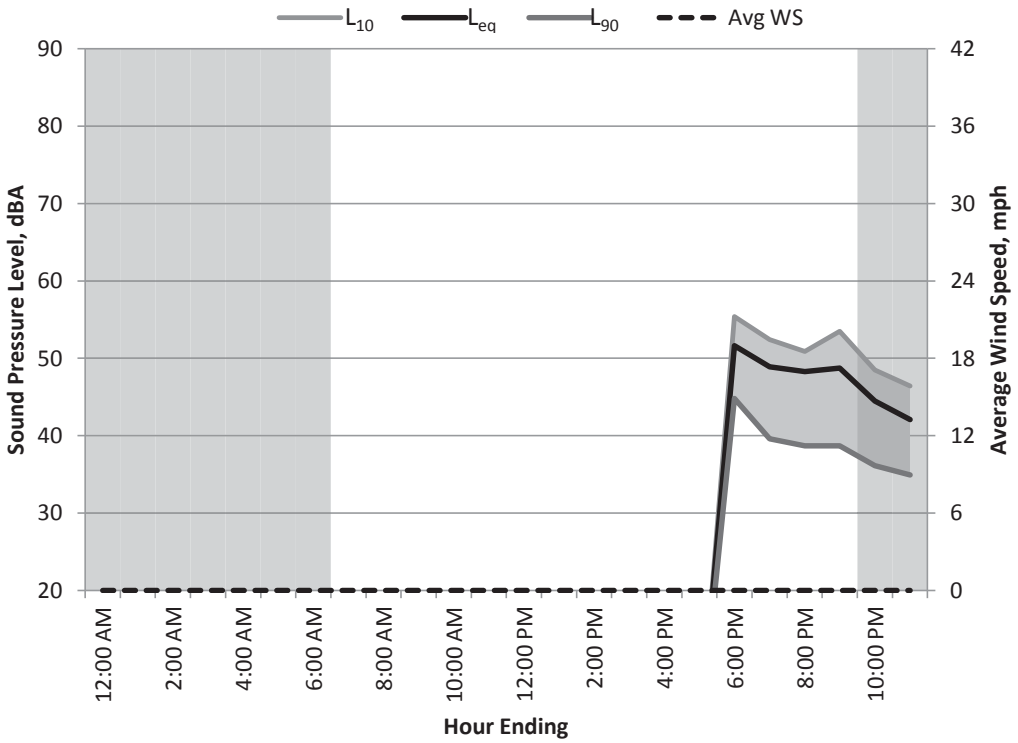
Appendix E
ST-2 August Measurements

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 8/2/2012

24hr Summary

L_{DN} = -- dBA C_{NEL} = -- dBA $L_{eq(24hr)}$ = -- dBA



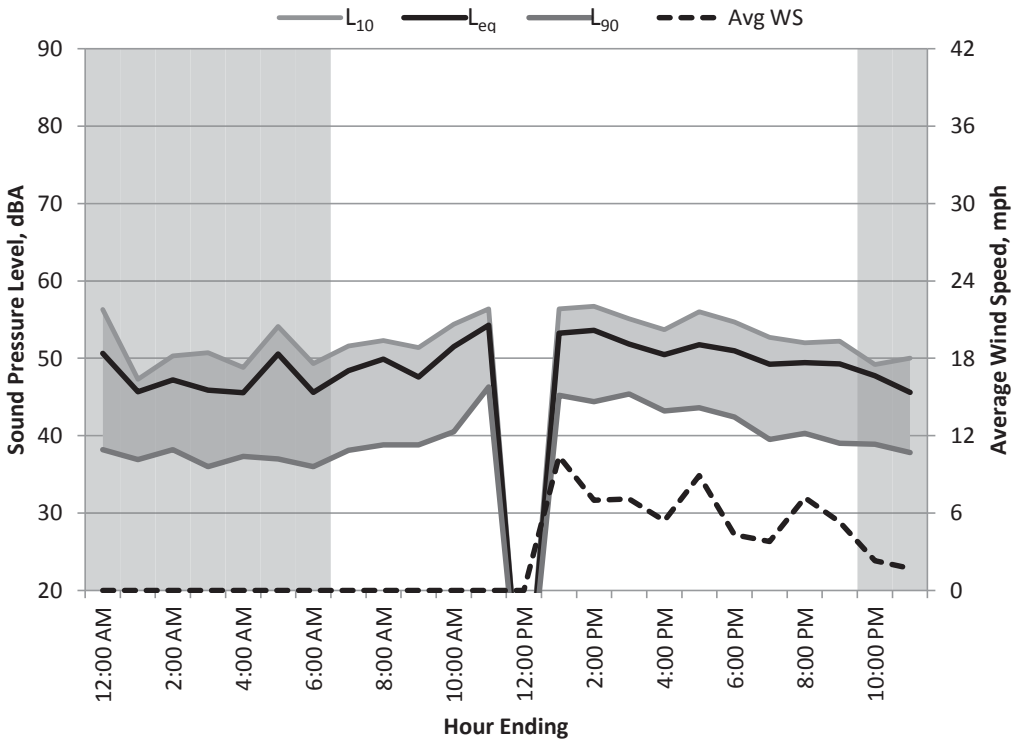
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	--	--	--	--	--	--	--	--
1:00	Night	--	--	--	--	--	--	--	--
2:00	Night	--	--	--	--	--	--	--	--
3:00	Night	--	--	--	--	--	--	--	--
4:00	Night	--	--	--	--	--	--	--	--
5:00	Night	--	--	--	--	--	--	--	--
6:00	Night	--	--	--	--	--	--	--	--
7:00	Day	--	--	--	--	--	--	--	--
8:00	Day	--	--	--	--	--	--	--	--
9:00	Day	--	--	--	--	--	--	--	--
10:00	Day	--	--	--	--	--	--	--	--
11:00	Day	--	--	--	--	--	--	--	--
12:00	Day	--	--	--	--	--	--	--	--
13:00	Day	--	--	--	--	--	--	--	--
14:00	Day	--	--	--	--	--	--	--	--
15:00	Day	--	--	--	--	--	--	--	--
16:00	Day	--	--	--	--	--	--	--	--
17:00	Day	--	--	--	--	--	--	--	--
18:00	Day	52	69	39	61	55	48	45	--
19:00	Day	49	62	37	58	52	43	40	--
20:00	Day	48	61	34	55	51	48	39	--
21:00	Day	49	62	35	58	54	43	39	--
22:00	Night	44	58	33	54	49	40	36	--
23:00	Night	42	54	33	51	46	38	35	--
Overall	Max	--	--	--	--	--	--	--	--
	Median	--	--	--	--	--	--	--	--
	Min	--	--	--	--	--	--	--	--
Daytime	Max	--	--	--	--	--	--	--	--
7am-10pm	Median	--	--	--	--	--	--	--	--
	Min	--	--	--	--	--	--	--	--
Nighttime	Max	--	--	--	--	--	--	--	--
10pm-7am	Median	--	--	--	--	--	--	--	--
	Min	--	--	--	--	--	--	--	--

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 8/3/2012

24hr Summary

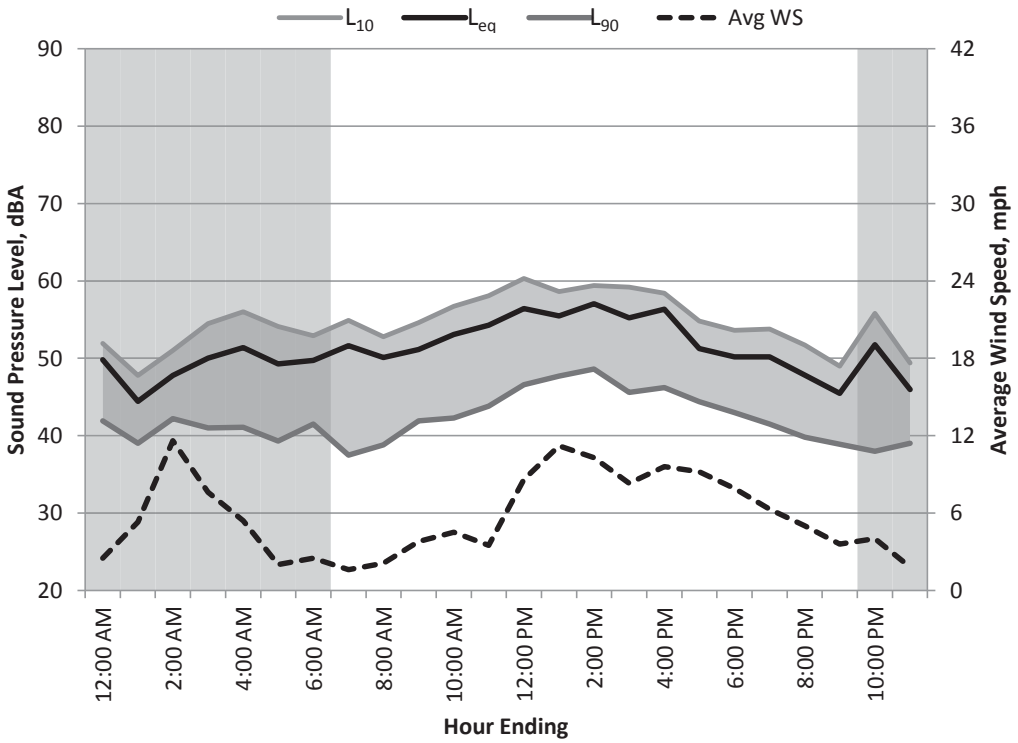
L_{DN} = -- dBA C_{NEL} = -- dBA $L_{eq(24hr)}$ = -- dBA



Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	51	64	36	61	56	42	38	--
1:00	Night	46	61	34	57	47	41	37	--
2:00	Night	47	62	35	58	50	42	38	--
3:00	Night	46	60	34	57	51	39	36	--
4:00	Night	46	63	33	55	49	41	37	--
5:00	Night	51	69	35	62	54	41	37	--
6:00	Night	46	61	33	56	49	39	36	--
7:00	Day	48	66	36	60	52	41	38	--
8:00	Day	50	69	36	60	52	43	39	--
9:00	Day	48	63	36	57	51	43	39	--
10:00	Day	52	65	37	60	54	51	41	--
11:00	Day	54	73	41	65	56	50	46	--
12:00	Day	--	--	--	--	--	--	--	--
13:00	Day	53	69	42	63	56	50	45	10
14:00	Day	54	73	40	64	57	49	44	7
15:00	Day	52	65	42	61	55	48	45	7
16:00	Day	50	65	38	59	54	48	43	5
17:00	Day	52	65	38	60	56	48	44	9
18:00	Day	51	63	38	60	55	48	42	4
19:00	Day	49	66	35	59	53	45	40	4
20:00	Day	49	64	35	60	52	46	40	7
21:00	Day	49	73	35	59	52	44	39	5
22:00	Night	48	70	36	57	49	43	39	2
23:00	Night	46	60	35	55	50	41	38	2
Overall	Max	--	--	--	--	--	--	--	--
	Median	--	--	--	--	--	--	--	--
	Min	--	--	--	--	--	--	--	--
Daytime	Max	--	--	--	--	--	--	--	--
7am-10pm	Median	--	--	--	--	--	--	--	--
	Min	--	--	--	--	--	--	--	--
Nighttime	Max	51	70	36	62	56	43	39	--
10pm-7am	Median	46	62	35	57	50	41	37	--
	Min	46	60	33	55	47	39	36	--

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 8/4/2012

24hr Summary		
L_{DN} = 57 dBA	C_{NEL} = 57 dBA	$L_{eq(24hr)}$ = 52 dBA



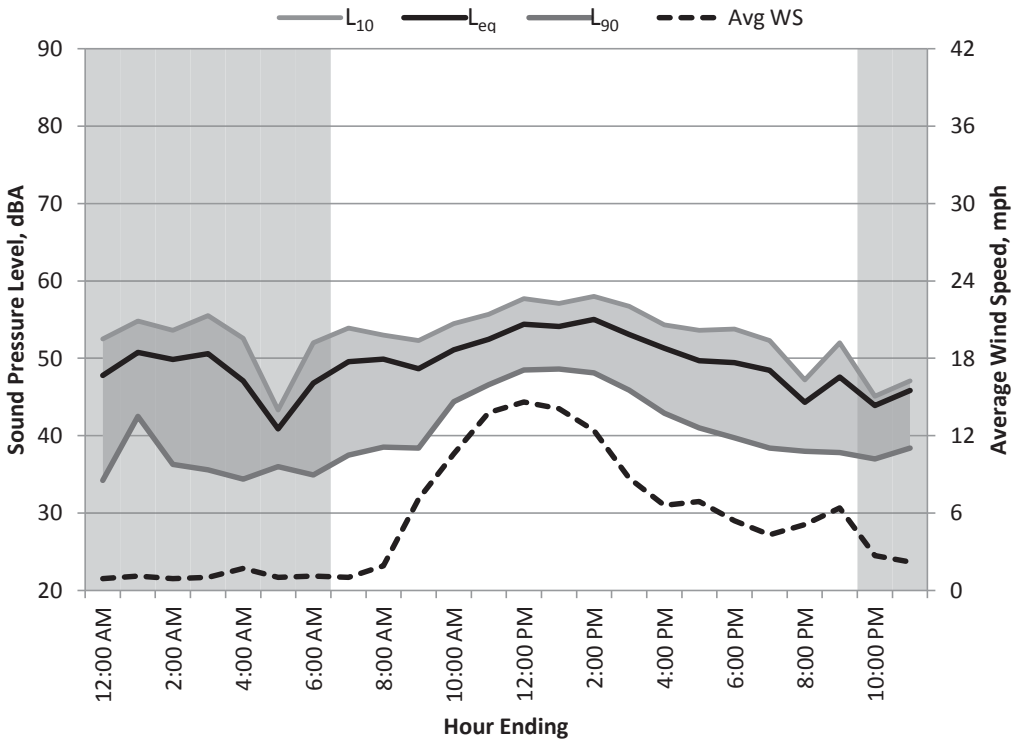
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	50	64	37	60	52	47	42	3
1:00	Night	44	59	36	53	48	42	39	5
2:00	Night	48	61	37	56	51	46	42	12
3:00	Night	50	65	37	60	55	45	41	8
4:00	Night	51	67	37	61	56	46	41	5
5:00	Night	49	63	33	59	54	44	39	2
6:00	Night	50	73	36	60	53	45	42	3
7:00	Day	52	68	34	64	55	45	38	2
8:00	Day	50	67	35	58	53	49	39	2
9:00	Day	51	64	38	62	55	47	42	4
10:00	Day	53	69	38	64	57	48	42	5
11:00	Day	54	69	39	63	58	50	44	4
12:00	Day	56	72	42	66	60	52	47	9
13:00	Day	55	77	42	64	59	52	48	11
14:00	Day	57	76	43	67	59	54	49	10
15:00	Day	55	69	41	64	59	52	46	8
16:00	Day	56	78	41	67	58	51	46	10
17:00	Day	51	65	41	60	55	49	44	9
18:00	Day	50	70	39	59	54	47	43	8
19:00	Day	50	65	36	59	54	47	42	6
20:00	Day	48	64	35	57	52	44	40	5
21:00	Day	45	58	35	53	49	43	39	4
22:00	Night	52	67	34	64	56	42	38	4
23:00	Night	46	56	36	54	49	44	39	2
Overall	Max	57	78	43	67	60	54	49	12
	Median	51	67	37	60	55	47	42	5
	Min	44	56	33	53	48	42	38	2
Daytime	Max	57	78	43	67	60	54	49	11
7am-10pm	Median	52	69	39	63	55	49	43	6
	Min	45	58	34	53	49	43	38	2
Nighttime	Max	52	73	37	64	56	47	42	12
10pm-7am	Median	50	64	36	60	53	45	41	4
	Min	44	56	33	53	48	42	38	2

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 8/5/2012

24hr Summary

L_{DN} = 55 dBA C_{NEL} = 55 dBA $L_{eq(24hr)}$ = 50 dBA



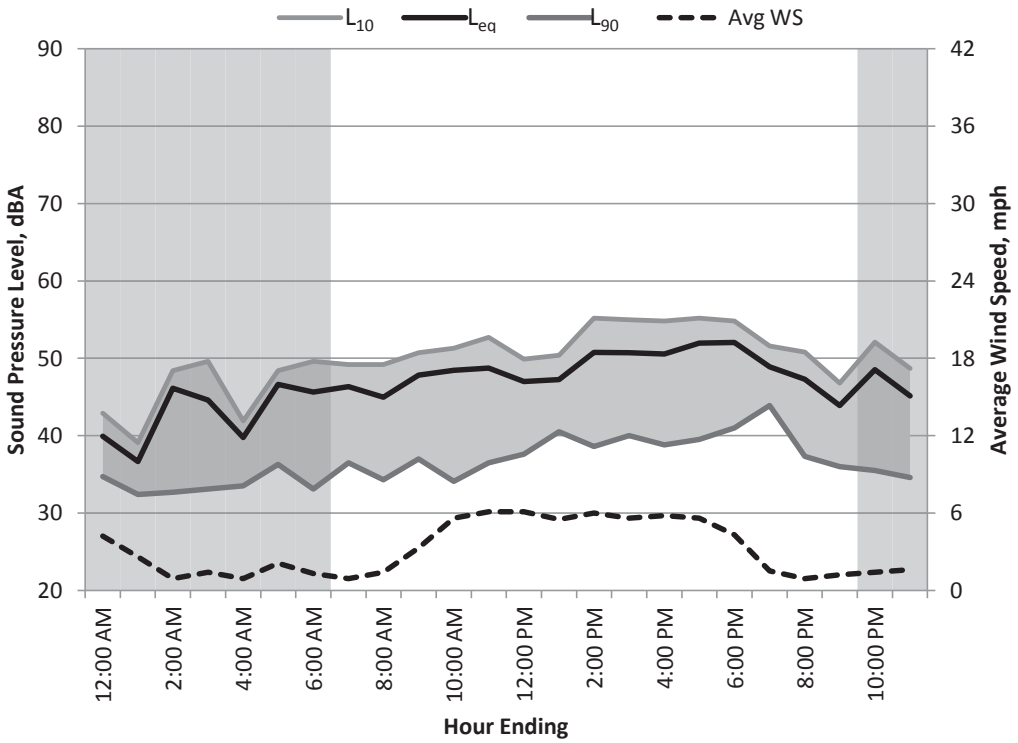
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	48	62	32	58	53	41	34	1
1:00	Night	51	64	38	60	55	47	43	1
2:00	Night	50	66	34	60	54	41	36	1
3:00	Night	51	63	31	61	56	41	36	1
4:00	Night	47	60	31	57	53	40	34	2
5:00	Night	41	57	32	49	43	39	36	1
6:00	Night	47	63	33	57	52	38	35	1
7:00	Day	50	64	35	59	54	43	38	1
8:00	Day	50	65	35	61	53	46	39	2
9:00	Day	49	65	36	60	52	44	38	7
10:00	Day	51	64	40	60	55	49	44	11
11:00	Day	52	62	39	59	56	51	47	14
12:00	Day	54	66	44	61	58	53	49	15
13:00	Day	54	69	44	61	57	52	49	14
14:00	Day	55	71	44	64	58	52	48	12
15:00	Day	53	66	40	62	57	50	46	9
16:00	Day	51	72	39	62	54	47	43	7
17:00	Day	50	64	37	59	54	46	41	7
18:00	Day	49	63	36	59	54	45	40	5
19:00	Day	48	63	35	59	52	45	38	4
20:00	Day	44	55	34	53	47	41	38	5
21:00	Day	48	64	35	58	52	41	38	6
22:00	Night	44	59	34	56	45	40	37	3
23:00	Night	46	65	34	56	47	42	38	2
Overall	Max	55	72	44	64	58	53	49	15
	Median	50	64	35	59	54	44	38	5
	Min	41	55	31	49	43	38	34	1
Daytime	Max	55	72	44	64	58	53	49	15
7am-10pm	Median	50	64	37	60	54	46	41	7
	Min	44	55	34	53	47	41	38	1
Nighttime	Max	51	66	38	61	56	47	43	3
10pm-7am	Median	47	63	33	57	53	41	36	1
	Min	41	57	31	49	43	38	34	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 8/6/2012

24hr Summary

L_{DN} = 52 dBA C_{NEL} = 53 dBA $L_{eq(24hr)}$ = 48 dBA



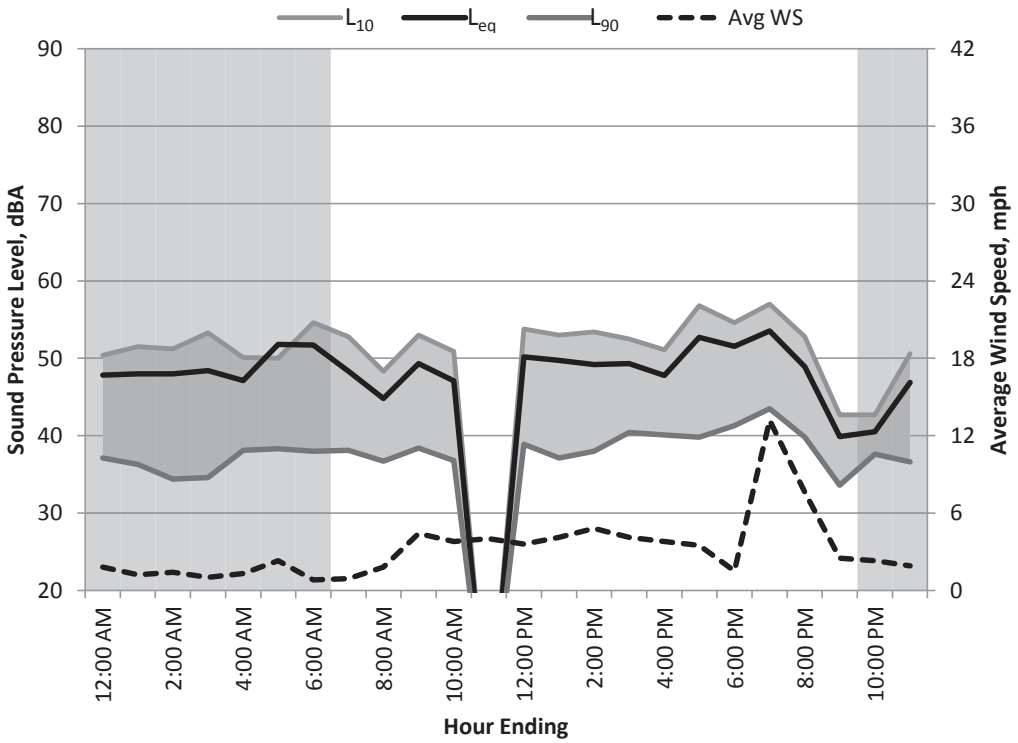
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	40	55	33	48	43	38	35	4
1:00	Night	37	47	30	43	39	36	32	3
2:00	Night	46	62	30	59	48	36	33	1
3:00	Night	45	58	31	56	50	38	33	1
4:00	Night	40	53	31	50	42	36	34	1
5:00	Night	47	63	31	59	48	41	36	2
6:00	Night	46	61	30	57	50	39	33	1
7:00	Day	46	66	33	57	49	40	37	1
8:00	Day	45	56	32	51	49	39	34	1
9:00	Day	48	65	32	56	51	46	37	3
10:00	Day	48	66	31	60	51	42	34	6
11:00	Day	49	63	29	59	53	45	37	6
12:00	Day	47	63	32	58	50	43	38	6
13:00	Day	47	61	37	57	50	44	41	6
14:00	Day	51	67	32	61	55	44	39	6
15:00	Day	51	63	36	61	55	46	40	6
16:00	Day	51	63	35	61	55	44	39	6
17:00	Day	52	66	31	63	55	46	40	6
18:00	Day	52	69	36	65	55	45	41	4
19:00	Day	49	64	41	57	52	47	44	2
20:00	Day	47	61	33	59	51	42	37	1
21:00	Day	44	62	33	54	47	40	36	1
22:00	Night	49	64	32	60	52	42	36	1
23:00	Night	45	63	30	56	49	39	35	2
Overall	Max	52	69	41	65	55	47	44	6
	Median	47	63	32	58	50	42	36	2
	Min	37	47	29	43	39	36	32	1
Daytime	Max	52	69	41	65	55	47	44	6
7am-10pm	Median	48	63	33	59	51	44	38	6
	Min	44	56	29	51	47	39	34	1
Nighttime	Max	49	64	33	60	52	42	36	4
10pm-7am	Median	45	61	31	56	48	38	34	1
	Min	37	47	30	43	39	36	32	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 8/7/2012

24hr Summary

L_{DN} = -- dBA C_{NEL} = -- dBA $L_{eq(24hr)}$ = -- dBA

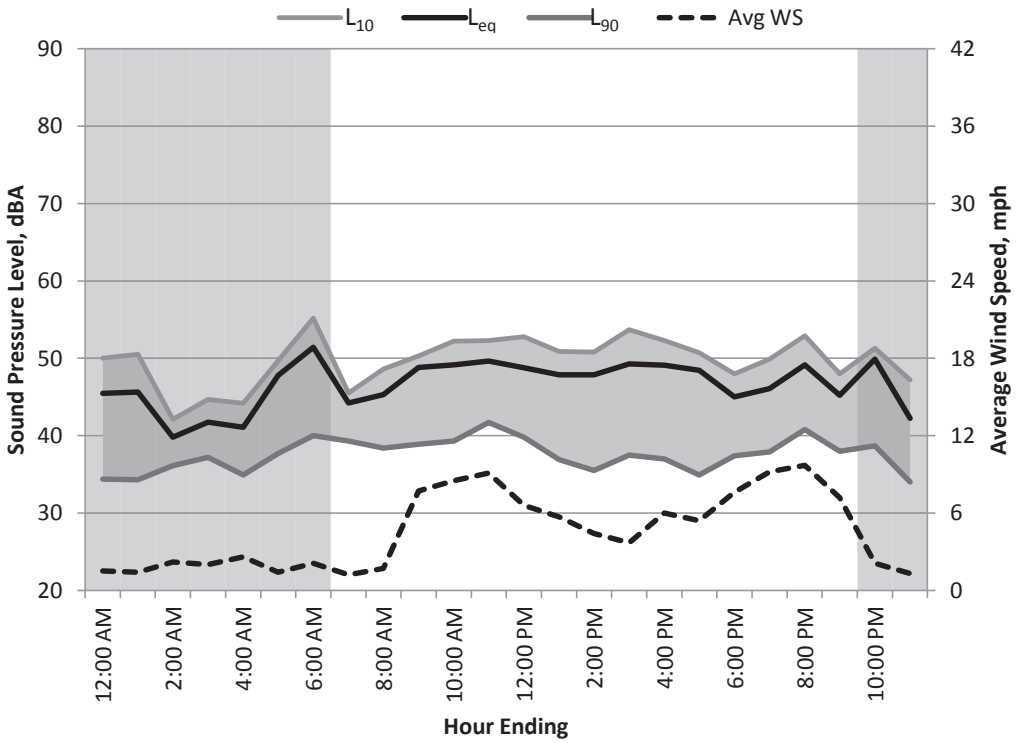


Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	48	63	33	59	50	42	37	2
1:00	Night	48	62	33	60	52	41	36	1
2:00	Night	48	63	31	59	51	38	34	1
3:00	Night	48	63	33	59	53	40	35	1
4:00	Night	47	64	35	58	50	42	38	1
5:00	Night	52	79	34	61	50	43	38	2
6:00	Night	52	70	34	64	55	45	38	1
7:00	Day	48	63	36	60	53	40	38	1
8:00	Day	45	62	34	52	48	40	37	2
9:00	Day	49	64	33	58	53	47	38	4
10:00	Day	47	65	33	55	51	43	37	4
11:00	Day	--	--	--	--	--	--	--	4
12:00	Day	50	65	35	61	54	44	39	4
13:00	Day	50	73	32	60	53	45	37	4
14:00	Day	49	66	35	58	53	45	38	5
15:00	Day	49	63	35	60	53	45	40	4
16:00	Day	48	62	34	58	51	44	40	4
17:00	Day	53	66	34	63	57	46	40	4
18:00	Day	52	67	36	62	55	47	41	2
19:00	Day	54	67	36	63	57	50	44	13
20:00	Day	49	62	36	58	53	45	40	8
21:00	Day	40	55	31	49	43	37	34	3
22:00	Night	41	51	36	46	43	40	38	2
23:00	Night	47	61	34	57	51	41	37	2
Overall	Max	--	--	--	--	--	--	--	13
	Median	--	--	--	--	--	--	--	2
	Min	--	--	--	--	--	--	--	1
Daytime	Max	--	--	--	--	--	--	--	13
7am-10pm	Median	--	--	--	--	--	--	--	4
	Min	--	--	--	--	--	--	--	1
Nighttime	Max	52	79	36	64	55	45	38	2
10pm-7am	Median	48	63	34	59	51	41	37	1
	Min	41	51	31	46	43	38	34	1

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 8/8/2012

24hr Summary

L_{DN} = 53 dBA C_{NEL} = 54 dBA $L_{eq(24hr)}$ = 48 dBA



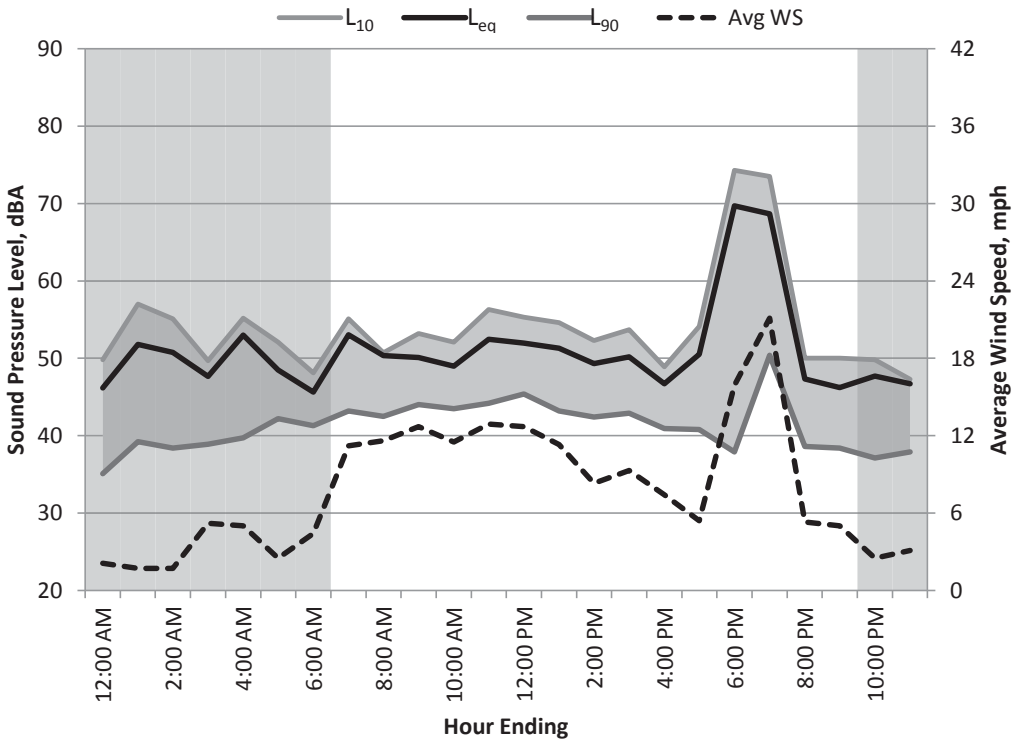
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	45	62	32	57	50	38	34	2
1:00	Night	46	61	31	56	51	39	34	1
2:00	Night	40	50	34	46	42	39	36	2
3:00	Night	42	57	34	48	45	40	37	2
4:00	Night	41	55	32	50	44	38	35	3
5:00	Night	48	66	33	59	50	44	38	1
6:00	Night	51	70	36	62	55	45	40	2
7:00	Day	44	61	36	54	46	42	39	1
8:00	Day	45	54	35	51	49	43	38	2
9:00	Day	49	69	35	60	50	43	39	8
10:00	Day	49	69	35	58	52	47	39	9
11:00	Day	50	76	36	57	52	46	42	9
12:00	Day	49	61	35	57	53	45	40	7
13:00	Day	48	68	33	59	51	42	37	6
14:00	Day	48	64	33	60	51	43	36	4
15:00	Day	49	64	33	60	54	44	38	4
16:00	Day	49	67	34	61	52	42	37	6
17:00	Day	48	66	32	60	51	41	35	5
18:00	Day	45	59	34	56	48	41	37	8
19:00	Day	46	59	32	56	50	43	38	9
20:00	Day	49	63	37	58	53	45	41	10
21:00	Day	45	61	33	55	48	42	38	7
22:00	Night	50	70	34	62	51	44	39	2
23:00	Night	42	53	31	51	47	38	34	1
Overall	Max	51	76	37	62	55	47	42	10
	Median	48	62	34	57	50	42	38	4
	Min	40	50	31	46	42	38	34	1
Daytime	Max	50	76	37	61	54	47	42	10
7am-10pm	Median	48	64	34	58	51	43	38	7
	Min	44	54	32	51	46	41	35	1
Nighttime	Max	51	70	36	62	55	45	40	3
10pm-7am	Median	45	61	33	56	50	39	36	2
	Min	40	50	31	46	42	38	34	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 8/9/2012

24hr Summary

L_{DN} = 60 dBA C_{NEL} = 62 dBA $L_{eq(24hr)}$ = 59 dBA

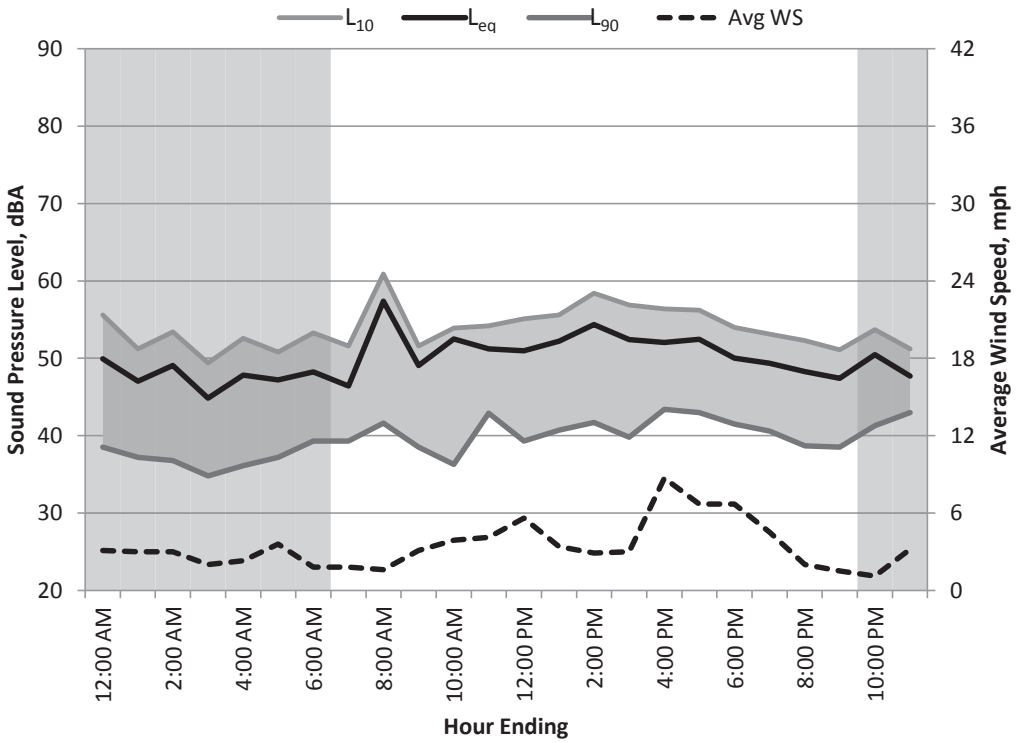


Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	46	67	30	56	50	40	35	2
1:00	Night	52	64	35	62	57	45	39	2
2:00	Night	51	69	34	60	55	44	38	2
3:00	Night	48	66	34	58	50	43	39	5
4:00	Night	53	82	36	63	55	46	40	5
5:00	Night	48	67	38	55	52	46	42	3
6:00	Night	46	61	37	52	48	44	41	4
7:00	Day	53	72	38	64	55	48	43	11
8:00	Day	50	74	38	57	51	46	43	12
9:00	Day	50	63	38	58	53	48	44	13
10:00	Day	49	60	41	56	52	48	44	12
11:00	Day	52	66	40	62	56	49	44	13
12:00	Day	52	65	39	61	55	49	45	13
13:00	Day	51	67	39	61	55	48	43	11
14:00	Day	49	63	39	58	52	47	42	8
15:00	Day	50	63	39	60	54	47	43	9
16:00	Day	47	63	38	56	49	44	41	7
17:00	Day	50	68	37	61	54	46	41	5
18:00	Day	70	85	34	80	74	50	38	16
19:00	Day	69	82	41	78	74	62	50	21
20:00	Day	47	64	35	58	50	42	39	5
21:00	Day	46	62	36	56	50	41	38	5
22:00	Night	48	64	32	60	50	42	37	3
23:00	Night	47	64	35	59	47	41	38	3
Overall	Max	70	85	41	80	74	62	50	21
	Median	50	65	37	59	53	46	41	6
	Min	46	60	30	52	47	40	35	2
Daytime	Max	70	85	41	80	74	62	50	21
7am-10pm	Median	50	65	38	60	54	48	43	11
	Min	46	60	34	56	49	41	38	5
Nighttime	Max	53	82	38	63	57	46	42	5
10pm-7am	Median	48	66	35	59	50	44	39	3
	Min	46	61	30	52	47	40	35	2

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 8/10/2012

24hr Summary

L_{DN} = 55 dBA C_{NEL} = 56 dBA $L_{eq(24hr)}$ = 51 dBA



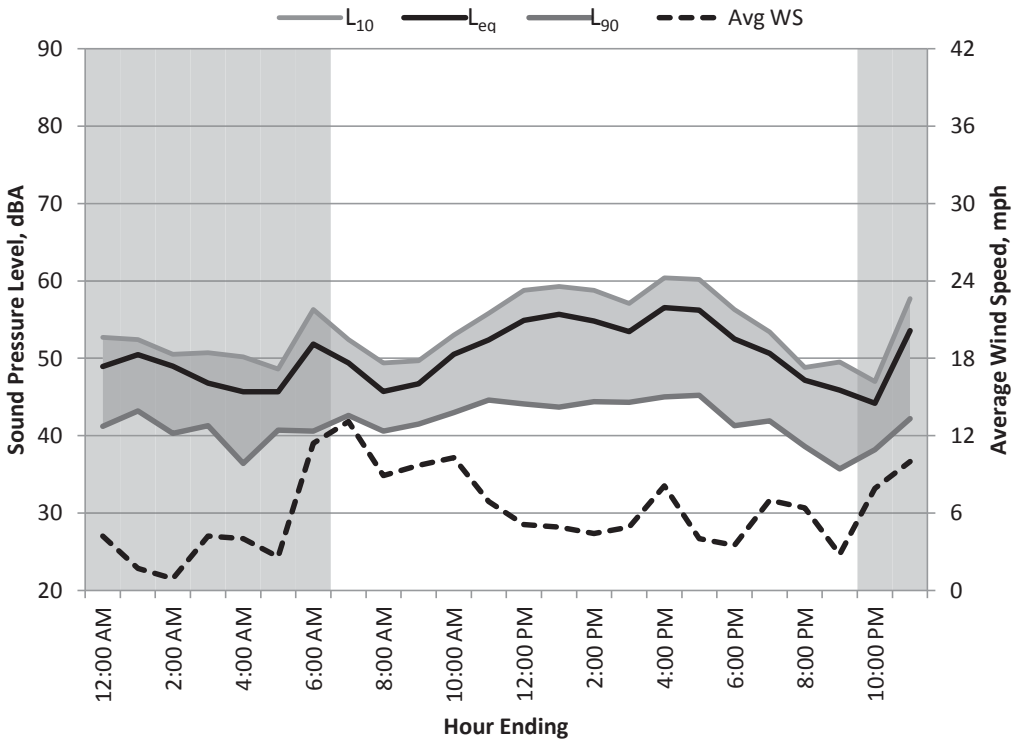
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	50	63	35	60	56	42	39	3
1:00	Night	47	62	33	58	51	41	37	3
2:00	Night	49	64	34	60	53	43	37	3
3:00	Night	45	57	31	54	49	39	35	2
4:00	Night	48	68	34	57	53	41	36	2
5:00	Night	47	67	35	59	51	40	37	4
6:00	Night	48	60	37	57	53	43	39	2
7:00	Day	46	61	37	55	52	42	39	2
8:00	Day	57	75	39	69	61	50	42	2
9:00	Day	49	63	35	60	52	46	39	3
10:00	Day	53	73	34	63	54	45	36	4
11:00	Day	51	65	39	63	54	46	43	4
12:00	Day	51	65	35	60	55	47	39	6
13:00	Day	52	71	37	62	56	47	41	3
14:00	Day	54	66	37	63	58	51	42	3
15:00	Day	52	65	37	62	57	48	40	3
16:00	Day	52	64	40	61	56	48	43	9
17:00	Day	52	68	40	63	56	47	43	7
18:00	Day	50	65	37	60	54	45	42	7
19:00	Day	49	67	37	59	53	45	41	5
20:00	Day	48	63	34	58	52	43	39	2
21:00	Day	47	62	35	59	51	41	39	2
22:00	Night	50	69	38	62	54	45	41	1
23:00	Night	48	63	39	54	51	46	43	3
Overall	Max	57	75	40	69	61	51	43	9
	Median	50	65	37	60	54	45	39	3
	Min	45	57	31	54	49	39	35	1
Daytime	Max	57	75	40	69	61	51	43	9
7am-10pm	Median	51	65	37	61	54	46	41	3
	Min	46	61	34	55	51	41	36	2
Nighttime	Max	50	69	39	62	56	46	43	4
10pm-7am	Median	48	63	35	58	53	42	37	3
	Min	45	57	31	54	49	39	35	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 8/11/2012

24hr Summary

L_{DN} = 57 dBA C_{NEL} = 57 dBA $L_{eq(24hr)}$ = 52 dBA



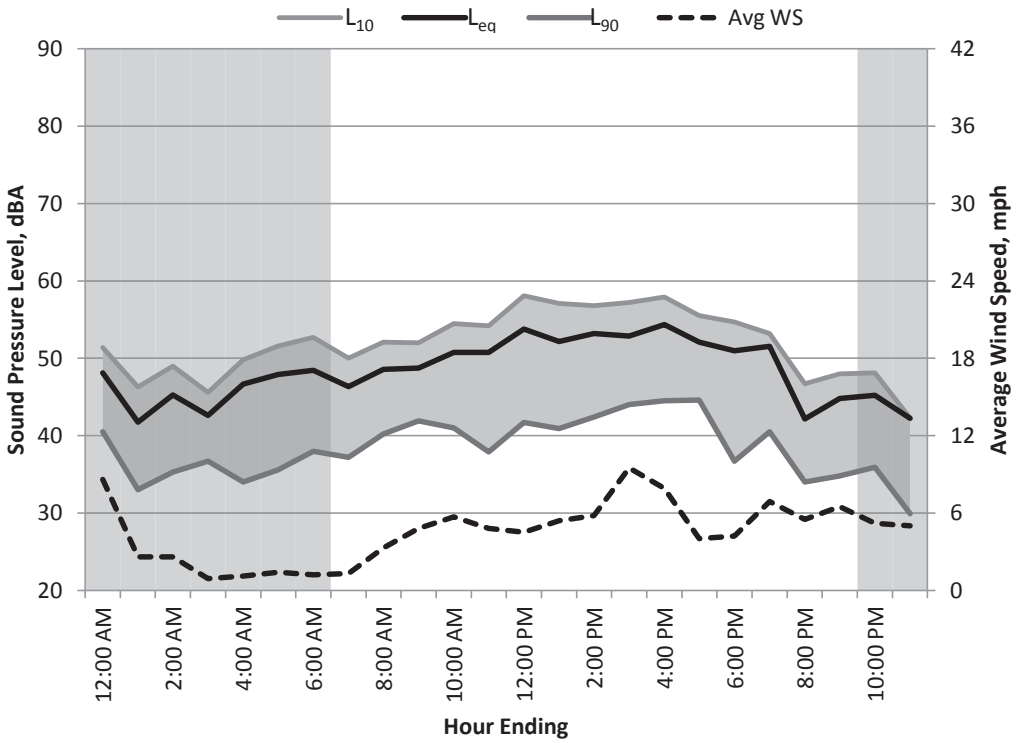
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	49	62	38	59	53	45	41	4
1:00	Night	50	68	39	61	52	47	43	2
2:00	Night	49	66	38	59	51	44	40	1
3:00	Night	47	56	39	53	51	45	41	4
4:00	Night	46	60	32	55	50	42	36	4
5:00	Night	46	56	37	52	49	44	41	3
6:00	Night	52	64	36	61	56	47	41	11
7:00	Day	49	64	38	58	52	47	43	13
8:00	Day	46	61	38	53	49	43	41	9
9:00	Day	47	60	38	53	50	45	42	10
10:00	Day	50	66	39	61	53	47	43	10
11:00	Day	52	66	41	62	56	49	45	7
12:00	Day	55	70	38	65	59	49	44	5
13:00	Day	56	72	39	65	59	52	44	5
14:00	Day	55	66	39	64	59	51	44	4
15:00	Day	53	66	40	63	57	50	44	5
16:00	Day	57	72	41	67	60	51	45	8
17:00	Day	56	73	38	66	60	51	45	4
18:00	Day	53	69	37	63	56	48	41	4
19:00	Day	51	67	36	62	53	46	42	7
20:00	Day	47	64	35	60	49	43	39	6
21:00	Day	46	62	32	57	50	40	36	3
22:00	Night	44	61	36	54	47	41	38	8
23:00	Night	54	66	36	63	58	49	42	10
Overall	Max	57	73	41	67	60	52	45	13
	Median	50	66	38	61	53	47	42	5
	Min	44	56	32	52	47	40	36	1
Daytime	Max	57	73	41	67	60	52	45	13
7am-10pm	Median	52	66	38	62	56	48	43	6
	Min	46	60	32	53	49	40	36	3
Nighttime	Max	54	68	39	63	58	49	43	11
10pm-7am	Median	49	62	37	59	51	45	41	4
	Min	44	56	32	52	47	41	36	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 8/12/2012

24hr Summary

L_{DN} = 54 dBA C_{NEL} = 54 dBA $L_{eq(24hr)}$ = 50 dBA



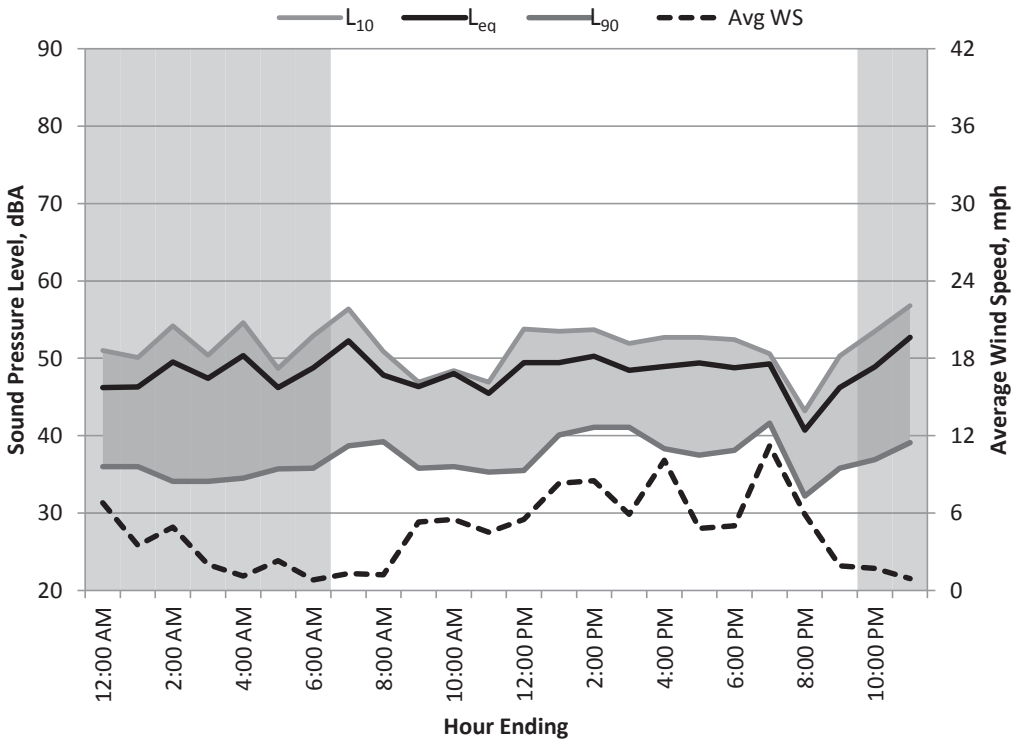
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	48	63	36	58	51	45	41	9
1:00	Night	42	55	31	51	46	36	33	3
2:00	Night	45	61	32	56	49	38	35	3
3:00	Night	43	57	32	52	46	40	37	1
4:00	Night	47	64	31	59	50	40	34	1
5:00	Night	48	62	31	58	52	43	36	1
6:00	Night	48	62	34	58	53	44	38	1
7:00	Day	46	58	34	57	50	42	37	1
8:00	Day	49	64	36	57	52	46	40	3
9:00	Day	49	62	37	59	52	45	42	5
10:00	Day	51	68	37	62	55	45	41	6
11:00	Day	51	65	33	62	54	46	38	5
12:00	Day	54	72	36	65	58	47	42	5
13:00	Day	52	65	37	61	57	46	41	5
14:00	Day	53	70	36	63	57	48	42	6
15:00	Day	53	64	41	61	57	49	44	10
16:00	Day	54	72	40	64	58	50	45	8
17:00	Day	52	70	40	61	56	49	45	4
18:00	Day	51	66	33	63	55	43	37	4
19:00	Day	52	68	35	63	53	47	41	7
20:00	Day	42	54	31	51	47	38	34	6
21:00	Day	45	64	32	54	48	40	35	7
22:00	Night	45	60	32	56	48	41	36	5
23:00	Night	42	64	27	54	42	34	30	5
Overall	Max	54	72	41	65	58	50	45	10
	Median	49	64	34	59	52	44	38	5
	Min	42	54	27	51	42	34	30	1
Daytime	Max	54	72	41	65	58	50	45	10
7am-10pm	Median	51	65	36	61	55	46	41	5
	Min	42	54	31	51	47	38	34	1
Nighttime	Max	48	64	36	59	53	45	41	9
10pm-7am	Median	45	62	32	56	49	40	36	3
	Min	42	55	27	51	42	34	30	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 8/13/2012

24hr Summary

L_{DN} = 55 dBA C_{NEL} = 56 dBA $L_{eq(24hr)}$ = 49 dBA



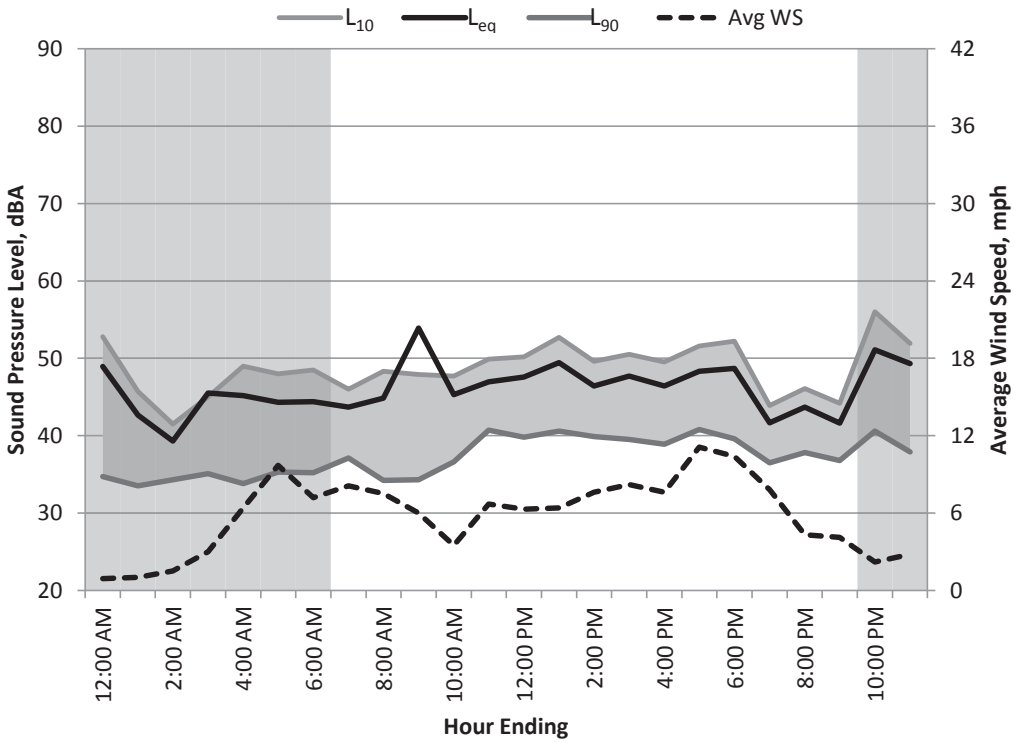
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	46	60	32	56	51	40	36	7
1:00	Night	46	63	33	57	50	40	36	4
2:00	Night	50	65	32	61	54	38	34	5
3:00	Night	47	65	31	60	50	38	34	2
4:00	Night	50	68	32	62	55	44	35	1
5:00	Night	46	61	32	59	49	38	36	2
6:00	Night	49	68	33	59	53	41	36	1
7:00	Day	52	67	35	63	56	43	39	1
8:00	Day	48	65	35	57	51	45	39	1
9:00	Day	46	63	32	59	47	40	36	5
10:00	Day	48	67	32	61	48	42	36	6
11:00	Day	45	61	31	57	47	42	35	5
12:00	Day	49	64	32	59	54	43	36	6
13:00	Day	49	63	36	59	54	45	40	8
14:00	Day	50	65	38	59	54	47	41	9
15:00	Day	48	66	36	58	52	45	41	6
16:00	Day	49	65	31	59	53	45	38	10
17:00	Day	49	64	33	60	53	45	38	5
18:00	Day	49	71	34	59	52	43	38	5
19:00	Day	49	69	37	61	51	45	42	11
20:00	Day	41	64	29	50	43	36	32	6
21:00	Day	46	59	32	56	50	41	36	2
22:00	Night	49	64	33	59	54	43	37	2
23:00	Night	53	69	35	63	57	44	39	1
Overall	Max	53	71	38	63	57	47	42	11
	Median	49	65	32	59	52	43	36	5
	Min	41	59	29	50	43	36	32	1
Daytime	Max	52	71	38	63	56	47	42	11
7am-10pm	Median	49	65	33	59	52	43	38	6
	Min	41	59	29	50	43	36	32	1
Nighttime	Max	53	69	35	63	57	44	39	7
10pm-7am	Median	49	65	32	59	53	40	36	2
	Min	46	60	31	56	49	38	34	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 8/14/2012

24hr Summary

L_{DN} = 53 dBA C_{NEL} = 54 dBA $L_{eq(24hr)}$ = 47 dBA

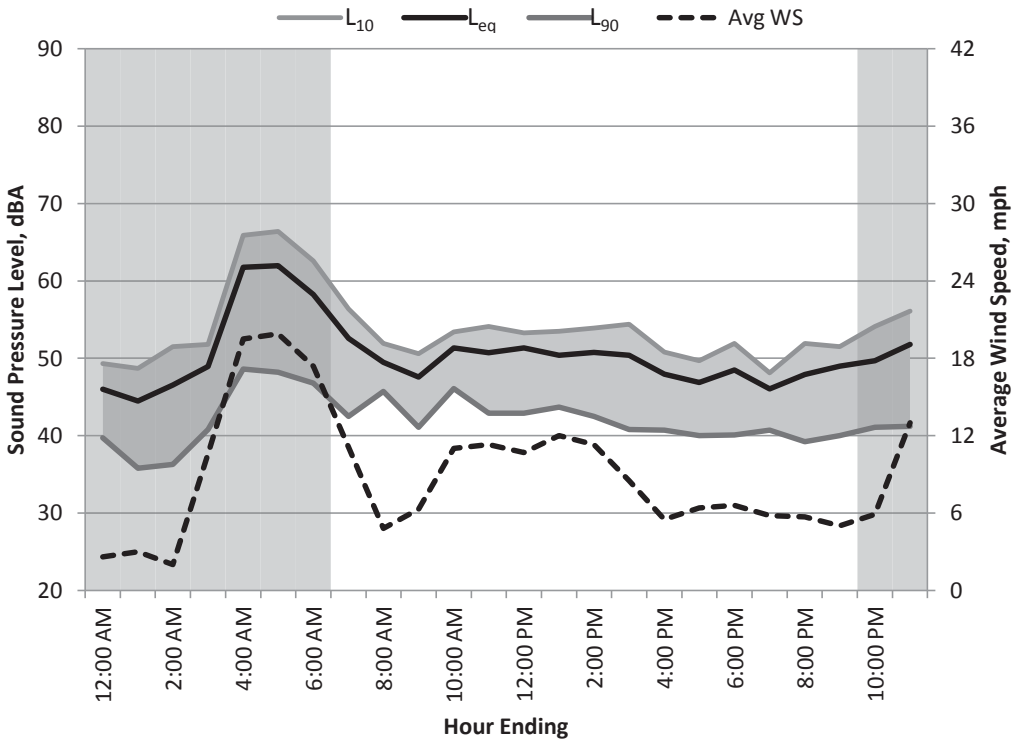


Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	49	65	31	59	53	44	35	1
1:00	Night	43	60	30	52	46	39	34	1
2:00	Night	39	53	31	48	42	38	34	2
3:00	Night	46	65	31	58	45	39	35	3
4:00	Night	45	63	30	56	49	39	34	6
5:00	Night	44	61	30	55	48	40	35	10
6:00	Night	44	59	32	54	49	40	35	7
7:00	Day	44	51	33	47	46	44	37	8
8:00	Day	45	59	32	53	48	42	34	8
9:00	Day	54	76	32	70	48	40	34	6
10:00	Day	45	60	32	54	48	44	37	4
11:00	Day	47	64	36	55	50	45	41	7
12:00	Day	48	62	37	59	50	44	40	6
13:00	Day	49	66	37	60	53	45	41	6
14:00	Day	46	64	37	54	50	44	40	8
15:00	Day	48	64	36	59	51	44	40	8
16:00	Day	46	63	33	55	50	44	39	8
17:00	Day	48	61	37	58	52	45	41	11
18:00	Day	49	63	35	60	52	43	40	10
19:00	Day	42	57	33	50	44	40	37	8
20:00	Day	44	60	31	52	46	41	38	4
21:00	Day	42	55	30	48	44	41	37	4
22:00	Night	51	64	37	61	56	45	41	2
23:00	Night	49	66	32	61	52	43	38	3
Overall	Max	54	76	37	70	56	45	41	11
	Median	46	62	32	55	49	43	37	6
	Min	39	51	30	47	42	38	34	1
Daytime	Max	54	76	37	70	53	45	41	11
7am-10pm	Median	46	62	33	55	50	44	39	8
	Min	42	51	30	47	44	40	34	4
Nighttime	Max	51	66	37	61	56	45	41	10
10pm-7am	Median	45	63	31	56	49	40	35	3
	Min	39	53	30	48	42	38	34	1

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 8/15/2012

24hr Summary

L_{DN} = 63 dBA C_{NEL} = 63 dBA $L_{eq(24hr)}$ = 54 dBA



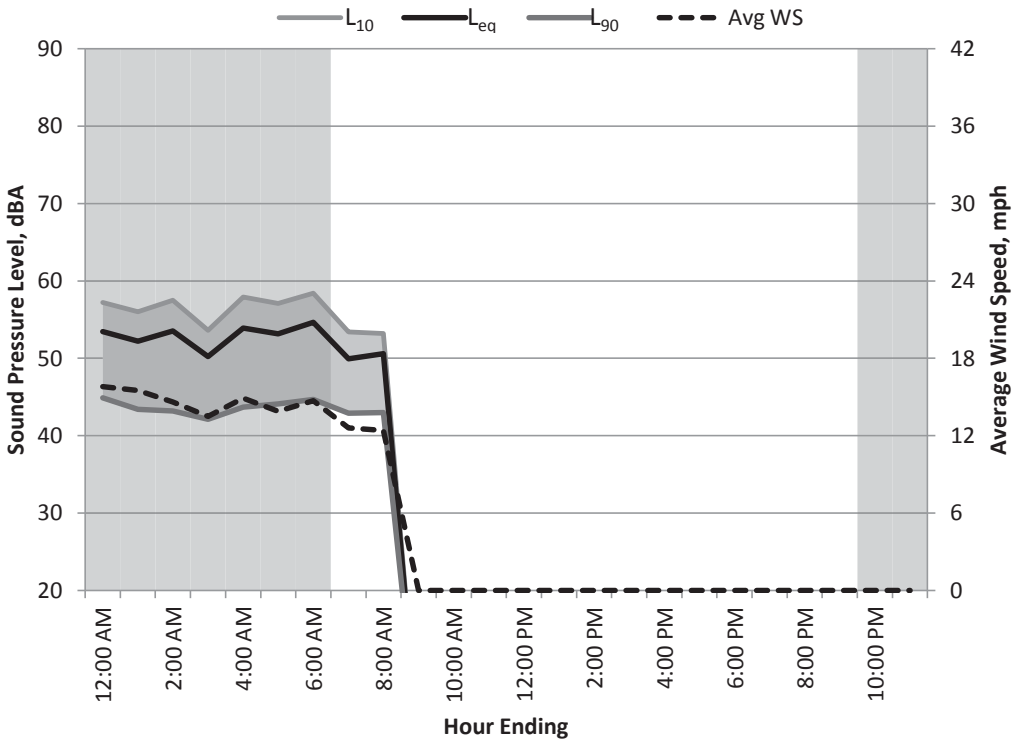
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	46	58	36	54	49	44	40	3
1:00	Night	44	56	32	52	49	42	36	3
2:00	Night	47	61	33	56	52	41	36	2
3:00	Night	49	63	36	59	52	45	41	11
4:00	Night	62	75	42	71	66	57	49	20
5:00	Night	62	74	41	71	66	58	48	20
6:00	Night	58	71	41	67	63	54	47	17
7:00	Day	53	68	37	63	56	47	43	11
8:00	Day	49	62	38	57	52	48	46	5
9:00	Day	48	64	36	55	51	46	41	6
10:00	Day	51	72	43	60	53	49	46	11
11:00	Day	51	67	39	61	54	48	43	11
12:00	Day	51	66	38	61	53	49	43	11
13:00	Day	50	64	38	60	54	48	44	12
14:00	Day	51	64	39	60	54	48	43	11
15:00	Day	50	63	37	59	54	48	41	9
16:00	Day	48	63	37	59	51	43	41	6
17:00	Day	47	63	37	56	50	43	40	6
18:00	Day	48	64	35	59	52	44	40	7
19:00	Day	46	57	37	55	48	44	41	6
20:00	Day	48	63	36	58	52	44	39	6
21:00	Day	49	67	35	60	52	44	40	5
22:00	Night	50	65	38	60	54	45	41	6
23:00	Night	52	66	36	62	56	46	41	13
Overall	Max	62	75	43	71	66	58	49	20
	Median	50	64	37	59	53	46	41	8
	Min	44	56	32	52	48	41	36	2
Daytime	Max	53	72	43	63	56	49	46	12
7am-10pm	Median	49	64	37	59	52	47	41	7
	Min	46	57	35	55	48	43	39	5
Nighttime	Max	62	75	42	71	66	58	49	20
10pm-7am	Median	50	65	36	60	54	45	41	11
	Min	44	56	32	52	49	41	36	2

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 8/16/2012

24hr Summary

L_{DN} = -- dBA C_{NEL} = -- dBA $L_{eq(24hr)}$ = -- dBA



Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	53	66	40	62	57	50	45	16
1:00	Night	52	65	37	60	56	49	43	16
2:00	Night	54	67	36	62	58	51	43	15
3:00	Night	50	65	37	59	54	47	42	14
4:00	Night	54	69	39	64	58	49	44	15
5:00	Night	53	67	40	63	57	49	44	14
6:00	Night	55	69	40	64	58	51	45	15
7:00	Day	50	63	39	58	53	47	43	13
8:00	Day	51	67	38	60	53	48	43	12
9:00	Day	--	--	--	--	--	--	--	--
10:00	Day	--	--	--	--	--	--	--	--
11:00	Day	--	--	--	--	--	--	--	--
12:00	Day	--	--	--	--	--	--	--	--
13:00	Day	--	--	--	--	--	--	--	--
14:00	Day	--	--	--	--	--	--	--	--
15:00	Day	--	--	--	--	--	--	--	--
16:00	Day	--	--	--	--	--	--	--	--
17:00	Day	--	--	--	--	--	--	--	--
18:00	Day	--	--	--	--	--	--	--	--
19:00	Day	--	--	--	--	--	--	--	--
20:00	Day	--	--	--	--	--	--	--	--
21:00	Day	--	--	--	--	--	--	--	--
22:00	Night	--	--	--	--	--	--	--	--
23:00	Night	--	--	--	--	--	--	--	--
Overall	Max	--	--	--	--	--	--	--	--
	Median	--	--	--	--	--	--	--	--
	Min	--	--	--	--	--	--	--	--
Daytime	Max	--	--	--	--	--	--	--	--
7am-10pm	Median	--	--	--	--	--	--	--	--
	Min	--	--	--	--	--	--	--	--
Nighttime	Max	--	--	--	--	--	--	--	--
10pm-7am	Median	--	--	--	--	--	--	--	--
	Min	--	--	--	--	--	--	--	--

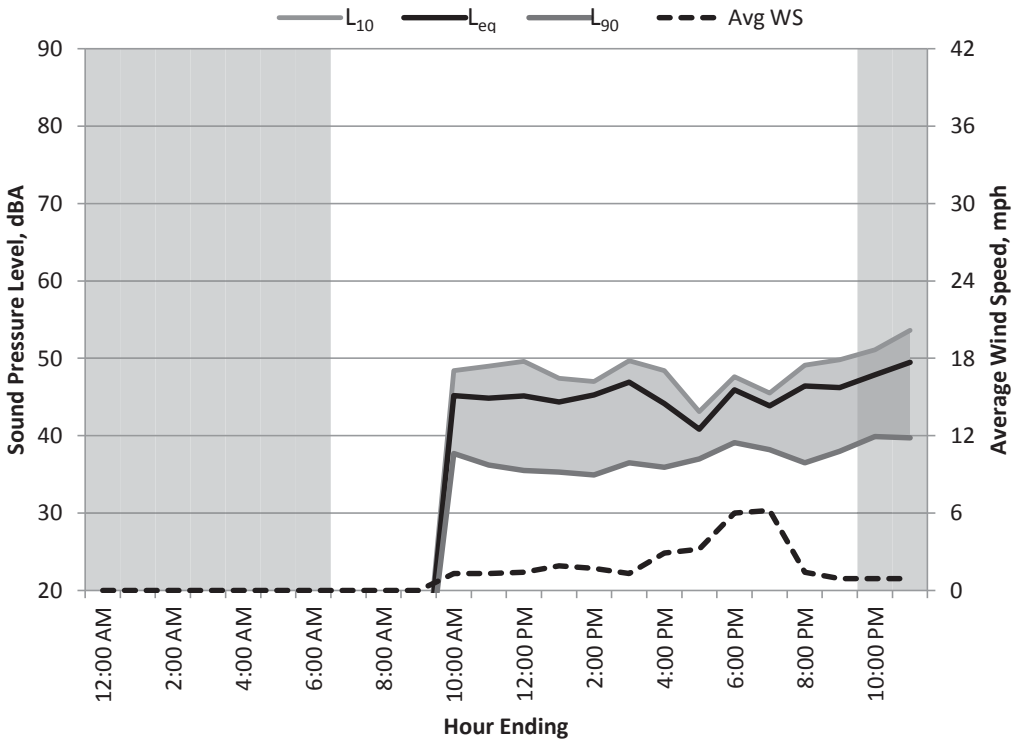
Appendix F
ST-2 December Measurements

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 12/5/2012

24hr Summary

L_{DN} = -- dBA C_{NEL} = -- dBA $L_{eq(24hr)}$ = -- dBA



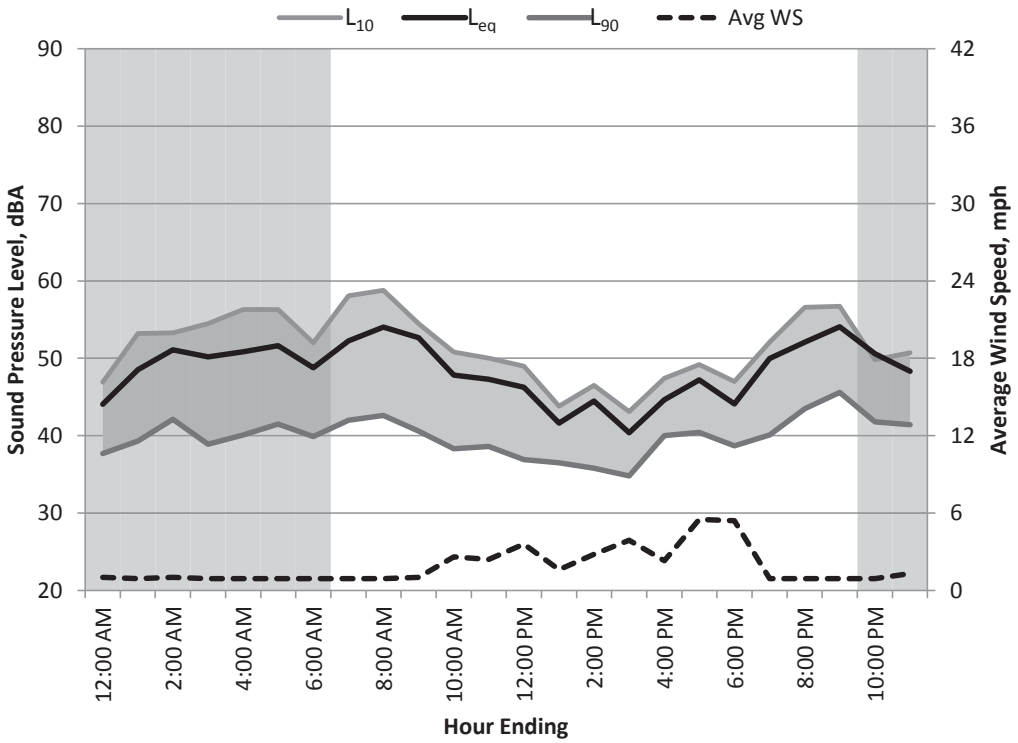
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	--	--	--	--	--	--	--	--
1:00	Night	--	--	--	--	--	--	--	--
2:00	Night	--	--	--	--	--	--	--	--
3:00	Night	--	--	--	--	--	--	--	--
4:00	Night	--	--	--	--	--	--	--	--
5:00	Night	--	--	--	--	--	--	--	--
6:00	Night	--	--	--	--	--	--	--	--
7:00	Day	--	--	--	--	--	--	--	--
8:00	Day	--	--	--	--	--	--	--	--
9:00	Day	--	--	--	--	--	--	--	--
10:00	Day	45	62	35	54	48	42	38	1
11:00	Day	45	63	34	55	49	39	36	1
12:00	Day	45	65	33	55	50	38	36	1
13:00	Day	44	63	33	55	47	38	35	2
14:00	Day	45	68	32	56	47	37	35	2
15:00	Day	47	64	34	58	50	40	37	1
16:00	Day	44	58	34	53	48	40	36	3
17:00	Day	41	52	34	47	43	40	37	3
18:00	Day	46	63	35	56	48	42	39	6
19:00	Day	44	60	34	54	46	42	38	6
20:00	Day	46	64	32	57	49	42	37	1
21:00	Day	46	57	32	55	50	44	38	1
22:00	Night	48	63	34	57	51	45	40	1
23:00	Night	49	63	33	58	54	46	40	1
Overall	Max	--	--	--	--	--	--	--	--
	Median	--	--	--	--	--	--	--	--
	Min	--	--	--	--	--	--	--	--
Daytime	Max	--	--	--	--	--	--	--	--
7am-10pm	Median	--	--	--	--	--	--	--	--
	Min	--	--	--	--	--	--	--	--
Nighttime	Max	--	--	--	--	--	--	--	--
10pm-7am	Median	--	--	--	--	--	--	--	--
	Min	--	--	--	--	--	--	--	--

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 12/6/2012

24hr Summary

L_{DN} = 56 dBA C_{NEL} = 57 dBA $L_{eq(24hr)}$ = 50 dBA

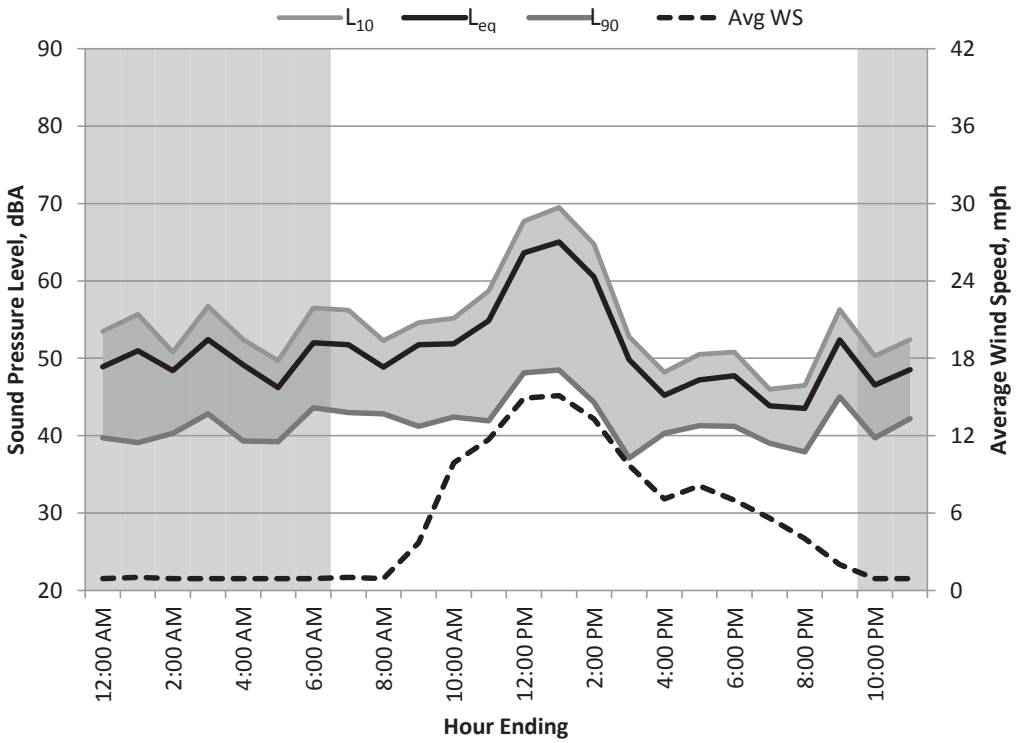


Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	44	57	33	51	47	43	38	1
1:00	Night	49	62	36	59	53	42	39	1
2:00	Night	51	68	38	64	53	45	42	1
3:00	Night	50	62	35	60	55	44	39	1
4:00	Night	51	64	38	60	56	43	40	1
5:00	Night	52	62	38	59	56	48	42	1
6:00	Night	49	62	36	58	52	45	40	1
7:00	Day	52	65	39	60	58	46	42	1
8:00	Day	54	65	40	63	59	47	43	1
9:00	Day	53	76	38	62	55	46	41	1
10:00	Day	48	67	34	59	51	43	38	3
11:00	Day	47	65	35	58	50	43	39	2
12:00	Day	46	70	32	55	49	41	37	4
13:00	Day	42	57	34	52	44	39	37	2
14:00	Day	44	64	32	55	47	40	36	3
15:00	Day	40	58	32	49	43	38	35	4
16:00	Day	45	54	37	50	47	44	40	2
17:00	Day	47	66	36	56	49	44	40	6
18:00	Day	44	57	35	52	47	42	39	5
19:00	Day	50	66	34	61	52	46	40	1
20:00	Day	52	65	40	62	57	48	44	1
21:00	Day	54	70	40	65	57	50	46	1
22:00	Night	51	67	37	65	50	45	42	1
23:00	Night	48	60	39	59	51	45	41	1
Overall	Max	54	76	40	65	59	50	46	6
	Median	49	65	36	59	51	44	40	1
	Min	40	54	32	49	43	38	35	1
Daytime	Max	54	76	40	65	59	50	46	6
7am-10pm	Median	47	65	35	58	50	44	40	2
	Min	40	54	32	49	43	38	35	1
Nighttime	Max	52	68	39	65	56	48	42	1
10pm-7am	Median	50	62	37	59	53	45	40	1
	Min	44	57	33	51	47	42	38	1

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 12/7/2012

24hr Summary

L_{DN} = 58 dBA C_{NEL} = 58 dBA $L_{eq(24hr)}$ = 56 dBA



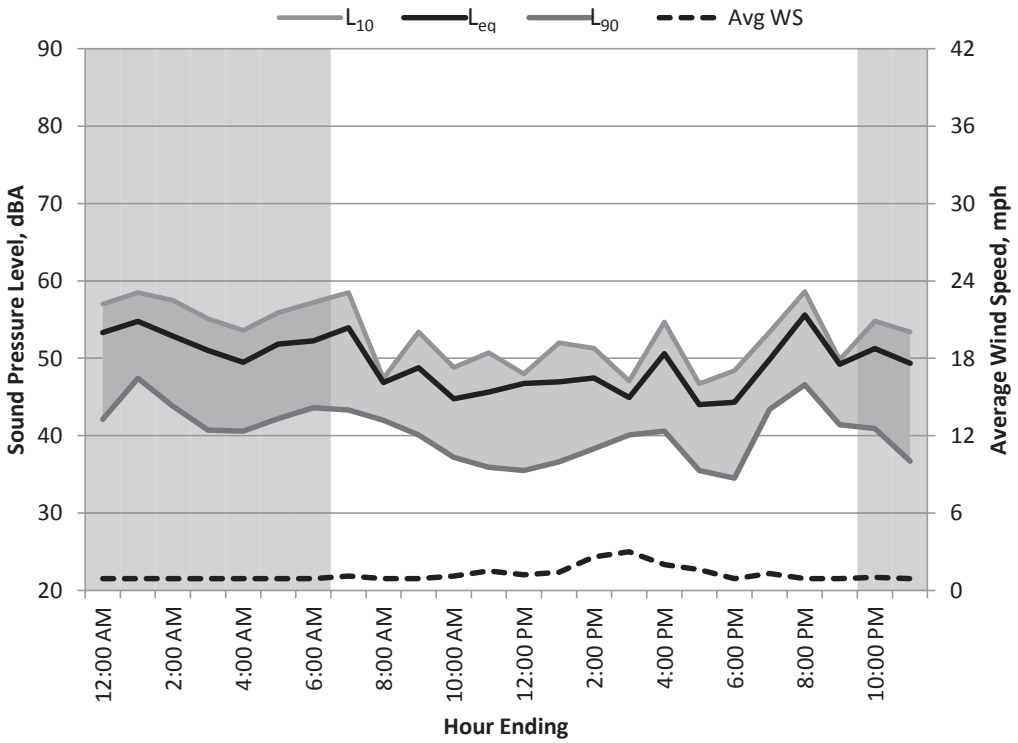
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	49	61	36	59	54	45	40	1
1:00	Night	51	65	36	61	56	43	39	1
2:00	Night	48	63	38	61	51	43	40	1
3:00	Night	52	64	39	62	57	48	43	1
4:00	Night	49	62	35	60	52	45	39	1
5:00	Night	46	58	36	56	50	43	39	1
6:00	Night	52	62	41	60	57	49	44	1
7:00	Day	52	65	39	62	56	47	43	1
8:00	Day	49	64	40	58	52	45	43	1
9:00	Day	52	73	36	61	55	48	41	4
10:00	Day	52	68	37	62	55	48	42	10
11:00	Day	55	71	34	65	59	50	42	12
12:00	Day	64	79	39	74	68	59	48	15
13:00	Day	65	79	41	75	70	59	49	15
14:00	Day	61	75	33	71	65	55	44	13
15:00	Day	50	69	33	61	53	43	37	10
16:00	Day	45	57	35	52	48	44	40	7
17:00	Day	47	60	38	55	51	45	41	8
18:00	Day	48	62	37	56	51	45	41	7
19:00	Day	44	58	33	51	46	43	39	6
20:00	Day	44	53	34	50	47	42	38	4
21:00	Day	52	66	34	61	56	49	45	2
22:00	Night	47	61	33	54	50	44	40	1
23:00	Night	49	59	39	57	52	46	42	1
Overall	Max	65	79	41	75	70	59	49	15
	Median	49	63	36	60	53	45	41	3
	Min	44	53	33	50	46	42	37	1
Daytime	Max	65	79	41	75	70	59	49	15
7am-10pm	Median	52	66	36	61	55	47	42	7
	Min	44	53	33	50	46	42	37	1
Nighttime	Max	52	65	41	62	57	49	44	1
10pm-7am	Median	49	62	36	60	52	45	40	1
	Min	46	58	33	54	50	43	39	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 12/8/2012

24hr Summary

L_{DN} = 58 dBA C_{NEL} = 59 dBA $L_{eq(24hr)}$ = 51 dBA



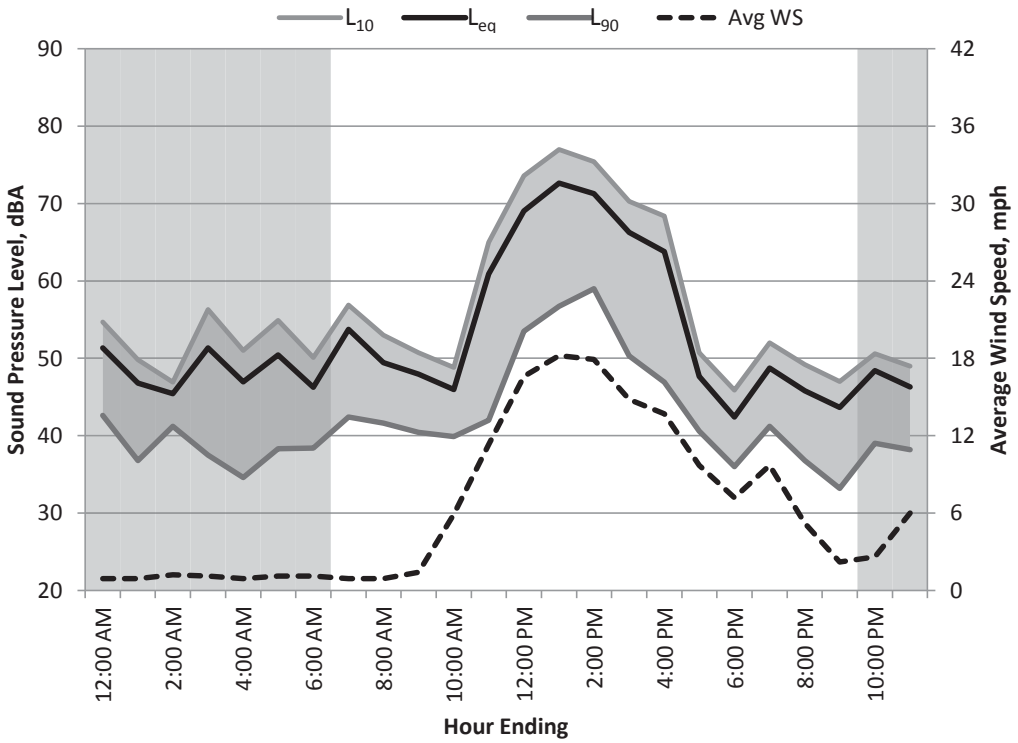
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	53	68	39	65	57	47	42	1
1:00	Night	55	69	43	64	59	52	47	1
2:00	Night	53	68	40	63	58	47	44	1
3:00	Night	51	62	36	60	55	47	41	1
4:00	Night	49	60	36	58	54	46	41	1
5:00	Night	52	67	40	62	56	47	42	1
6:00	Night	52	65	41	61	57	48	44	1
7:00	Day	54	66	40	64	59	47	43	1
8:00	Day	47	68	40	57	47	44	42	1
9:00	Day	49	63	37	58	53	44	40	1
10:00	Day	45	64	35	54	49	40	37	1
11:00	Day	46	62	34	55	51	38	36	2
12:00	Day	47	65	33	59	48	38	36	1
13:00	Day	47	63	35	57	52	40	37	1
14:00	Day	47	64	36	57	51	42	38	3
15:00	Day	45	59	37	54	47	43	40	3
16:00	Day	51	67	36	60	55	45	41	2
17:00	Day	44	62	32	53	47	41	36	2
18:00	Day	44	55	32	52	48	41	35	1
19:00	Day	50	61	38	56	53	48	43	1
20:00	Day	56	70	41	65	59	52	47	1
21:00	Day	49	65	40	60	50	45	41	1
22:00	Night	51	66	38	62	55	45	41	1
23:00	Night	49	63	32	59	53	45	37	1
Overall	Max	56	70	43	65	59	52	47	3
	Median	49	64	37	59	53	45	41	1
	Min	44	55	32	52	47	38	35	1
Daytime	Max	56	70	41	65	59	52	47	3
7am-10pm	Median	47	64	36	57	51	43	40	1
	Min	44	55	32	52	47	38	35	1
Nighttime	Max	55	69	43	65	59	52	47	1
10pm-7am	Median	52	66	39	62	56	47	42	1
	Min	49	60	32	58	53	45	37	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 12/9/2012

24hr Summary

L_{DN} = 64 dBA C_{NEL} = 64 dBA $L_{eq(24hr)}$ = 63 dBA



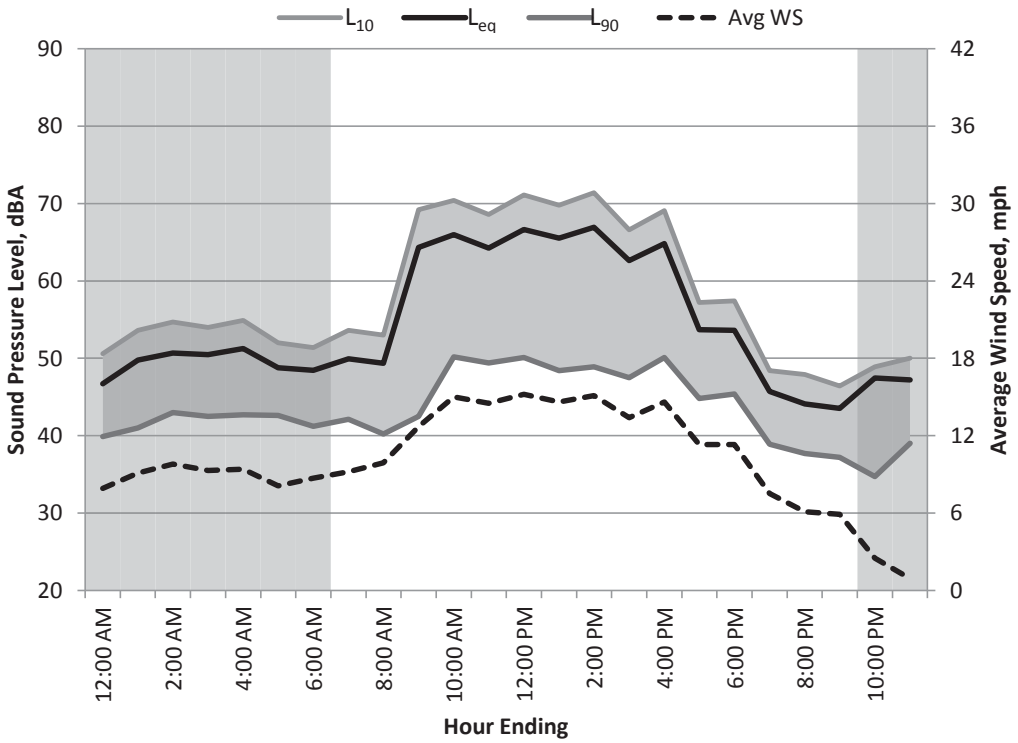
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	51	68	38	62	55	47	43	1
1:00	Night	47	63	34	58	50	41	37	1
2:00	Night	45	60	39	54	47	44	41	1
3:00	Night	51	65	35	62	56	44	38	1
4:00	Night	47	63	32	58	51	40	35	1
5:00	Night	50	63	36	61	55	43	38	1
6:00	Night	46	59	35	56	50	42	38	1
7:00	Day	54	75	38	64	57	49	42	1
8:00	Day	49	63	39	59	53	47	42	1
9:00	Day	48	64	38	57	51	45	40	1
10:00	Day	46	61	37	55	49	43	40	6
11:00	Day	61	77	34	73	65	50	42	11
12:00	Day	69	82	43	78	74	65	54	17
13:00	Day	73	84	43	81	77	69	57	18
14:00	Day	71	84	47	80	75	68	59	18
15:00	Day	66	81	41	77	70	60	50	15
16:00	Day	64	78	38	74	68	57	47	14
17:00	Day	48	64	37	57	51	45	41	10
18:00	Day	42	58	32	51	46	40	36	7
19:00	Day	49	63	36	58	52	46	41	10
20:00	Day	46	60	33	56	49	41	37	5
21:00	Day	44	60	31	56	47	36	33	2
22:00	Night	48	61	36	60	51	43	39	3
23:00	Night	46	66	34	58	49	42	38	6
Overall	Max	73	84	47	81	77	69	59	18
	Median	49	64	36	59	52	44	41	4
	Min	42	58	31	51	46	36	33	1
Daytime	Max	73	84	47	81	77	69	59	18
7am-10pm	Median	49	64	38	59	53	47	42	10
	Min	42	58	31	51	46	36	33	1
Nighttime	Max	51	68	39	62	56	47	43	6
10pm-7am	Median	47	63	35	58	51	43	38	1
	Min	45	59	32	54	47	40	35	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 12/10/2012

24hr Summary

L_{DN} = 62 dBA C_{NEL} = 62 dBA $L_{eq(24hr)}$ = 61 dBA



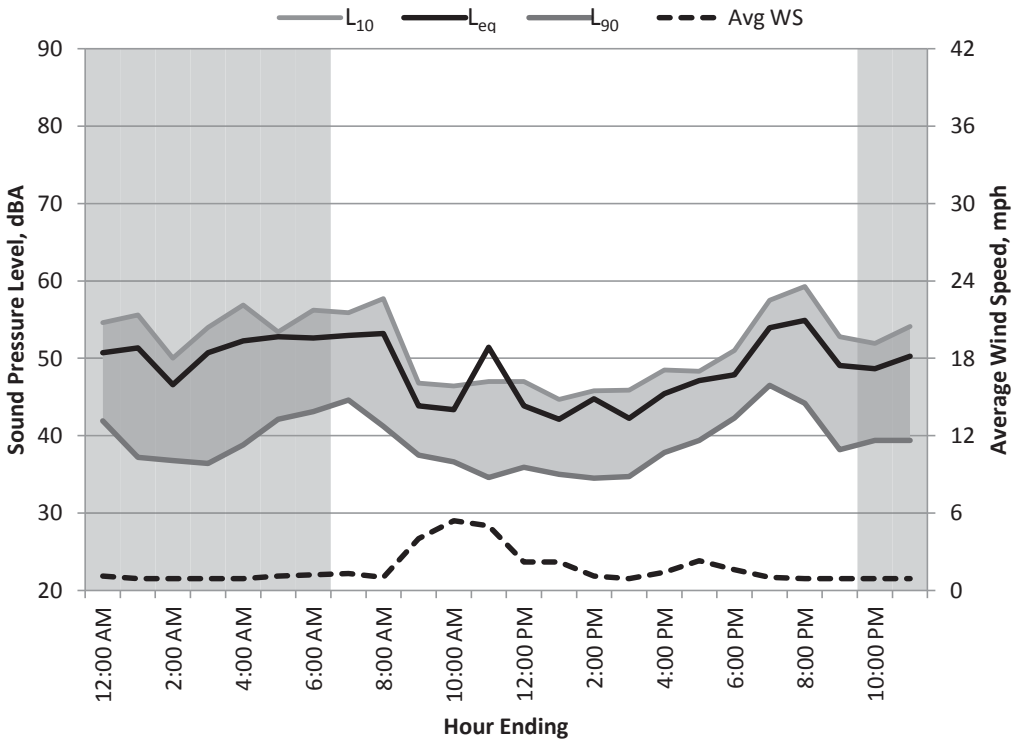
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	47	58	36	55	51	44	40	8
1:00	Night	50	64	36	59	54	46	41	9
2:00	Night	51	62	39	59	55	48	43	10
3:00	Night	50	63	37	59	54	48	43	9
4:00	Night	51	67	37	61	55	48	43	9
5:00	Night	49	63	38	56	52	47	43	8
6:00	Night	48	62	36	58	51	46	41	9
7:00	Day	50	64	36	59	54	46	42	9
8:00	Day	49	64	34	59	53	46	40	10
9:00	Day	64	79	34	75	69	55	43	13
10:00	Day	66	78	37	75	70	62	50	15
11:00	Day	64	76	39	73	69	60	49	15
12:00	Day	67	79	36	76	71	62	50	15
13:00	Day	66	81	38	75	70	60	48	15
14:00	Day	67	81	36	77	71	61	49	15
15:00	Day	63	77	39	74	67	56	48	13
16:00	Day	65	80	43	74	69	60	50	15
17:00	Day	54	70	39	63	57	51	45	11
18:00	Day	54	65	39	61	57	51	45	11
19:00	Day	46	62	34	55	48	43	39	8
20:00	Day	44	61	33	53	48	41	38	6
21:00	Day	44	60	33	52	46	41	37	6
22:00	Night	47	68	31	59	49	40	35	3
23:00	Night	47	63	31	56	50	45	39	1
Overall	Max	67	81	43	77	71	62	50	15
	Median	51	65	36	59	54	48	43	10
	Min	44	58	31	52	46	40	35	1
Daytime	Max	67	81	43	77	71	62	50	15
7am-10pm	Median	63	76	36	73	67	55	45	13
	Min	44	60	33	52	46	41	37	6
Nighttime	Max	51	68	39	61	55	48	43	10
10pm-7am	Median	49	63	36	59	52	46	41	9
	Min	47	58	31	55	49	40	35	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 12/11/2012

24hr Summary

L_{DN} = 57 dBA C_{NEL} = 58 dBA $L_{eq(24hr)}$ = 50 dBA



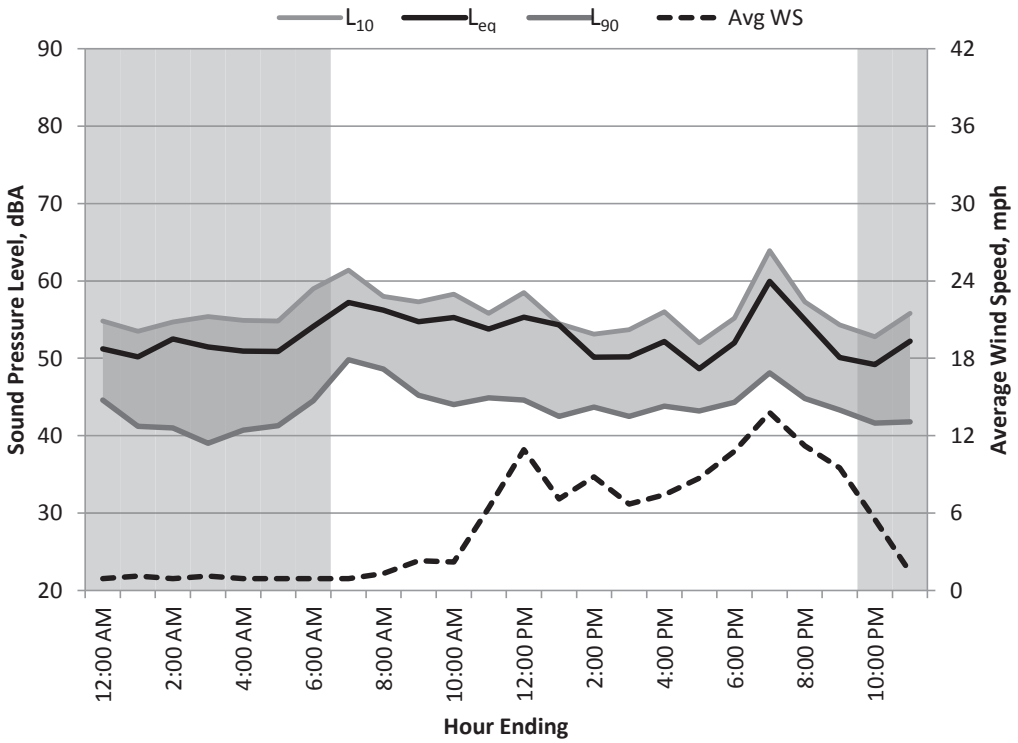
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	51	64	34	61	55	47	42	1
1:00	Night	51	65	31	63	56	45	37	1
2:00	Night	47	62	33	56	50	44	37	1
3:00	Night	51	64	32	61	54	45	36	1
4:00	Night	52	67	34	62	57	46	39	1
5:00	Night	53	75	36	65	53	48	42	1
6:00	Night	53	67	39	62	56	49	43	1
7:00	Day	53	71	39	63	56	49	45	1
8:00	Day	53	73	37	64	58	47	41	1
9:00	Day	44	61	35	53	47	41	38	4
10:00	Day	43	59	34	52	46	40	37	5
11:00	Day	51	77	32	64	47	39	35	5
12:00	Day	44	61	34	54	47	39	36	2
13:00	Day	42	63	33	51	45	37	35	2
14:00	Day	45	65	32	58	46	37	35	1
15:00	Day	42	58	33	53	46	37	35	1
16:00	Day	45	60	35	56	49	40	38	1
17:00	Day	47	63	36	58	48	43	39	2
18:00	Day	48	56	38	55	51	46	42	2
19:00	Day	54	66	43	64	58	51	47	1
20:00	Day	55	70	41	66	59	49	44	1
21:00	Day	49	65	34	58	53	45	38	1
22:00	Night	49	63	35	61	52	44	39	1
23:00	Night	50	63	36	61	54	46	39	1
Overall	Max	55	77	43	66	59	51	47	5
	Median	50	64	34	61	52	45	39	1
	Min	42	56	31	51	45	37	35	1
Daytime	Max	55	77	43	66	59	51	47	5
7am-10pm	Median	47	63	35	58	48	41	38	1
	Min	42	56	32	51	45	37	35	1
Nighttime	Max	53	75	39	65	57	49	43	1
10pm-7am	Median	51	64	34	61	54	46	39	1
	Min	47	62	31	56	50	44	36	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 12/12/2012

24hr Summary

L_{DN} = 59 dBA C_{NEL} = 59 dBA $L_{eq(24hr)}$ = 54 dBA



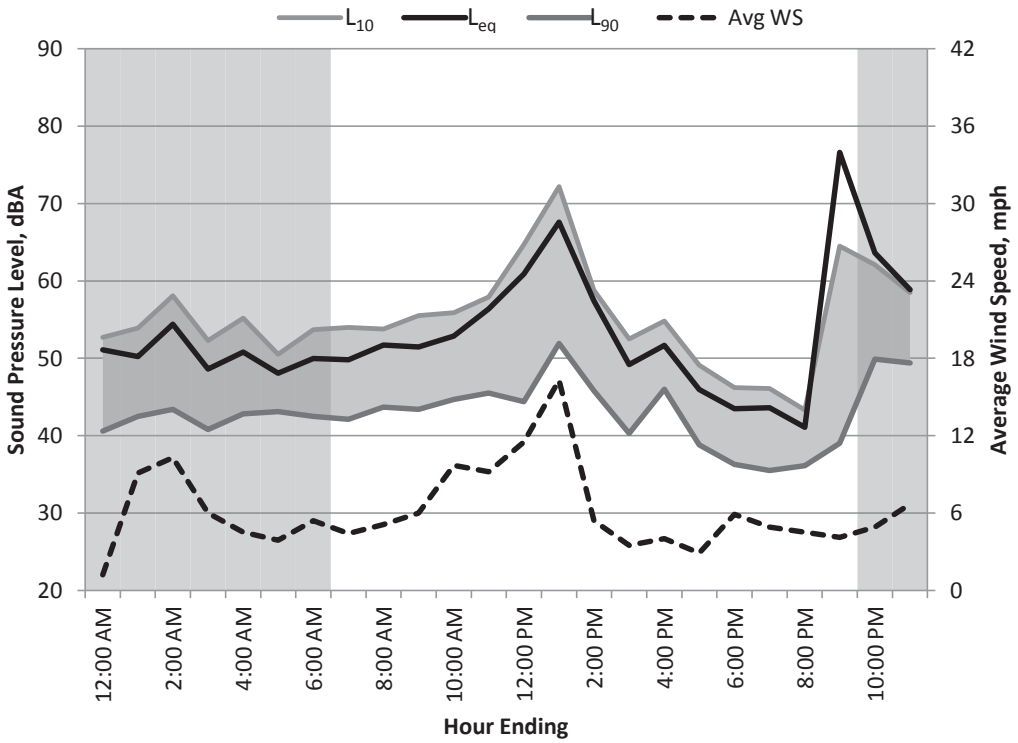
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	51	66	41	59	55	49	45	1
1:00	Night	50	60	34	58	54	48	41	1
2:00	Night	52	68	33	64	55	47	41	1
3:00	Night	51	68	34	61	55	45	39	1
4:00	Night	51	65	37	62	55	46	41	1
5:00	Night	51	63	37	61	55	46	41	1
6:00	Night	54	71	40	62	59	50	45	1
7:00	Day	57	67	44	65	61	54	50	1
8:00	Day	56	74	44	67	58	53	49	1
9:00	Day	55	73	41	66	57	50	45	2
10:00	Day	55	77	39	66	58	49	44	2
11:00	Day	54	75	41	64	56	49	45	6
12:00	Day	55	72	40	67	59	50	45	11
13:00	Day	54	81	39	63	55	47	43	7
14:00	Day	50	67	40	58	53	47	44	9
15:00	Day	50	66	39	60	54	46	43	7
16:00	Day	52	71	40	61	56	48	44	7
17:00	Day	49	62	38	56	52	46	43	9
18:00	Day	52	69	40	62	55	48	44	11
19:00	Day	60	75	43	71	64	55	48	14
20:00	Day	55	75	41	66	57	50	45	11
21:00	Day	50	64	39	60	54	46	43	10
22:00	Night	49	64	37	59	53	45	42	6
23:00	Night	52	67	35	64	56	46	42	1
Overall	Max	60	81	44	71	64	55	50	14
	Median	52	68	40	62	55	48	44	4
	Min	49	60	33	56	52	45	39	1
Daytime	Max	60	81	44	71	64	55	50	14
7am-10pm	Median	54	72	40	64	56	49	44	7
	Min	49	62	38	56	52	46	43	1
Nighttime	Max	54	71	41	64	59	50	45	6
10pm-7am	Median	51	66	37	61	55	46	41	1
	Min	49	60	33	58	53	45	39	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 12/13/2012

24hr Summary

L_{DN} = 66 dBA C_{NEL} = 69 dBA $L_{eq(24hr)}$ = 64 dBA



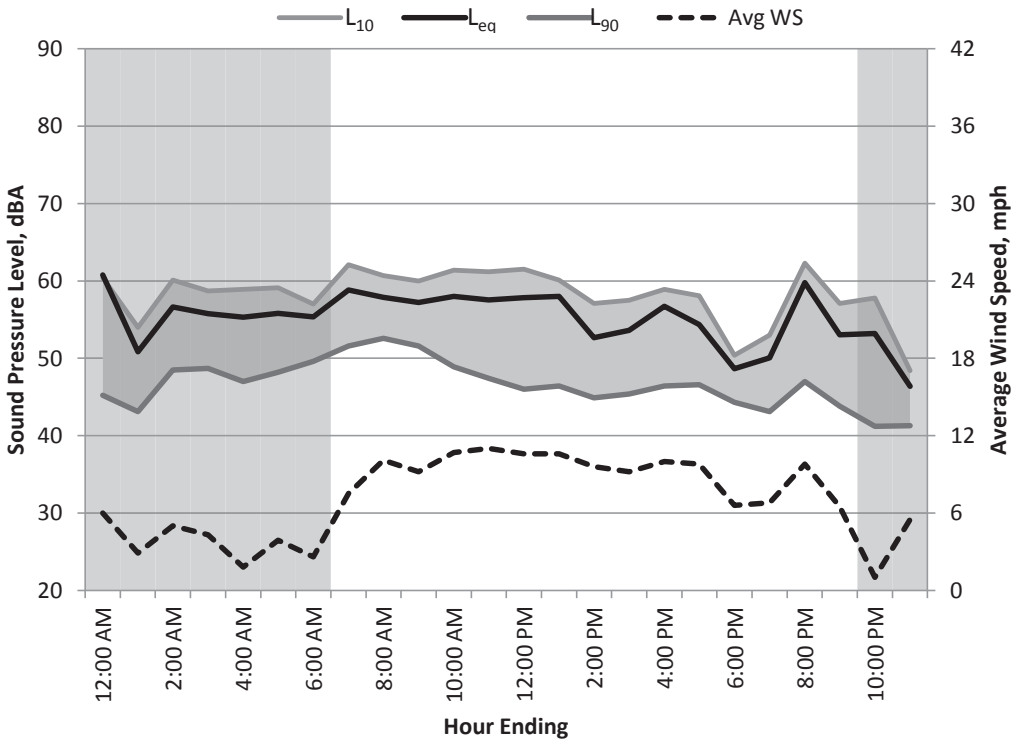
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	51	72	37	63	53	44	41	1
1:00	Night	50	65	38	59	54	47	43	9
2:00	Night	54	69	37	64	58	50	43	10
3:00	Night	49	65	37	59	52	44	41	6
4:00	Night	51	65	39	61	55	46	43	5
5:00	Night	48	59	39	57	51	46	43	4
6:00	Night	50	66	39	60	54	45	43	5
7:00	Day	50	65	39	60	54	45	42	4
8:00	Day	52	75	39	62	54	46	44	5
9:00	Day	51	66	41	61	56	47	43	6
10:00	Day	53	69	41	63	56	49	45	10
11:00	Day	56	75	41	69	58	50	46	9
12:00	Day	61	78	40	73	65	51	44	12
13:00	Day	68	81	44	78	72	61	52	16
14:00	Day	57	78	42	70	59	50	46	5
15:00	Day	49	66	37	60	53	45	40	4
16:00	Day	52	68	43	60	55	49	46	4
17:00	Day	46	56	35	53	49	45	39	3
18:00	Day	43	60	34	52	46	42	36	6
19:00	Day	44	61	32	53	46	39	36	5
20:00	Day	41	60	32	50	43	39	36	5
21:00	Day	77	101	37	91	65	55	39	4
22:00	Night	64	90	44	73	62	55	50	5
23:00	Night	59	89	44	65	59	54	49	7
Overall	Max	77	101	44	91	72	61	52	16
	Median	51	67	39	61	54	46	43	5
	Min	41	56	32	50	43	39	36	1
Daytime	Max	77	101	44	91	72	61	52	16
7am-10pm	Median	52	68	39	61	55	47	43	5
	Min	41	56	32	50	43	39	36	3
Nighttime	Max	64	90	44	73	62	55	50	10
10pm-7am	Median	51	66	39	61	54	46	43	5
	Min	48	59	37	57	51	44	41	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 12/14/2012

24hr Summary

L_{DN} = 62 dBA C_{NEL} = 63 dBA $L_{eq(24hr)}$ = 56 dBA



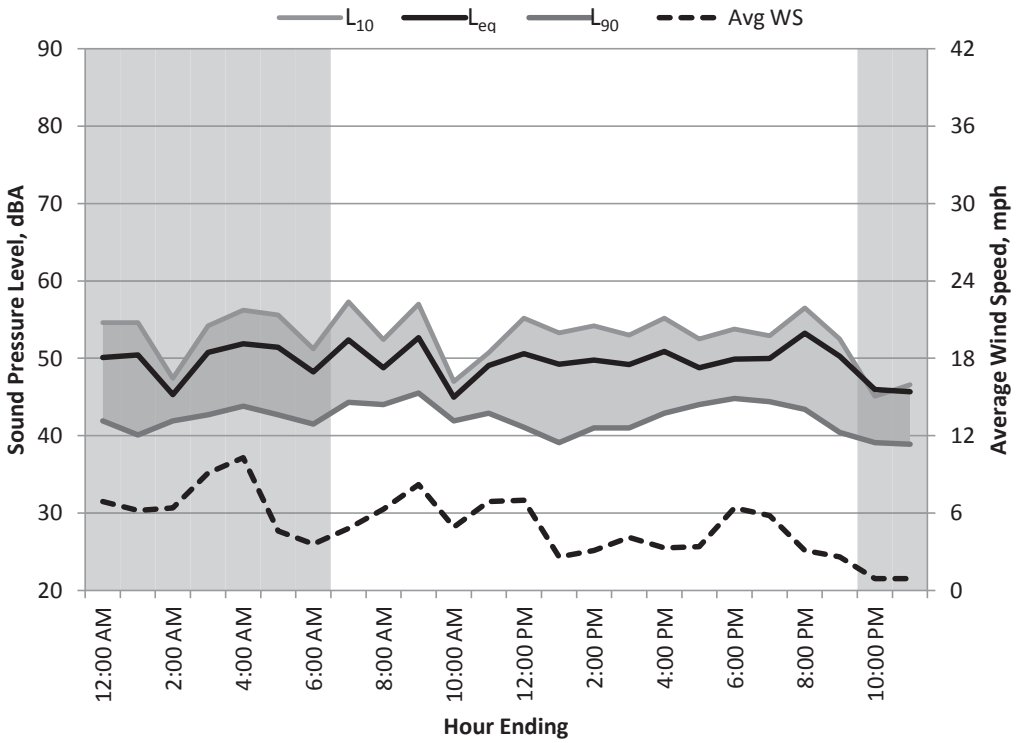
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	61	94	38	66	60	55	45	6
1:00	Night	51	67	38	60	54	48	43	3
2:00	Night	57	71	43	66	60	53	49	5
3:00	Night	56	72	43	64	59	54	49	4
4:00	Night	55	71	43	65	59	52	47	2
5:00	Night	56	71	44	64	59	54	48	4
6:00	Night	55	80	45	64	57	53	50	3
7:00	Day	59	72	47	67	62	56	52	8
8:00	Day	58	69	49	64	61	56	53	10
9:00	Day	57	73	48	64	60	56	52	9
10:00	Day	58	74	44	68	61	54	49	11
11:00	Day	58	74	42	68	61	53	47	11
12:00	Day	58	73	43	68	62	52	46	11
13:00	Day	58	81	43	69	60	51	46	11
14:00	Day	53	72	42	62	57	48	45	10
15:00	Day	54	74	42	64	58	48	45	9
16:00	Day	57	75	43	69	59	50	46	10
17:00	Day	54	69	44	63	58	51	47	10
18:00	Day	49	66	40	57	50	47	44	7
19:00	Day	50	67	38	60	53	46	43	7
20:00	Day	60	84	43	69	62	53	47	10
21:00	Day	53	66	41	62	57	49	44	7
22:00	Night	53	67	36	64	58	46	41	1
23:00	Night	46	62	38	55	48	44	41	6
Overall	Max	61	94	49	69	62	56	53	11
	Median	56	72	43	64	59	52	47	7
	Min	46	62	36	55	48	44	41	1
Daytime	Max	60	84	49	69	62	56	53	11
7am-10pm	Median	57	73	43	64	60	51	46	10
	Min	49	66	38	57	50	46	43	7
Nighttime	Max	61	94	45	66	60	55	50	6
10pm-7am	Median	55	71	43	64	59	53	47	4
	Min	46	62	36	55	48	44	41	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 12/15/2012

24hr Summary

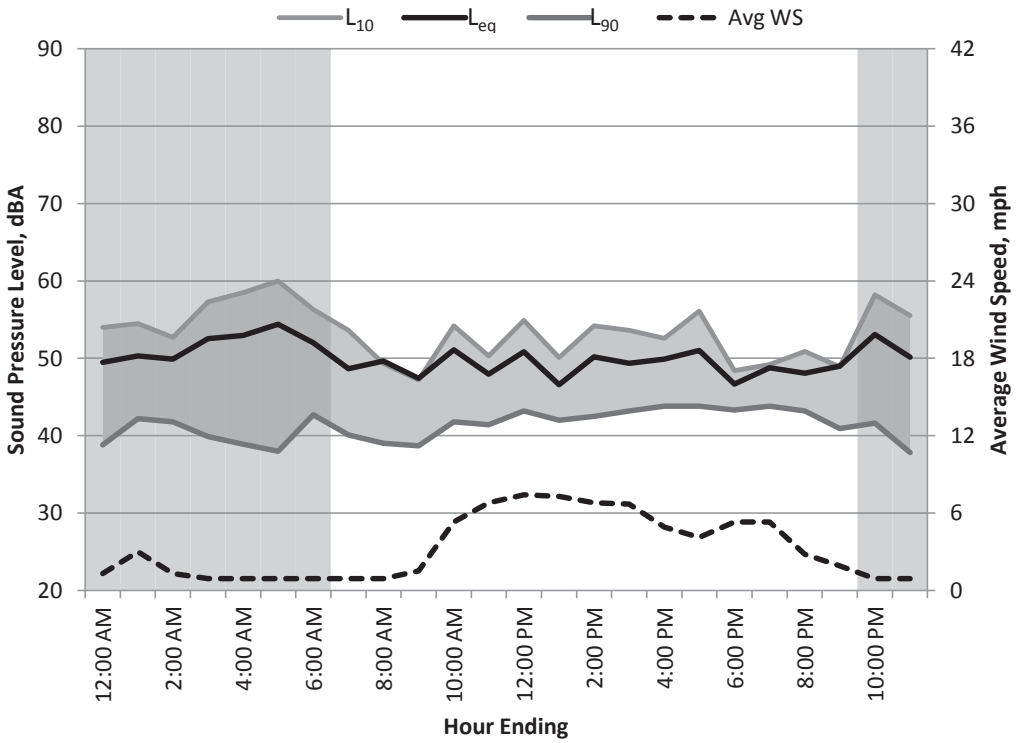
L_{DN} = 56 dBA C_{NEL} = 56 dBA $L_{eq(24hr)}$ = 50 dBA



Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	50	65	37	59	55	45	42	7
1:00	Night	50	65	37	60	55	45	40	6
2:00	Night	45	57	37	50	47	45	42	6
3:00	Night	51	71	39	61	54	46	43	9
4:00	Night	52	66	39	60	56	48	44	10
5:00	Night	51	66	39	61	56	47	43	5
6:00	Night	48	67	39	59	51	44	42	4
7:00	Day	52	63	41	60	57	48	44	5
8:00	Day	49	65	41	55	52	47	44	6
9:00	Day	53	66	42	62	57	49	46	8
10:00	Day	45	56	39	51	47	44	42	5
11:00	Day	49	67	40	60	51	45	43	7
12:00	Day	51	68	39	60	55	46	41	7
13:00	Day	49	65	36	57	53	44	39	3
14:00	Day	50	69	38	59	54	44	41	3
15:00	Day	49	66	38	59	53	44	41	4
16:00	Day	51	65	39	59	55	47	43	3
17:00	Day	49	63	40	55	53	47	44	3
18:00	Day	50	60	40	57	54	48	45	6
19:00	Day	50	61	41	60	53	47	44	6
20:00	Day	53	69	38	64	57	48	43	3
21:00	Day	50	66	37	63	53	43	40	3
22:00	Night	46	63	36	59	45	41	39	1
23:00	Night	46	60	37	58	47	41	39	1
Overall	Max	53	71	42	64	57	49	46	10
	Median	50	65	39	59	54	46	42	5
	Min	45	56	36	50	45	41	39	1
Daytime	Max	53	69	42	64	57	49	46	8
7am-10pm	Median	50	65	39	59	53	47	43	5
	Min	45	56	36	51	47	43	39	3
Nighttime	Max	52	71	39	61	56	48	44	10
10pm-7am	Median	50	65	37	59	54	45	42	6
	Min	45	57	36	50	45	41	39	1

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 12/16/2012

24hr Summary		
L_{DN} = 58 dBA	C_{NEL} = 58 dBA	$L_{eq(24hr)}$ = 50 dBA

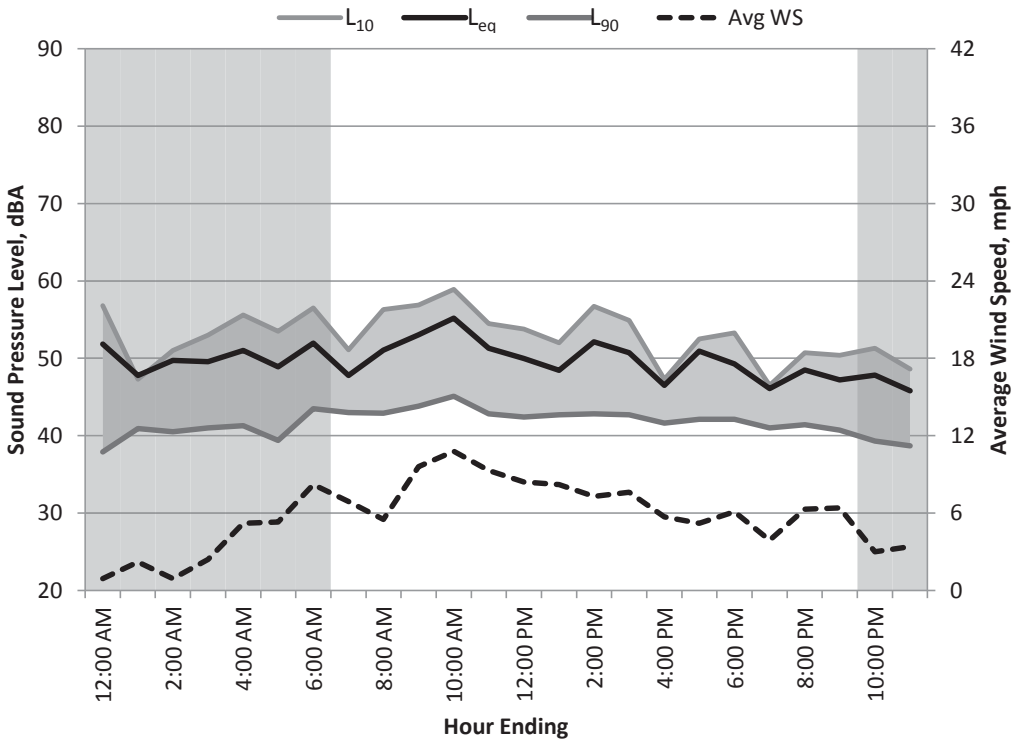


Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	49	64	36	59	54	45	39	1
1:00	Night	50	63	38	61	55	45	42	3
2:00	Night	50	65	38	61	53	45	42	1
3:00	Night	53	68	36	63	57	44	40	1
4:00	Night	53	63	34	61	59	44	39	1
5:00	Night	54	66	36	64	60	44	38	1
6:00	Night	52	67	38	62	56	47	43	1
7:00	Day	49	63	36	58	54	44	40	1
8:00	Day	50	72	37	62	49	40	39	1
9:00	Day	47	67	37	60	47	40	39	2
10:00	Day	51	74	38	60	54	45	42	5
11:00	Day	48	64	38	58	50	44	41	7
12:00	Day	51	65	40	60	55	47	43	7
13:00	Day	47	59	39	54	50	44	42	7
14:00	Day	50	64	39	59	54	46	43	7
15:00	Day	49	63	40	58	54	46	43	7
16:00	Day	50	67	41	60	53	46	44	5
17:00	Day	51	65	41	60	56	46	44	4
18:00	Day	47	56	41	54	48	46	43	5
19:00	Day	49	65	41	59	49	46	44	5
20:00	Day	48	61	40	56	51	46	43	3
21:00	Day	49	64	37	61	49	44	41	2
22:00	Night	53	67	39	63	58	45	42	1
23:00	Night	50	61	34	59	56	46	38	1
Overall	Max	54	74	41	64	60	47	44	7
	Median	50	65	38	60	54	45	42	2
	Min	47	56	34	54	47	40	38	1
Daytime	Max	51	74	41	62	56	47	44	7
7am-10pm	Median	49	64	39	59	51	46	43	5
	Min	47	56	36	54	47	40	39	1
Nighttime	Max	54	68	39	64	60	47	43	3
10pm-7am	Median	52	65	36	61	56	45	40	1
	Min	49	61	34	59	53	44	38	1

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 12/17/2012

24hr Summary

L_{DN} = 56 dBA C_{NEL} = 56 dBA $L_{eq(24hr)}$ = 50 dBA



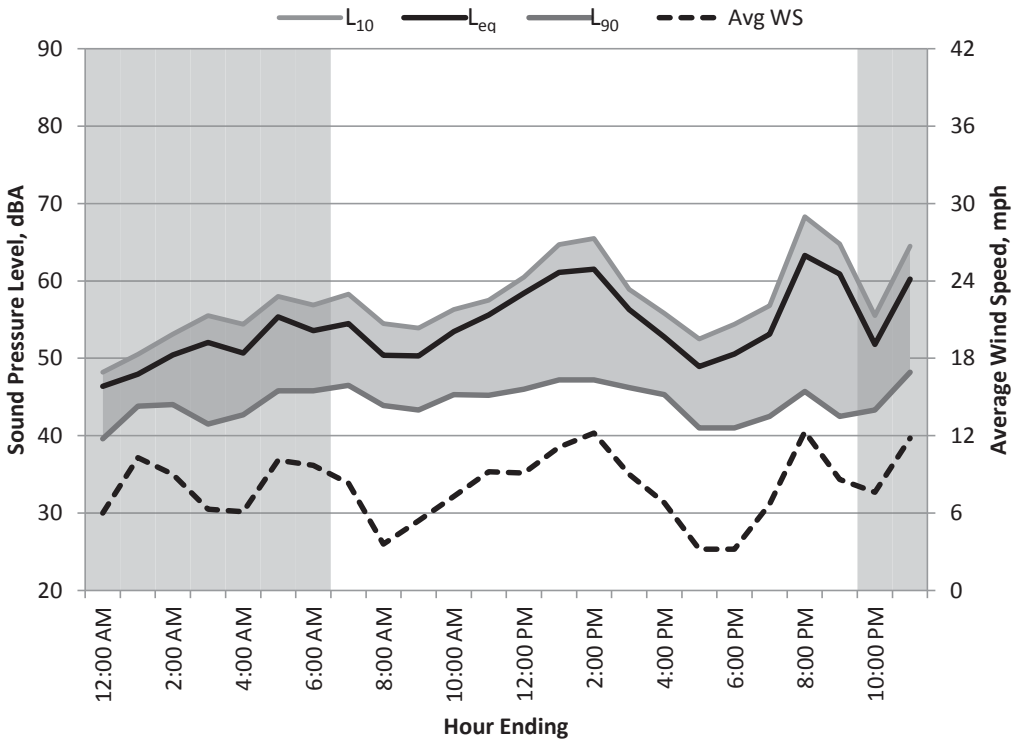
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	52	65	36	61	57	45	38	1
1:00	Night	48	69	38	60	47	43	41	2
2:00	Night	50	67	36	61	51	44	41	1
3:00	Night	50	68	38	60	53	44	41	2
4:00	Night	51	70	38	61	56	44	41	5
5:00	Night	49	64	37	59	54	43	39	5
6:00	Night	52	65	40	61	57	46	44	8
7:00	Day	48	65	41	55	51	46	43	7
8:00	Day	51	65	41	60	56	46	43	6
9:00	Day	53	70	40	63	57	48	44	10
10:00	Day	55	70	41	65	59	50	45	11
11:00	Day	51	70	39	63	55	46	43	9
12:00	Day	50	66	39	59	54	46	42	8
13:00	Day	48	62	40	58	52	45	43	8
14:00	Day	52	69	40	62	57	47	43	7
15:00	Day	51	65	38	61	55	46	43	8
16:00	Day	46	62	39	56	47	44	42	6
17:00	Day	51	74	39	62	53	45	42	5
18:00	Day	49	67	38	58	53	45	42	6
19:00	Day	46	65	39	58	47	43	41	4
20:00	Day	49	65	39	59	51	44	41	6
21:00	Day	47	66	37	57	50	43	41	6
22:00	Night	48	64	37	59	51	43	39	3
23:00	Night	46	62	36	57	49	41	39	3
Overall	Max	55	74	41	65	59	50	45	11
	Median	50	66	39	60	53	45	42	6
	Min	46	62	36	55	47	41	38	1
Daytime	Max	55	74	41	65	59	50	45	11
7am-10pm	Median	50	66	39	59	53	46	43	7
	Min	46	62	37	55	47	43	41	4
Nighttime	Max	52	70	40	61	57	46	44	8
10pm-7am	Median	50	65	37	60	53	44	41	3
	Min	46	62	36	57	47	41	38	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 12/18/2012

24hr Summary

L_{DN} = 61 dBA C_{NEL} = 62 dBA $L_{eq(24hr)}$ = 57 dBA



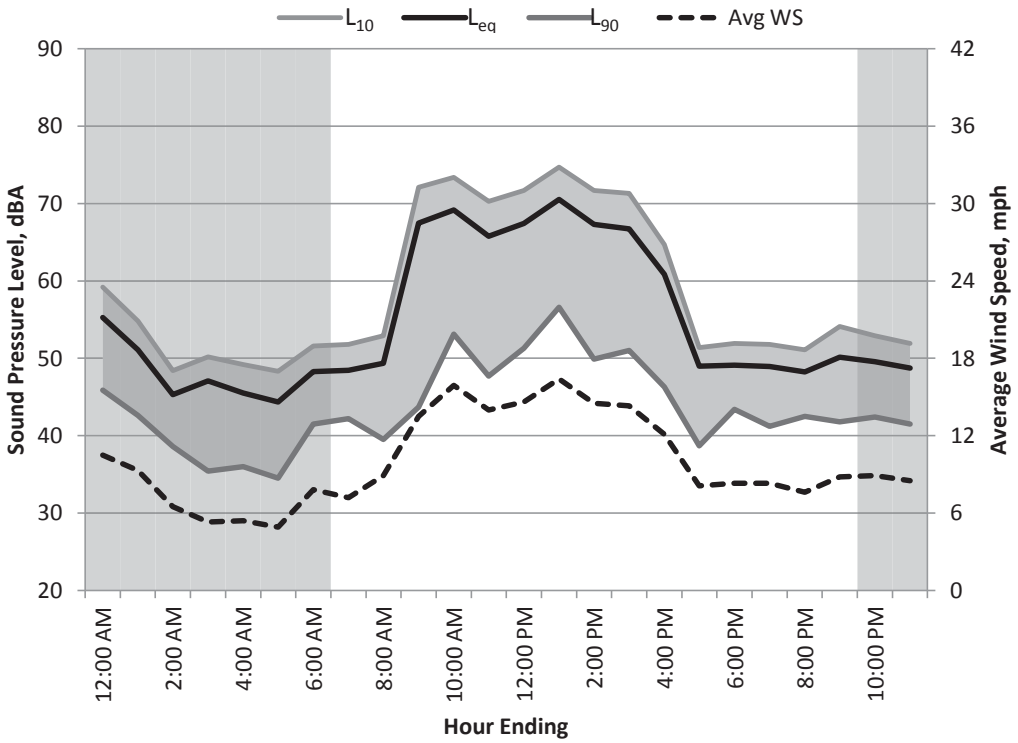
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	46	62	35	56	48	43	40	6
1:00	Night	48	60	40	55	51	47	44	10
2:00	Night	50	66	40	61	53	47	44	9
3:00	Night	52	69	36	63	56	47	42	6
4:00	Night	51	64	39	61	54	46	43	6
5:00	Night	55	75	42	66	58	50	46	10
6:00	Night	54	74	42	63	57	49	46	10
7:00	Day	54	70	43	63	58	51	47	8
8:00	Day	50	66	41	59	55	47	44	4
9:00	Day	50	64	40	61	54	47	43	5
10:00	Day	53	78	42	63	56	48	45	7
11:00	Day	56	77	42	67	58	49	45	9
12:00	Day	58	77	43	71	61	51	46	9
13:00	Day	61	79	42	72	65	55	47	11
14:00	Day	61	76	43	73	66	54	47	12
15:00	Day	56	74	43	68	59	50	46	9
16:00	Day	53	67	42	61	56	50	45	7
17:00	Day	49	67	38	58	53	44	41	3
18:00	Day	51	65	38	61	54	46	41	3
19:00	Day	53	69	35	65	57	48	43	7
20:00	Day	63	77	39	74	68	54	46	12
21:00	Day	61	77	37	73	65	52	43	9
22:00	Night	52	68	39	61	56	48	43	8
23:00	Night	60	75	41	69	65	56	48	12
Overall	Max	63	79	43	74	68	56	48	12
	Median	53	70	41	63	57	49	45	8
	Min	46	60	35	55	48	43	40	3
Daytime	Max	63	79	43	74	68	55	47	12
7am-10pm	Median	54	74	42	65	58	50	45	8
	Min	49	64	35	58	53	44	41	3
Nighttime	Max	60	75	42	69	65	56	48	12
10pm-7am	Median	52	68	40	61	56	47	44	9
	Min	46	60	35	55	48	43	40	6

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 12/19/2012

24hr Summary

L_{DN} = 64 dBA C_{NEL} = 64 dBA $L_{eq(24hr)}$ = 63 dBA

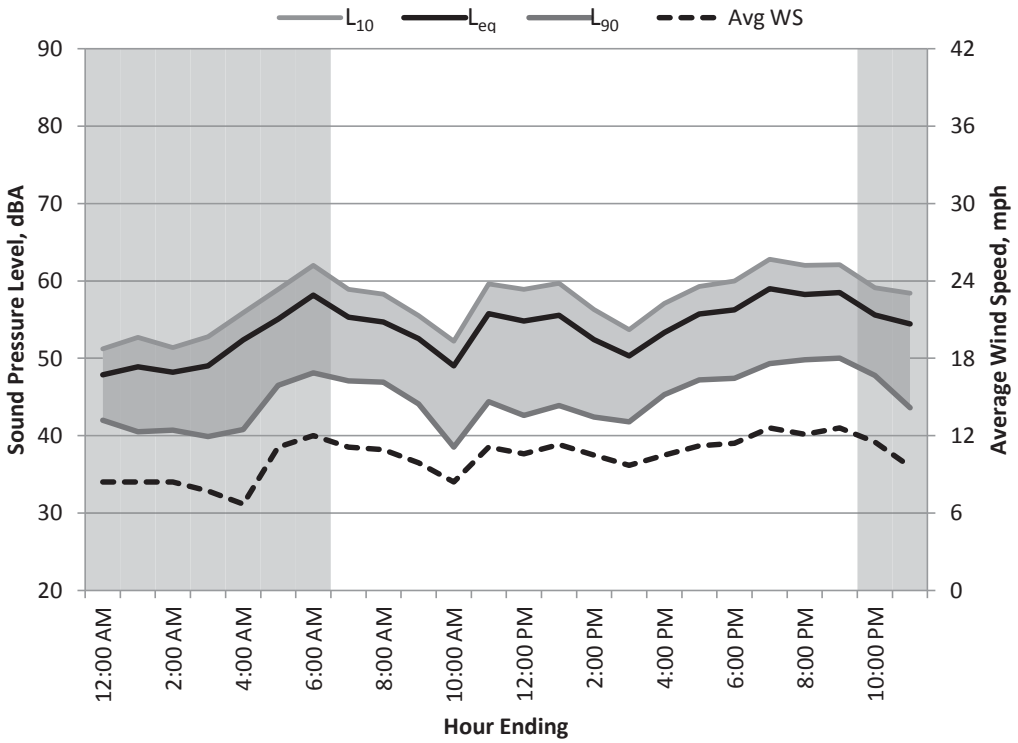


Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	55	68	38	64	59	52	46	11
1:00	Night	51	68	36	59	55	48	43	9
2:00	Night	45	60	34	54	48	43	39	7
3:00	Night	47	66	32	58	50	41	35	5
4:00	Night	46	59	30	54	49	42	36	5
5:00	Night	44	55	31	53	48	41	35	5
6:00	Night	48	60	37	56	52	46	42	8
7:00	Day	48	62	39	57	52	46	42	7
8:00	Day	49	65	35	59	53	46	40	9
9:00	Day	67	84	36	78	72	57	44	14
10:00	Day	69	81	39	78	73	66	53	16
11:00	Day	66	79	36	75	70	61	48	14
12:00	Day	67	80	40	77	72	63	51	15
13:00	Day	71	83	40	79	75	68	57	16
14:00	Day	67	81	36	77	72	62	50	15
15:00	Day	67	80	36	76	71	62	51	14
16:00	Day	61	77	37	71	65	56	46	12
17:00	Day	49	67	35	60	51	44	39	8
18:00	Day	49	63	40	57	52	47	43	8
19:00	Day	49	66	36	59	52	45	41	8
20:00	Day	48	61	37	56	51	47	43	8
21:00	Day	50	65	36	59	54	47	42	9
22:00	Night	50	62	36	58	53	47	42	9
23:00	Night	49	62	37	58	52	46	42	9
Overall	Max	71	84	40	79	75	68	57	16
	Median	49	66	36	59	53	47	42	9
	Min	44	55	30	53	48	41	35	5
Daytime	Max	71	84	40	79	75	68	57	16
7am-10pm	Median	61	77	36	71	65	56	44	12
	Min	48	61	35	56	51	44	39	7
Nighttime	Max	55	68	38	64	59	52	46	11
10pm-7am	Median	48	62	36	58	52	46	42	8
	Min	44	55	30	53	48	41	35	5

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 12/20/2012

24hr Summary

L_{DN} = 60 dBA C_{NEL} = 61 dBA $L_{eq(24hr)}$ = 55 dBA



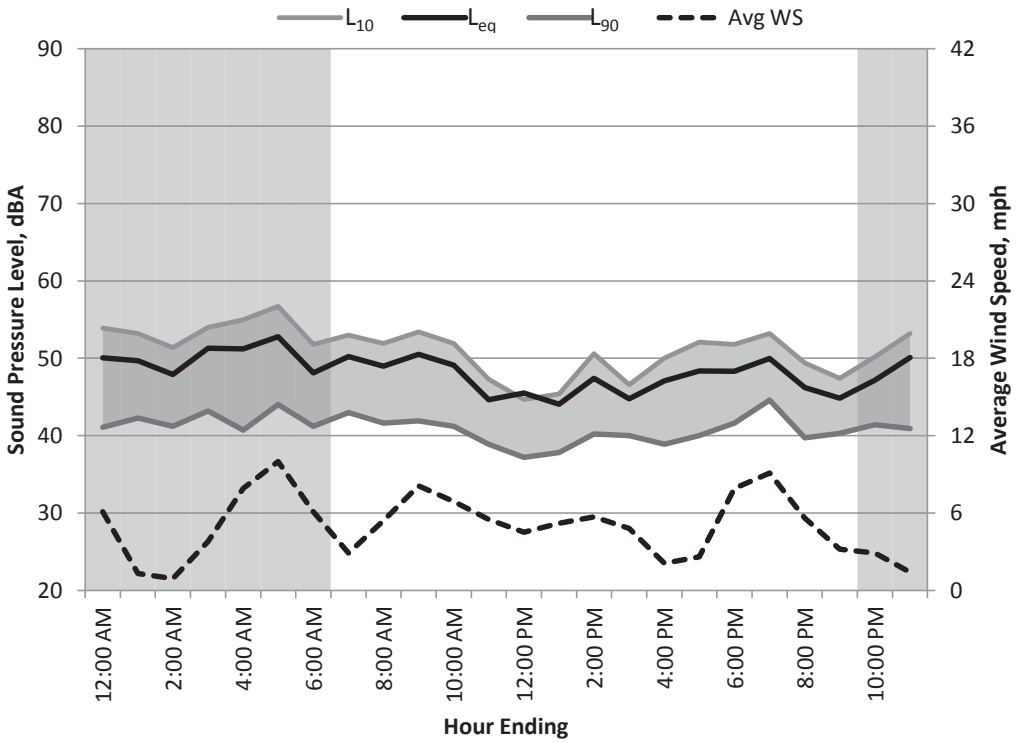
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	48	60	37	55	51	46	42	8
1:00	Night	49	64	36	58	53	45	41	8
2:00	Night	48	62	37	57	51	45	41	8
3:00	Night	49	62	32	57	53	46	40	8
4:00	Night	52	69	33	63	56	47	41	7
5:00	Night	55	67	40	63	59	53	47	11
6:00	Night	58	71	41	67	62	55	48	12
7:00	Day	55	68	40	63	59	53	47	11
8:00	Day	55	67	42	62	58	53	47	11
9:00	Day	53	68	39	61	56	50	44	10
10:00	Day	49	67	34	59	52	45	39	8
11:00	Day	56	71	36	66	60	51	44	11
12:00	Day	55	72	35	64	59	50	43	11
13:00	Day	56	71	36	64	60	52	44	11
14:00	Day	52	64	35	61	56	49	42	11
15:00	Day	50	65	38	60	54	47	42	10
16:00	Day	53	66	38	61	57	51	45	11
17:00	Day	56	68	42	65	59	53	47	11
18:00	Day	56	70	41	65	60	53	47	11
19:00	Day	59	73	42	68	63	56	49	13
20:00	Day	58	72	44	66	62	55	50	12
21:00	Day	58	72	44	66	62	56	50	13
22:00	Night	56	68	41	63	59	54	48	12
23:00	Night	54	69	39	64	58	50	44	10
Overall	Max	59	73	44	68	63	56	50	13
	Median	55	68	38	63	59	51	44	11
	Min	48	60	32	55	51	45	39	7
Daytime	Max	59	73	44	68	63	56	50	13
7am-10pm	Median	55	68	39	64	59	52	45	11
	Min	49	64	34	59	52	45	39	8
Nighttime	Max	58	71	41	67	62	55	48	12
10pm-7am	Median	52	67	37	63	56	47	42	8
	Min	48	60	32	55	51	45	40	7

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 12/21/2012

24hr Summary

L_{DN} = 56 dBA C_{NEL} = 56 dBA $L_{eq(24hr)}$ = 49 dBA



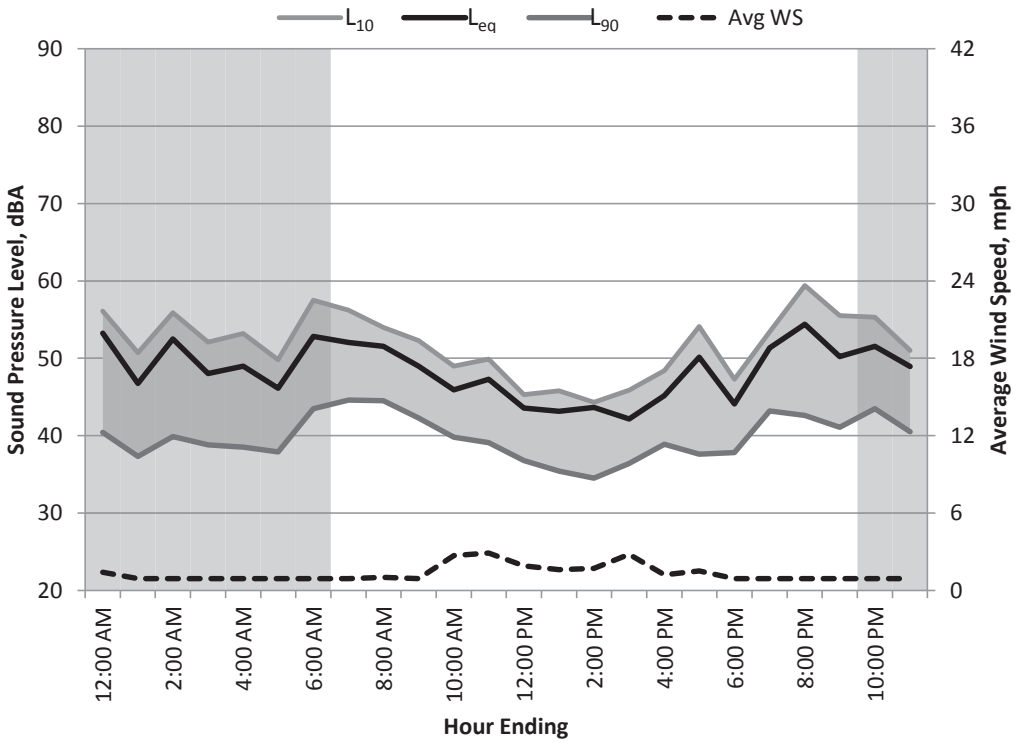
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	50	63	38	60	54	46	41	6
1:00	Night	50	61	38	58	53	47	42	1
2:00	Night	48	60	36	56	51	46	41	1
3:00	Night	51	67	38	61	54	48	43	4
4:00	Night	51	68	36	61	55	47	41	8
5:00	Night	53	65	38	60	57	50	44	10
6:00	Night	48	62	37	57	52	45	41	6
7:00	Day	50	65	39	60	53	47	43	3
8:00	Day	49	64	37	58	52	46	42	5
9:00	Day	50	70	38	62	53	46	42	8
10:00	Day	49	67	37	59	52	46	41	7
11:00	Day	45	62	36	54	47	42	39	6
12:00	Day	46	68	34	55	45	40	37	5
13:00	Day	44	68	34	52	45	41	38	5
14:00	Day	47	64	36	56	51	45	40	6
15:00	Day	45	60	37	53	47	43	40	5
16:00	Day	47	64	35	57	50	43	39	2
17:00	Day	48	65	36	58	52	44	40	3
18:00	Day	48	62	35	57	52	46	42	8
19:00	Day	50	61	40	57	53	48	45	9
20:00	Day	46	59	35	55	49	44	40	6
21:00	Day	45	54	35	51	47	44	40	3
22:00	Night	47	58	33	53	50	46	41	3
23:00	Night	50	63	34	59	53	48	41	1
Overall	Max	53	70	40	62	57	50	45	10
	Median	48	63	36	57	52	46	41	5
	Min	44	54	33	51	45	40	37	1
Daytime	Max	50	70	40	62	53	48	45	9
7am-10pm	Median	47	64	36	57	51	44	40	5
	Min	44	54	34	51	45	40	37	2
Nighttime	Max	53	68	38	61	57	50	44	10
10pm-7am	Median	50	63	37	59	53	47	41	4
	Min	47	58	33	53	50	45	41	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 12/22/2012

24hr Summary

L_{DN} = 57 dBA C_{NEL} = 57 dBA $L_{eq(24hr)}$ = 50 dBA



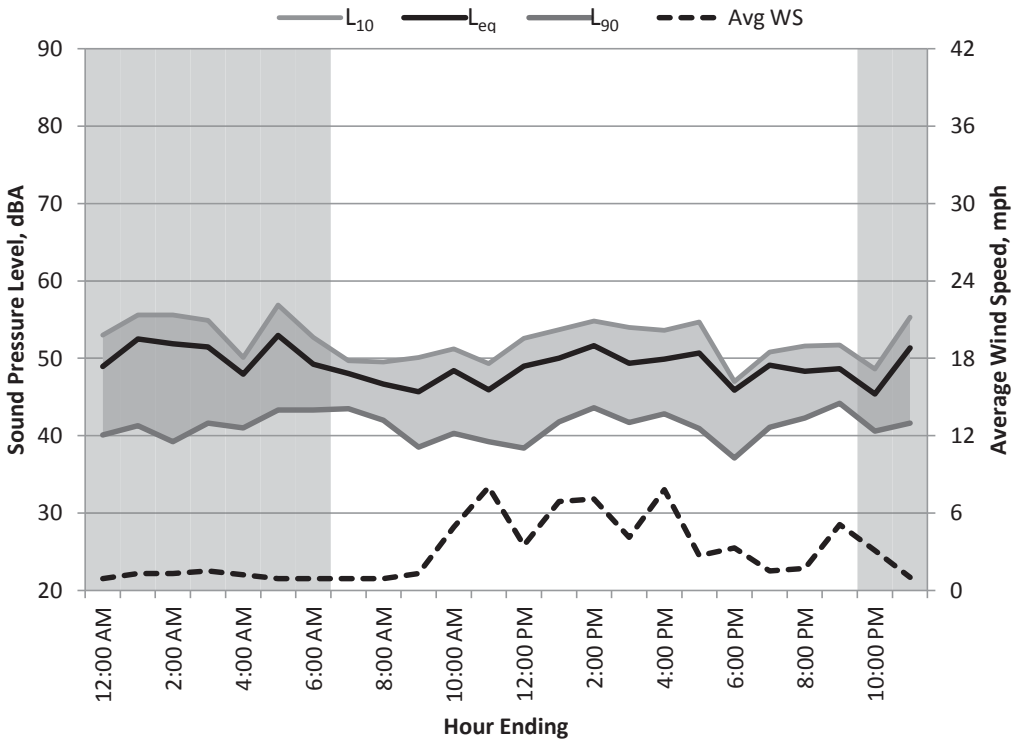
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	53	70	35	64	56	49	40	1
1:00	Night	47	57	34	55	51	44	37	1
2:00	Night	53	69	35	62	56	48	40	1
3:00	Night	48	61	34	58	52	44	39	1
4:00	Night	49	62	34	59	53	44	39	1
5:00	Night	46	56	34	53	50	44	38	1
6:00	Night	53	64	38	61	58	49	44	1
7:00	Day	52	65	41	60	56	49	45	1
8:00	Day	52	67	40	62	54	48	45	1
9:00	Day	49	63	39	58	52	46	42	1
10:00	Day	46	64	38	54	49	42	40	3
11:00	Day	47	68	37	59	50	42	39	3
12:00	Day	44	62	34	54	45	39	37	2
13:00	Day	43	63	33	54	46	38	35	2
14:00	Day	44	62	33	55	44	37	35	2
15:00	Day	42	56	35	52	46	38	36	3
16:00	Day	45	65	36	55	48	41	39	1
17:00	Day	50	67	34	61	54	44	38	2
18:00	Day	44	59	34	54	47	41	38	1
19:00	Day	51	64	39	63	53	48	43	1
20:00	Day	54	67	37	64	59	50	43	1
21:00	Day	50	64	36	60	56	44	41	1
22:00	Night	52	60	38	58	55	50	44	1
23:00	Night	49	65	36	61	51	44	41	1
Overall	Max	54	70	41	64	59	50	45	3
	Median	49	64	36	58	52	44	39	1
	Min	42	56	33	52	44	37	35	1
Daytime	Max	54	68	41	64	59	50	45	3
7am-10pm	Median	47	64	36	58	50	42	39	1
	Min	42	56	33	52	44	37	35	1
Nighttime	Max	53	70	38	64	58	50	44	1
10pm-7am	Median	49	62	35	59	53	44	40	1
	Min	46	56	34	53	50	44	37	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 12/23/2012

24hr Summary

L_{DN} = 57 dBA C_{NEL} = 57 dBA $L_{eq(24hr)}$ = 50 dBA



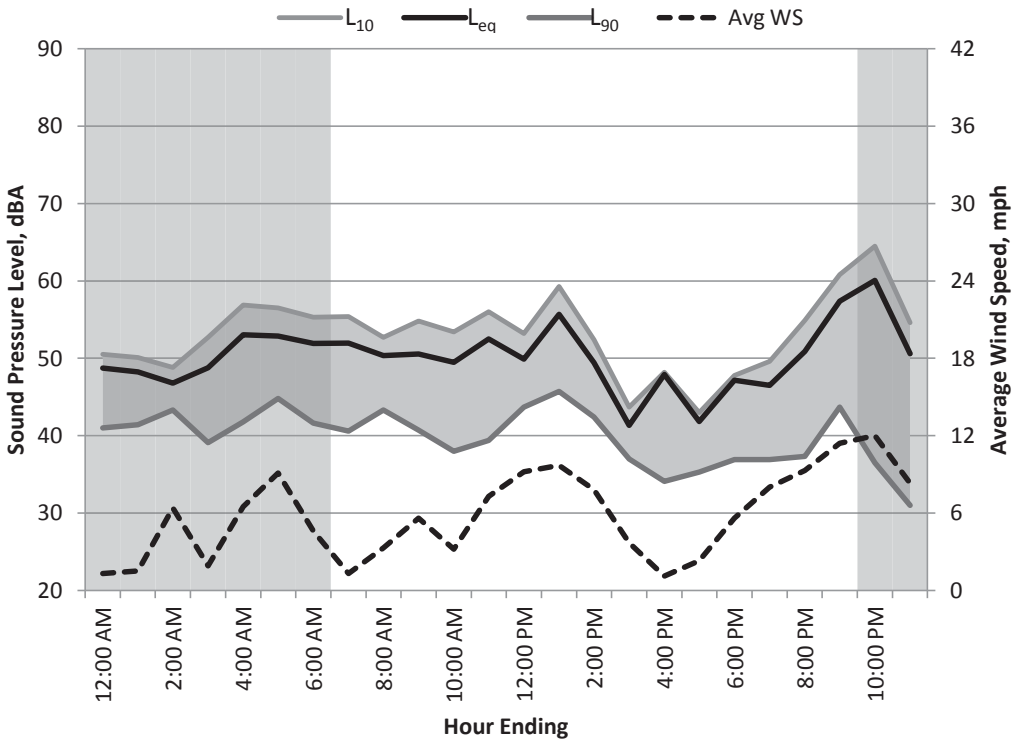
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	49	61	35	59	53	44	40	1
1:00	Night	53	67	37	64	56	46	41	1
2:00	Night	52	67	35	64	56	44	39	1
3:00	Night	51	64	36	62	55	47	42	2
4:00	Night	48	66	36	58	50	45	41	1
5:00	Night	53	64	39	63	57	49	43	1
6:00	Night	49	65	41	57	53	46	43	1
7:00	Day	48	64	40	57	50	46	44	1
8:00	Day	47	59	40	54	50	45	42	1
9:00	Day	46	61	36	56	50	41	39	1
10:00	Day	48	65	37	59	51	44	40	5
11:00	Day	46	58	35	52	49	44	39	8
12:00	Day	49	65	36	59	53	43	38	4
13:00	Day	50	65	38	60	54	45	42	7
14:00	Day	52	74	40	61	55	47	44	7
15:00	Day	49	63	39	59	54	44	42	4
16:00	Day	50	65	39	59	54	46	43	8
17:00	Day	51	66	37	61	55	45	41	3
18:00	Day	46	64	34	60	47	42	37	3
19:00	Day	49	66	37	59	51	46	41	2
20:00	Day	48	61	37	58	52	46	42	2
21:00	Day	49	59	41	55	52	47	44	5
22:00	Night	45	54	35	52	49	44	41	3
23:00	Night	51	66	37	61	55	47	42	1
Overall	Max	53	74	41	64	57	49	44	8
	Median	49	65	37	59	53	45	41	2
	Min	45	54	34	52	47	41	37	1
Daytime	Max	52	74	41	61	55	47	44	8
7am-10pm	Median	49	64	37	59	52	45	42	4
	Min	46	58	34	52	47	41	37	1
Nighttime	Max	53	67	41	64	57	49	43	3
10pm-7am	Median	51	65	36	61	55	46	41	1
	Min	45	54	35	52	49	44	39	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 12/24/2012

24hr Summary

L_{DN} = 60 dBA C_{NEL} = 60 dBA $L_{eq(24hr)}$ = 52 dBA

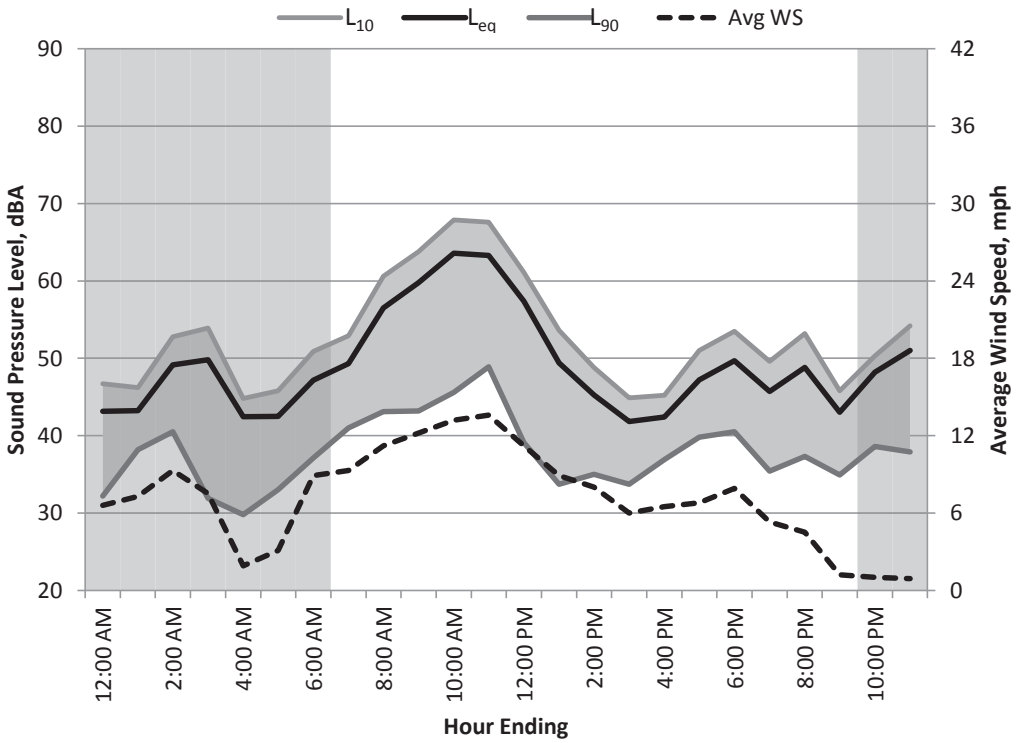


Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	49	66	38	60	51	45	41	1
1:00	Night	48	65	37	58	50	45	41	2
2:00	Night	47	59	40	53	49	46	43	6
3:00	Night	49	65	37	60	53	42	39	2
4:00	Night	53	65	38	63	57	48	42	7
5:00	Night	53	65	41	61	57	50	45	9
6:00	Night	52	65	38	63	55	46	42	5
7:00	Day	52	66	38	63	55	45	41	1
8:00	Day	50	64	39	61	53	48	43	3
9:00	Day	51	65	37	61	55	44	41	6
10:00	Day	49	67	35	60	53	43	38	3
11:00	Day	52	70	36	63	56	46	39	7
12:00	Day	50	67	40	59	53	47	44	9
13:00	Day	56	72	41	65	59	52	46	10
14:00	Day	49	65	38	60	52	46	42	8
15:00	Day	41	50	35	48	44	41	37	4
16:00	Day	48	67	32	61	48	38	34	1
17:00	Day	42	62	32	52	43	38	35	2
18:00	Day	47	61	33	60	48	40	37	6
19:00	Day	47	65	33	56	50	43	37	8
20:00	Day	51	64	32	60	55	48	37	9
21:00	Day	57	76	34	68	61	51	44	11
22:00	Night	60	75	30	70	65	54	37	12
23:00	Night	51	68	28	62	55	40	31	8
Overall	Max	60	76	41	70	65	54	46	12
	Median	50	65	37	60	53	46	41	6
	Min	41	50	28	48	43	38	31	1
Daytime	Max	57	76	41	68	61	52	46	11
7am-10pm	Median	50	65	35	60	53	45	39	6
	Min	41	50	32	48	43	38	34	1
Nighttime	Max	60	75	41	70	65	54	45	12
10pm-7am	Median	51	65	38	61	55	46	41	6
	Min	47	59	28	53	49	40	31	1

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 12/25/2012

24hr Summary

L_{DN} = 57 dBA C_{NEL} = 57 dBA $L_{eq(24hr)}$ = 55 dBA

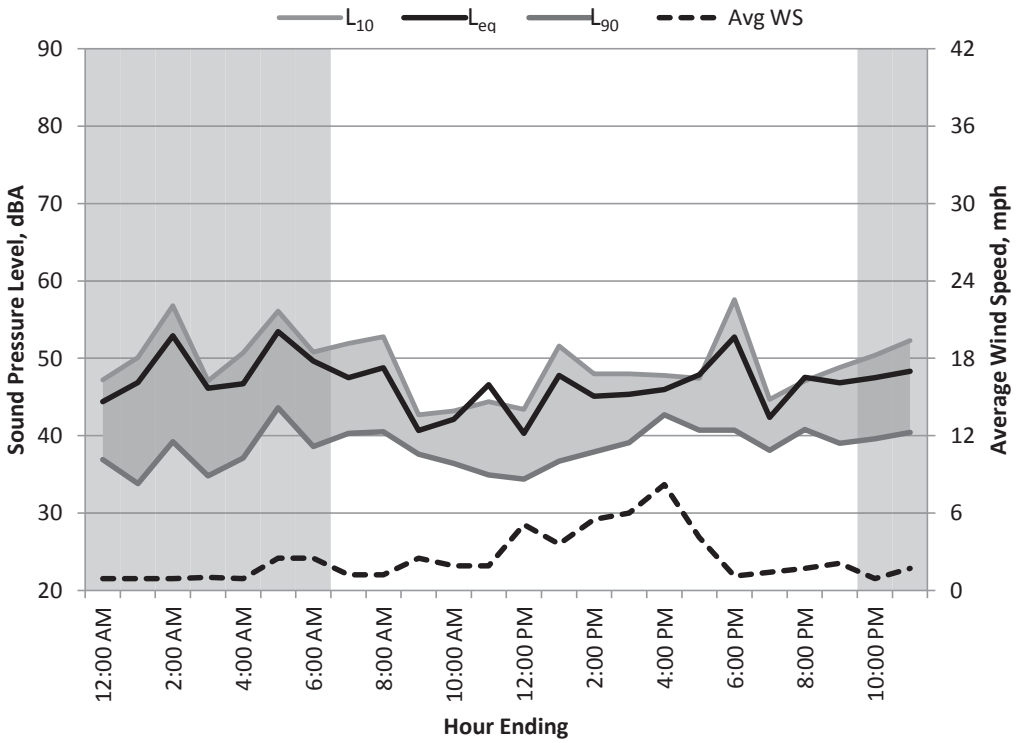


Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	43	57	28	52	47	40	32	7
1:00	Night	43	54	35	50	46	42	38	7
2:00	Night	49	63	35	59	53	45	41	9
3:00	Night	50	66	29	60	54	44	32	8
4:00	Night	42	65	27	54	45	33	30	2
5:00	Night	42	61	29	53	46	36	33	3
6:00	Night	47	60	31	56	51	44	37	9
7:00	Day	49	61	33	58	53	47	41	9
8:00	Day	57	71	35	66	61	52	43	11
9:00	Day	60	75	32	70	64	55	43	12
10:00	Day	64	79	34	73	68	59	46	13
11:00	Day	63	76	37	72	68	59	49	14
12:00	Day	57	76	30	68	61	51	39	11
13:00	Day	49	66	29	60	54	42	34	9
14:00	Day	45	61	30	55	49	42	35	8
15:00	Day	42	59	30	51	45	39	34	6
16:00	Day	42	55	33	49	45	41	37	7
17:00	Day	47	62	35	57	51	44	40	7
18:00	Day	50	64	37	59	54	46	41	8
19:00	Day	46	61	32	57	50	39	35	5
20:00	Day	49	64	33	59	53	42	37	5
21:00	Day	43	61	31	53	46	39	35	1
22:00	Night	48	64	35	60	50	44	39	1
23:00	Night	51	65	33	62	54	44	38	1
Overall	Max	64	79	37	73	68	59	49	14
	Median	48	63	32	58	52	44	38	7
	Min	42	54	27	49	45	33	30	1
Daytime	Max	64	79	37	73	68	59	49	14
7am-10pm	Median	49	64	33	59	53	44	39	8
	Min	42	55	29	49	45	39	34	1
Nighttime	Max	51	66	35	62	54	45	41	9
10pm-7am	Median	47	63	31	56	50	44	37	7
	Min	42	54	27	50	45	33	30	1

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 12/26/2012

24hr Summary

L_{DN} = 56 dBA C_{NEL} = 56 dBA $L_{eq(24hr)}$ = 48 dBA



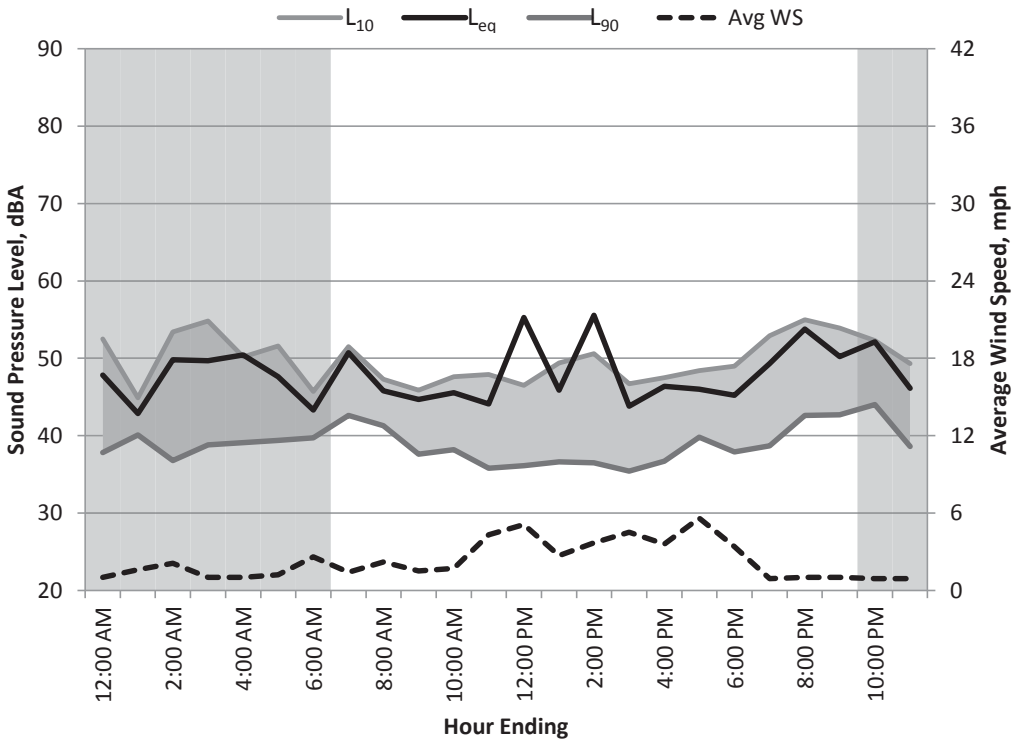
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	44	61	33	55	47	40	37	1
1:00	Night	47	62	31	57	50	42	34	1
2:00	Night	53	70	33	64	57	45	39	1
3:00	Night	46	64	31	58	47	39	35	1
4:00	Night	47	60	33	56	51	42	37	1
5:00	Night	53	70	37	65	56	47	44	3
6:00	Night	50	63	36	61	51	42	39	3
7:00	Day	48	59	36	55	52	45	40	1
8:00	Day	49	65	38	59	53	43	41	1
9:00	Day	41	51	35	47	43	40	38	3
10:00	Day	42	61	34	53	43	38	36	2
11:00	Day	47	72	31	53	44	37	35	2
12:00	Day	40	53	32	48	43	38	34	5
13:00	Day	48	64	33	58	52	41	37	4
14:00	Day	45	61	35	55	48	40	38	6
15:00	Day	45	70	37	54	48	42	39	6
16:00	Day	46	58	39	53	48	45	43	8
17:00	Day	48	64	38	60	47	43	41	4
18:00	Day	53	67	37	63	58	46	41	1
19:00	Day	42	54	34	50	45	41	38	1
20:00	Day	48	64	38	60	47	43	41	2
21:00	Day	47	64	35	58	49	42	39	2
22:00	Night	47	62	36	58	50	44	40	1
23:00	Night	48	61	38	57	52	45	40	2
Overall	Max	53	72	39	65	58	47	44	8
	Median	47	62	35	57	48	42	39	2
	Min	40	51	31	47	43	37	34	1
Daytime	Max	53	72	39	63	58	46	43	8
7am-10pm	Median	47	64	35	55	48	42	39	2
	Min	40	51	31	47	43	37	34	1
Nighttime	Max	53	70	38	65	57	47	44	3
10pm-7am	Median	47	62	33	58	51	42	39	1
	Min	44	60	31	55	47	39	34	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 12/27/2012

24hr Summary

L_{DN} = 55 dBA C_{NEL} = 56 dBA $L_{eq(24hr)}$ = 50 dBA



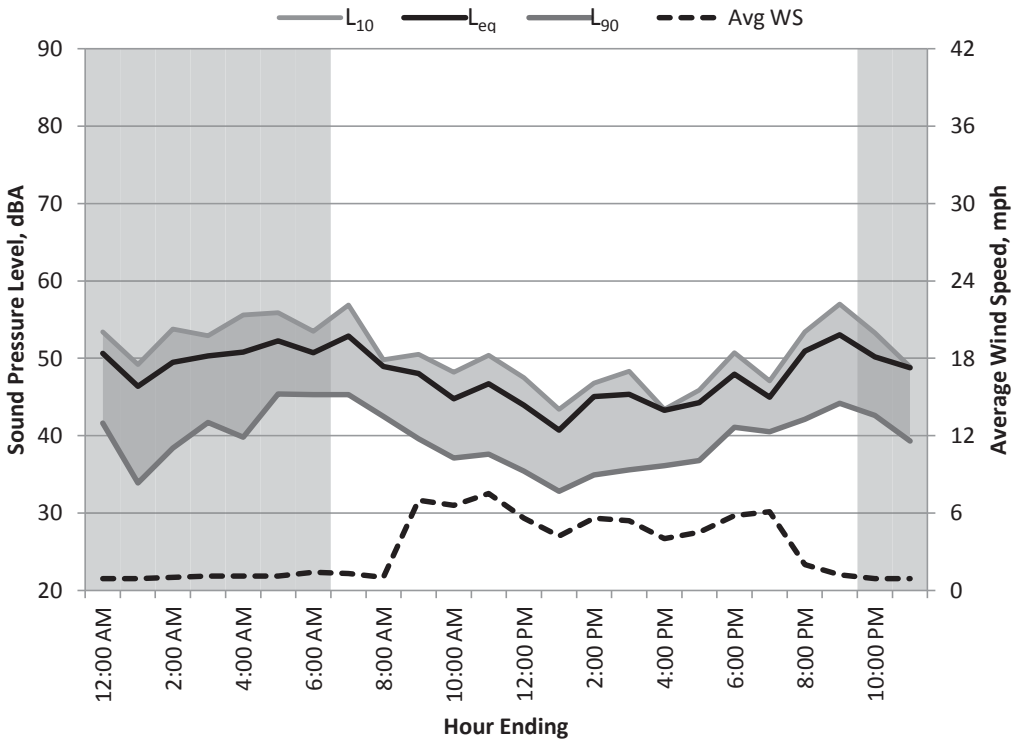
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	48	63	36	57	53	42	38	1
1:00	Night	43	51	38	48	45	42	40	2
2:00	Night	50	62	33	60	53	43	37	2
3:00	Night	50	63	35	60	55	43	39	1
4:00	Night	50	66	37	63	50	42	39	1
5:00	Night	48	62	36	56	52	44	39	1
6:00	Night	43	56	37	49	46	42	40	3
7:00	Day	51	77	40	58	52	45	43	1
8:00	Day	46	58	39	56	47	43	41	2
9:00	Day	45	64	35	55	46	41	38	2
10:00	Day	46	72	36	53	48	41	38	2
11:00	Day	44	60	33	54	48	39	36	4
12:00	Day	55	80	33	69	47	39	36	5
13:00	Day	46	63	35	58	49	39	37	3
14:00	Day	56	80	34	69	51	40	37	4
15:00	Day	44	61	33	55	47	39	35	5
16:00	Day	46	64	33	57	48	41	37	4
17:00	Day	46	63	37	55	48	43	40	6
18:00	Day	45	60	32	55	49	41	38	3
19:00	Day	49	69	35	59	53	44	39	1
20:00	Day	54	80	39	64	55	46	43	1
21:00	Day	50	63	39	59	54	47	43	1
22:00	Night	52	68	41	65	52	48	44	1
23:00	Night	46	57	35	55	49	44	39	1
Overall	Max	56	80	41	69	55	48	44	6
	Median	47	63	35	57	49	42	39	2
	Min	43	51	32	48	45	39	35	1
Daytime	Max	56	80	40	69	55	47	43	6
7am-10pm	Median	46	64	35	57	48	41	38	3
	Min	44	58	32	53	46	39	35	1
Nighttime	Max	52	68	41	65	55	48	44	3
10pm-7am	Median	48	62	36	57	52	43	39	1
	Min	43	51	33	48	45	42	37	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 12/28/2012

24hr Summary

L_{DN} = 56 dBA C_{NEL} = 57 dBA $L_{eq(24hr)}$ = 49 dBA



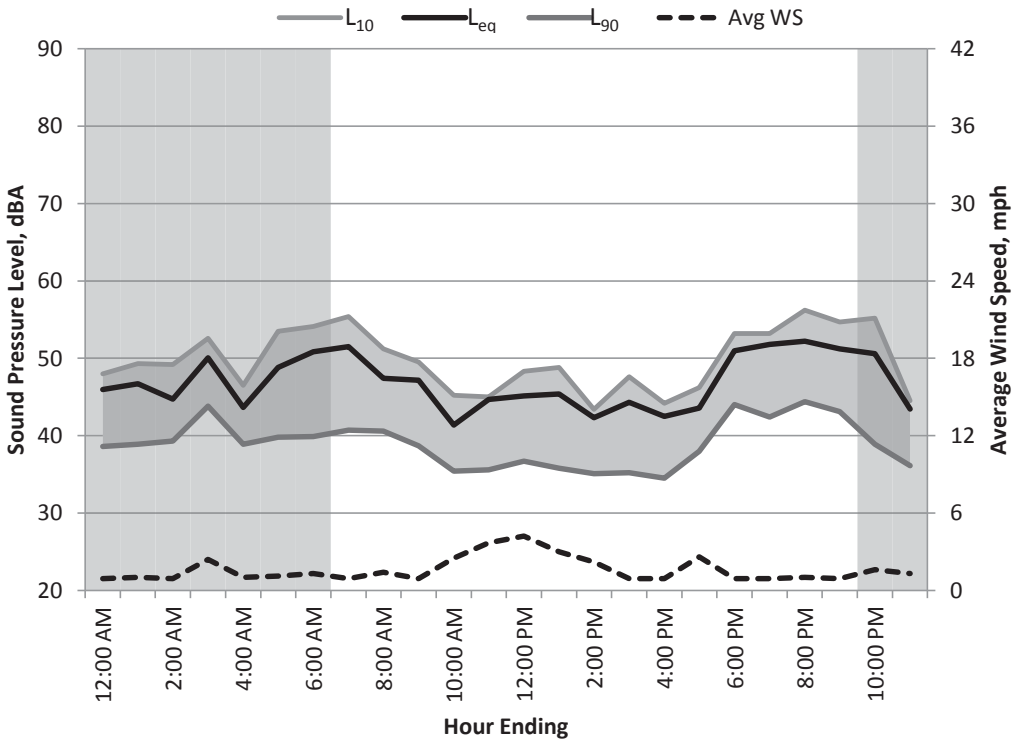
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	51	63	38	61	53	47	42	1
1:00	Night	46	63	30	58	49	41	34	1
2:00	Night	49	67	33	59	54	45	38	1
3:00	Night	50	65	37	61	53	47	42	1
4:00	Night	51	63	35	60	56	46	40	1
5:00	Night	52	63	39	61	56	50	45	1
6:00	Night	51	66	41	59	54	48	45	1
7:00	Day	53	65	39	62	57	50	45	1
8:00	Day	49	71	37	58	50	46	43	1
9:00	Day	48	67	34	58	51	44	40	7
10:00	Day	45	58	34	54	48	42	37	7
11:00	Day	47	63	33	56	50	43	38	8
12:00	Day	44	59	32	54	48	39	35	6
13:00	Day	41	62	30	50	43	37	33	4
14:00	Day	45	67	31	57	47	39	35	6
15:00	Day	45	59	33	56	48	40	36	5
16:00	Day	43	70	33	52	43	39	36	4
17:00	Day	44	66	34	52	46	40	37	5
18:00	Day	48	63	38	56	51	46	41	6
19:00	Day	45	57	37	53	47	43	41	6
20:00	Day	51	68	37	61	53	47	42	2
21:00	Day	53	67	39	63	57	49	44	1
22:00	Night	50	63	38	59	53	47	43	1
23:00	Night	49	65	36	61	49	43	39	1
Overall	Max	53	71	41	63	57	50	45	8
	Median	48	64	35	58	50	45	40	2
	Min	41	57	30	50	43	37	33	1
Daytime	Max	53	71	39	63	57	50	45	8
7am-10pm	Median	45	65	34	56	48	43	38	5
	Min	41	57	30	50	43	37	33	1
Nighttime	Max	52	67	41	61	56	50	45	1
10pm-7am	Median	50	63	37	60	53	47	42	1
	Min	46	63	30	58	49	41	34	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 12/29/2012

24hr Summary

L_{DN} = 54 dBA C_{NEL} = 55 dBA $L_{eq(24hr)}$ = 48 dBA



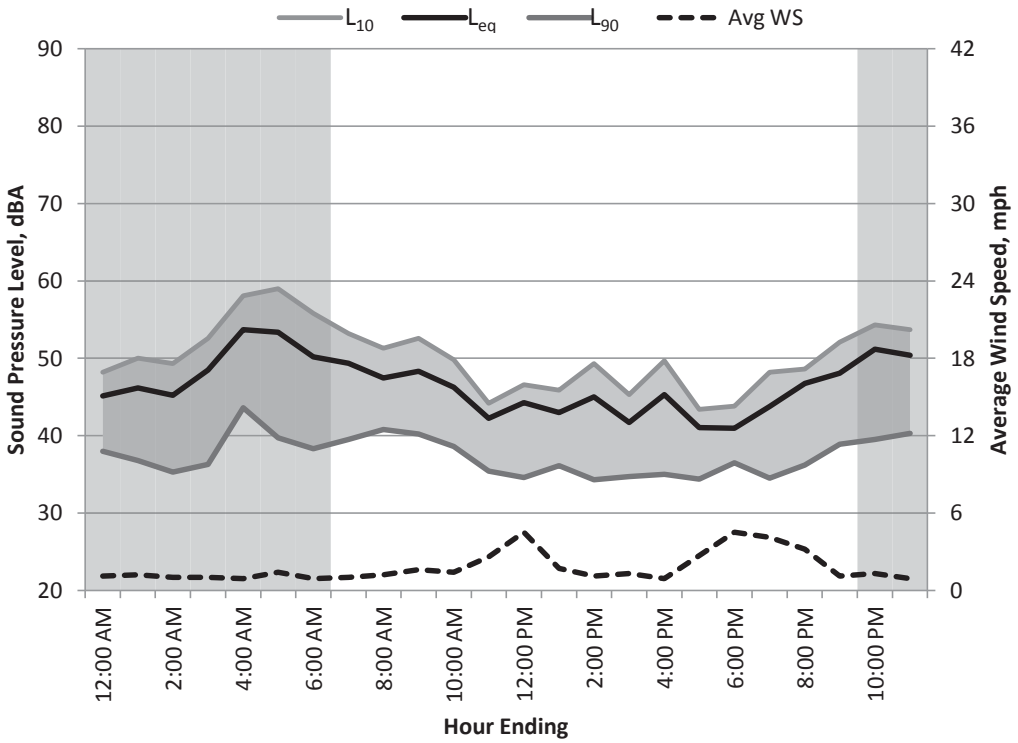
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	46	62	35	56	48	42	39	1
1:00	Night	47	60	36	57	49	42	39	1
2:00	Night	45	58	37	52	49	42	39	1
3:00	Night	50	62	39	57	53	49	44	2
4:00	Night	44	55	37	52	47	41	39	1
5:00	Night	49	62	37	57	54	44	40	1
6:00	Night	51	66	36	62	54	45	40	1
7:00	Day	52	64	38	62	55	46	41	1
8:00	Day	47	60	37	57	51	44	41	1
9:00	Day	47	66	37	59	50	41	39	1
10:00	Day	41	57	34	50	45	38	35	3
11:00	Day	45	65	34	57	45	38	36	4
12:00	Day	45	63	35	56	48	41	37	4
13:00	Day	45	63	33	55	49	39	36	3
14:00	Day	42	63	33	53	43	37	35	2
15:00	Day	44	64	33	54	48	37	35	1
16:00	Day	42	58	32	54	44	37	35	1
17:00	Day	44	53	35	51	46	42	38	3
18:00	Day	51	64	36	61	53	49	44	1
19:00	Day	52	67	38	64	53	47	42	1
20:00	Day	52	64	41	61	56	49	44	1
21:00	Day	51	65	39	62	55	48	43	1
22:00	Night	51	64	35	60	55	44	39	2
23:00	Night	43	57	34	56	45	39	36	1
Overall	Max	52	67	41	64	56	49	44	4
	Median	46	63	36	57	49	42	39	1
	Min	41	53	32	50	43	37	35	1
Daytime	Max	52	67	41	64	56	49	44	4
7am-10pm	Median	45	64	35	57	49	41	38	1
	Min	41	53	32	50	43	37	35	1
Nighttime	Max	51	66	39	62	55	49	44	2
10pm-7am	Median	47	62	36	57	49	42	39	1
	Min	43	55	34	52	45	39	36	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 12/30/2012

24hr Summary

L_{DN} = 56 dBA C_{NEL} = 56 dBA $L_{eq(24hr)}$ = 48 dBA



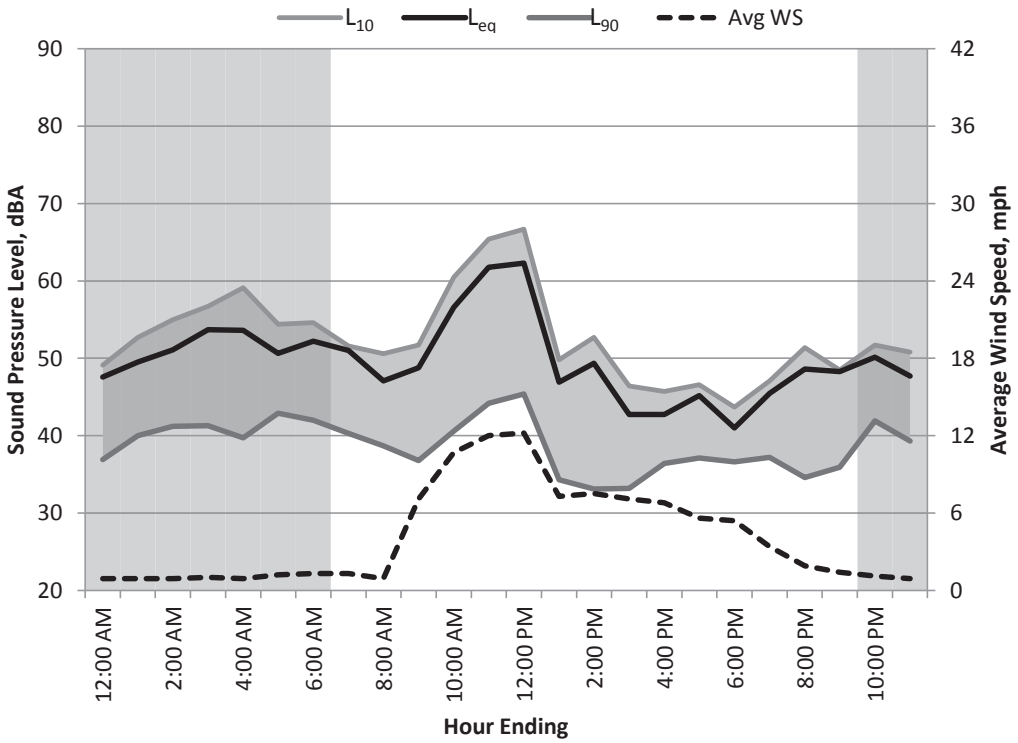
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	45	60	35	54	48	42	38	1
1:00	Night	46	63	34	55	50	42	37	1
2:00	Night	45	60	32	56	49	39	35	1
3:00	Night	48	67	34	59	53	41	36	1
4:00	Night	54	65	39	63	58	49	44	1
5:00	Night	53	66	36	62	59	44	40	1
6:00	Night	50	61	35	59	56	44	38	1
7:00	Day	49	66	36	60	53	42	40	1
8:00	Day	47	64	38	56	51	44	41	1
9:00	Day	48	64	38	58	53	43	40	2
10:00	Day	46	63	36	57	50	41	39	1
11:00	Day	42	64	33	51	44	38	35	3
12:00	Day	44	64	32	55	47	38	35	5
13:00	Day	43	59	33	53	46	39	36	2
14:00	Day	45	63	33	55	49	37	34	1
15:00	Day	42	60	33	53	45	37	35	1
16:00	Day	45	63	32	56	50	39	35	1
17:00	Day	41	62	31	51	43	37	34	3
18:00	Day	41	51	33	49	44	39	37	5
19:00	Day	44	64	32	53	48	38	35	4
20:00	Day	47	64	32	58	49	41	36	3
21:00	Day	48	57	34	55	52	45	39	1
22:00	Night	51	66	35	63	54	44	40	1
23:00	Night	50	64	34	62	54	45	40	1
Overall	Max	54	67	39	63	59	49	44	5
	Median	46	63	34	56	50	41	37	1
	Min	41	51	31	49	43	37	34	1
Daytime	Max	49	66	38	60	53	45	41	5
7am-10pm	Median	45	63	33	55	49	39	36	2
	Min	41	51	31	49	43	37	34	1
Nighttime	Max	54	67	39	63	59	49	44	1
10pm-7am	Median	50	64	35	59	54	44	38	1
	Min	45	60	32	54	48	39	35	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 12/31/2012

24hr Summary

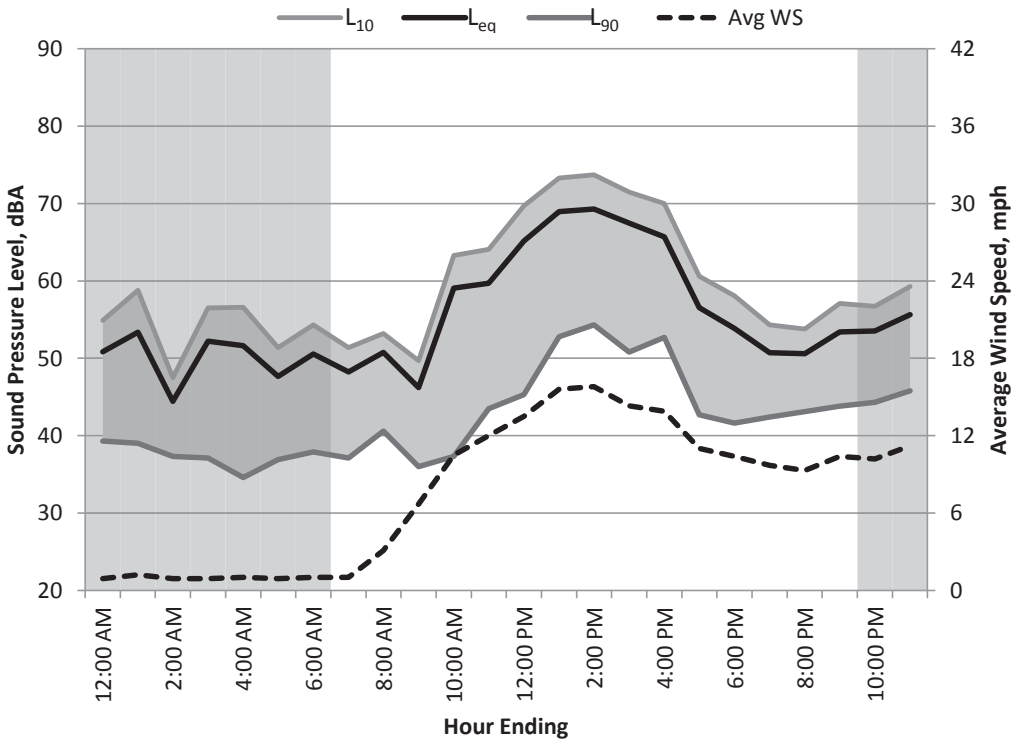
L_{DN} = 58 dBA C_{NEL} = 58 dBA $L_{eq(24hr)}$ = 54 dBA



Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	48	64	33	59	49	42	37	1
1:00	Night	50	65	36	60	53	44	40	1
2:00	Night	51	64	38	62	55	46	41	1
3:00	Night	54	68	37	65	57	47	41	1
4:00	Night	54	71	36	63	59	44	40	1
5:00	Night	51	61	39	60	54	47	43	1
6:00	Night	52	68	37	64	55	45	42	1
7:00	Day	51	70	34	63	52	45	40	1
8:00	Day	47	57	35	54	51	45	39	1
9:00	Day	49	65	31	60	52	42	37	7
10:00	Day	57	72	33	67	61	51	41	11
11:00	Day	62	80	33	72	65	55	44	12
12:00	Day	62	75	32	72	67	57	45	12
13:00	Day	47	68	28	57	50	41	34	7
14:00	Day	49	68	28	61	53	41	33	8
15:00	Day	43	58	29	53	46	38	33	7
16:00	Day	43	56	30	51	46	40	36	7
17:00	Day	45	63	33	56	47	41	37	6
18:00	Day	41	55	33	48	44	40	37	5
19:00	Day	45	60	32	57	47	41	37	3
20:00	Day	49	63	31	61	51	40	35	2
21:00	Day	48	68	33	61	49	40	36	1
22:00	Night	50	65	37	61	52	46	42	1
23:00	Night	48	63	36	58	51	44	39	1
Overall	Max	62	80	39	72	67	57	45	12
	Median	49	65	33	61	52	44	39	2
	Min	41	55	28	48	44	38	33	1
Daytime	Max	62	80	35	72	67	57	45	12
7am-10pm	Median	48	65	32	60	51	41	37	7
	Min	41	55	28	48	44	38	33	1
Nighttime	Max	54	71	39	65	59	47	43	1
10pm-7am	Median	51	65	37	61	54	45	41	1
	Min	48	61	33	58	49	42	37	1

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 1/1/2013

24hr Summary		
L_{DN} = 63 dBA	C_{NEL} = 63 dBA	$L_{eq(24hr)}$ = 61 dBA



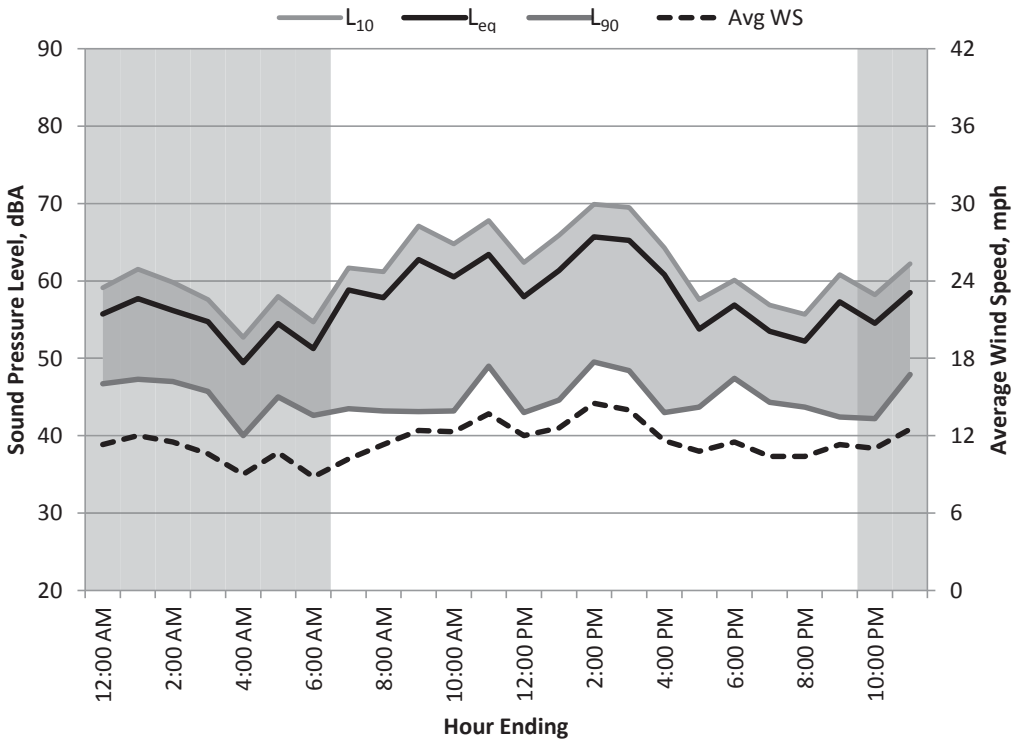
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	51	67	36	61	55	45	39	1
1:00	Night	53	66	35	65	59	44	39	1
2:00	Night	44	59	35	54	48	41	37	1
3:00	Night	52	65	33	62	57	45	37	1
4:00	Night	52	64	32	60	57	46	35	1
5:00	Night	48	62	33	59	51	40	37	1
6:00	Night	51	63	33	59	54	47	38	1
7:00	Day	48	67	33	58	51	44	37	1
8:00	Day	51	72	35	60	53	46	41	3
9:00	Day	46	62	32	57	50	41	36	7
10:00	Day	59	75	31	70	63	48	37	11
11:00	Day	60	75	35	70	64	54	44	12
12:00	Day	65	79	36	75	70	60	45	14
13:00	Day	69	81	39	77	73	65	53	16
14:00	Day	69	82	40	78	74	66	54	16
15:00	Day	67	82	39	78	72	62	51	14
16:00	Day	66	80	40	75	70	62	53	14
17:00	Day	57	73	36	67	61	50	43	11
18:00	Day	54	70	35	64	58	48	42	10
19:00	Day	51	63	37	60	54	48	42	10
20:00	Day	51	65	38	60	54	48	43	9
21:00	Day	53	68	36	63	57	50	44	10
22:00	Night	54	69	37	63	57	50	44	10
23:00	Night	56	68	38	65	59	53	46	11
Overall	Max	69	82	40	78	74	66	54	16
	Median	53	68	35	63	57	48	42	10
	Min	44	59	31	54	48	40	35	1
Daytime	Max	69	82	40	78	74	66	54	16
7am-10pm	Median	57	73	36	67	61	50	43	11
	Min	46	62	31	57	50	41	36	1
Nighttime	Max	56	69	38	65	59	53	46	11
10pm-7am	Median	52	65	35	61	57	45	38	1
	Min	44	59	32	54	48	40	35	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 1/2/2013

24hr Summary

L_{DN} = 63 dBA C_{NEL} = 63 dBA $L_{eq(24hr)}$ = 60 dBA



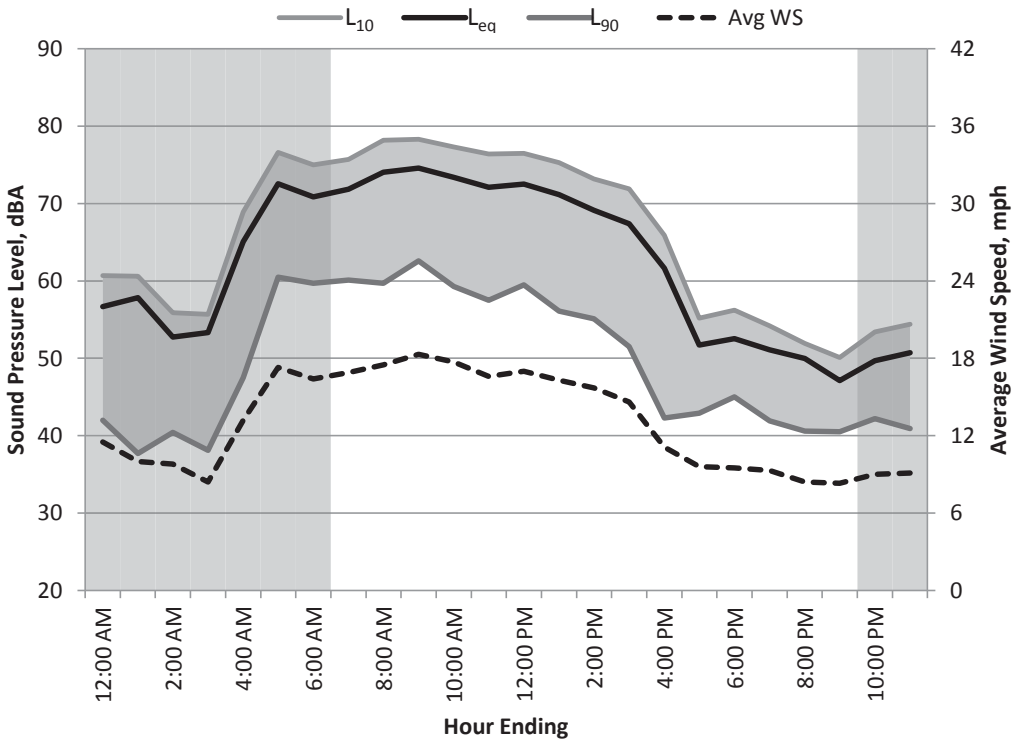
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	56	71	39	65	59	53	47	11
1:00	Night	58	70	38	67	62	55	47	12
2:00	Night	56	70	38	65	60	53	47	12
3:00	Night	55	71	38	64	58	52	46	11
4:00	Night	49	66	35	59	53	46	40	9
5:00	Night	54	69	37	64	58	52	45	11
6:00	Night	51	65	38	60	55	48	43	9
7:00	Day	59	75	38	71	62	51	44	10
8:00	Day	58	74	35	69	61	52	43	11
9:00	Day	63	78	34	73	67	57	43	12
10:00	Day	61	74	32	71	65	55	43	12
11:00	Day	63	77	35	72	68	59	49	14
12:00	Day	58	71	34	68	62	53	43	12
13:00	Day	61	76	34	71	66	55	45	13
14:00	Day	66	80	37	75	70	62	50	15
15:00	Day	65	80	38	76	70	59	48	14
16:00	Day	61	78	35	72	64	54	43	12
17:00	Day	54	69	38	63	58	50	44	11
18:00	Day	57	73	40	67	60	53	47	12
19:00	Day	53	68	39	63	57	50	44	10
20:00	Day	52	66	35	61	56	49	44	10
21:00	Day	57	74	35	69	61	51	42	11
22:00	Night	55	72	34	64	58	50	42	11
23:00	Night	58	74	37	68	62	55	48	13
Overall	Max	66	80	40	76	70	62	50	15
	Median	57	73	37	67	61	53	44	11
	Min	49	65	32	59	53	46	40	9
Daytime	Max	66	80	40	76	70	62	50	15
7am-10pm	Median	59	74	35	71	62	53	44	12
	Min	52	66	32	61	56	49	42	10
Nighttime	Max	58	74	39	68	62	55	48	13
10pm-7am	Median	55	70	38	64	58	52	46	11
	Min	49	65	34	59	53	46	40	9

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 1/3/2013

24hr Summary

L_{DN} = 73 dBA C_{NEL} = 73 dBA $L_{eq(24hr)}$ = 69 dBA



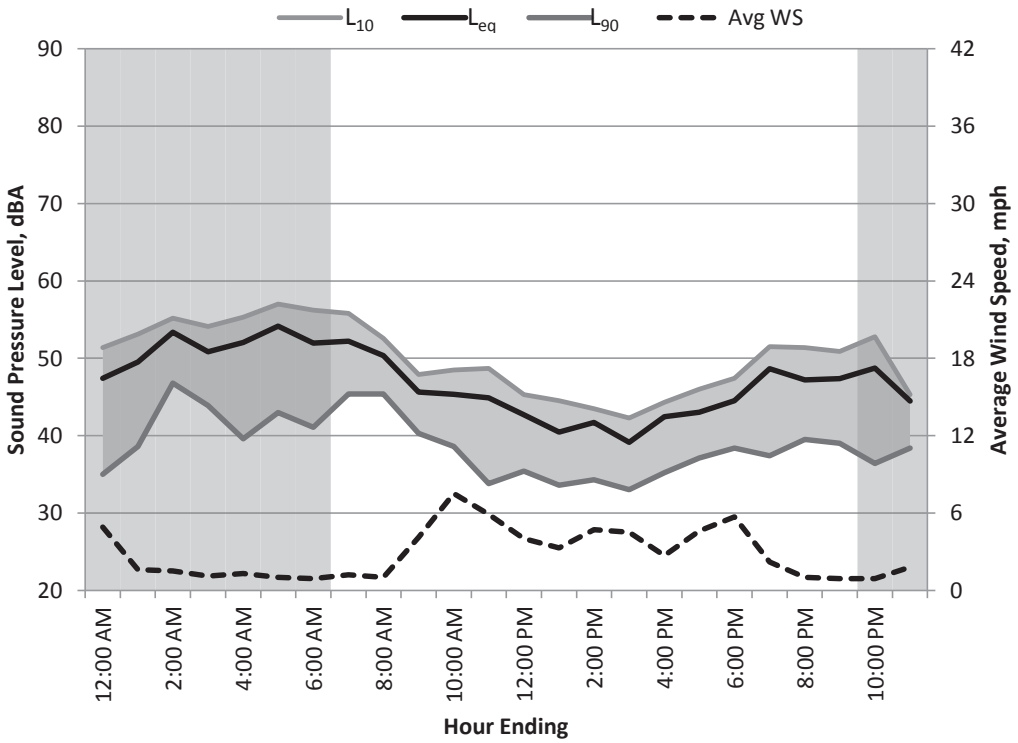
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	57	72	35	67	61	51	42	12
1:00	Night	58	76	31	71	61	46	38	10
2:00	Night	53	69	31	63	56	48	40	10
3:00	Night	53	72	32	65	56	46	38	8
4:00	Night	65	81	37	76	69	58	48	13
5:00	Night	73	85	48	81	77	70	61	17
6:00	Night	71	83	46	79	75	68	60	16
7:00	Day	72	85	45	80	76	69	60	17
8:00	Day	74	88	44	83	78	71	60	18
9:00	Day	75	87	42	83	78	72	63	18
10:00	Day	73	86	42	82	77	70	59	18
11:00	Day	72	86	37	81	76	68	58	17
12:00	Day	73	83	41	80	77	70	60	17
13:00	Day	71	83	41	80	75	68	56	16
14:00	Day	69	83	43	78	73	66	55	16
15:00	Day	67	82	39	77	72	62	52	15
16:00	Day	62	77	35	73	66	53	42	11
17:00	Day	52	65	35	61	55	49	43	10
18:00	Day	53	65	39	61	56	50	45	10
19:00	Day	51	69	36	61	54	47	42	9
20:00	Day	50	68	36	60	52	45	41	8
21:00	Day	47	63	35	56	50	45	41	8
22:00	Night	50	64	37	58	53	47	42	9
23:00	Night	51	66	36	60	54	47	41	9
Overall	Max	75	88	48	83	78	72	63	18
	Median	63	79	37	75	67	55	46	12
	Min	47	63	31	56	50	45	38	8
Daytime	Max	75	88	45	83	78	72	63	18
7am-10pm	Median	69	83	39	78	73	66	55	16
	Min	47	63	35	56	50	45	41	8
Nighttime	Max	73	85	48	81	77	70	61	17
10pm-7am	Median	57	72	36	67	61	48	42	10
	Min	50	64	31	58	53	46	38	8

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 1/4/2013

24hr Summary

L_{DN} = 57 dBA C_{NEL} = 57 dBA $L_{eq(24hr)}$ = 49 dBA

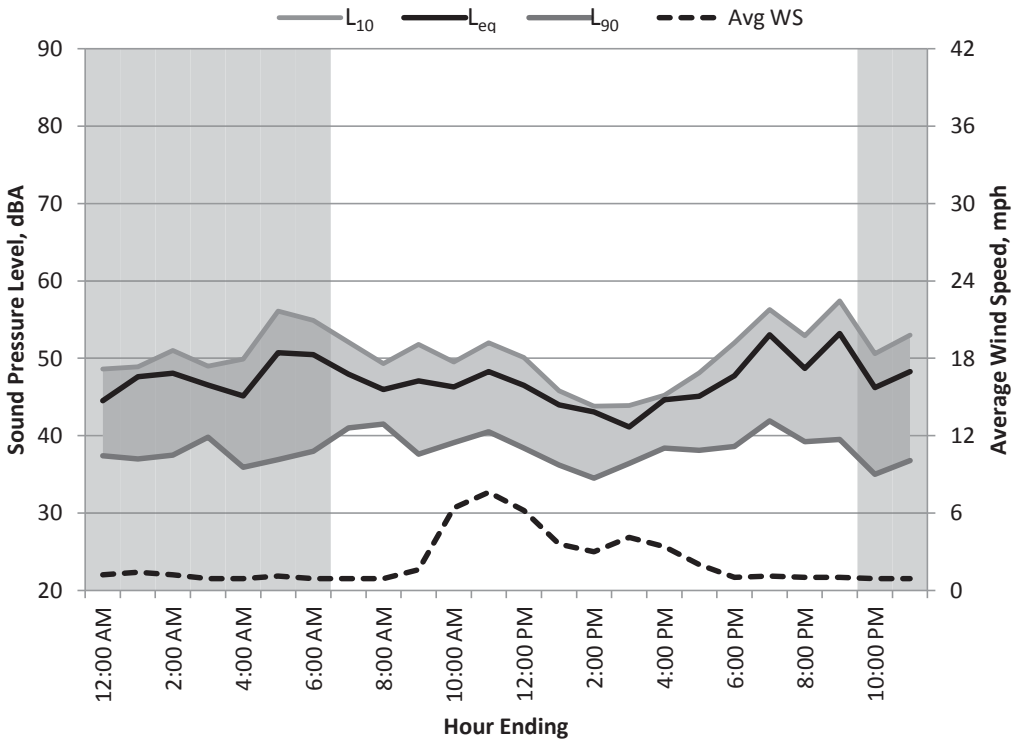


Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	47	64	31	58	51	41	35	5
1:00	Night	50	60	32	57	53	48	39	2
2:00	Night	53	69	42	63	55	51	47	2
3:00	Night	51	58	38	56	54	50	44	1
4:00	Night	52	71	36	63	55	46	40	1
5:00	Night	54	71	39	66	57	49	43	1
6:00	Night	52	68	35	61	56	48	41	1
7:00	Day	52	67	39	60	56	50	45	1
8:00	Day	50	65	40	58	53	49	45	1
9:00	Day	46	63	37	53	48	44	40	4
10:00	Day	45	60	35	54	49	43	39	8
11:00	Day	45	62	31	55	49	40	34	6
12:00	Day	43	59	31	52	45	40	35	4
13:00	Day	40	54	31	50	45	37	34	3
14:00	Day	42	59	32	53	44	38	34	5
15:00	Day	39	50	30	48	42	37	33	5
16:00	Day	42	60	30	54	44	38	35	3
17:00	Day	43	55	34	51	46	41	37	5
18:00	Day	45	58	35	54	47	42	38	6
19:00	Day	49	66	34	60	52	43	37	2
20:00	Day	47	61	35	55	51	44	40	1
21:00	Day	47	60	34	57	51	44	39	1
22:00	Night	49	62	34	57	53	45	36	1
23:00	Night	44	61	37	56	45	40	38	2
Overall	Max	54	71	42	66	57	51	47	8
	Median	47	61	35	56	51	43	39	2
	Min	39	50	30	48	42	37	33	1
Daytime	Max	52	67	40	60	56	50	45	8
7am-10pm	Median	45	60	34	54	48	42	37	4
	Min	39	50	30	48	42	37	33	1
Nighttime	Max	54	71	42	66	57	51	47	5
10pm-7am	Median	51	64	36	58	54	48	40	1
	Min	44	58	31	56	45	40	35	1

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 1/5/2013

24hr Summary

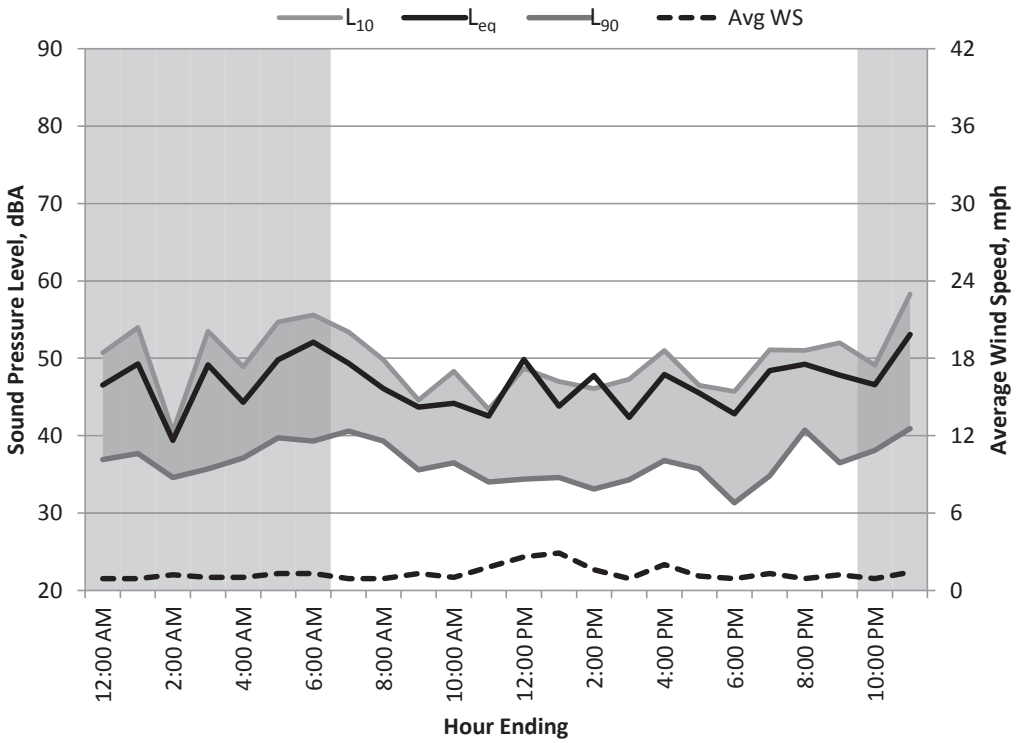
L_{DN} = 54 dBA C_{NEL} = 55 dBA $L_{eq(24hr)}$ = 48 dBA



Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	45	55	35	53	49	41	37	1
1:00	Night	48	62	33	60	49	40	37	1
2:00	Night	48	62	35	60	51	41	38	1
3:00	Night	47	58	37	56	49	43	40	1
4:00	Night	45	59	33	54	50	40	36	1
5:00	Night	51	64	34	60	56	43	37	1
6:00	Night	50	63	35	61	55	44	38	1
7:00	Day	48	63	38	54	52	44	41	1
8:00	Day	46	56	39	54	49	44	42	1
9:00	Day	47	65	35	57	52	41	38	2
10:00	Day	46	62	35	55	50	44	39	6
11:00	Day	48	63	37	57	52	45	41	8
12:00	Day	47	61	35	56	50	43	38	6
13:00	Day	44	60	33	55	46	40	36	4
14:00	Day	43	63	31	54	44	38	35	3
15:00	Day	41	54	32	48	44	40	36	4
16:00	Day	45	67	35	55	45	41	38	3
17:00	Day	45	61	35	56	48	41	38	2
18:00	Day	48	66	34	59	52	42	39	1
19:00	Day	53	69	36	63	56	49	42	1
20:00	Day	49	58	34	56	53	46	39	1
21:00	Day	53	67	30	63	57	49	40	1
22:00	Night	46	60	30	56	51	41	35	1
23:00	Night	48	59	34	58	53	42	37	1
Overall	Max	53	69	39	63	57	49	42	8
	Median	47	62	35	56	50	42	38	1
	Min	41	54	30	48	44	38	35	1
Daytime	Max	53	69	39	63	57	49	42	8
7am-10pm	Median	47	63	35	56	50	43	39	2
	Min	41	54	30	48	44	38	35	1
Nighttime	Max	51	64	37	61	56	44	40	1
10pm-7am	Median	48	60	34	58	51	41	37	1
	Min	45	55	30	53	49	40	35	1

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 1/6/2013

24hr Summary		
L_{DN} = 55 dBA	C_{NEL} = 56 dBA	$L_{eq(24hr)}$ = 48 dBA



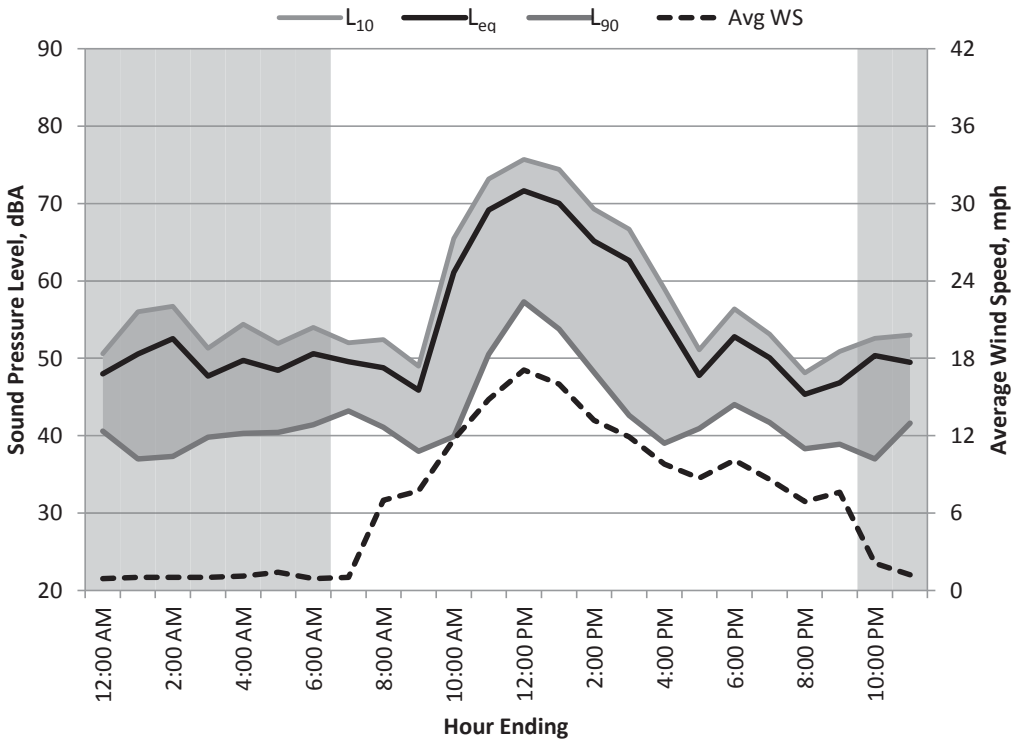
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	47	62	34	57	51	42	37	1
1:00	Night	49	62	33	59	54	44	38	1
2:00	Night	39	53	30	50	41	38	35	1
3:00	Night	49	65	33	59	54	40	36	1
4:00	Night	44	56	35	53	49	40	37	1
5:00	Night	50	62	36	57	55	44	40	1
6:00	Night	52	65	35	64	56	45	39	1
7:00	Day	49	64	38	60	53	44	41	1
8:00	Day	46	62	37	55	50	42	39	1
9:00	Day	44	62	34	54	45	38	36	1
10:00	Day	44	61	34	55	48	38	37	1
11:00	Day	43	63	32	54	43	36	34	2
12:00	Day	50	76	33	58	49	38	34	3
13:00	Day	44	63	32	54	47	38	35	3
14:00	Day	48	72	30	60	46	36	33	2
15:00	Day	42	54	32	52	47	38	34	1
16:00	Day	48	68	33	57	51	41	37	2
17:00	Day	46	64	31	57	47	41	36	1
18:00	Day	43	63	29	54	46	37	31	1
19:00	Day	48	68	32	60	51	39	35	1
20:00	Day	49	67	36	59	51	45	41	1
21:00	Day	48	63	33	59	52	42	37	1
22:00	Night	47	60	34	57	49	43	38	1
23:00	Night	53	67	32	63	58	47	41	1
Overall	Max	53	76	38	64	58	47	41	3
	Median	47	63	33	57	49	40	37	1
	Min	39	53	29	50	41	36	31	1
Daytime	Max	50	76	38	60	53	45	41	3
7am-10pm	Median	46	63	33	57	48	38	36	1
	Min	42	54	29	52	43	36	31	1
Nighttime	Max	53	67	36	64	58	47	41	1
10pm-7am	Median	49	62	34	57	54	43	38	1
	Min	39	53	30	50	41	38	35	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 1/7/2013

24hr Summary

L_{DN} = 63 dBA C_{NEL} = 63 dBA $L_{eq(24hr)}$ = 62 dBA



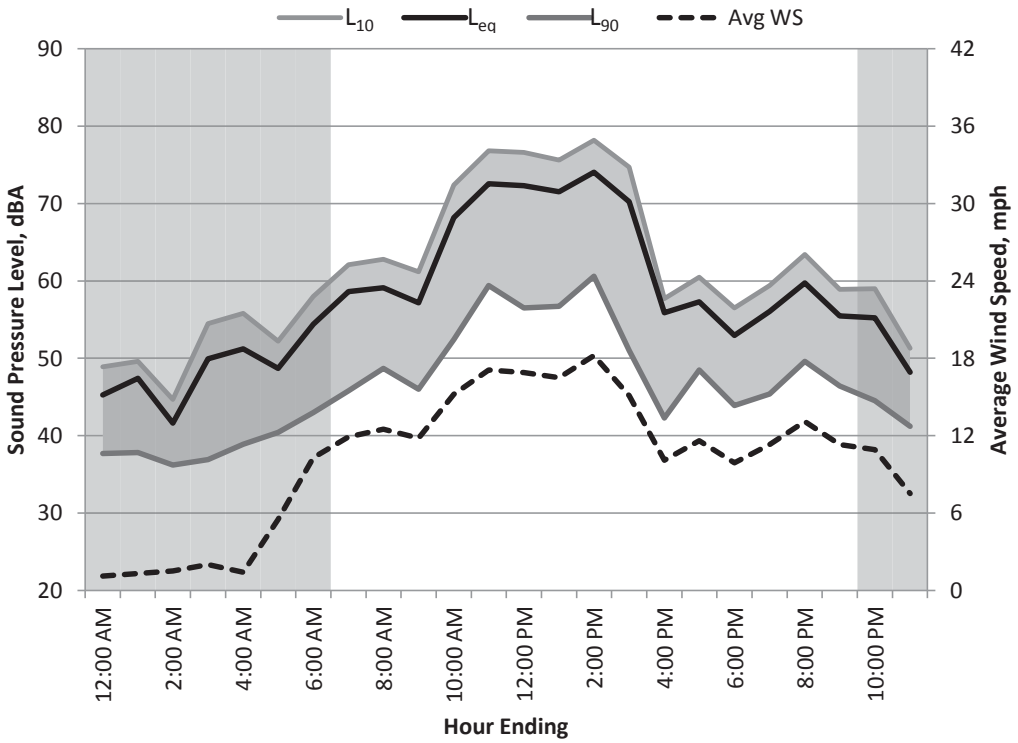
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	48	63	38	58	51	44	41	1
1:00	Night	51	62	32	60	56	43	37	1
2:00	Night	53	67	34	64	57	44	37	1
3:00	Night	48	60	36	57	51	44	40	1
4:00	Night	50	63	35	59	54	45	40	1
5:00	Night	48	60	35	57	52	46	40	1
6:00	Night	51	64	36	61	54	47	41	1
7:00	Day	50	68	38	58	52	47	43	1
8:00	Day	49	62	35	58	52	46	41	7
9:00	Day	46	64	34	55	49	42	38	8
10:00	Day	61	76	32	72	66	54	40	12
11:00	Day	69	83	36	80	73	63	51	15
12:00	Day	72	84	41	80	76	69	57	17
13:00	Day	70	82	39	79	74	66	54	16
14:00	Day	65	78	32	75	69	60	48	13
15:00	Day	63	79	31	73	67	56	43	12
16:00	Day	55	74	33	66	59	48	39	10
17:00	Day	48	64	33	56	51	45	41	9
18:00	Day	53	70	36	61	56	50	44	10
19:00	Day	50	64	36	59	53	47	42	9
20:00	Day	45	64	35	54	48	42	38	7
21:00	Day	47	60	34	55	51	44	39	8
22:00	Night	50	68	32	63	53	44	37	2
23:00	Night	49	63	36	60	53	46	42	1
Overall	Max	72	84	41	80	76	69	57	17
	Median	50	64	35	60	54	46	41	7
	Min	45	60	31	54	48	42	37	1
Daytime	Max	72	84	41	80	76	69	57	17
7am-10pm	Median	53	70	35	61	56	48	42	10
	Min	45	60	31	54	48	42	38	1
Nighttime	Max	53	68	38	64	57	47	42	2
10pm-7am	Median	50	63	35	60	53	44	40	1
	Min	48	60	32	57	51	43	37	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 1/8/2013

24hr Summary

L_{DN} = 67 dBA C_{NEL} = 67 dBA $L_{eq(24hr)}$ = 66 dBA



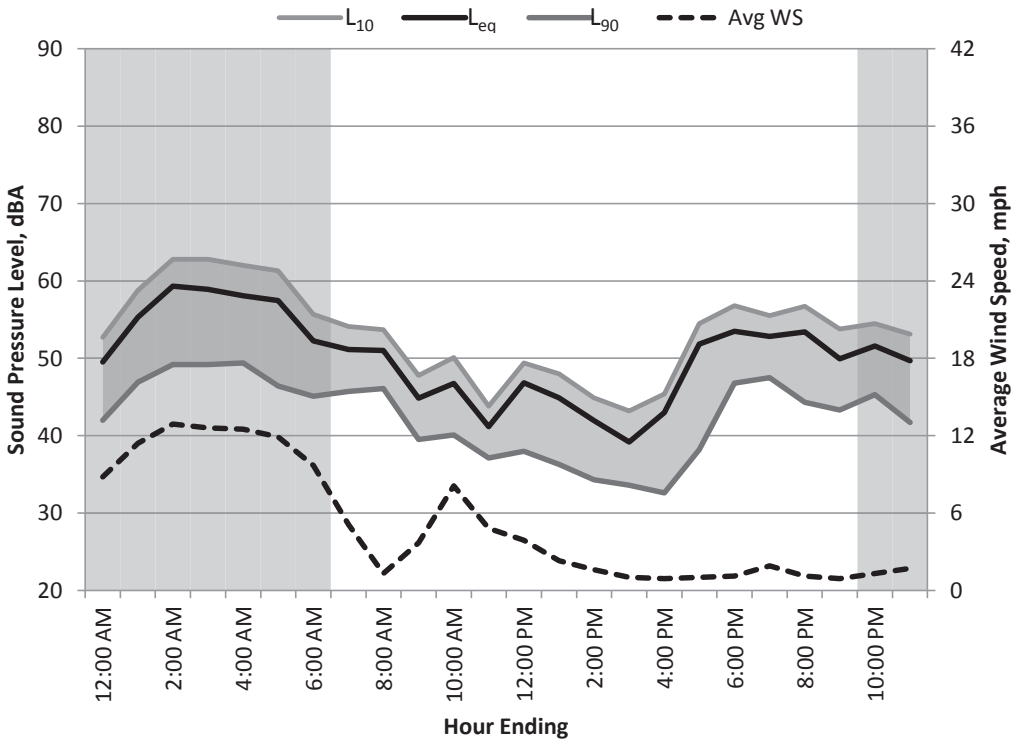
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	45	57	33	53	49	43	38	1
1:00	Night	47	63	32	59	50	43	38	1
2:00	Night	42	53	32	48	45	40	36	2
3:00	Night	50	65	32	60	55	43	37	2
4:00	Night	51	65	34	62	56	44	39	1
5:00	Night	49	62	36	58	52	46	40	6
6:00	Night	54	71	38	64	58	50	43	10
7:00	Day	59	77	36	69	62	54	46	12
8:00	Day	59	76	39	68	63	56	49	13
9:00	Day	57	73	40	66	61	54	46	12
10:00	Day	68	83	44	78	72	63	52	15
11:00	Day	73	84	43	81	77	70	59	17
12:00	Day	72	83	39	80	77	69	57	17
13:00	Day	72	84	40	80	76	68	57	17
14:00	Day	74	86	42	82	78	72	61	18
15:00	Day	70	85	37	80	75	65	51	15
16:00	Day	56	77	37	68	58	48	42	10
17:00	Day	57	72	43	67	61	54	49	12
18:00	Day	53	68	39	62	57	50	44	10
19:00	Day	56	75	39	66	59	52	45	11
20:00	Day	60	74	40	69	63	56	50	13
21:00	Day	55	70	40	65	59	53	46	11
22:00	Night	55	71	38	65	59	51	45	11
23:00	Night	48	64	36	57	51	45	41	8
Overall	Max	74	86	44	82	78	72	61	18
	Median	56	72	38	66	59	52	46	11
	Min	42	53	32	48	45	40	36	1
Daytime	Max	74	86	44	82	78	72	61	18
7am-10pm	Median	59	77	40	69	63	56	49	13
	Min	53	68	36	62	57	48	42	10
Nighttime	Max	55	71	38	65	59	51	45	11
10pm-7am	Median	49	64	34	59	52	44	39	2
	Min	42	53	32	48	45	40	36	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 1/9/2013

24hr Summary

L_{DN} = 62 dBA C_{NEL} = 62 dBA $L_{eq(24hr)}$ = 53 dBA



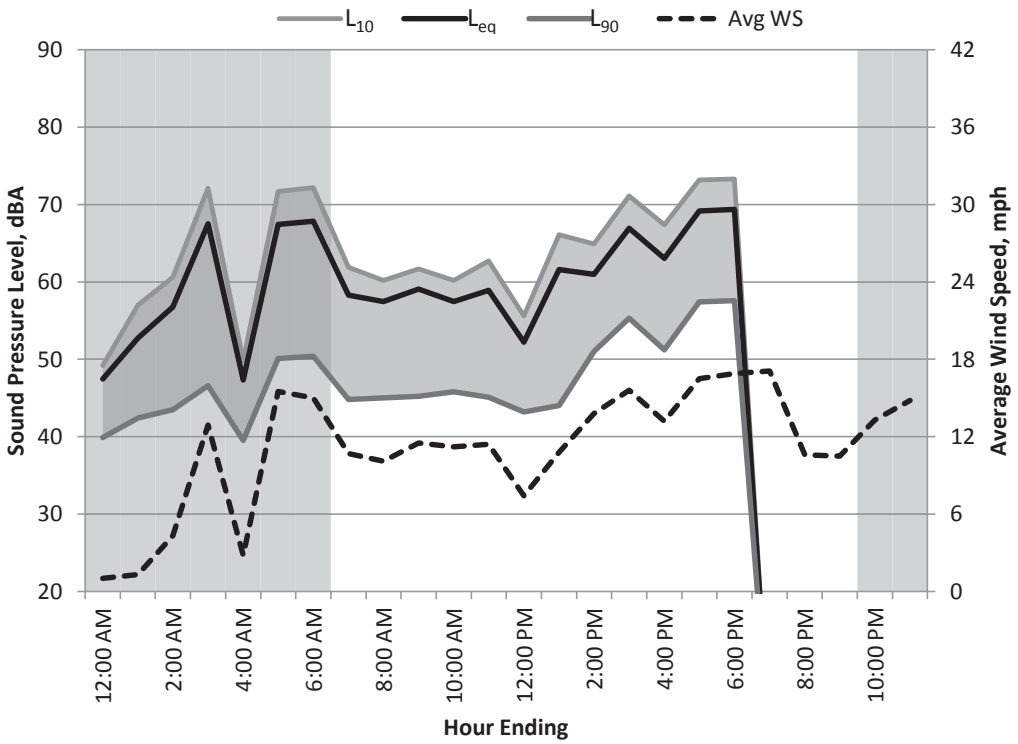
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	50	68	39	59	53	46	42	9
1:00	Night	55	67	40	63	59	53	47	11
2:00	Night	59	74	42	69	63	56	49	13
3:00	Night	59	72	41	68	63	56	49	13
4:00	Night	58	70	42	66	62	55	49	13
5:00	Night	57	73	39	67	61	54	46	12
6:00	Night	52	66	39	60	56	50	45	10
7:00	Day	51	63	41	58	54	50	46	5
8:00	Day	51	58	39	56	54	50	46	1
9:00	Day	45	58	36	52	48	43	40	4
10:00	Day	47	66	36	56	50	44	40	8
11:00	Day	41	52	34	49	44	40	37	5
12:00	Day	47	64	35	58	49	41	38	4
13:00	Day	45	59	34	56	48	40	36	2
14:00	Day	42	60	32	51	45	38	34	2
15:00	Day	39	53	32	49	43	35	34	1
16:00	Day	43	62	31	54	45	35	33	1
17:00	Day	52	71	35	62	55	46	38	1
18:00	Day	53	65	44	62	57	51	47	1
19:00	Day	53	63	43	60	56	52	48	2
20:00	Day	53	66	39	63	57	50	44	1
21:00	Day	50	60	38	58	54	47	43	1
22:00	Night	52	69	43	62	55	48	45	1
23:00	Night	50	62	37	58	53	47	42	2
Overall	Max	59	74	44	69	63	56	49	13
	Median	51	65	39	59	54	47	44	3
	Min	39	52	31	49	43	35	33	1
Daytime	Max	53	71	44	63	57	52	48	8
7am-10pm	Median	47	62	36	56	50	44	40	2
	Min	39	52	31	49	43	35	33	1
Nighttime	Max	59	74	43	69	63	56	49	13
10pm-7am	Median	55	69	40	63	59	53	46	11
	Min	50	62	37	58	53	46	42	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-2
DATE: 1/10/2013

24hr Summary

L_{DN} = -- dBA C_{NEL} = -- dBA $L_{eq(24hr)}$ = -- dBA



Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	47	63	37	58	49	43	40	1
1:00	Night	53	65	36	62	57	49	42	1
2:00	Night	57	75	39	68	61	48	44	4
3:00	Night	68	83	40	78	72	57	47	13
4:00	Night	47	66	36	56	50	45	40	3
5:00	Night	67	80	38	77	72	63	50	16
6:00	Night	68	85	44	78	72	61	50	15
7:00	Day	58	74	41	70	62	50	45	11
8:00	Day	57	81	41	67	60	50	45	10
9:00	Day	59	79	41	71	62	51	45	12
10:00	Day	57	75	42	70	60	52	46	11
11:00	Day	59	76	40	70	63	52	45	11
12:00	Day	52	69	37	63	56	48	43	7
13:00	Day	62	76	40	71	66	55	44	11
14:00	Day	61	73	43	70	65	58	51	14
15:00	Day	67	80	44	75	71	64	55	16
16:00	Day	63	76	43	72	67	59	51	13
17:00	Day	69	82	46	77	73	66	57	17
18:00	Day	69	81	46	78	73	67	58	17
19:00	Day	--	--	--	--	--	--	--	17
20:00	Day	--	--	--	--	--	--	--	11
21:00	Day	--	--	--	--	--	--	--	11
22:00	Night	--	--	--	--	--	--	--	13
23:00	Night	--	--	--	--	--	--	--	15
Overall	Max	--	--	--	--	--	--	--	17
	Median	--	--	--	--	--	--	--	11
	Min	--	--	--	--	--	--	--	1
Daytime	Max	--	--	--	--	--	--	--	17
7am-10pm	Median	--	--	--	--	--	--	--	11
	Min	--	--	--	--	--	--	--	7
Nighttime	Max	--	--	--	--	--	--	--	16
10pm-7am	Median	--	--	--	--	--	--	--	13
	Min	--	--	--	--	--	--	--	1

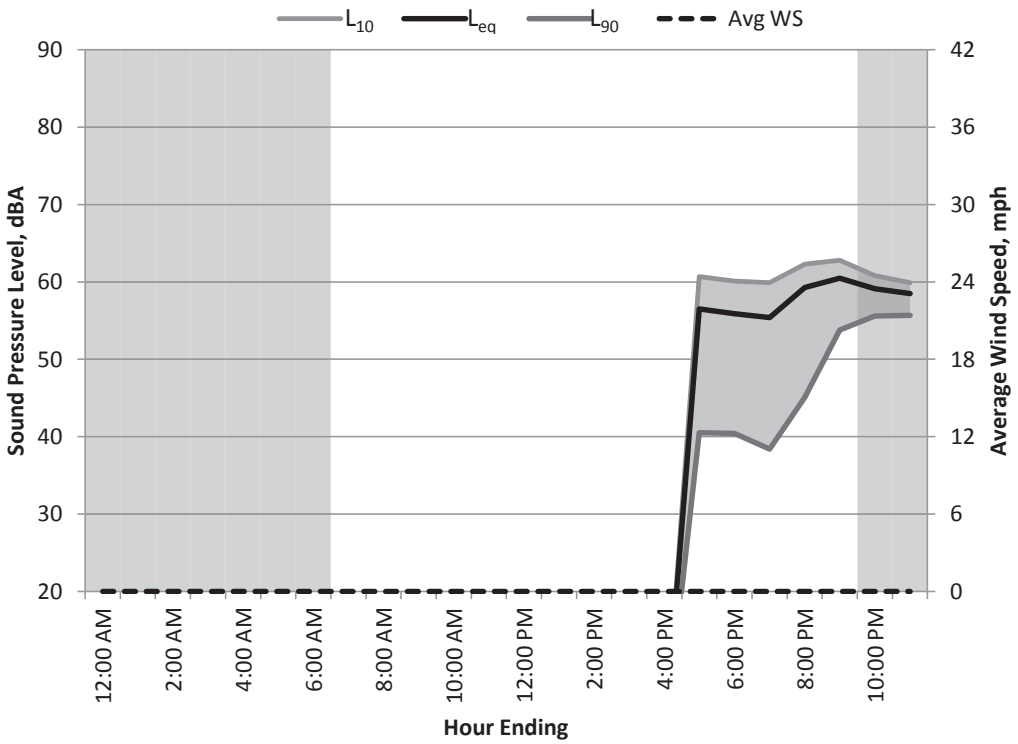
Appendix G
ST-3 August Measurements

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 8/2/2012

24hr Summary

L_{DN} = -- dBA C_{NEL} = -- dBA $L_{eq(24hr)}$ = -- dBA



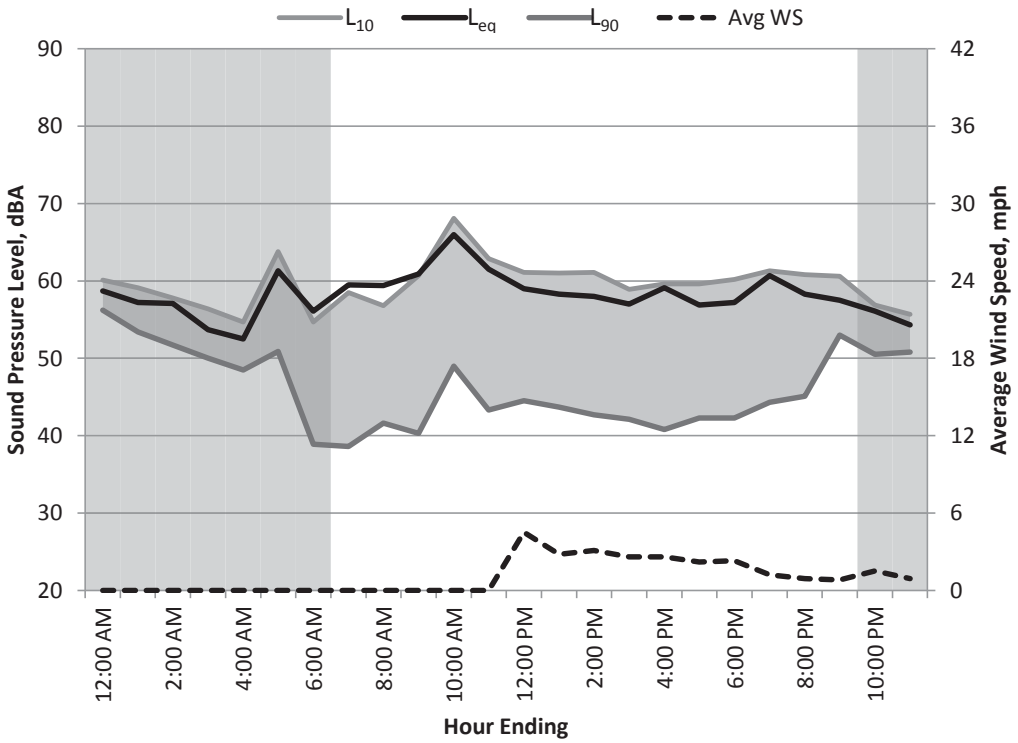
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	--	--	--	--	--	--	--	--
1:00	Night	--	--	--	--	--	--	--	--
2:00	Night	--	--	--	--	--	--	--	--
3:00	Night	--	--	--	--	--	--	--	--
4:00	Night	--	--	--	--	--	--	--	--
5:00	Night	--	--	--	--	--	--	--	--
6:00	Night	--	--	--	--	--	--	--	--
7:00	Day	--	--	--	--	--	--	--	--
8:00	Day	--	--	--	--	--	--	--	--
9:00	Day	--	--	--	--	--	--	--	--
10:00	Day	--	--	--	--	--	--	--	--
11:00	Day	--	--	--	--	--	--	--	--
12:00	Day	--	--	--	--	--	--	--	--
13:00	Day	--	--	--	--	--	--	--	--
14:00	Day	--	--	--	--	--	--	--	--
15:00	Day	--	--	--	--	--	--	--	--
16:00	Day	--	--	--	--	--	--	--	--
17:00	Day	57	75	36	67	61	48	41	--
18:00	Day	56	75	38	67	60	46	40	--
19:00	Day	55	72	36	66	60	46	38	--
20:00	Day	59	79	42	69	62	55	45	--
21:00	Day	61	76	51	68	63	60	54	--
22:00	Night	59	72	53	63	61	59	56	--
23:00	Night	59	70	49	62	60	58	56	--
Overall	Max	--	--	--	--	--	--	--	--
	Median	--	--	--	--	--	--	--	--
	Min	--	--	--	--	--	--	--	--
Daytime	Max	--	--	--	--	--	--	--	--
7am-10pm	Median	--	--	--	--	--	--	--	--
	Min	--	--	--	--	--	--	--	--
Nighttime	Max	--	--	--	--	--	--	--	--
10pm-7am	Median	--	--	--	--	--	--	--	--
	Min	--	--	--	--	--	--	--	--

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 8/3/2012

24hr Summary

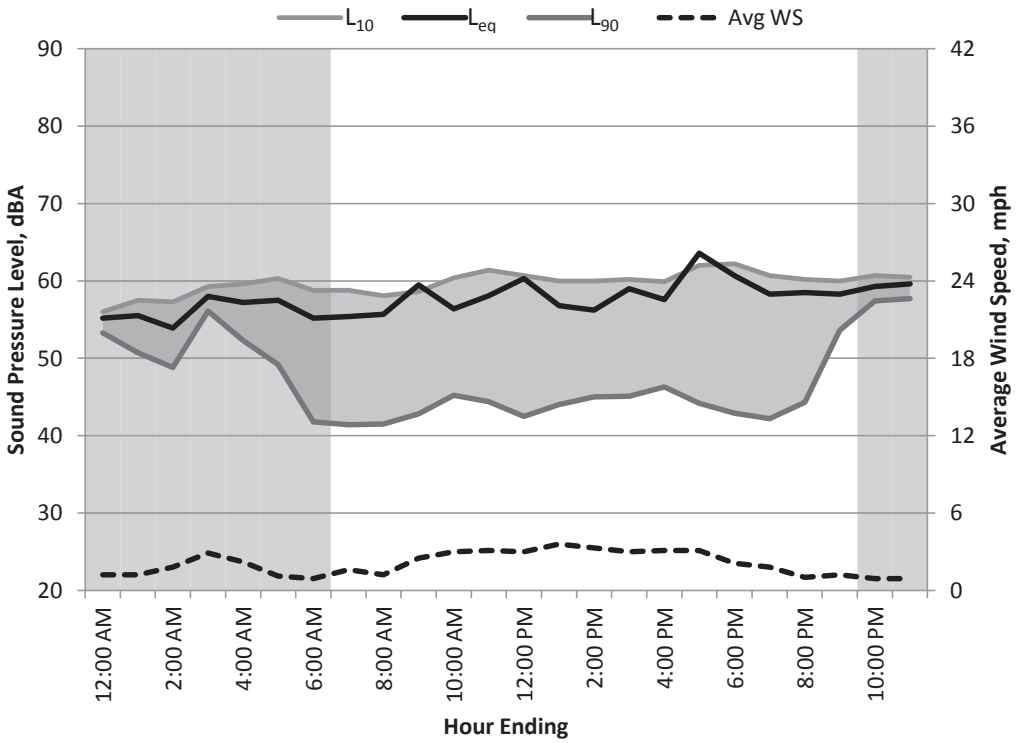
L_{DN} = 64 dBA C_{NEL} = 64 dBA $L_{eq(24hr)}$ = 59 dBA



Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	59	70	54	65	60	58	56	--
1:00	Night	57	64	50	61	59	57	53	--
2:00	Night	57	78	50	64	58	55	52	--
3:00	Night	54	68	47	60	56	52	50	--
4:00	Night	53	68	46	60	55	51	49	--
5:00	Night	61	84	43	69	64	56	51	--
6:00	Night	56	81	35	70	55	42	39	--
7:00	Day	60	84	35	73	59	42	39	--
8:00	Day	59	85	38	68	57	46	42	--
9:00	Day	61	88	37	72	61	47	40	--
10:00	Day	66	86	41	79	68	56	49	--
11:00	Day	62	82	41	74	63	50	43	--
12:00	Day	59	79	42	72	61	49	45	5
13:00	Day	58	78	41	70	61	49	44	3
14:00	Day	58	76	39	70	61	50	43	3
15:00	Day	57	78	39	70	59	46	42	3
16:00	Day	59	84	38	72	60	46	41	3
17:00	Day	57	79	38	69	60	48	42	2
18:00	Day	57	78	38	69	60	49	42	2
19:00	Day	61	88	41	71	61	50	44	1
20:00	Day	58	79	42	70	61	51	45	1
21:00	Day	58	69	48	66	61	55	53	1
22:00	Night	56	80	47	63	57	54	51	2
23:00	Night	54	73	45	63	56	52	51	1
Overall	Max	66	88	54	79	68	58	56	--
	Median	58	79	41	69	60	50	44	--
	Min	53	64	35	60	55	42	39	--
Daytime	Max	66	88	48	79	68	56	53	--
7am-10pm	Median	59	79	39	70	61	49	43	--
	Min	57	69	35	66	57	42	39	--
Nighttime	Max	61	84	54	70	64	58	56	--
10pm-7am	Median	56	73	47	63	57	54	51	--
	Min	53	64	35	60	55	42	39	--

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 8/4/2012

24hr Summary		
L_{DN} = 64 dBA	C_{NEL} = 64 dBA	$L_{eq(24hr)}$ = 58 dBA



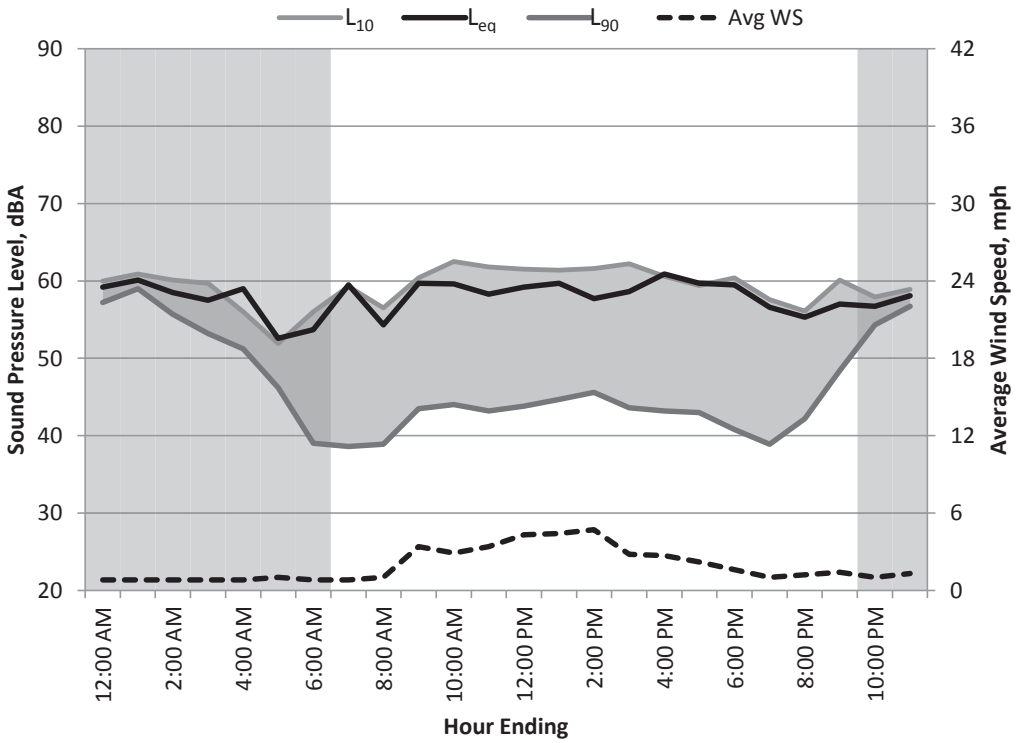
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	55	67	50	61	56	55	53	1
1:00	Night	56	75	49	62	58	54	51	1
2:00	Night	54	61	47	59	57	52	49	2
3:00	Night	58	66	52	64	59	58	56	3
4:00	Night	57	68	50	62	60	57	52	2
5:00	Night	58	70	46	68	60	55	49	1
6:00	Night	55	75	38	67	59	45	42	1
7:00	Day	55	75	39	67	59	46	41	2
8:00	Day	56	77	39	68	58	47	42	1
9:00	Day	60	84	39	72	59	48	43	3
10:00	Day	56	75	42	67	60	50	45	3
11:00	Day	58	76	41	70	61	50	44	3
12:00	Day	60	88	39	71	61	49	43	3
13:00	Day	57	76	41	68	60	50	44	4
14:00	Day	56	74	42	67	60	49	45	3
15:00	Day	59	88	42	68	60	50	45	3
16:00	Day	58	80	44	69	60	50	46	3
17:00	Day	64	91	40	76	62	50	44	3
18:00	Day	61	81	38	74	62	50	43	2
19:00	Day	58	81	38	70	61	48	42	2
20:00	Day	59	81	41	71	60	53	44	1
21:00	Day	58	78	46	65	60	57	54	1
22:00	Night	59	70	56	65	61	59	57	1
23:00	Night	60	73	55	66	61	59	58	1
Overall	Max	64	91	56	76	62	59	58	4
	Median	58	76	42	67	60	50	45	2
	Min	54	61	38	59	56	45	41	1
Daytime	Max	64	91	46	76	62	57	54	4
7am-10pm	Median	58	80	41	69	60	50	44	3
	Min	55	74	38	65	58	46	41	1
Nighttime	Max	60	75	56	68	61	59	58	3
10pm-7am	Median	57	70	50	64	59	55	52	1
	Min	54	61	38	59	56	45	42	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 8/5/2012

24hr Summary

L_{DN} = 64 dBA C_{NEL} = 65 dBA $L_{eq(24hr)}$ = 58 dBA

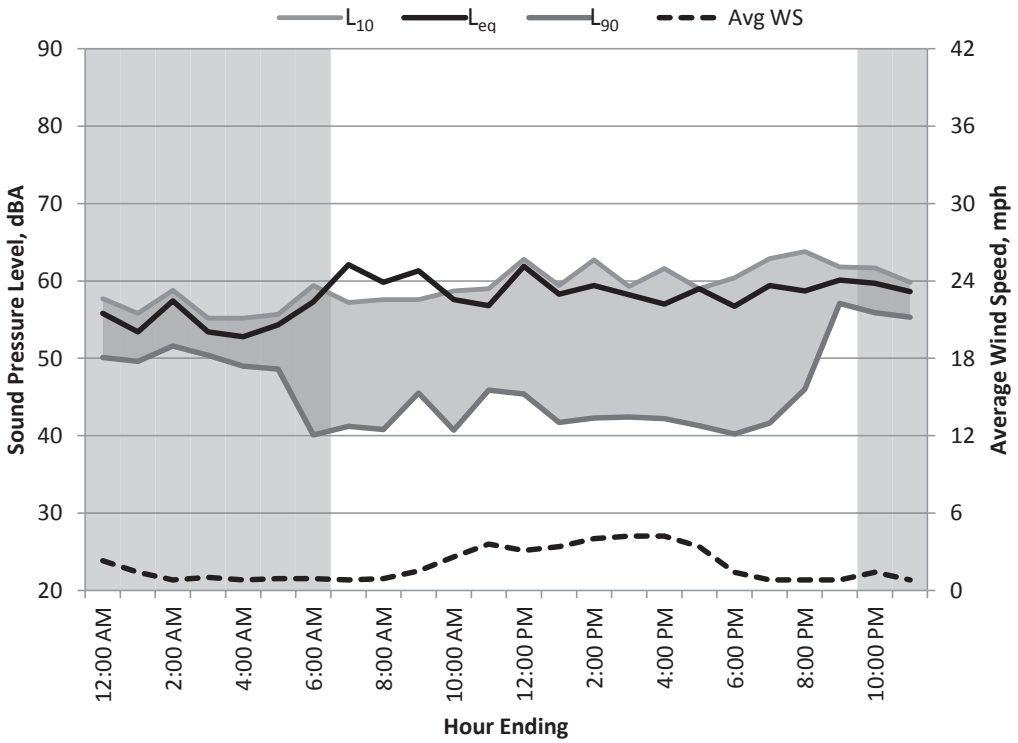


Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	59	79	52	63	60	59	57	1
1:00	Night	60	64	56	63	61	60	59	1
2:00	Night	59	72	54	63	60	58	56	1
3:00	Night	58	66	47	64	60	57	53	1
4:00	Night	59	84	49	72	56	53	51	1
5:00	Night	53	75	44	63	52	49	46	1
6:00	Night	54	76	36	66	56	42	39	1
7:00	Day	60	86	36	68	59	43	39	1
8:00	Day	54	73	37	68	57	43	39	1
9:00	Day	60	85	40	71	60	50	44	3
10:00	Day	60	83	40	69	63	51	44	3
11:00	Day	58	77	40	70	62	50	43	3
12:00	Day	59	81	40	71	62	50	44	4
13:00	Day	60	84	42	72	61	51	45	4
14:00	Day	58	74	41	68	62	52	46	5
15:00	Day	59	77	40	70	62	52	44	3
16:00	Day	61	85	38	73	61	48	43	3
17:00	Day	60	88	39	68	59	47	43	2
18:00	Day	60	84	38	71	60	46	41	2
19:00	Day	57	79	36	70	58	47	39	1
20:00	Day	55	77	39	68	56	47	42	1
21:00	Day	57	81	44	66	60	51	48	1
22:00	Night	57	67	50	61	58	57	54	1
23:00	Night	58	71	55	64	59	58	57	1
Overall	Max	61	88	56	73	63	60	59	5
	Median	59	78	40	68	60	50	44	1
	Min	53	64	36	61	52	42	39	1
Daytime	Max	61	88	44	73	63	52	48	5
7am-10pm	Median	59	81	40	70	60	50	43	3
	Min	54	73	36	66	56	43	39	1
Nighttime	Max	60	84	56	72	61	60	59	1
10pm-7am	Median	58	72	50	63	59	57	54	1
	Min	53	64	36	61	52	42	39	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 8/6/2012

24hr Summary		
L_{DN} = 63 dBA	C_{NEL} = 64 dBA	$L_{eq(24hr)}$ = 59 dBA



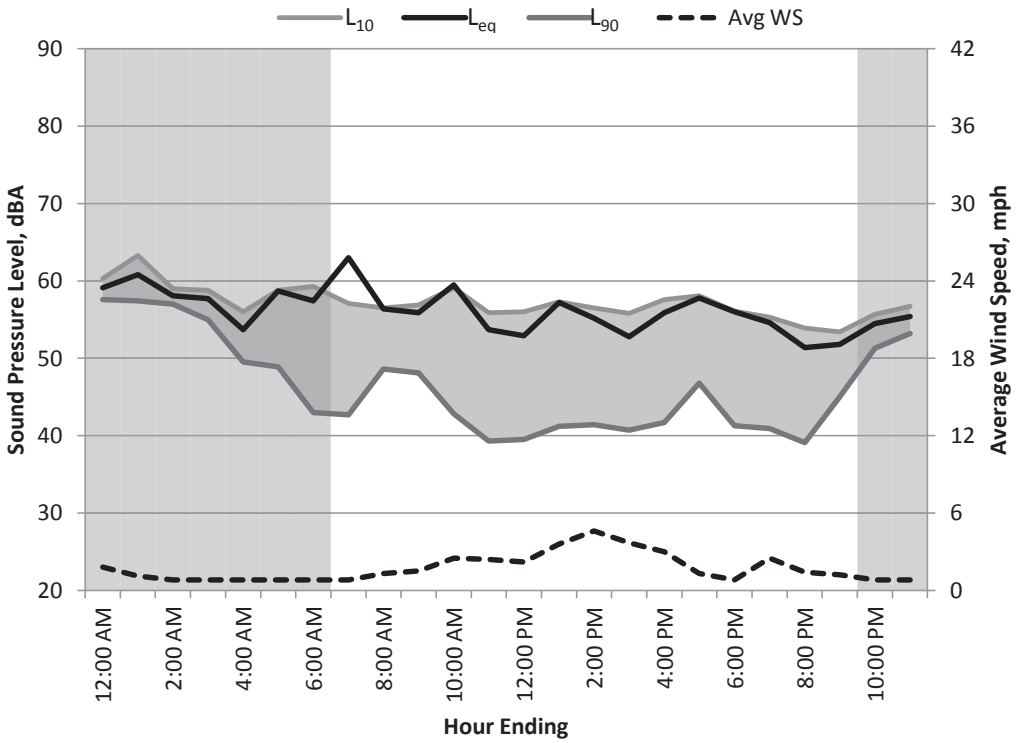
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	56	64	47	58	58	56	50	2
1:00	Night	53	63	45	57	56	53	50	1
2:00	Night	57	72	49	66	59	57	52	1
3:00	Night	53	65	48	61	55	52	50	1
4:00	Night	53	65	46	59	55	52	49	1
5:00	Night	54	70	47	64	56	52	49	1
6:00	Night	57	82	37	70	59	44	40	1
7:00	Day	62	89	38	72	57	48	41	1
8:00	Day	60	84	38	72	58	46	41	1
9:00	Day	61	86	43	72	58	49	46	2
10:00	Day	58	78	37	71	59	47	41	3
11:00	Day	57	74	41	68	59	53	46	4
12:00	Day	62	86	41	72	63	52	45	3
13:00	Day	58	81	39	71	59	47	42	3
14:00	Day	59	85	39	68	63	48	42	4
15:00	Day	58	82	40	71	59	47	42	4
16:00	Day	57	73	38	66	62	48	42	4
17:00	Day	59	87	39	68	59	46	41	3
18:00	Day	57	77	38	67	60	47	40	1
19:00	Day	59	76	38	66	63	58	42	1
20:00	Day	59	78	42	66	64	52	46	1
21:00	Day	60	73	55	65	62	60	57	1
22:00	Night	60	72	49	65	62	59	56	1
23:00	Night	59	68	52	61	60	59	55	1
Overall	Max	62	89	55	72	64	60	57	4
	Median	58	77	41	67	59	52	45	1
	Min	53	63	37	57	55	44	40	1
Daytime	Max	62	89	55	72	64	60	57	4
7am-10pm	Median	59	81	39	68	59	48	42	3
	Min	57	73	37	65	57	46	40	1
Nighttime	Max	60	82	52	70	62	59	56	2
10pm-7am	Median	56	68	47	61	58	53	50	1
	Min	53	63	37	57	55	44	40	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 8/7/2012

24hr Summary

L_{DN} = 64 dBA C_{NEL} = 64 dBA $L_{eq(24hr)}$ = 57 dBA



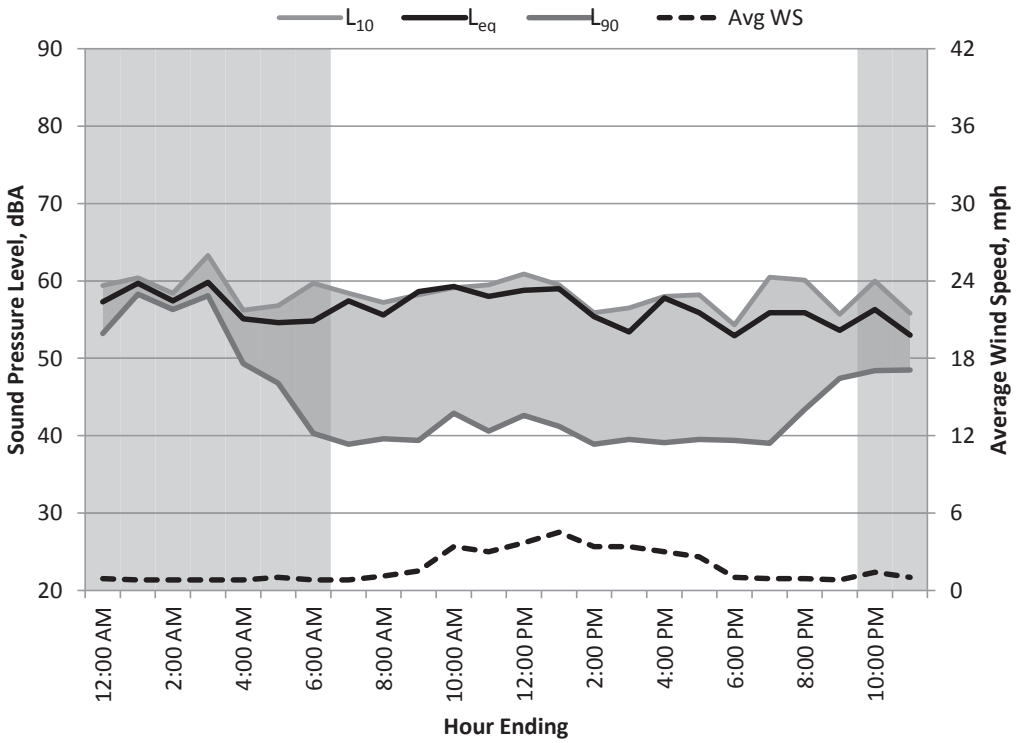
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	59	66	48	62	60	59	58	2
1:00	Night	61	66	51	65	63	59	57	1
2:00	Night	58	64	52	62	59	58	57	1
3:00	Night	58	72	49	61	59	58	55	1
4:00	Night	54	72	47	61	56	52	50	1
5:00	Night	59	82	45	68	59	54	49	1
6:00	Night	57	79	38	68	59	48	43	1
7:00	Day	63	93	39	68	57	49	43	1
8:00	Day	56	77	48	69	57	51	49	1
9:00	Day	56	76	45	68	57	52	48	2
10:00	Day	60	85	41	72	59	49	43	3
11:00	Day	54	74	37	65	56	45	39	2
12:00	Day	53	72	37	64	56	46	40	2
13:00	Day	57	80	38	70	57	48	41	4
14:00	Day	55	76	38	68	57	47	41	5
15:00	Day	53	71	39	65	56	45	41	4
16:00	Day	56	78	39	68	58	49	42	3
17:00	Day	58	84	42	68	58	51	47	1
18:00	Day	56	78	36	69	56	47	41	1
19:00	Day	55	76	39	66	55	50	41	3
20:00	Day	51	68	37	63	54	46	39	1
21:00	Day	52	71	40	61	53	50	45	1
22:00	Night	55	71	45	60	56	54	51	1
23:00	Night	55	64	48	62	57	55	53	1
Overall	Max	63	93	52	72	63	59	58	5
	Median	56	75	40	65	57	50	44	1
	Min	51	64	36	60	53	45	39	1
Daytime	Max	63	93	48	72	59	52	49	5
7am-10pm	Median	56	76	39	68	57	49	41	2
	Min	51	68	36	61	53	45	39	1
Nighttime	Max	61	82	52	68	63	59	58	2
10pm-7am	Median	58	71	48	62	59	55	53	1
	Min	54	64	38	60	56	48	43	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 8/8/2012

24hr Summary

L_{DN} = 63 dBA C_{NEL} = 64 dBA $L_{eq(24hr)}$ = 57 dBA

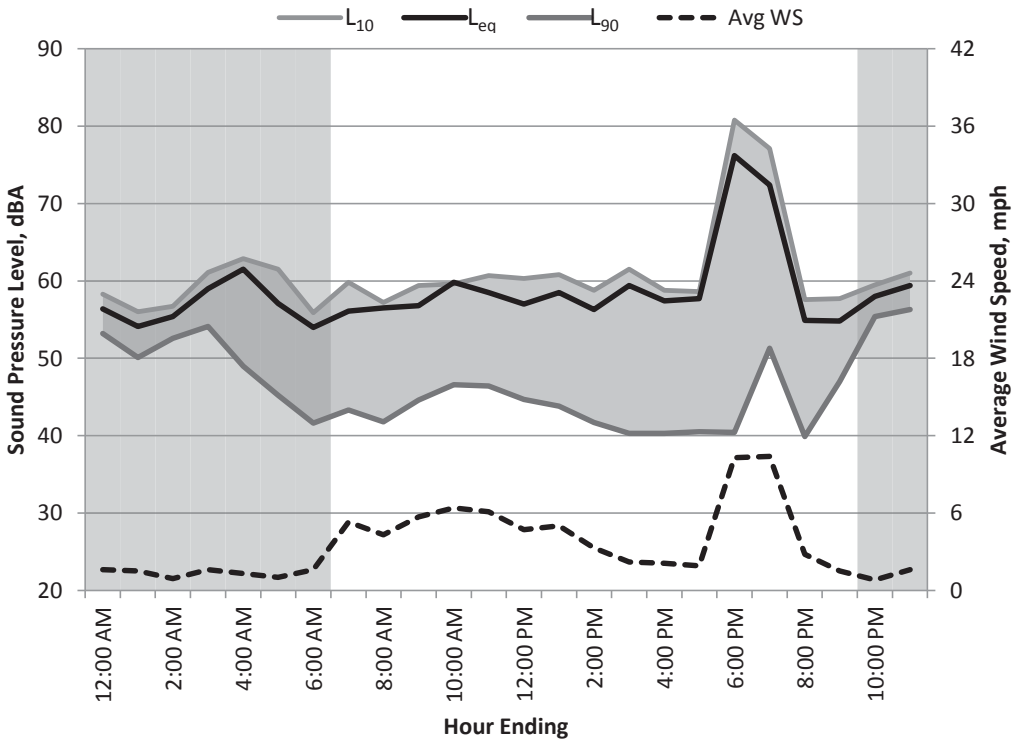


Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	57	64	51	61	59	58	53	1
1:00	Night	60	71	55	63	60	59	58	1
2:00	Night	57	66	46	59	58	57	56	1
3:00	Night	60	71	53	64	63	59	58	1
4:00	Night	55	74	47	64	56	52	49	1
5:00	Night	55	70	43	65	57	51	47	1
6:00	Night	55	73	37	65	60	44	40	1
7:00	Day	57	82	37	69	58	43	39	1
8:00	Day	56	75	37	69	57	47	40	1
9:00	Day	59	86	36	69	58	46	39	2
10:00	Day	59	83	39	71	59	49	43	3
11:00	Day	58	82	37	69	60	49	41	3
12:00	Day	59	78	38	71	61	51	43	4
13:00	Day	59	83	37	71	60	49	41	5
14:00	Day	55	75	37	68	56	46	39	3
15:00	Day	53	73	36	65	57	45	40	3
16:00	Day	58	83	36	68	58	48	39	3
17:00	Day	56	76	37	66	58	48	40	3
18:00	Day	53	79	36	64	54	43	39	1
19:00	Day	56	73	37	64	61	49	39	1
20:00	Day	56	73	40	65	60	52	43	1
21:00	Day	54	70	44	64	56	51	47	1
22:00	Night	56	70	43	66	60	53	48	1
23:00	Night	53	71	44	59	56	52	49	1
Overall	Max	60	86	55	71	63	59	58	5
	Median	56	74	37	65	58	49	42	1
	Min	53	64	36	59	54	43	39	1
Daytime	Max	59	86	44	71	61	52	47	5
7am-10pm	Median	56	78	37	68	58	48	40	3
	Min	53	70	36	64	54	43	39	1
Nighttime	Max	60	74	55	66	63	59	58	1
10pm-7am	Median	56	71	46	64	59	53	49	1
	Min	53	64	37	59	56	44	40	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 8/9/2012

24hr Summary		
L_{DN} = 67 dBA	C_{NEL} = 68 dBA	$L_{eq(24hr)}$ = 65 dBA

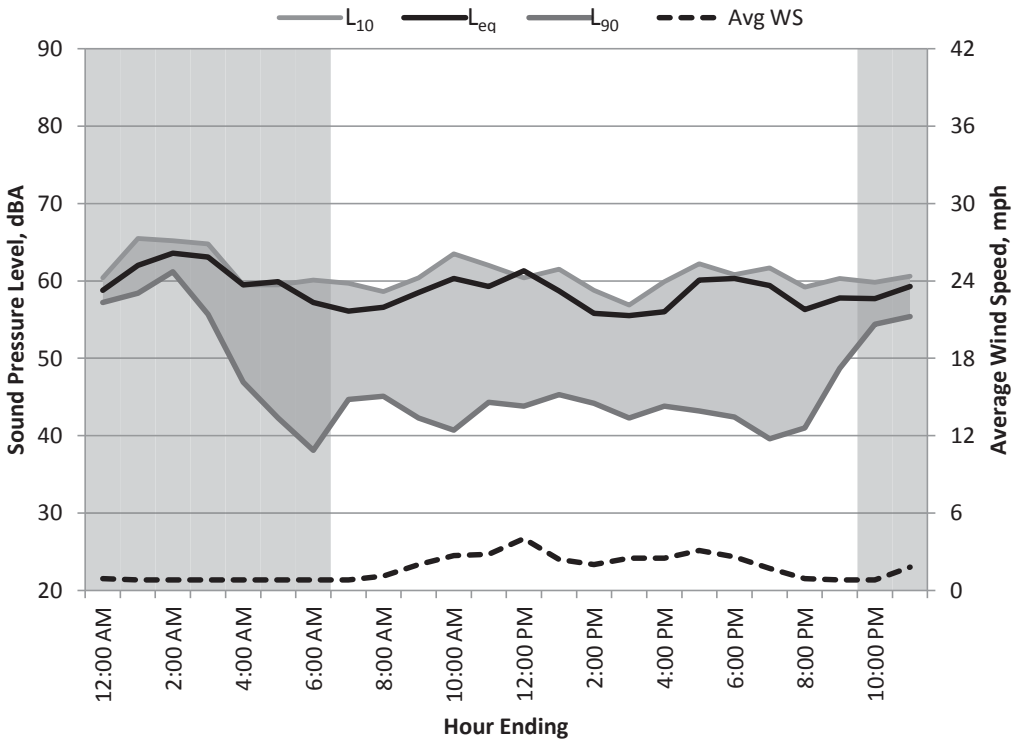


Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	56	66	48	62	58	56	53	2
1:00	Night	54	65	46	62	56	53	50	2
2:00	Night	55	65	50	62	57	55	53	1
3:00	Night	59	71	48	64	61	59	54	2
4:00	Night	62	75	47	67	63	62	49	1
5:00	Night	57	81	42	66	62	51	45	1
6:00	Night	54	76	37	66	56	45	42	2
7:00	Day	56	73	37	68	60	49	43	5
8:00	Day	57	78	38	70	57	46	42	4
9:00	Day	57	76	39	68	59	49	45	6
10:00	Day	60	87	42	70	60	52	47	6
11:00	Day	59	84	41	68	61	51	46	6
12:00	Day	57	75	41	68	60	50	45	5
13:00	Day	59	79	40	71	61	50	44	5
14:00	Day	56	77	37	68	59	48	42	3
15:00	Day	59	80	37	72	62	50	40	2
16:00	Day	57	79	37	70	59	47	40	2
17:00	Day	58	83	37	68	59	48	41	2
18:00	Day	76	92	37	88	81	58	40	10
19:00	Day	72	88	46	83	77	64	51	10
20:00	Day	55	73	37	67	58	50	40	3
21:00	Day	55	72	42	64	58	51	47	2
22:00	Night	58	72	49	64	60	57	55	1
23:00	Night	59	66	53	63	61	59	56	2
Overall	Max	76	92	53	88	81	64	56	10
	Median	57	76	41	68	60	51	45	2
	Min	54	65	37	62	56	45	40	1
Daytime	Max	76	92	46	88	81	64	51	10
7am-10pm	Median	57	79	38	68	60	50	43	5
	Min	55	72	37	64	57	46	40	2
Nighttime	Max	62	81	53	67	63	62	56	2
10pm-7am	Median	57	71	48	64	60	56	53	2
	Min	54	65	37	62	56	45	42	1

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 8/10/2012

24hr Summary

L_{DN} = 67 dBA C_{NEL} = 67 dBA $L_{eq(24hr)}$ = 59 dBA



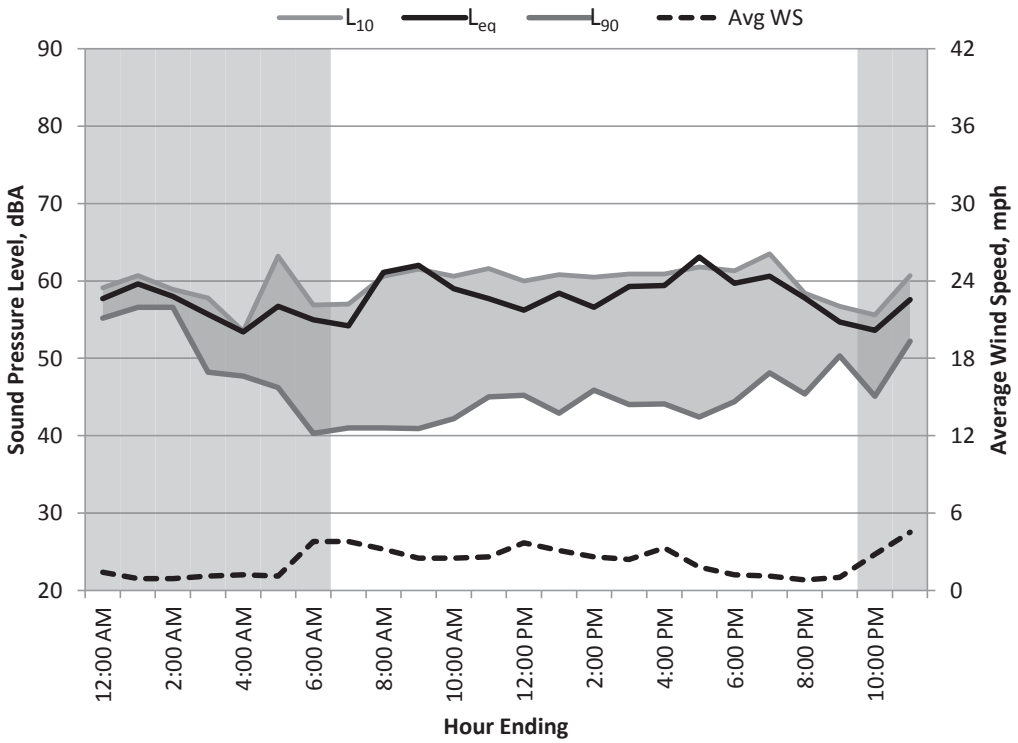
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	59	67	55	63	60	59	57	1
1:00	Night	62	67	55	66	66	61	58	1
2:00	Night	64	68	60	68	65	63	61	1
3:00	Night	63	75	49	66	65	64	56	1
4:00	Night	60	87	45	68	60	50	47	1
5:00	Night	60	83	39	71	60	50	42	1
6:00	Night	57	78	35	69	60	43	38	1
7:00	Day	56	74	40	67	60	49	45	1
8:00	Day	57	76	39	69	59	51	45	1
9:00	Day	59	80	39	70	60	50	42	2
10:00	Day	60	75	38	71	64	50	41	3
11:00	Day	59	82	40	71	62	50	44	3
12:00	Day	61	90	39	70	60	50	44	4
13:00	Day	59	79	40	71	62	51	45	2
14:00	Day	56	77	41	68	59	48	44	2
15:00	Day	56	76	39	68	57	47	42	3
16:00	Day	56	75	40	68	60	48	44	3
17:00	Day	60	85	39	71	62	50	43	3
18:00	Day	60	85	37	72	61	49	42	3
19:00	Day	59	82	37	70	62	49	40	2
20:00	Day	56	75	37	68	59	49	41	1
21:00	Day	58	75	43	67	60	55	49	1
22:00	Night	58	72	52	65	60	56	54	1
23:00	Night	59	78	51	67	61	59	55	2
Overall	Max	64	90	60	72	66	64	61	4
	Median	59	76	40	68	60	50	44	1
	Min	56	67	35	63	57	43	38	1
Daytime	Max	61	90	43	72	64	55	49	4
7am-10pm	Median	59	77	39	70	60	50	44	2
	Min	56	74	37	67	57	47	40	1
Nighttime	Max	64	87	60	71	66	64	61	2
10pm-7am	Median	60	75	51	67	60	59	55	1
	Min	57	67	35	63	60	43	38	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 8/11/2012

24hr Summary

L_{DN} = 64 dBA C_{NEL} = 64 dBA $L_{eq(24hr)}$ = 59 dBA

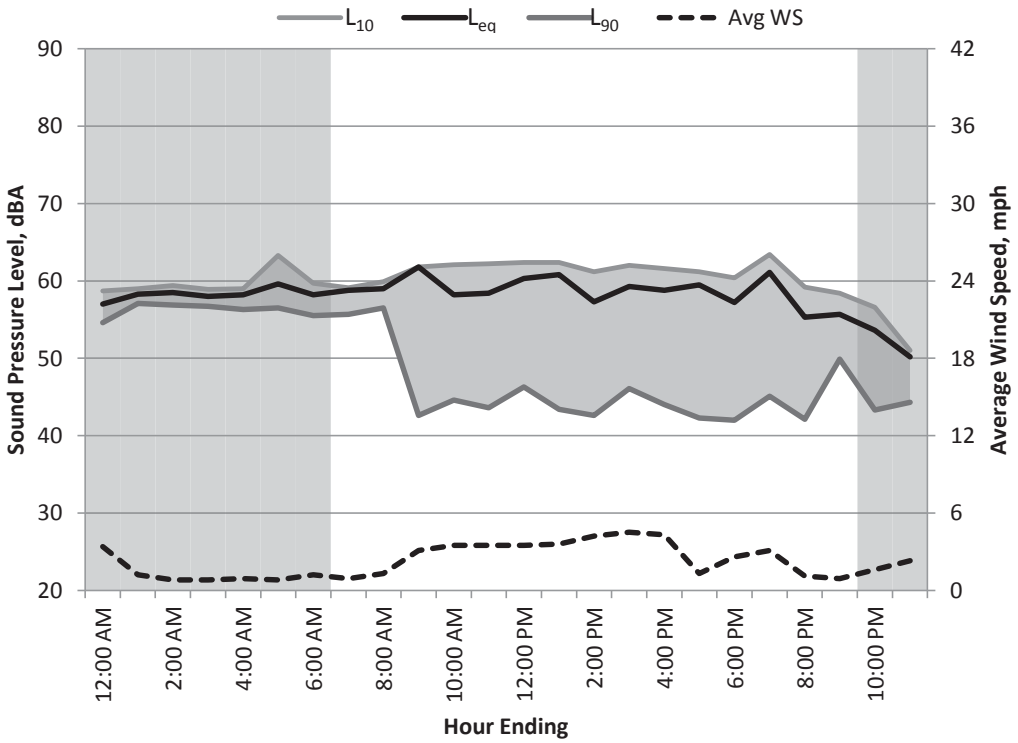


Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	58	68	51	62	59	57	55	1
1:00	Night	60	64	49	62	61	60	57	1
2:00	Night	58	72	50	60	59	58	57	1
3:00	Night	56	74	46	64	58	56	48	1
4:00	Night	53	77	46	62	54	51	48	1
5:00	Night	57	74	42	65	63	50	46	1
6:00	Night	55	76	35	67	57	45	40	4
7:00	Day	54	72	35	66	57	46	41	4
8:00	Day	61	85	37	73	61	48	41	3
9:00	Day	62	88	37	74	62	47	41	3
10:00	Day	59	84	38	70	61	48	42	3
11:00	Day	58	78	41	69	62	50	45	3
12:00	Day	56	76	41	67	60	50	45	4
13:00	Day	58	79	40	70	61	49	43	3
14:00	Day	57	75	42	67	61	50	46	3
15:00	Day	59	85	41	71	61	49	44	2
16:00	Day	59	83	41	71	61	49	44	3
17:00	Day	63	92	38	72	62	50	42	2
18:00	Day	60	80	39	72	61	52	44	1
19:00	Day	61	76	38	70	64	58	48	1
20:00	Day	58	84	40	67	58	52	45	1
21:00	Day	55	71	47	62	57	54	50	1
22:00	Night	54	70	39	63	56	51	45	3
23:00	Night	58	74	48	66	61	55	52	5
Overall	Max	63	92	51	74	64	60	57	5
	Median	58	76	41	67	61	50	45	2
	Min	53	64	35	60	54	45	40	1
Daytime	Max	63	92	47	74	64	58	50	4
7am-10pm	Median	59	80	40	70	61	50	44	3
	Min	54	71	35	62	57	46	41	1
Nighttime	Max	60	77	51	67	63	60	57	5
10pm-7am	Median	57	74	46	63	59	55	48	1
	Min	53	64	35	60	54	45	40	1

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 8/12/2012

24hr Summary

L_{DN} = 64 dBA C_{NEL} = 64 dBA $L_{eq(24hr)}$ = 59 dBA



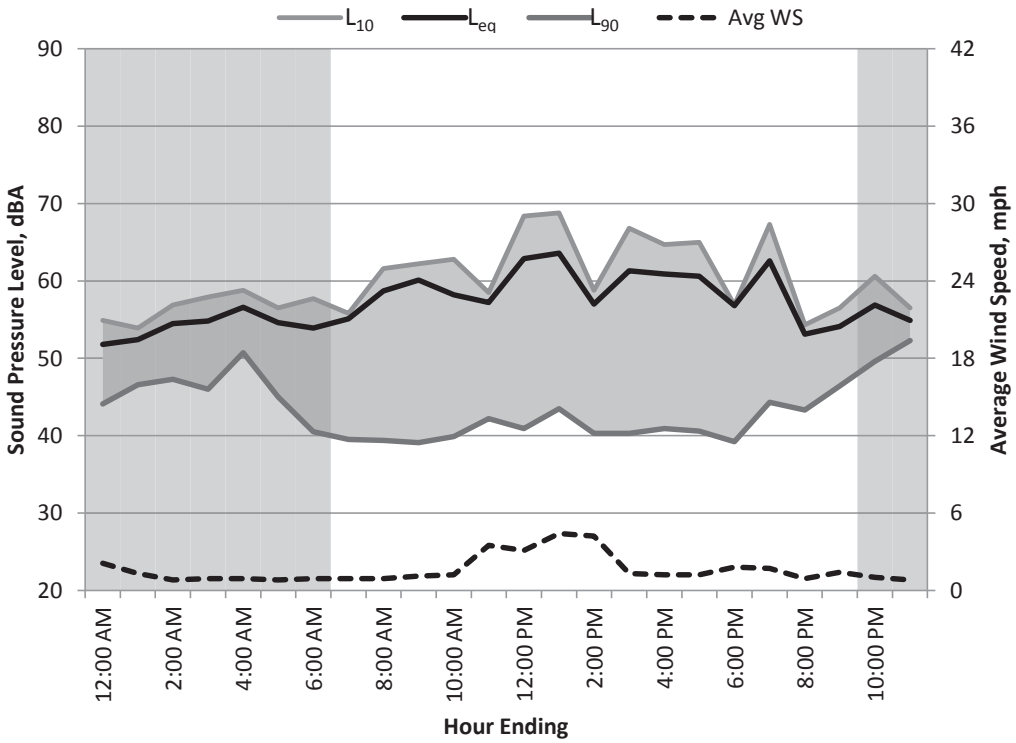
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	57	65	52	61	59	57	55	3
1:00	Night	58	71	55	60	59	58	57	1
2:00	Night	59	74	56	62	59	58	57	1
3:00	Night	58	61	56	60	59	58	57	1
4:00	Night	58	68	56	64	59	58	56	1
5:00	Night	60	67	55	65	63	58	57	1
6:00	Night	58	71	54	66	60	57	56	1
7:00	Day	59	78	55	66	59	57	56	1
8:00	Day	59	75	49	67	60	58	57	1
9:00	Day	62	86	39	75	62	51	43	3
10:00	Day	58	76	41	70	62	51	45	4
11:00	Day	58	78	40	70	62	50	44	4
12:00	Day	60	83	40	73	62	52	46	4
13:00	Day	61	83	40	73	62	50	43	4
14:00	Day	57	77	38	69	61	49	43	4
15:00	Day	59	80	41	70	62	53	46	5
16:00	Day	59	79	40	71	62	50	44	4
17:00	Day	60	80	39	73	61	50	42	1
18:00	Day	57	76	40	70	60	47	42	3
19:00	Day	61	82	40	69	63	60	45	3
20:00	Day	55	77	37	66	59	49	42	1
21:00	Day	56	70	45	64	58	54	50	1
22:00	Night	54	73	39	63	57	48	43	2
23:00	Night	50	65	42	60	51	49	44	2
Overall	Max	62	86	56	75	63	60	57	5
	Median	58	76	41	67	60	52	46	2
	Min	50	61	37	60	51	47	42	1
Daytime	Max	62	86	55	75	63	60	57	5
7am-10pm	Median	59	78	40	70	62	51	44	3
	Min	55	70	37	64	58	47	42	1
Nighttime	Max	60	74	56	66	63	58	57	3
10pm-7am	Median	58	68	55	62	59	58	56	1
	Min	50	61	39	60	51	48	43	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 8/13/2012

24hr Summary

L_{DN} = 62 dBA C_{NEL} = 63 dBA $L_{eq(24hr)}$ = 59 dBA

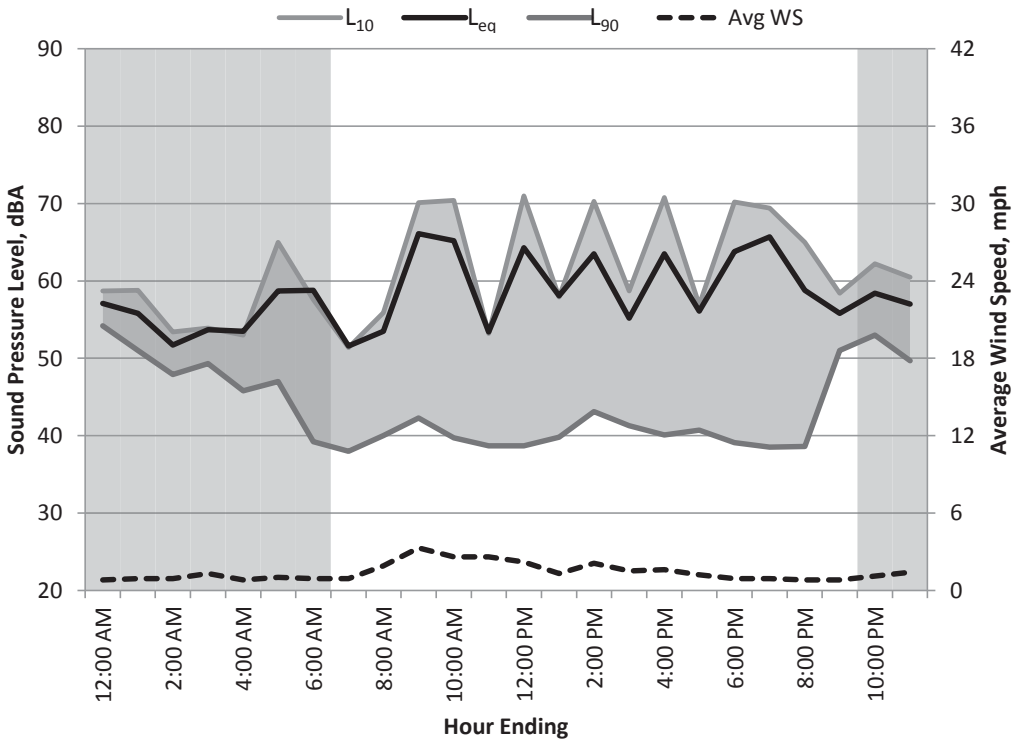


Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	52	68	41	62	55	48	44	2
1:00	Night	52	66	44	63	54	50	47	1
2:00	Night	55	72	46	60	57	53	47	1
3:00	Night	55	75	43	64	58	50	46	1
4:00	Night	57	75	46	64	59	56	51	1
5:00	Night	55	75	43	65	57	50	45	1
6:00	Night	54	72	37	66	58	44	41	1
7:00	Day	55	79	37	67	56	42	40	1
8:00	Day	59	80	37	69	62	47	39	1
9:00	Day	60	82	37	70	62	48	39	1
10:00	Day	58	77	37	68	63	48	40	1
11:00	Day	57	84	39	68	59	47	42	4
12:00	Day	63	77	38	71	68	49	41	3
13:00	Day	64	81	39	71	69	58	44	4
14:00	Day	57	80	37	68	59	48	40	4
15:00	Day	61	76	37	69	67	49	40	1
16:00	Day	61	88	37	68	65	49	41	1
17:00	Day	61	81	38	71	65	46	41	1
18:00	Day	57	83	36	69	57	45	39	2
19:00	Day	63	77	41	70	67	53	44	2
20:00	Day	53	76	38	64	54	47	43	1
21:00	Day	54	72	42	64	57	52	46	1
22:00	Night	57	71	47	64	61	53	50	1
23:00	Night	55	66	49	62	57	54	52	1
Overall	Max	64	88	49	71	69	58	52	4
	Median	57	76	38	67	59	49	43	1
	Min	52	66	36	60	54	42	39	1
Daytime	Max	64	88	42	71	69	58	46	4
7am-10pm	Median	59	80	37	69	62	48	41	1
	Min	53	72	36	64	54	42	39	1
Nighttime	Max	57	75	49	66	61	56	52	2
10pm-7am	Median	55	72	44	64	57	50	47	1
	Min	52	66	37	60	54	44	41	1

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 8/14/2012

24hr Summary

L_{DN} = 64 dBA C_{NEL} = 65 dBA $L_{eq(24hr)}$ = 61 dBA

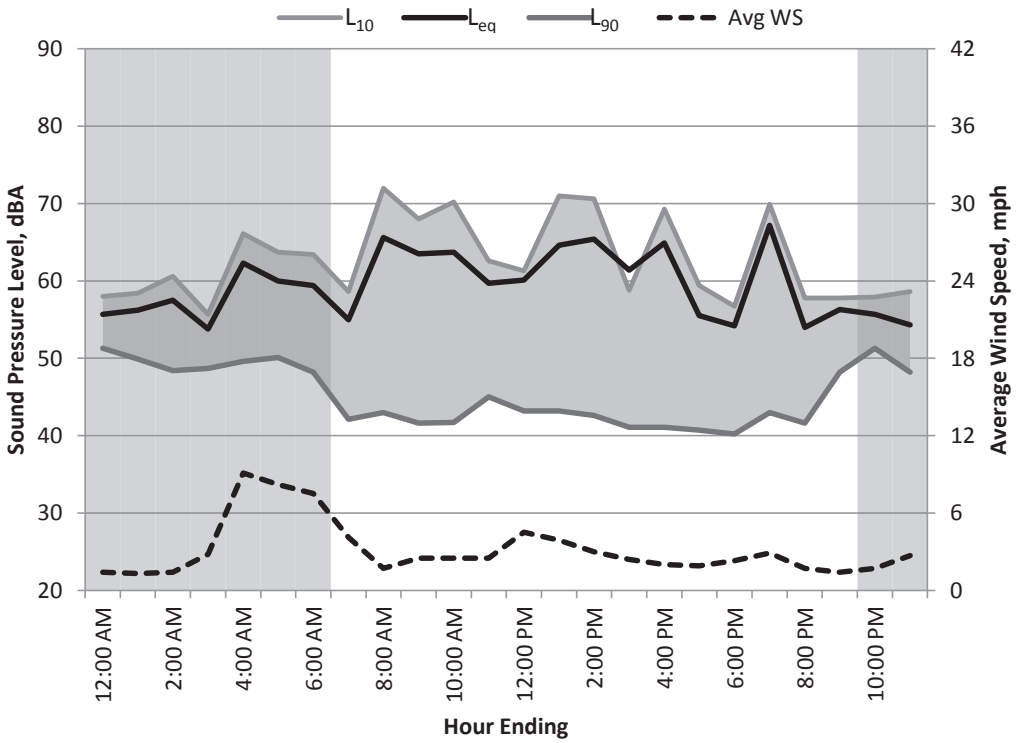


Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	57	73	49	61	59	56	54	1
1:00	Night	56	68	50	60	59	53	51	1
2:00	Night	52	74	46	56	53	50	48	1
3:00	Night	54	75	48	61	54	52	49	1
4:00	Night	54	74	43	64	53	49	46	1
5:00	Night	59	72	42	67	65	50	47	1
6:00	Night	59	86	36	70	58	43	39	1
7:00	Day	52	73	36	65	51	43	38	1
8:00	Day	54	72	37	66	56	45	40	2
9:00	Day	66	82	38	73	70	60	42	3
10:00	Day	65	80	37	72	70	52	40	3
11:00	Day	53	79	36	65	53	43	39	3
12:00	Day	64	76	36	73	71	45	39	2
13:00	Day	58	84	37	70	58	46	40	1
14:00	Day	64	81	40	72	70	48	43	2
15:00	Day	55	74	38	67	59	47	41	2
16:00	Day	64	77	37	73	71	48	40	2
17:00	Day	56	80	37	68	57	47	41	1
18:00	Day	64	81	37	72	70	47	39	1
19:00	Day	66	71	36	70	69	66	39	1
20:00	Day	59	73	35	69	65	48	39	1
21:00	Day	56	69	44	63	58	54	51	1
22:00	Night	58	72	50	66	62	56	53	1
23:00	Night	57	68	46	64	61	56	50	1
Overall	Max	66	86	50	73	71	66	54	3
	Median	58	74	37	67	59	49	41	1
	Min	52	68	35	56	51	43	38	1
Daytime	Max	66	84	44	73	71	66	51	3
7am-10pm	Median	59	77	37	70	65	47	40	2
	Min	52	69	35	63	51	43	38	1
Nighttime	Max	59	86	50	70	65	56	54	1
10pm-7am	Median	57	73	46	64	59	52	49	1
	Min	52	68	36	56	53	43	39	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 8/15/2012

24hr Summary		
L_{DN} = 66 dBA	C_{NEL} = 66 dBA	$L_{eq(24hr)}$ = 61 dBA



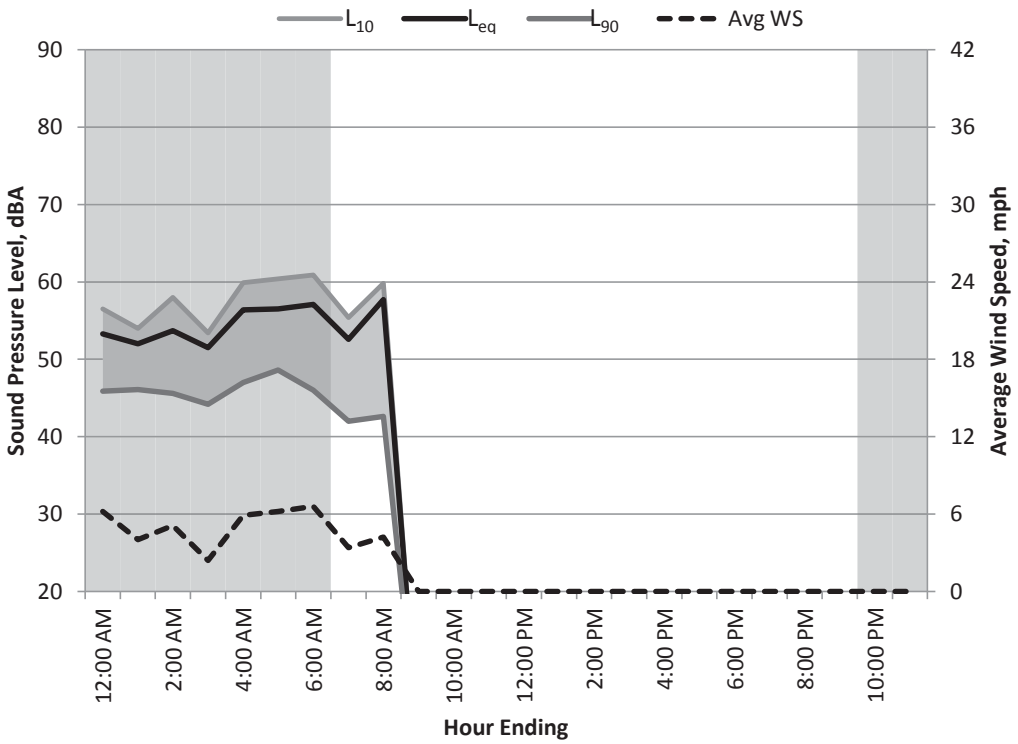
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	56	71	48	61	58	55	51	1
1:00	Night	56	64	47	60	58	56	50	1
2:00	Night	58	65	45	64	61	56	48	1
3:00	Night	54	66	46	61	56	52	49	3
4:00	Night	62	79	46	72	66	58	50	9
5:00	Night	60	77	46	70	64	56	50	8
6:00	Night	59	74	43	69	63	55	48	8
7:00	Day	55	72	39	67	59	48	42	4
8:00	Day	66	75	40	73	72	51	43	2
9:00	Day	64	89	39	72	68	50	42	3
10:00	Day	64	79	37	73	70	49	42	3
11:00	Day	60	79	40	72	63	51	45	3
12:00	Day	60	83	39	72	61	51	43	5
13:00	Day	65	75	40	73	71	52	43	4
14:00	Day	65	80	39	73	71	54	43	3
15:00	Day	61	91	38	70	59	46	41	2
16:00	Day	65	75	39	71	69	56	41	2
17:00	Day	56	70	38	67	59	45	41	2
18:00	Day	54	77	38	66	57	44	40	2
19:00	Day	67	84	38	71	70	68	43	3
20:00	Day	54	77	39	65	58	47	42	2
21:00	Day	56	80	44	64	58	54	48	1
22:00	Night	56	72	42	64	58	54	51	2
23:00	Night	54	69	42	61	59	51	48	3
Overall	Max	67	91	48	73	72	68	51	9
	Median	60	76	40	70	61	52	43	3
	Min	54	64	37	60	56	44	40	1
Daytime	Max	67	91	44	73	72	68	48	5
7am-10pm	Median	61	79	39	71	63	51	42	3
	Min	54	70	37	64	57	44	40	1
Nighttime	Max	62	79	48	72	66	58	51	9
10pm-7am	Median	56	71	46	64	59	55	50	3
	Min	54	64	42	60	56	51	48	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 8/16/2012

24hr Summary

L_{DN} = -- dBA C_{NEL} = -- dBA $L_{eq(24hr)}$ = -- dBA



Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	53	69	42	63	57	51	46	6
1:00	Night	52	72	42	60	54	50	46	4
2:00	Night	54	69	43	64	58	49	46	5
3:00	Night	52	71	43	64	53	46	44	2
4:00	Night	56	76	45	66	60	50	47	6
5:00	Night	57	70	45	66	60	53	49	6
6:00	Night	57	73	41	67	61	53	46	7
7:00	Day	53	71	38	65	55	46	42	3
8:00	Day	58	82	39	69	60	48	43	4
9:00	Day	--	--	--	--	--	--	--	--
10:00	Day	--	--	--	--	--	--	--	--
11:00	Day	--	--	--	--	--	--	--	--
12:00	Day	--	--	--	--	--	--	--	--
13:00	Day	--	--	--	--	--	--	--	--
14:00	Day	--	--	--	--	--	--	--	--
15:00	Day	--	--	--	--	--	--	--	--
16:00	Day	--	--	--	--	--	--	--	--
17:00	Day	--	--	--	--	--	--	--	--
18:00	Day	--	--	--	--	--	--	--	--
19:00	Day	--	--	--	--	--	--	--	--
20:00	Day	--	--	--	--	--	--	--	--
21:00	Day	--	--	--	--	--	--	--	--
22:00	Night	--	--	--	--	--	--	--	--
23:00	Night	--	--	--	--	--	--	--	--
Overall	Max	--	--	--	--	--	--	--	--
	Median	--	--	--	--	--	--	--	--
	Min	--	--	--	--	--	--	--	--
Daytime	Max	--	--	--	--	--	--	--	--
7am-10pm	Median	--	--	--	--	--	--	--	--
	Min	--	--	--	--	--	--	--	--
Nighttime	Max	--	--	--	--	--	--	--	--
10pm-7am	Median	--	--	--	--	--	--	--	--
	Min	--	--	--	--	--	--	--	--

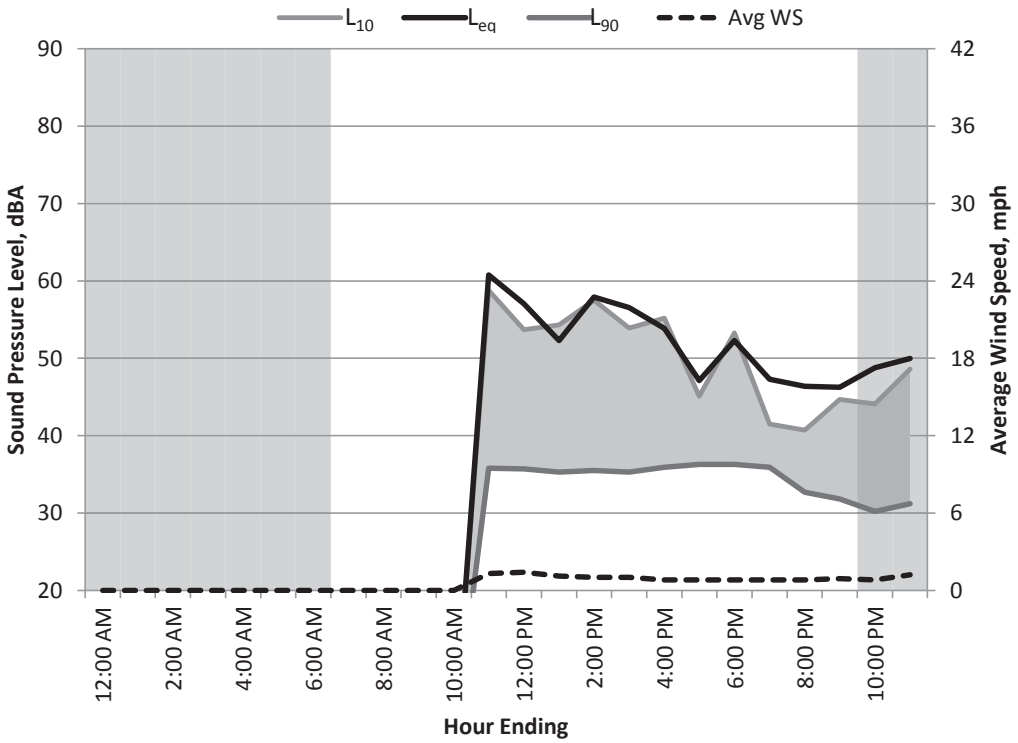
Appendix H
ST-3 December Measurements

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 12/5/2012

24hr Summary

L_{DN} = -- dBA C_{NEL} = -- dBA $L_{eq(24hr)}$ = -- dBA



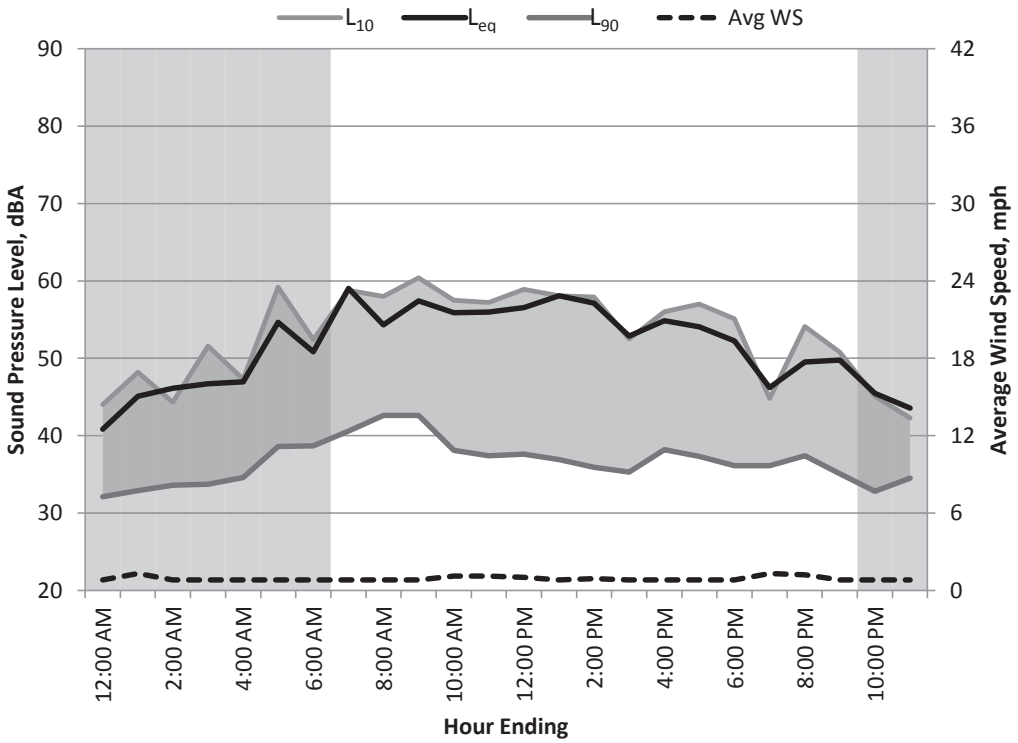
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	--	--	--	--	--	--	--	--
1:00	Night	--	--	--	--	--	--	--	--
2:00	Night	--	--	--	--	--	--	--	--
3:00	Night	--	--	--	--	--	--	--	--
4:00	Night	--	--	--	--	--	--	--	--
5:00	Night	--	--	--	--	--	--	--	--
6:00	Night	--	--	--	--	--	--	--	--
7:00	Day	--	--	--	--	--	--	--	--
8:00	Day	--	--	--	--	--	--	--	--
9:00	Day	--	--	--	--	--	--	--	--
10:00	Day	--	--	--	--	--	--	--	--
11:00	Day	61	89	34	70	59	45	36	1
12:00	Day	57	84	34	66	54	40	36	1
13:00	Day	52	73	34	65	54	39	35	1
14:00	Day	58	85	34	69	58	41	36	1
15:00	Day	57	85	34	68	54	39	35	1
16:00	Day	54	76	35	66	55	43	36	1
17:00	Day	47	70	35	60	45	38	36	1
18:00	Day	52	78	35	63	53	39	36	1
19:00	Day	47	68	34	62	42	38	36	1
20:00	Day	46	70	28	60	41	37	33	1
21:00	Day	46	63	24	60	45	37	32	1
22:00	Night	49	67	25	63	44	34	30	1
23:00	Night	50	67	26	63	49	37	31	1
Overall	Max	--	--	--	--	--	--	--	--
	Median	--	--	--	--	--	--	--	--
	Min	--	--	--	--	--	--	--	--
Daytime	Max	--	--	--	--	--	--	--	--
7am-10pm	Median	--	--	--	--	--	--	--	--
	Min	--	--	--	--	--	--	--	--
Nighttime	Max	--	--	--	--	--	--	--	--
10pm-7am	Median	--	--	--	--	--	--	--	--
	Min	--	--	--	--	--	--	--	--

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 12/6/2012

24hr Summary

L_{DN} = 57 dBA C_{NEL} = 57 dBA $L_{eq(24hr)}$ = 54 dBA



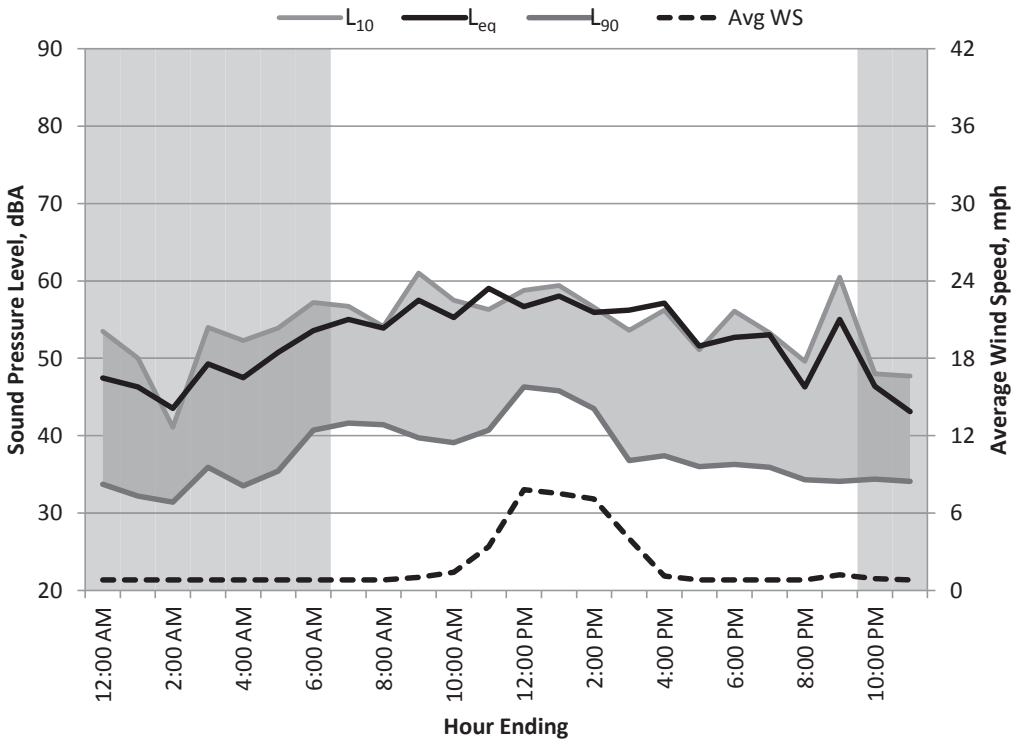
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	41	55	26	50	44	38	32	1
1:00	Night	45	62	30	58	48	37	33	1
2:00	Night	46	66	30	59	44	38	34	1
3:00	Night	47	59	30	57	52	39	34	1
4:00	Night	47	65	31	59	47	39	35	1
5:00	Night	55	73	35	66	59	46	39	1
6:00	Night	51	69	34	64	52	43	39	1
7:00	Day	59	82	35	71	59	45	41	1
8:00	Day	54	75	39	65	58	47	43	1
9:00	Day	57	78	39	69	60	48	43	1
10:00	Day	56	79	35	67	58	46	38	1
11:00	Day	56	79	36	68	57	44	37	1
12:00	Day	57	81	36	69	59	46	38	1
13:00	Day	58	80	34	70	58	43	37	1
14:00	Day	57	84	35	68	58	42	36	1
15:00	Day	53	76	34	65	53	39	35	1
16:00	Day	55	76	35	67	56	43	38	1
17:00	Day	54	77	35	65	57	42	37	1
18:00	Day	52	71	34	65	55	40	36	1
19:00	Day	46	69	35	58	45	38	36	1
20:00	Day	50	67	34	61	54	41	37	1
21:00	Day	50	74	30	62	51	40	35	1
22:00	Night	45	63	28	60	45	38	33	1
23:00	Night	44	60	31	56	42	38	35	1
Overall	Max	59	84	39	71	60	48	43	1
	Median	53	73	34	65	55	42	37	1
	Min	41	55	26	50	42	37	32	1
Daytime	Max	59	84	39	71	60	48	43	1
7am-10pm	Median	55	77	35	67	57	43	37	1
	Min	46	67	30	58	45	38	35	1
Nighttime	Max	55	73	35	66	59	46	39	1
10pm-7am	Median	46	63	30	59	47	38	34	1
	Min	41	55	26	50	42	37	32	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 12/7/2012

24hr Summary

L_{DN} = 57 dBA C_{NEL} = 58 dBA $L_{eq(24hr)}$ = 54 dBA



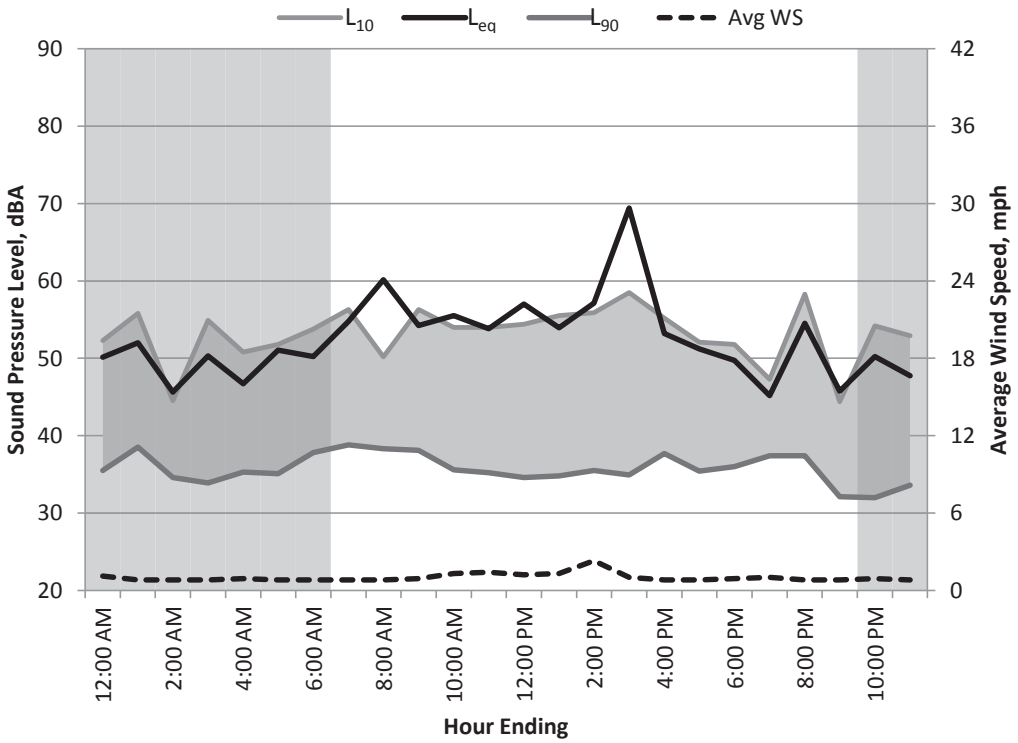
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	47	60	29	58	54	39	34	1
1:00	Night	46	64	27	58	50	37	32	1
2:00	Night	44	66	29	57	41	35	31	1
3:00	Night	49	65	31	61	54	41	36	1
4:00	Night	47	66	29	59	52	38	34	1
5:00	Night	51	72	32	64	54	38	35	1
6:00	Night	54	71	37	65	57	45	41	1
7:00	Day	55	76	38	68	57	45	42	1
8:00	Day	54	75	39	67	54	45	41	1
9:00	Day	57	81	36	68	61	48	40	1
10:00	Day	55	76	37	68	58	46	39	1
11:00	Day	59	84	36	70	56	47	41	3
12:00	Day	57	78	42	68	59	52	46	8
13:00	Day	58	80	41	69	59	52	46	8
14:00	Day	56	79	39	68	57	49	44	7
15:00	Day	56	82	35	67	54	41	37	4
16:00	Day	57	79	35	70	56	43	37	1
17:00	Day	52	80	35	61	51	38	36	1
18:00	Day	53	70	34	64	56	40	36	1
19:00	Day	53	81	35	61	53	38	36	1
20:00	Day	46	68	29	57	50	38	34	1
21:00	Day	55	68	29	66	61	40	34	1
22:00	Night	46	70	27	59	48	40	34	1
23:00	Night	43	57	30	53	48	39	34	1
Overall	Max	59	84	42	70	61	52	46	8
	Median	53	74	35	65	54	41	36	1
	Min	43	57	27	53	41	35	31	1
Daytime	Max	59	84	42	70	61	52	46	8
7am-10pm	Median	55	79	36	68	56	45	39	1
	Min	46	68	29	57	50	38	34	1
Nighttime	Max	54	72	37	65	57	45	41	1
10pm-7am	Median	47	66	29	59	52	39	34	1
	Min	43	57	27	53	41	35	31	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 12/8/2012

24hr Summary

L_{DN} = 60 dBA C_{NEL} = 60 dBA $L_{eq(24hr)}$ = 58 dBA



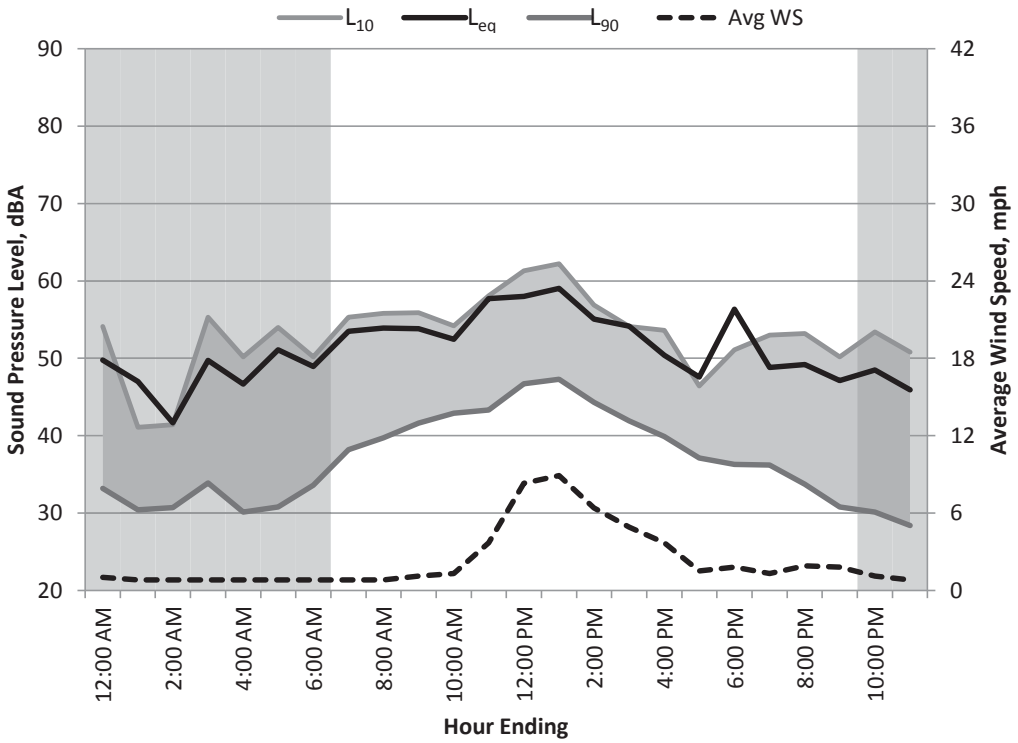
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	50	70	30	61	52	40	36	1
1:00	Night	52	66	34	63	56	45	39	1
2:00	Night	46	61	31	59	45	38	35	1
3:00	Night	50	66	29	62	55	40	34	1
4:00	Night	47	64	32	58	51	40	35	1
5:00	Night	51	70	32	65	52	40	35	1
6:00	Night	50	72	35	62	54	41	38	1
7:00	Day	55	79	35	68	56	43	39	1
8:00	Day	60	88	36	71	50	41	38	1
9:00	Day	54	79	36	66	56	44	38	1
10:00	Day	56	78	34	68	54	40	36	1
11:00	Day	54	77	34	66	54	40	35	1
12:00	Day	57	83	33	69	54	38	35	1
13:00	Day	54	81	33	65	56	39	35	1
14:00	Day	57	81	34	69	56	42	36	2
15:00	Day	69	98	34	76	59	38	35	1
16:00	Day	53	74	35	65	55	42	38	1
17:00	Day	51	72	34	65	52	38	35	1
18:00	Day	50	71	34	63	52	39	36	1
19:00	Day	45	66	35	56	47	40	37	1
20:00	Day	55	69	31	67	58	43	37	1
21:00	Day	46	72	29	58	44	36	32	1
22:00	Night	50	66	27	62	54	37	32	1
23:00	Night	48	61	27	59	53	38	34	1
Overall	Max	69	98	36	76	59	45	39	2
	Median	52	72	34	65	54	40	35	1
	Min	45	61	27	56	44	36	32	1
Daytime	Max	69	98	36	76	59	44	39	2
7am-10pm	Median	54	78	34	66	54	40	36	1
	Min	45	66	29	56	44	36	32	1
Nighttime	Max	52	72	35	65	56	45	39	1
10pm-7am	Median	50	66	31	62	53	40	35	1
	Min	46	61	27	58	45	37	32	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 12/9/2012

24hr Summary

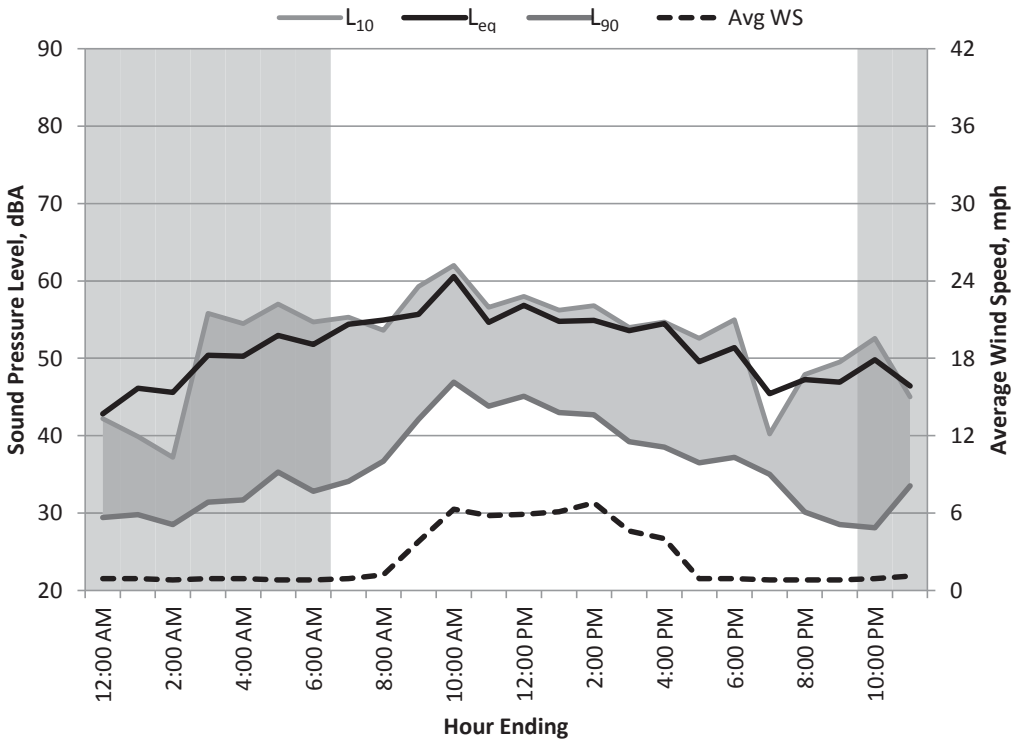
L_{DN} = 56 dBA C_{NEL} = 57 dBA $L_{eq(24hr)}$ = 53 dBA



Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	50	64	29	61	54	40	33	1
1:00	Night	47	67	28	62	41	36	30	1
2:00	Night	42	60	28	55	41	33	31	1
3:00	Night	50	63	30	61	55	38	34	1
4:00	Night	47	70	27	57	50	35	30	1
5:00	Night	51	70	29	64	54	35	31	1
6:00	Night	49	71	28	62	50	40	34	1
7:00	Day	53	73	35	67	55	44	38	1
8:00	Day	54	79	37	65	56	44	40	1
9:00	Day	54	78	38	64	56	47	42	1
10:00	Day	52	72	36	64	54	48	43	1
11:00	Day	58	81	37	70	58	50	43	4
12:00	Day	58	80	43	68	61	53	47	8
13:00	Day	59	76	41	70	62	53	47	9
14:00	Day	55	80	41	66	57	49	44	6
15:00	Day	54	76	38	66	54	46	42	5
16:00	Day	50	71	37	61	54	45	40	4
17:00	Day	48	72	36	59	46	39	37	2
18:00	Day	56	85	35	65	51	41	36	2
19:00	Day	49	75	35	58	53	39	36	1
20:00	Day	49	72	30	60	53	37	34	2
21:00	Day	47	68	27	59	50	35	31	2
22:00	Night	48	61	27	60	53	36	30	1
23:00	Night	46	60	25	57	51	32	28	1
Overall	Max	59	85	43	70	62	53	47	9
	Median	50	72	35	62	54	40	36	1
	Min	42	60	25	55	41	32	28	1
Daytime	Max	59	85	43	70	62	53	47	9
7am-10pm	Median	54	76	37	65	54	45	40	2
	Min	47	68	27	58	46	35	31	1
Nighttime	Max	51	71	30	64	55	40	34	1
10pm-7am	Median	48	64	28	61	51	36	31	1
	Min	42	60	25	55	41	32	28	1

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 12/10/2012

24hr Summary		
L_{DN} = 57 dBA	C_{NEL} = 57 dBA	$L_{eq(24hr)}$ = 53 dBA



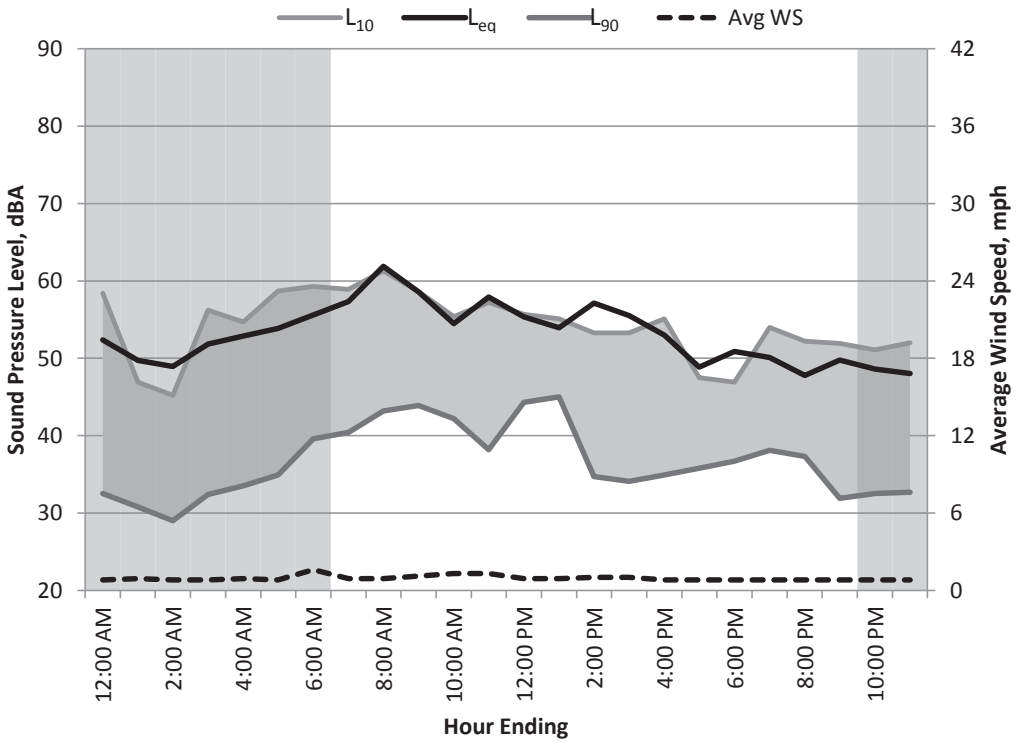
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	43	60	26	57	42	32	29	1
1:00	Night	46	65	28	60	40	32	30	1
2:00	Night	46	64	25	60	37	32	29	1
3:00	Night	50	68	28	62	56	36	31	1
4:00	Night	50	67	28	63	55	37	32	1
5:00	Night	53	70	30	65	57	41	35	1
6:00	Night	52	73	30	65	55	37	33	1
7:00	Day	54	78	30	67	55	38	34	1
8:00	Day	55	77	35	69	54	39	37	1
9:00	Day	56	75	37	67	59	49	42	4
10:00	Day	61	80	43	71	62	57	47	6
11:00	Day	55	75	39	66	57	49	44	6
12:00	Day	57	80	41	68	58	49	45	6
13:00	Day	55	80	37	65	56	49	43	6
14:00	Day	55	74	36	67	57	48	43	7
15:00	Day	54	77	37	66	54	44	39	5
16:00	Day	54	79	35	66	55	43	39	4
17:00	Day	50	70	35	61	53	38	37	1
18:00	Day	51	70	35	63	55	40	37	1
19:00	Day	45	63	34	59	40	37	35	1
20:00	Day	47	68	25	59	48	36	30	1
21:00	Day	47	72	25	59	50	32	29	1
22:00	Night	50	74	25	63	53	33	28	1
23:00	Night	46	64	27	61	45	39	34	1
Overall	Max	61	80	43	71	62	57	47	7
	Median	52	72	32	64	55	39	35	1
	Min	43	60	25	57	37	32	28	1
Daytime	Max	61	80	43	71	62	57	47	7
7am-10pm	Median	54	75	35	66	55	43	39	4
	Min	45	63	25	59	40	32	29	1
Nighttime	Max	53	74	30	65	57	41	35	1
10pm-7am	Median	50	67	28	62	53	36	31	1
	Min	43	60	25	57	37	32	28	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 12/11/2012

24hr Summary

L_{DN} = 59 dBA C_{NEL} = 59 dBA $L_{eq(24hr)}$ = 55 dBA



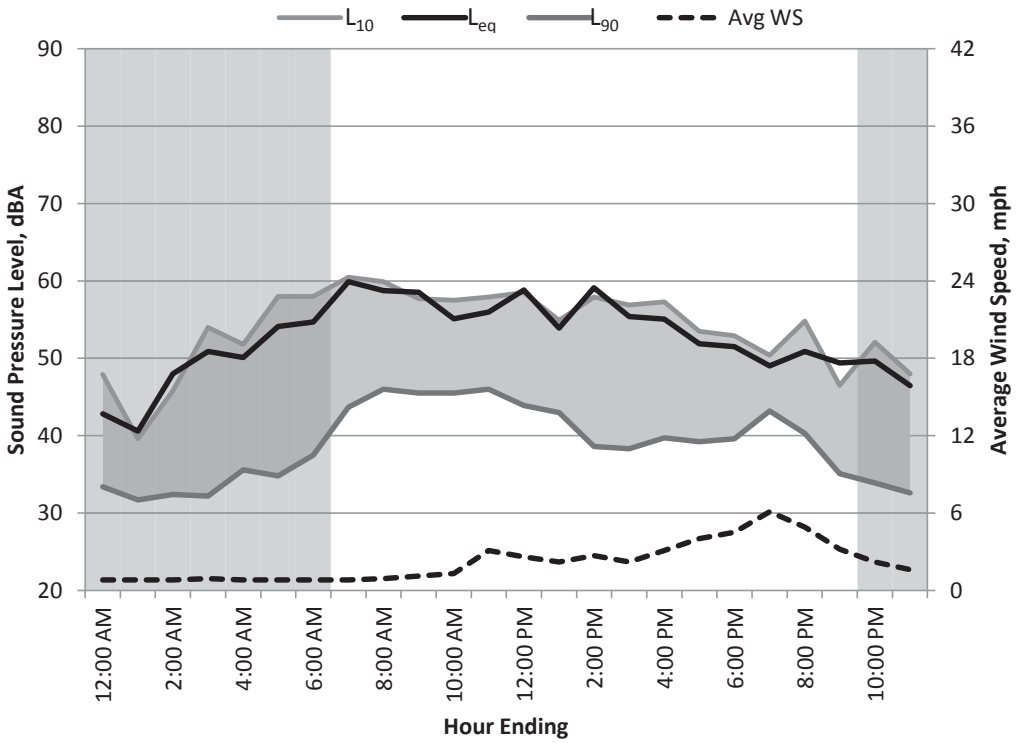
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	52	67	28	63	58	41	33	1
1:00	Night	50	65	25	63	47	37	31	1
2:00	Night	49	67	25	64	45	35	29	1
3:00	Night	52	67	27	65	56	40	32	1
4:00	Night	53	68	28	66	55	38	34	1
5:00	Night	54	69	31	66	59	41	35	1
6:00	Night	56	75	33	67	59	46	40	2
7:00	Day	57	83	35	68	59	47	40	1
8:00	Day	62	86	39	75	61	49	43	1
9:00	Day	59	83	40	70	59	47	44	1
10:00	Day	54	75	36	67	55	45	42	1
11:00	Day	58	83	34	70	57	45	38	1
12:00	Day	55	79	42	67	56	47	44	1
13:00	Day	54	75	43	66	55	47	45	1
14:00	Day	57	87	33	68	53	40	35	1
15:00	Day	56	83	33	67	53	38	34	1
16:00	Day	53	71	34	66	55	38	35	1
17:00	Day	49	71	34	62	48	37	36	1
18:00	Day	51	74	34	64	47	39	37	1
19:00	Day	50	67	36	62	54	41	38	1
20:00	Day	48	67	35	59	52	41	37	1
21:00	Day	50	73	28	62	52	39	32	1
22:00	Night	49	67	30	60	51	36	33	1
23:00	Night	48	64	29	60	52	37	33	1
Overall	Max	62	87	43	75	61	49	45	2
	Median	53	72	33	66	55	40	35	1
	Min	48	64	25	59	45	35	29	1
Daytime	Max	62	87	43	75	61	49	45	1
7am-10pm	Median	54	75	35	67	55	41	38	1
	Min	48	67	28	59	47	37	32	1
Nighttime	Max	56	75	33	67	59	46	40	2
10pm-7am	Median	52	67	28	64	55	38	33	1
	Min	48	64	25	60	45	35	29	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 12/12/2012

24hr Summary

L_{DN} = 58 dBA C_{NEL} = 58 dBA $L_{eq(24hr)}$ = 55 dBA



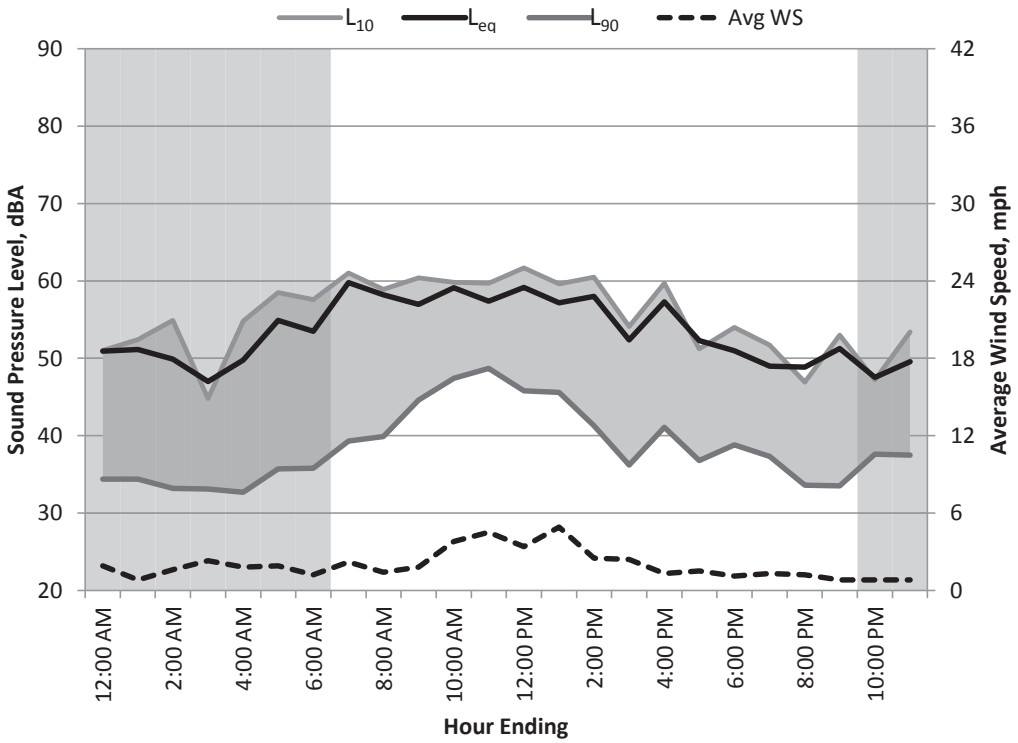
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	43	55	30	53	48	37	33	1
1:00	Night	41	59	29	54	40	34	32	1
2:00	Night	48	63	28	61	46	36	32	1
3:00	Night	51	68	29	64	54	40	32	1
4:00	Night	50	72	32	62	52	40	36	1
5:00	Night	54	71	31	66	58	40	35	1
6:00	Night	55	75	34	66	58	44	38	1
7:00	Day	60	86	38	69	61	50	44	1
8:00	Day	59	81	44	72	60	48	46	1
9:00	Day	59	83	41	70	58	48	46	1
10:00	Day	55	76	43	67	58	49	46	1
11:00	Day	56	78	42	67	58	49	46	3
12:00	Day	59	83	42	71	59	47	44	3
13:00	Day	54	80	36	66	55	47	43	2
14:00	Day	59	83	36	72	58	45	39	3
15:00	Day	55	79	36	68	57	44	38	2
16:00	Day	55	76	36	68	57	44	40	3
17:00	Day	52	78	36	64	54	42	39	4
18:00	Day	52	79	37	62	53	43	40	5
19:00	Day	49	68	39	59	50	46	43	6
20:00	Day	51	72	37	61	55	44	40	5
21:00	Day	49	75	30	60	47	41	35	3
22:00	Night	50	67	30	63	52	38	34	2
23:00	Night	46	65	28	59	48	38	33	2
Overall	Max	60	86	44	72	61	50	46	6
	Median	53	76	36	65	55	44	39	2
	Min	41	55	28	53	40	34	32	1
Daytime	Max	60	86	44	72	61	50	46	6
7am-10pm	Median	55	79	37	67	57	46	43	3
	Min	49	68	30	59	47	41	35	1
Nighttime	Max	55	75	34	66	58	44	38	2
10pm-7am	Median	50	67	30	62	52	38	33	1
	Min	41	55	28	53	40	34	32	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 12/13/2012

24hr Summary

L_{DN} = 59 dBA C_{NEL} = 59 dBA $L_{eq(24hr)}$ = 55 dBA



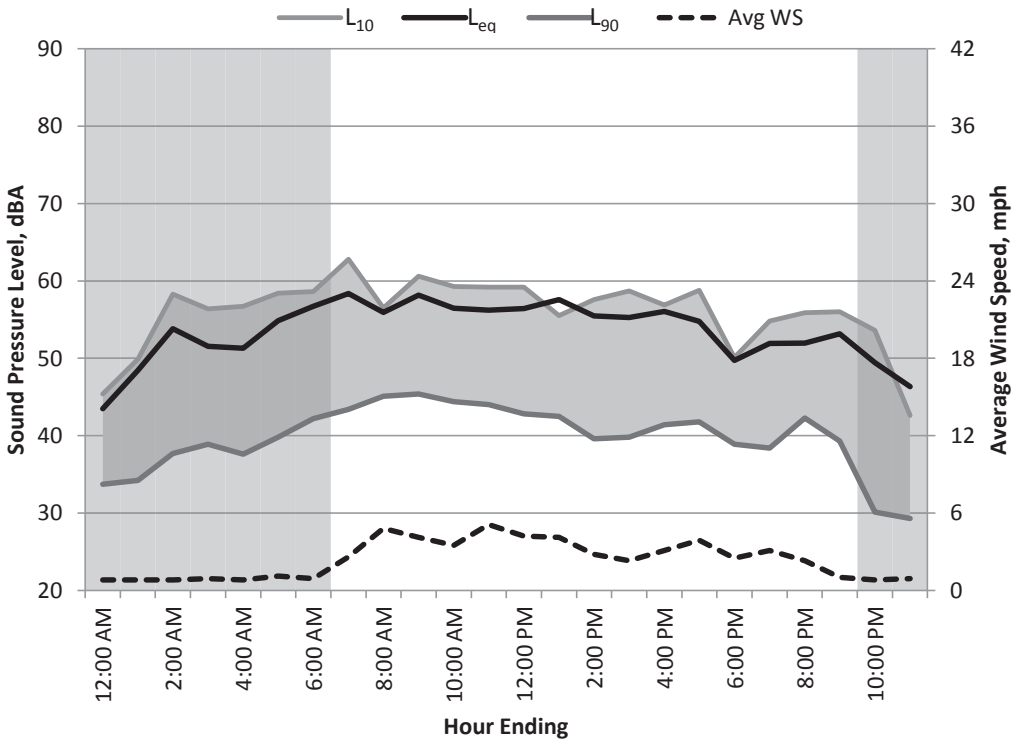
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	51	69	30	64	51	39	34	2
1:00	Night	51	68	28	66	52	40	34	1
2:00	Night	50	64	29	61	55	38	33	2
3:00	Night	47	67	29	60	45	37	33	2
4:00	Night	50	67	26	62	55	38	33	2
5:00	Night	55	75	30	67	59	41	36	2
6:00	Night	53	73	31	65	58	40	36	1
7:00	Day	60	83	35	73	61	46	39	2
8:00	Day	58	83	38	69	59	44	40	1
9:00	Day	57	76	36	68	60	49	45	2
10:00	Day	59	81	44	71	60	51	47	4
11:00	Day	57	78	45	68	60	52	49	5
12:00	Day	59	81	38	71	62	51	46	3
13:00	Day	57	79	42	67	60	52	46	5
14:00	Day	58	78	37	70	61	48	41	3
15:00	Day	52	77	35	65	54	41	36	2
16:00	Day	57	78	38	70	60	46	41	1
17:00	Day	52	76	35	65	51	42	37	2
18:00	Day	51	70	36	63	54	42	39	1
19:00	Day	49	73	36	59	52	40	37	1
20:00	Day	49	74	30	62	47	39	34	1
21:00	Day	51	75	29	63	53	41	34	1
22:00	Night	48	76	32	55	47	42	38	1
23:00	Night	50	65	34	61	53	43	38	1
Overall	Max	60	83	45	73	62	52	49	5
	Median	52	75	35	65	55	42	37	2
	Min	47	64	26	55	45	37	33	1
Daytime	Max	60	83	45	73	62	52	49	5
7am-10pm	Median	57	78	36	68	60	46	40	2
	Min	49	70	29	59	47	39	34	1
Nighttime	Max	55	76	34	67	59	43	38	2
10pm-7am	Median	50	68	30	62	53	40	34	2
	Min	47	64	26	55	45	37	33	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 12/14/2012

24hr Summary

L_{DN} = 59 dBA C_{NEL} = 60 dBA $L_{eq(24hr)}$ = 55 dBA



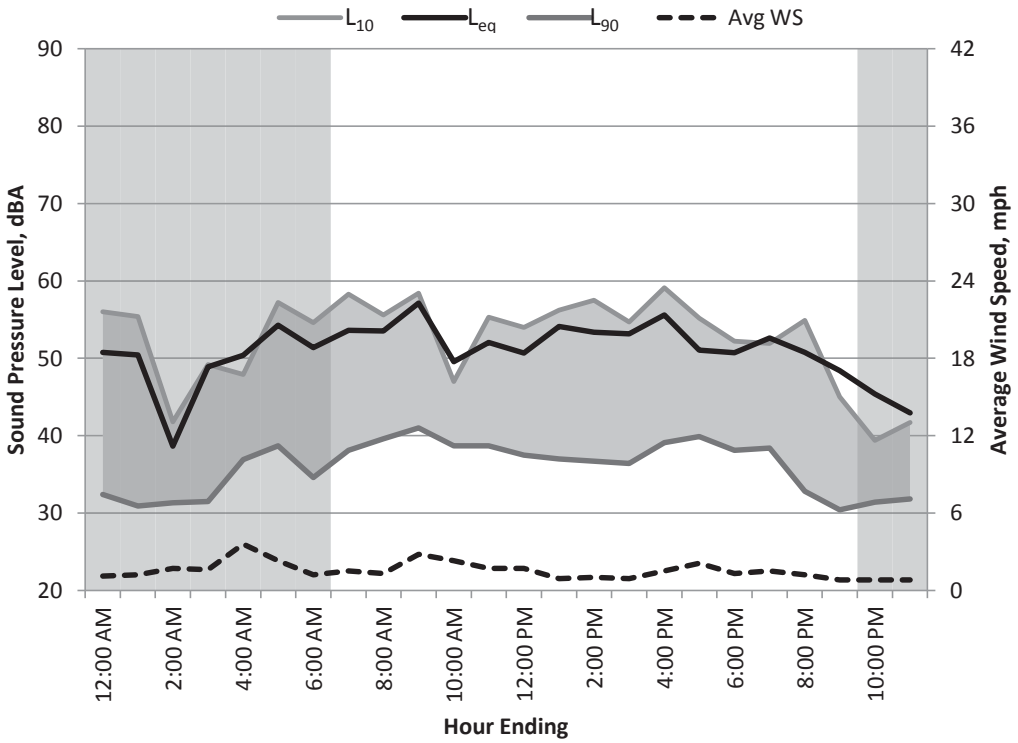
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	43	56	29	54	45	41	34	1
1:00	Night	48	70	30	60	50	39	34	1
2:00	Night	54	69	33	66	58	41	38	1
3:00	Night	52	65	35	63	56	43	39	1
4:00	Night	51	68	30	62	57	42	38	1
5:00	Night	55	74	30	67	58	46	40	1
6:00	Night	57	75	39	70	59	45	42	1
7:00	Day	58	75	38	70	63	47	43	3
8:00	Day	56	78	41	69	57	48	45	5
9:00	Day	58	82	41	69	61	49	45	4
10:00	Day	56	78	40	67	59	48	44	4
11:00	Day	56	78	41	67	59	47	44	5
12:00	Day	56	78	40	67	59	46	43	4
13:00	Day	58	85	39	68	56	46	43	4
14:00	Day	55	80	37	67	58	44	40	3
15:00	Day	55	81	37	66	59	45	40	2
16:00	Day	56	78	37	69	57	45	41	3
17:00	Day	55	72	37	66	59	45	42	4
18:00	Day	50	66	36	63	50	42	39	3
19:00	Day	52	77	36	63	55	41	38	3
20:00	Day	52	71	38	61	56	48	42	2
21:00	Day	53	75	35	65	56	44	39	1
22:00	Night	49	65	26	62	54	38	30	1
23:00	Night	46	69	26	58	43	34	29	1
Overall	Max	58	85	41	70	63	49	45	5
	Median	55	75	37	66	57	45	40	2
	Min	43	56	26	54	43	34	29	1
Daytime	Max	58	85	41	70	63	49	45	5
7am-10pm	Median	56	78	38	67	58	46	42	3
	Min	50	66	35	61	50	41	38	1
Nighttime	Max	57	75	39	70	59	46	42	1
10pm-7am	Median	51	69	30	62	56	41	38	1
	Min	43	56	26	54	43	34	29	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 12/15/2012

24hr Summary

L_{DN} = 57 dBA C_{NEL} = 57 dBA $L_{eq(24hr)}$ = 52 dBA



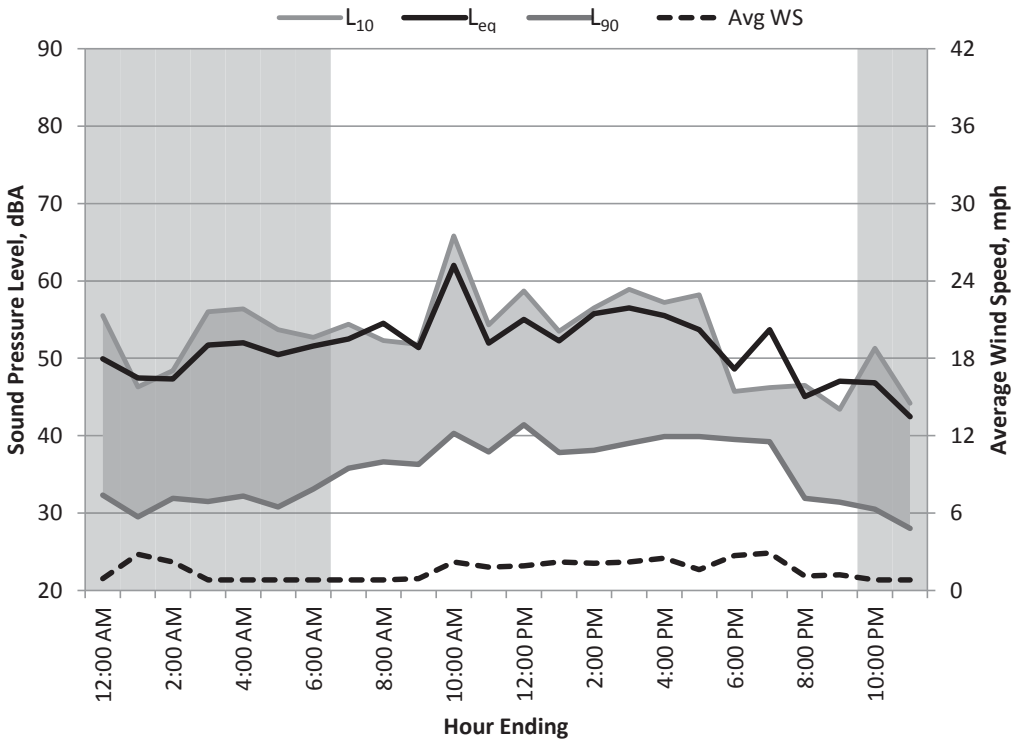
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	51	66	27	62	56	39	32	1
1:00	Night	50	66	27	63	55	37	31	1
2:00	Night	39	53	25	46	42	37	31	2
3:00	Night	49	64	27	61	49	38	32	2
4:00	Night	50	72	31	63	48	41	37	4
5:00	Night	54	74	35	67	57	44	39	2
6:00	Night	51	71	31	64	55	40	35	1
7:00	Day	54	73	33	64	58	43	38	2
8:00	Day	54	74	37	66	56	43	40	1
9:00	Day	57	82	39	68	58	44	41	3
10:00	Day	50	75	36	61	47	42	39	2
11:00	Day	52	71	36	64	55	42	39	2
12:00	Day	51	73	35	62	54	42	38	2
13:00	Day	54	77	34	65	56	41	37	1
14:00	Day	53	74	34	64	58	41	37	1
15:00	Day	53	74	34	66	55	44	36	1
16:00	Day	56	79	36	67	59	44	39	2
17:00	Day	51	74	37	61	55	43	40	2
18:00	Day	51	70	35	63	52	43	38	1
19:00	Day	53	82	35	62	52	42	38	2
20:00	Day	51	69	28	62	55	40	33	1
21:00	Day	48	75	26	61	45	34	30	1
22:00	Night	45	68	29	60	39	34	31	1
23:00	Night	43	60	28	56	42	36	32	1
Overall	Max	57	82	39	68	59	44	41	4
	Median	51	73	34	63	55	41	37	1
	Min	39	53	25	46	39	34	30	1
Daytime	Max	57	82	39	68	59	44	41	3
7am-10pm	Median	53	74	35	64	55	42	38	2
	Min	48	69	26	61	45	34	30	1
Nighttime	Max	54	74	35	67	57	44	39	4
10pm-7am	Median	50	66	28	62	49	38	32	1
	Min	39	53	25	46	39	34	31	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 12/16/2012

24hr Summary

L_{DN} = 57 dBA C_{NEL} = 58 dBA $L_{eq(24hr)}$ = 54 dBA



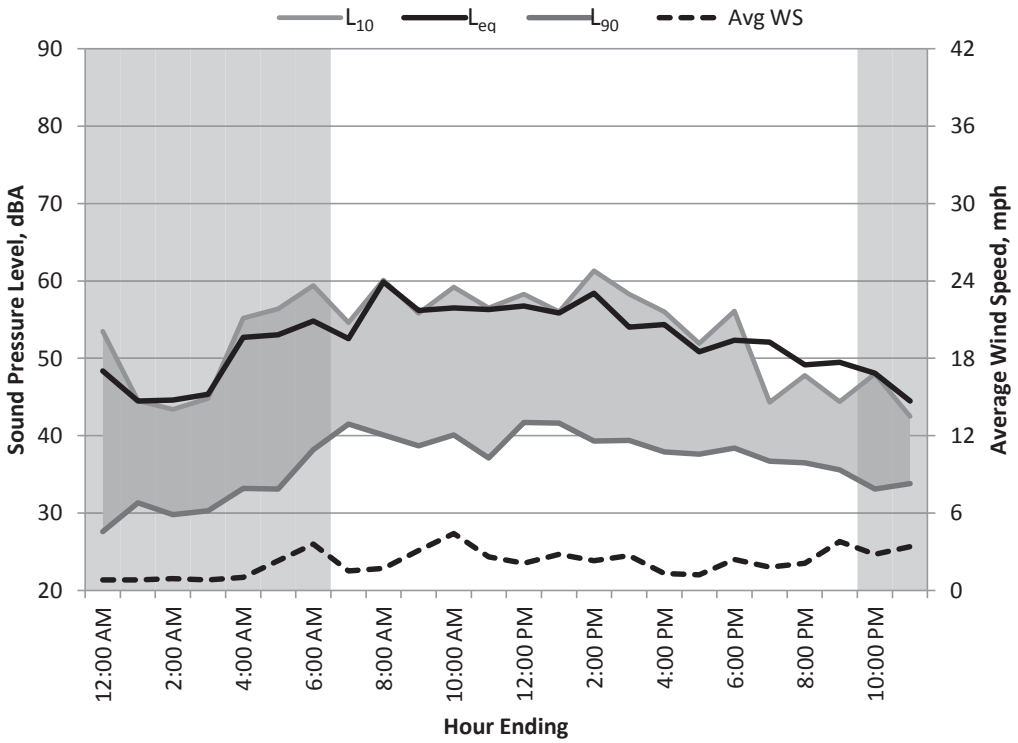
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	50	65	24	61	56	37	32	1
1:00	Night	47	66	25	61	46	36	30	3
2:00	Night	47	65	27	61	48	38	32	2
3:00	Night	52	66	27	64	56	36	32	1
4:00	Night	52	69	29	63	56	38	32	1
5:00	Night	50	68	27	63	54	37	31	1
6:00	Night	52	73	30	65	53	37	33	1
7:00	Day	52	72	31	66	54	43	36	1
8:00	Day	55	81	35	66	52	43	37	1
9:00	Day	51	78	35	63	52	39	36	1
10:00	Day	62	77	37	71	66	57	40	2
11:00	Day	52	73	35	64	54	42	38	2
12:00	Day	55	72	37	67	59	48	41	2
13:00	Day	52	75	36	65	54	42	38	2
14:00	Day	56	82	35	67	57	42	38	2
15:00	Day	57	78	35	69	59	43	39	2
16:00	Day	56	82	37	66	57	43	40	3
17:00	Day	54	74	35	64	58	43	40	2
18:00	Day	49	70	37	62	46	42	40	3
19:00	Day	54	82	36	59	46	42	39	3
20:00	Day	45	68	28	57	47	39	32	1
21:00	Day	47	75	27	60	43	36	31	1
22:00	Night	47	66	27	59	51	35	31	1
23:00	Night	42	61	26	56	44	31	28	1
Overall	Max	62	82	37	71	66	57	41	3
	Median	52	73	33	64	54	40	36	1
	Min	42	61	24	56	43	31	28	1
Daytime	Max	62	82	37	71	66	57	41	3
7am-10pm	Median	54	75	35	65	54	42	38	2
	Min	45	68	27	57	43	36	31	1
Nighttime	Max	52	73	30	65	56	38	33	3
10pm-7am	Median	50	66	27	61	53	37	32	1
	Min	42	61	24	56	44	31	28	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 12/17/2012

24hr Summary

L_{DN} = 58 dBA C_{NEL} = 58 dBA $L_{eq(24hr)}$ = 54 dBA

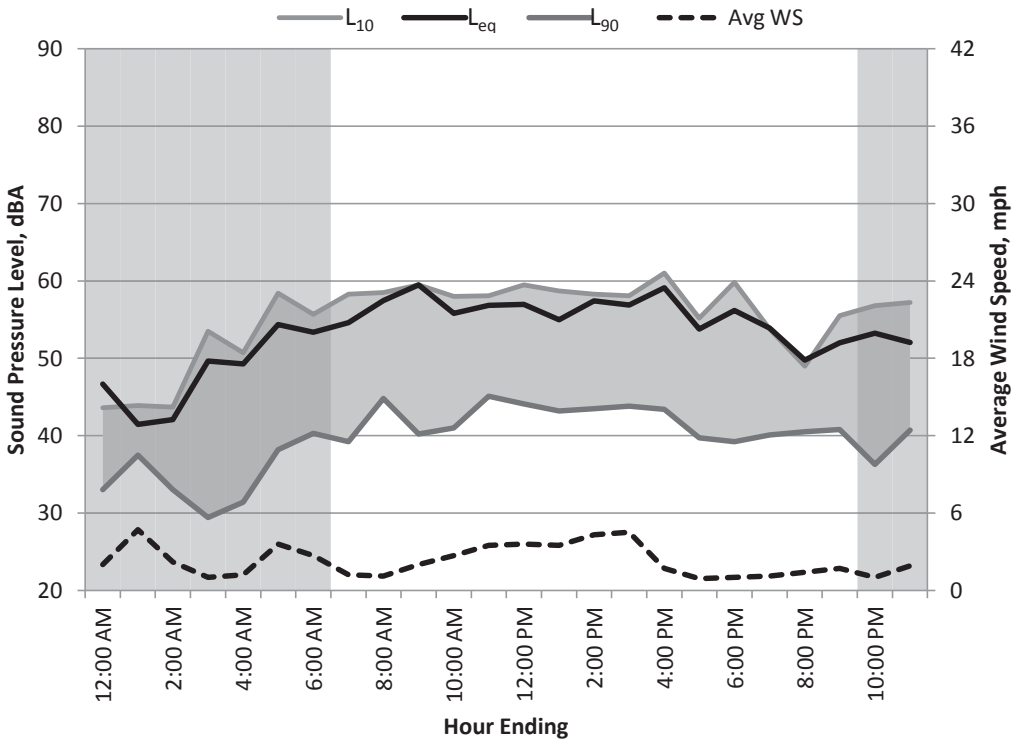


Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	48	63	25	61	54	33	28	1
1:00	Night	44	62	27	59	45	38	31	1
2:00	Night	45	63	24	58	43	37	30	1
3:00	Night	45	64	27	59	45	36	30	1
4:00	Night	53	68	25	65	55	38	33	1
5:00	Night	53	70	26	66	56	39	33	2
6:00	Night	55	74	34	66	59	43	38	4
7:00	Day	53	73	39	65	55	45	42	2
8:00	Day	60	87	36	72	60	45	40	2
9:00	Day	56	81	35	68	56	42	39	3
10:00	Day	57	79	36	68	59	45	40	4
11:00	Day	56	80	33	68	57	42	37	3
12:00	Day	57	79	40	69	58	46	42	2
13:00	Day	56	79	39	69	56	45	42	3
14:00	Day	58	81	37	70	61	45	39	2
15:00	Day	54	75	37	65	58	43	39	3
16:00	Day	54	78	36	67	56	41	38	1
17:00	Day	51	72	35	65	52	41	38	1
18:00	Day	52	70	36	64	56	42	38	2
19:00	Day	52	81	35	61	44	39	37	2
20:00	Day	49	66	30	61	48	40	37	2
21:00	Day	49	67	29	63	44	39	36	4
22:00	Night	48	68	28	61	48	37	33	3
23:00	Night	44	61	30	58	43	37	34	3
Overall	Max	60	87	40	72	61	46	42	4
	Median	53	73	35	65	56	41	37	2
	Min	44	61	24	58	43	33	28	1
Daytime	Max	60	87	40	72	61	46	42	4
7am-10pm	Median	54	79	36	67	56	42	39	2
	Min	49	66	29	61	44	39	36	1
Nighttime	Max	55	74	34	66	59	43	38	4
10pm-7am	Median	48	64	27	61	48	37	33	1
	Min	44	61	24	58	43	33	28	1

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 12/18/2012

24hr Summary

L_{DN} = 59 dBA C_{NEL} = 59 dBA $L_{eq(24hr)}$ = 55 dBA



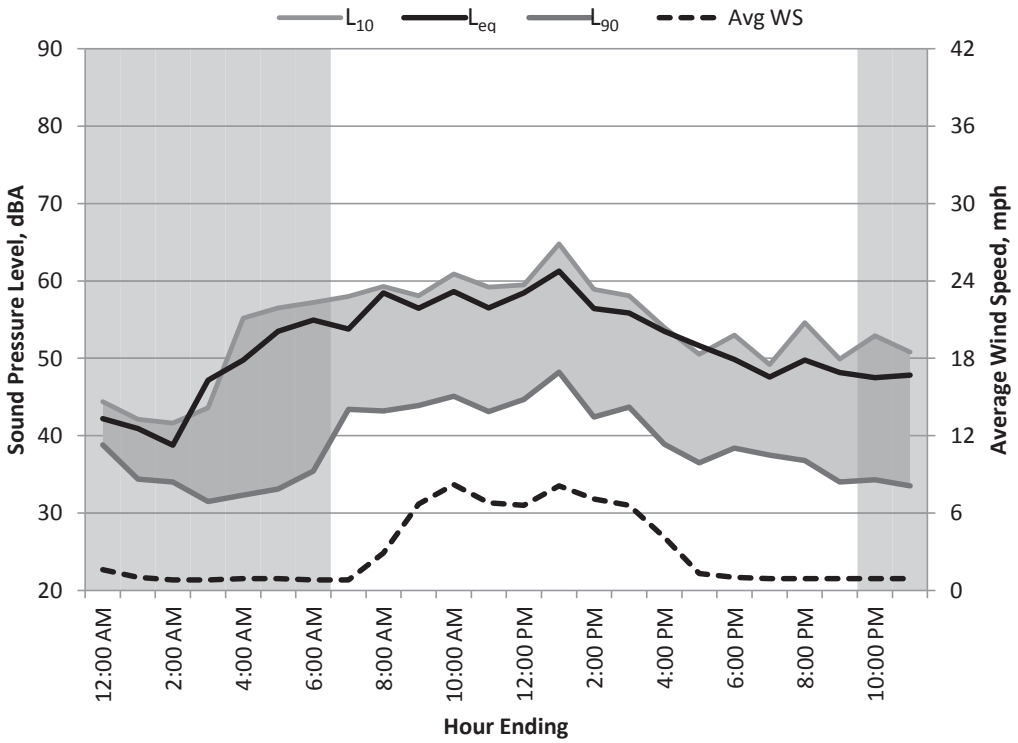
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	47	65	28	60	44	39	33	2
1:00	Night	41	50	33	46	44	41	38	5
2:00	Night	42	64	26	50	44	39	33	2
3:00	Night	50	69	24	62	54	35	29	1
4:00	Night	49	71	25	63	51	38	31	1
5:00	Night	54	71	33	66	58	45	38	4
6:00	Night	53	74	37	66	56	44	40	3
7:00	Day	55	75	34	67	58	45	39	1
8:00	Day	57	80	41	68	59	50	45	1
9:00	Day	59	85	36	71	60	46	40	2
10:00	Day	56	76	38	68	58	45	41	3
11:00	Day	57	79	40	69	58	48	45	4
12:00	Day	57	79	41	69	60	48	44	4
13:00	Day	55	72	38	66	59	48	43	4
14:00	Day	57	79	39	70	58	48	44	4
15:00	Day	57	79	40	69	58	47	44	5
16:00	Day	59	81	40	71	61	49	43	2
17:00	Day	54	78	38	64	55	43	40	1
18:00	Day	56	85	38	66	60	43	39	1
19:00	Day	54	84	37	61	54	44	40	1
20:00	Day	50	69	38	63	49	45	41	1
21:00	Day	52	75	34	60	56	48	41	2
22:00	Night	53	67	32	65	57	42	36	1
23:00	Night	52	65	35	62	57	45	41	2
Overall	Max	59	85	41	71	61	50	45	5
	Median	54	75	37	66	58	45	40	2
	Min	41	50	24	46	44	35	29	1
Daytime	Max	59	85	41	71	61	50	45	5
7am-10pm	Median	56	79	38	68	58	47	41	2
	Min	50	69	34	60	49	43	39	1
Nighttime	Max	54	74	37	66	58	45	41	5
10pm-7am	Median	50	67	32	62	54	41	36	2
	Min	41	50	24	46	44	35	29	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 12/19/2012

24hr Summary

L_{DN} = 58 dBA C_{NEL} = 58 dBA $L_{eq(24hr)}$ = 55 dBA



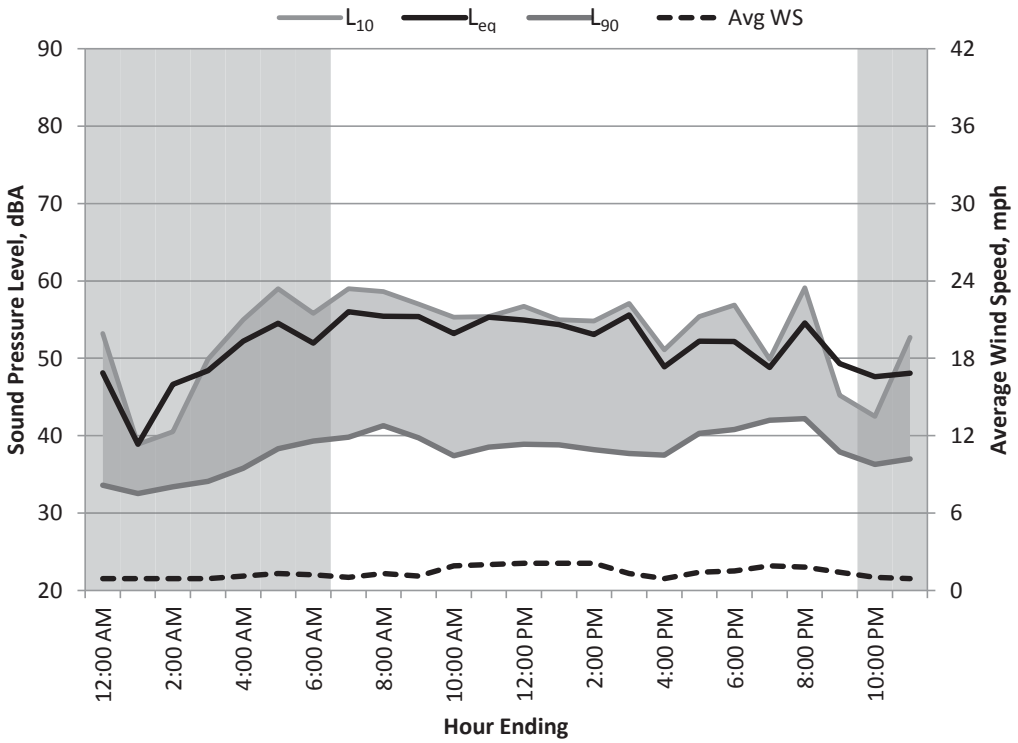
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	42	49	34	47	44	42	39	2
1:00	Night	41	59	31	53	42	38	34	1
2:00	Night	39	51	26	45	42	38	34	1
3:00	Night	47	63	28	61	44	37	32	1
4:00	Night	50	66	29	59	55	37	32	1
5:00	Night	53	69	28	66	57	38	33	1
6:00	Night	55	79	32	66	57	43	35	1
7:00	Day	54	75	40	64	58	46	43	1
8:00	Day	58	81	42	70	59	51	43	3
9:00	Day	56	78	40	68	58	50	44	7
10:00	Day	59	80	41	69	61	52	45	8
11:00	Day	57	78	38	68	59	49	43	7
12:00	Day	58	85	40	69	60	51	45	7
13:00	Day	61	79	43	72	65	55	48	8
14:00	Day	56	76	38	68	59	50	42	7
15:00	Day	56	78	39	67	58	49	44	7
16:00	Day	53	75	37	66	54	44	39	4
17:00	Day	52	78	35	63	51	38	37	1
18:00	Day	50	70	37	61	53	41	38	1
19:00	Day	48	67	36	61	49	40	38	1
20:00	Day	50	69	33	60	55	40	37	1
21:00	Day	48	74	31	59	50	37	34	1
22:00	Night	48	65	31	59	53	37	34	1
23:00	Night	48	63	30	60	51	36	34	1
Overall	Max	61	85	43	72	65	55	48	8
	Median	53	75	36	63	55	41	38	1
	Min	39	49	26	45	42	36	32	1
Daytime	Max	61	85	43	72	65	55	48	8
7am-10pm	Median	56	78	38	67	58	49	43	4
	Min	48	67	31	59	49	37	34	1
Nighttime	Max	55	79	34	66	57	43	39	2
10pm-7am	Median	48	63	30	59	51	38	34	1
	Min	39	49	26	45	42	36	32	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 12/20/2012

24hr Summary

L_{DN} = 57 dBA C_{NEL} = 58 dBA $L_{eq(24hr)}$ = 53 dBA



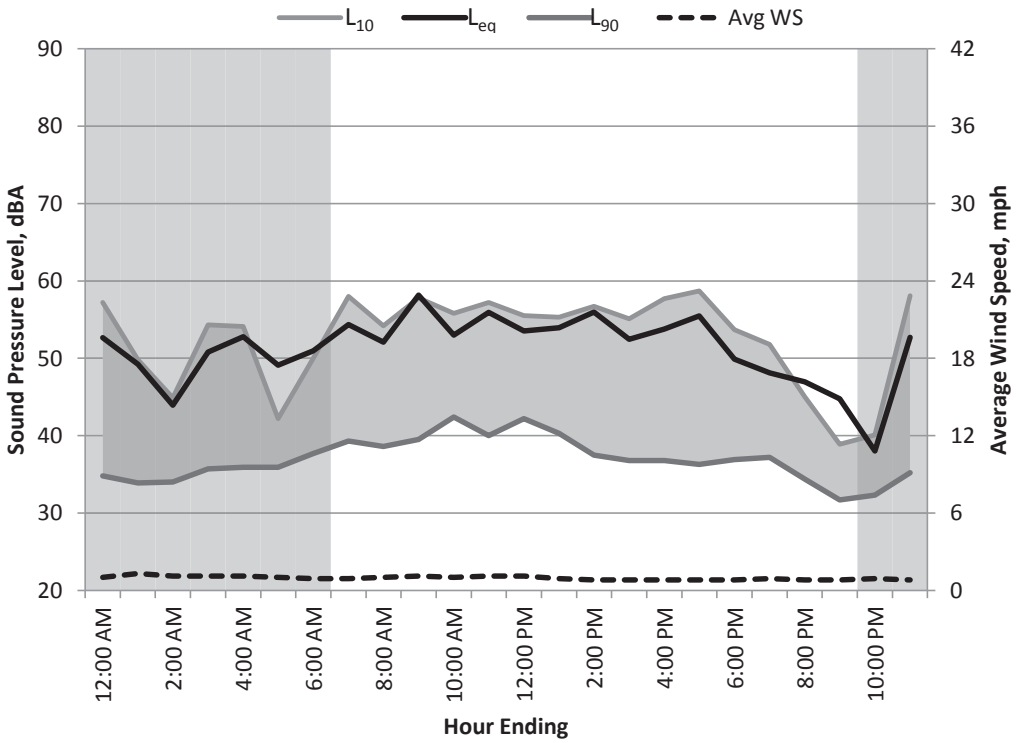
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	48	62	31	60	53	37	34	1
1:00	Night	39	59	29	50	39	35	33	1
2:00	Night	47	65	29	60	41	37	33	1
3:00	Night	48	66	31	62	50	37	34	1
4:00	Night	52	75	32	62	55	39	36	1
5:00	Night	55	73	35	67	59	42	38	1
6:00	Night	52	70	37	64	56	42	39	1
7:00	Day	56	77	36	68	59	44	40	1
8:00	Day	55	74	38	68	59	44	41	1
9:00	Day	55	77	37	68	57	44	40	1
10:00	Day	53	74	36	66	55	42	37	2
11:00	Day	55	78	36	69	55	43	39	2
12:00	Day	55	76	36	67	57	44	39	2
13:00	Day	54	77	36	67	55	43	39	2
14:00	Day	53	76	36	65	55	42	38	2
15:00	Day	56	76	35	68	57	44	38	1
16:00	Day	49	68	36	61	51	40	38	1
17:00	Day	52	73	37	64	55	43	40	1
18:00	Day	52	71	38	63	57	44	41	2
19:00	Day	49	71	40	60	50	44	42	2
20:00	Day	55	73	40	65	59	46	42	2
21:00	Day	49	73	35	61	45	41	38	1
22:00	Night	48	64	33	62	43	39	36	1
23:00	Night	48	62	34	59	53	40	37	1
Overall	Max	56	78	40	69	59	46	42	2
	Median	52	73	36	64	55	42	38	1
	Min	39	59	29	50	39	35	33	1
Daytime	Max	56	78	40	69	59	46	42	2
7am-10pm	Median	54	74	36	66	55	44	39	2
	Min	49	68	35	60	45	40	37	1
Nighttime	Max	55	75	37	67	59	42	39	1
10pm-7am	Median	48	65	32	62	53	39	36	1
	Min	39	59	29	50	39	35	33	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 12/21/2012

24hr Summary

L_{DN} = 58 dBA C_{NEL} = 58 dBA $L_{eq(24hr)}$ = 53 dBA



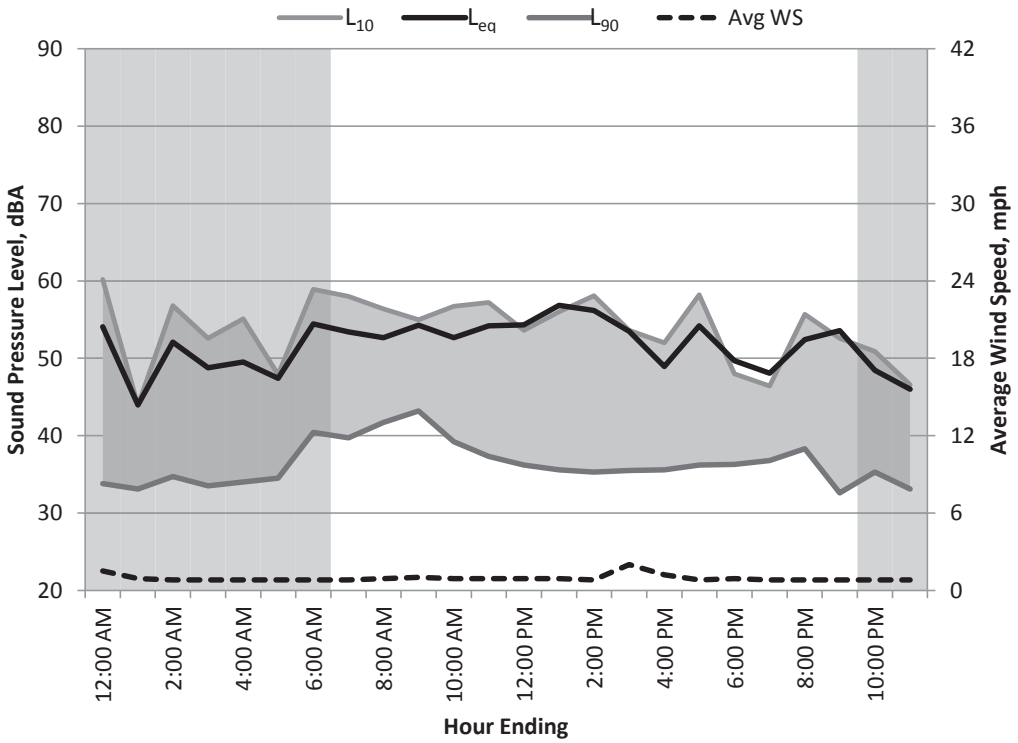
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	53	69	30	65	57	40	35	1
1:00	Night	49	67	30	63	50	38	34	1
2:00	Night	44	62	29	58	45	39	34	1
3:00	Night	51	67	31	64	54	39	36	1
4:00	Night	53	78	33	65	54	39	36	1
5:00	Night	49	73	33	64	42	38	36	1
6:00	Night	51	70	35	65	50	40	38	1
7:00	Day	54	72	37	66	58	44	39	1
8:00	Day	52	72	37	65	54	41	39	1
9:00	Day	58	83	38	71	58	43	40	1
10:00	Day	53	72	39	64	56	47	42	1
11:00	Day	56	78	38	68	57	43	40	1
12:00	Day	54	78	39	65	56	46	42	1
13:00	Day	54	76	38	66	55	46	40	1
14:00	Day	56	78	35	68	57	48	38	1
15:00	Day	52	74	35	64	55	40	37	1
16:00	Day	54	76	35	65	58	40	37	1
17:00	Day	55	81	35	66	59	39	36	1
18:00	Day	50	69	35	62	54	39	37	1
19:00	Day	48	62	35	60	52	39	37	1
20:00	Day	47	70	30	59	45	38	34	1
21:00	Day	45	75	28	46	39	35	32	1
22:00	Night	38	56	27	46	40	36	32	1
23:00	Night	53	64	31	62	58	40	35	1
Overall	Max	58	83	39	71	59	48	42	1
	Median	53	72	35	64	55	40	37	1
	Min	38	56	27	46	39	35	32	1
Daytime	Max	58	83	39	71	59	48	42	1
7am-10pm	Median	54	75	35	65	56	41	38	1
	Min	45	62	28	46	39	35	32	1
Nighttime	Max	53	78	35	65	58	40	38	1
10pm-7am	Median	51	67	31	64	50	39	35	1
	Min	38	56	27	46	40	36	32	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 12/22/2012

24hr Summary

L_{DN} = 58 dBA C_{NEL} = 58 dBA $L_{eq(24hr)}$ = 53 dBA



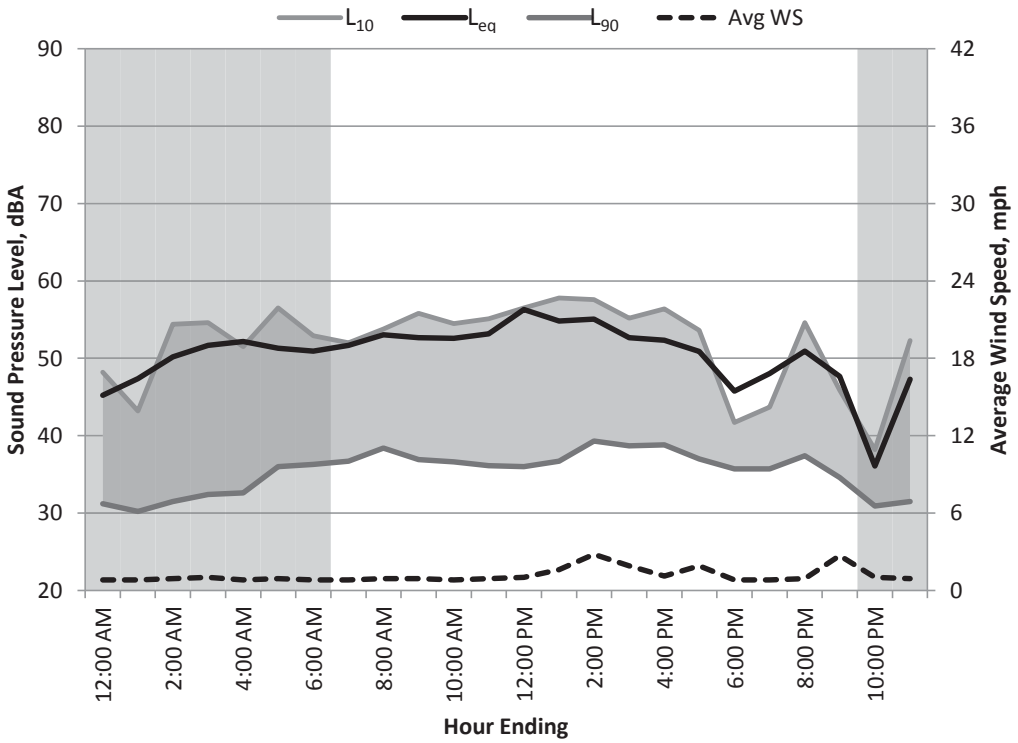
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	54	69	29	65	60	39	34	2
1:00	Night	44	63	29	57	44	37	33	1
2:00	Night	52	67	30	64	57	39	35	1
3:00	Night	49	64	29	60	53	39	34	1
4:00	Night	50	66	30	60	55	41	34	1
5:00	Night	47	75	29	55	48	41	35	1
6:00	Night	54	71	31	65	59	47	40	1
7:00	Day	53	72	35	65	58	45	40	1
8:00	Day	53	72	38	63	56	46	42	1
9:00	Day	54	79	40	65	55	46	43	1
10:00	Day	53	70	38	64	57	43	39	1
11:00	Day	54	76	35	66	57	43	37	1
12:00	Day	54	78	34	68	54	39	36	1
13:00	Day	57	82	35	69	56	40	36	1
14:00	Day	56	78	34	69	58	40	35	1
15:00	Day	53	78	34	66	54	38	36	2
16:00	Day	49	68	35	61	52	37	36	1
17:00	Day	54	74	34	66	58	41	36	1
18:00	Day	50	76	35	60	48	39	36	1
19:00	Day	48	68	35	61	46	39	37	1
20:00	Day	52	69	35	64	56	42	38	1
21:00	Day	54	78	28	65	53	38	33	1
22:00	Night	48	65	29	61	51	39	35	1
23:00	Night	46	65	28	60	47	38	33	1
Overall	Max	57	82	40	69	60	47	43	2
	Median	53	71	34	64	55	40	36	1
	Min	44	63	28	55	44	37	33	1
Daytime	Max	57	82	40	69	58	46	43	2
7am-10pm	Median	53	76	35	65	56	40	36	1
	Min	48	68	28	60	46	37	33	1
Nighttime	Max	54	75	31	65	60	47	40	2
10pm-7am	Median	49	66	29	60	53	39	34	1
	Min	44	63	28	55	44	37	33	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 12/23/2012

24hr Summary

L_{DN} = 57 dBA C_{NEL} = 57 dBA $L_{eq(24hr)}$ = 52 dBA



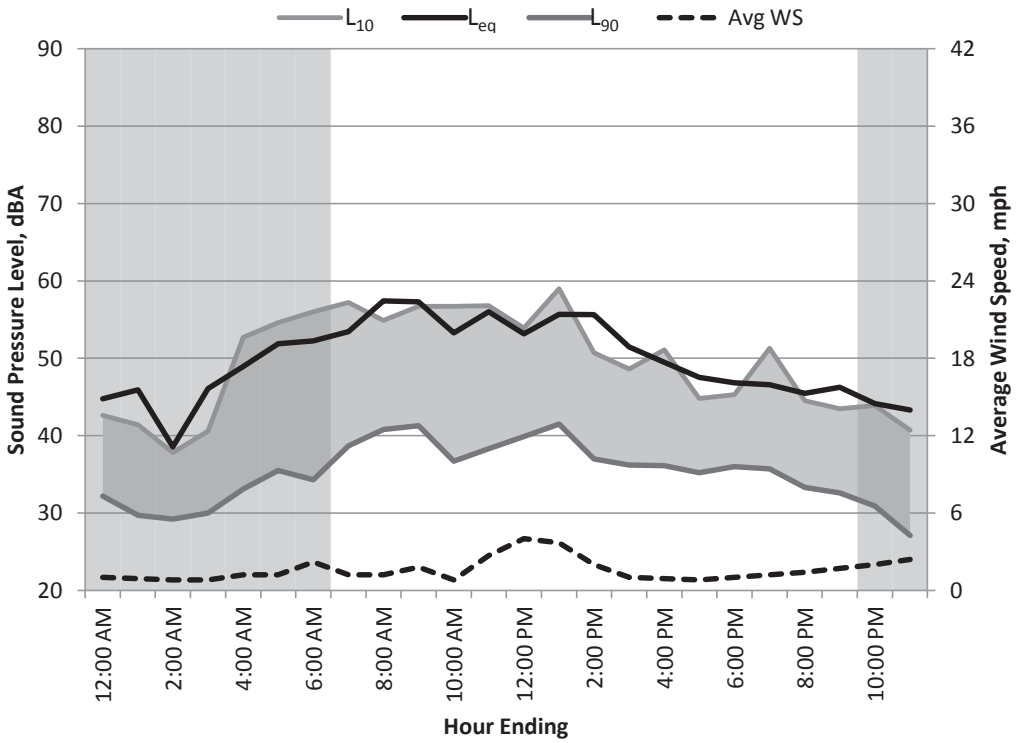
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	45	62	27	57	48	36	31	1
1:00	Night	47	62	25	61	43	34	30	1
2:00	Night	50	67	28	62	54	36	32	1
3:00	Night	52	79	30	60	55	39	32	1
4:00	Night	52	78	28	63	52	39	33	1
5:00	Night	51	64	30	62	57	41	36	1
6:00	Night	51	74	32	63	53	42	36	1
7:00	Day	52	74	34	66	52	40	37	1
8:00	Day	53	72	37	66	54	42	38	1
9:00	Day	53	77	36	64	56	39	37	1
10:00	Day	53	76	34	64	55	43	37	1
11:00	Day	53	73	35	66	55	41	36	1
12:00	Day	56	85	35	66	57	40	36	1
13:00	Day	55	75	35	67	58	41	37	2
14:00	Day	55	77	37	65	58	43	39	3
15:00	Day	53	72	37	65	55	43	39	2
16:00	Day	52	71	36	64	56	42	39	1
17:00	Day	51	74	35	63	54	41	37	2
18:00	Day	46	69	34	60	42	37	36	1
19:00	Day	48	65	35	62	44	38	36	1
20:00	Day	51	69	31	62	55	40	37	1
21:00	Day	48	75	30	59	46	39	35	3
22:00	Night	36	54	26	46	38	34	31	1
23:00	Night	47	66	27	59	52	35	32	1
Overall	Max	56	85	37	67	58	43	39	3
	Median	51	73	34	63	54	40	36	1
	Min	36	54	25	46	38	34	30	1
Daytime	Max	56	85	37	67	58	43	39	3
7am-10pm	Median	53	74	35	64	55	41	37	1
	Min	46	65	30	59	42	37	35	1
Nighttime	Max	52	79	32	63	57	42	36	1
10pm-7am	Median	50	66	28	61	52	36	32	1
	Min	36	54	25	46	38	34	30	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 12/24/2012

24hr Summary

L_{DN} = 56 dBA C_{NEL} = 56 dBA $L_{eq(24hr)}$ = 52 dBA



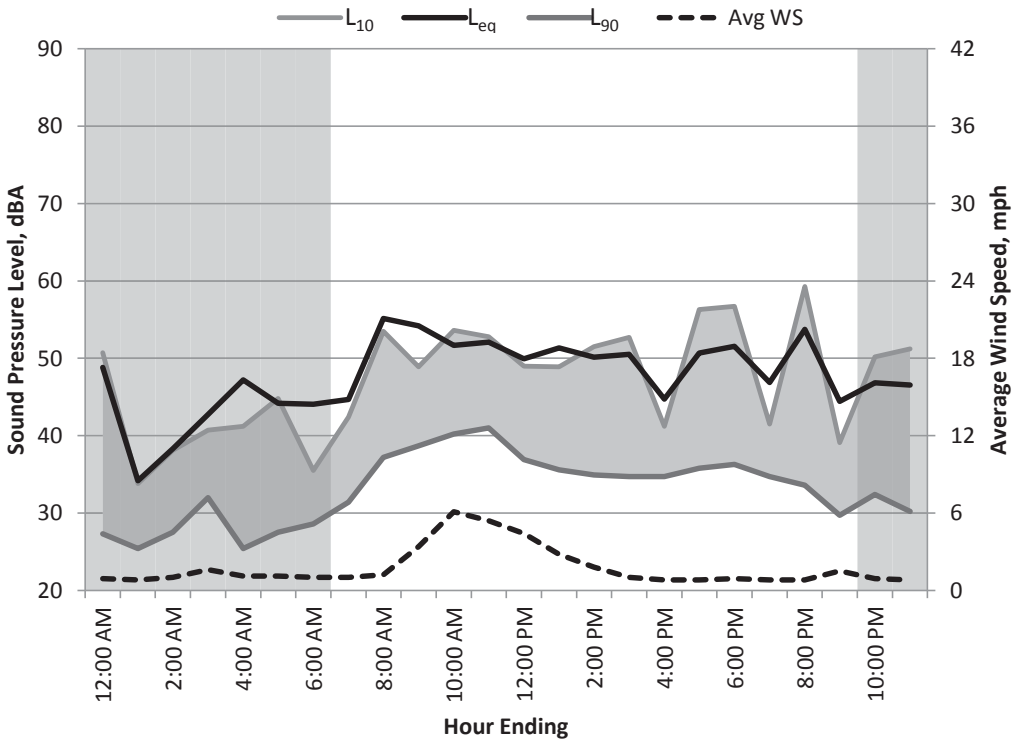
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	45	62	29	59	43	36	32	1
1:00	Night	46	65	25	60	41	33	30	1
2:00	Night	39	58	27	52	38	33	29	1
3:00	Night	46	63	27	59	41	33	30	1
4:00	Night	49	74	30	59	53	38	33	1
5:00	Night	52	70	32	65	55	41	36	1
6:00	Night	52	69	31	64	56	39	34	2
7:00	Day	53	73	35	65	57	46	39	1
8:00	Day	57	86	39	69	55	47	41	1
9:00	Day	57	84	40	65	57	44	41	2
10:00	Day	53	75	35	65	57	42	37	1
11:00	Day	56	79	36	69	57	44	38	3
12:00	Day	53	77	38	65	54	43	40	4
13:00	Day	56	77	38	67	59	46	42	4
14:00	Day	56	85	35	65	51	40	37	2
15:00	Day	51	80	35	63	49	38	36	1
16:00	Day	49	71	35	62	51	38	36	1
17:00	Day	48	67	34	61	45	36	35	1
18:00	Day	47	66	35	60	45	37	36	1
19:00	Day	47	65	35	58	51	37	36	1
20:00	Day	45	66	29	58	45	37	33	1
21:00	Day	46	71	28	58	44	36	33	2
22:00	Night	44	66	27	56	44	38	31	2
23:00	Night	43	68	22	56	41	33	27	2
Overall	Max	57	86	40	69	59	47	42	4
	Median	49	70	34	61	51	38	36	1
	Min	39	58	22	52	38	33	27	1
Daytime	Max	57	86	40	69	59	47	42	4
7am-10pm	Median	53	75	35	65	51	40	37	1
	Min	45	65	28	58	44	36	33	1
Nighttime	Max	52	74	32	65	56	41	36	2
10pm-7am	Median	46	66	27	59	43	36	31	1
	Min	39	58	22	52	38	33	27	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 12/25/2012

24hr Summary

L_{DN} = 53 dBA C_{NEL} = 54 dBA $L_{eq(24hr)}$ = 50 dBA



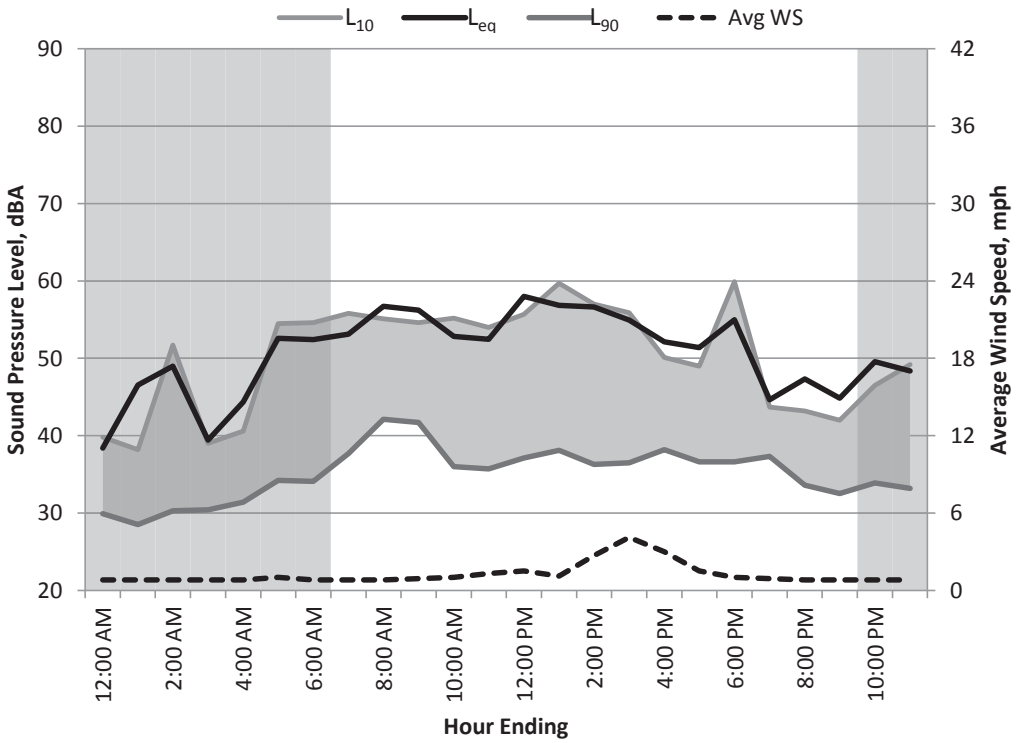
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	49	73	23	59	51	33	27	1
1:00	Night	34	54	23	47	34	31	25	1
2:00	Night	38	53	26	51	38	32	28	1
3:00	Night	43	60	27	56	41	36	32	2
4:00	Night	47	72	22	60	41	32	25	1
5:00	Night	44	70	24	55	45	33	28	1
6:00	Night	44	71	25	56	36	32	29	1
7:00	Day	45	65	27	57	42	35	31	1
8:00	Day	55	79	35	67	54	40	37	1
9:00	Day	54	79	36	67	49	42	39	3
10:00	Day	52	76	36	64	54	45	40	6
11:00	Day	52	75	38	62	53	46	41	5
12:00	Day	50	74	34	62	49	41	37	4
13:00	Day	51	77	34	64	49	38	36	3
14:00	Day	50	71	34	63	52	37	35	2
15:00	Day	51	72	34	63	53	37	35	1
16:00	Day	45	71	33	57	41	37	35	1
17:00	Day	51	68	34	61	56	38	36	1
18:00	Day	52	67	34	62	57	39	36	1
19:00	Day	47	64	34	60	42	36	35	1
20:00	Day	54	71	28	64	59	38	34	1
21:00	Day	44	69	27	57	39	33	30	2
22:00	Night	47	61	28	59	50	37	32	1
23:00	Night	47	63	27	57	51	35	30	1
Overall	Max	55	79	38	67	59	46	41	6
	Median	48	71	31	60	49	37	34	1
	Min	34	53	22	47	34	31	25	1
Daytime	Max	55	79	38	67	59	46	41	6
7am-10pm	Median	51	71	34	62	52	38	36	1
	Min	44	64	27	57	39	33	30	1
Nighttime	Max	49	73	28	60	51	37	32	2
10pm-7am	Median	44	63	25	56	41	33	28	1
	Min	34	53	22	47	34	31	25	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 12/26/2012

24hr Summary

L_{DN} = 57 dBA C_{NEL} = 57 dBA $L_{eq(24hr)}$ = 53 dBA



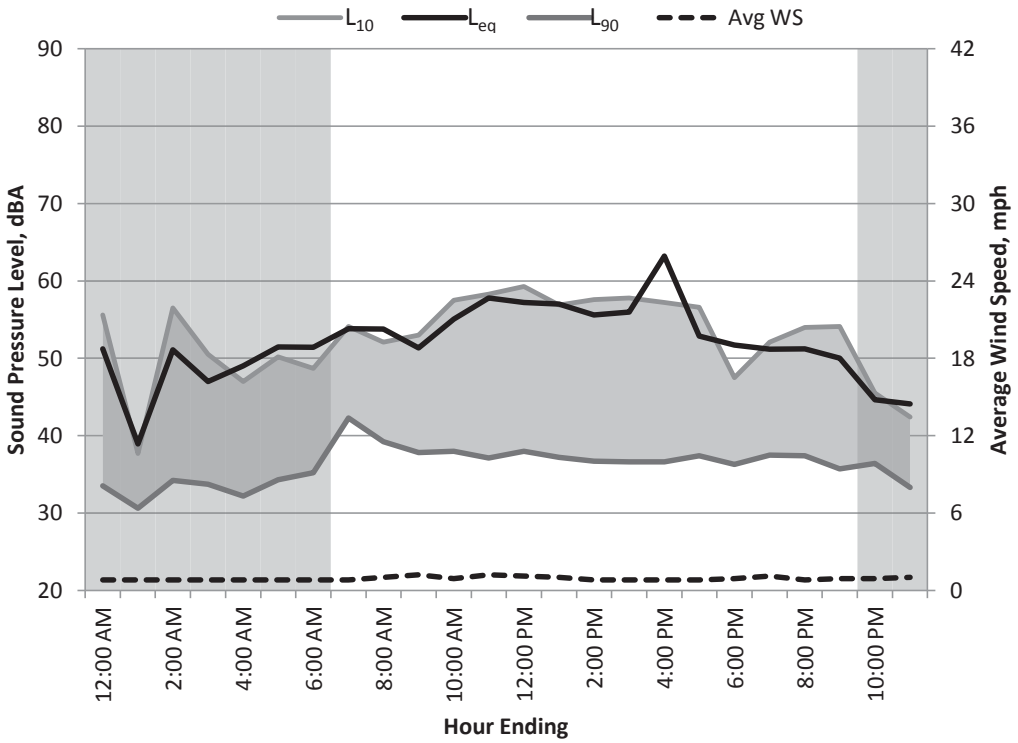
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	38	55	27	51	40	34	30	1
1:00	Night	47	66	25	59	38	33	29	1
2:00	Night	49	67	27	61	52	35	30	1
3:00	Night	39	59	27	52	39	34	30	1
4:00	Night	44	71	29	54	41	35	31	1
5:00	Night	53	71	30	66	55	39	34	1
6:00	Night	52	76	30	64	55	41	34	1
7:00	Day	53	76	34	64	56	47	38	1
8:00	Day	57	80	40	69	55	45	42	1
9:00	Day	56	78	40	70	55	45	42	1
10:00	Day	53	73	35	65	55	43	36	1
11:00	Day	52	73	34	65	54	39	36	1
12:00	Day	58	83	35	71	56	41	37	2
13:00	Day	57	79	36	69	60	44	38	1
14:00	Day	57	82	35	67	57	41	36	3
15:00	Day	55	78	35	67	56	41	37	4
16:00	Day	52	77	36	65	50	40	38	3
17:00	Day	51	73	35	64	49	40	37	2
18:00	Day	55	77	34	65	60	42	37	1
19:00	Day	45	67	35	56	44	39	37	1
20:00	Day	47	68	28	61	43	38	34	1
21:00	Day	45	71	29	57	42	36	33	1
22:00	Night	50	70	30	62	47	38	34	1
23:00	Night	48	67	28	61	49	38	33	1
Overall	Max	58	83	40	71	60	47	42	4
	Median	52	73	34	64	53	39	36	1
	Min	38	55	25	51	38	33	29	1
Daytime	Max	58	83	40	71	60	47	42	4
7am-10pm	Median	53	77	35	65	55	41	37	1
	Min	45	67	28	56	42	36	33	1
Nighttime	Max	53	76	30	66	55	41	34	1
10pm-7am	Median	48	67	28	61	47	35	31	1
	Min	38	55	25	51	38	33	29	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 12/27/2012

24hr Summary

L_{DN} = 57 dBA C_{NEL} = 58 dBA $L_{eq(24hr)}$ = 55 dBA



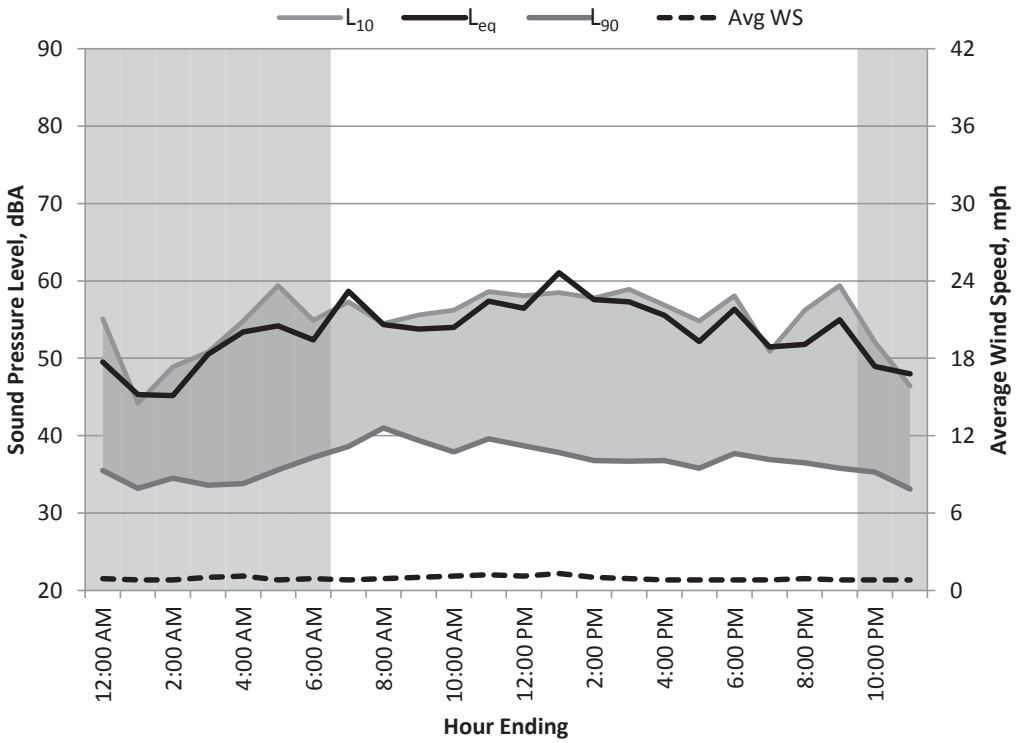
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	51	68	29	64	56	37	34	1
1:00	Night	39	60	26	47	38	34	31	1
2:00	Night	51	67	30	62	57	38	34	1
3:00	Night	47	67	30	59	51	37	34	1
4:00	Night	49	73	28	61	47	36	32	1
5:00	Night	51	70	32	65	50	38	34	1
6:00	Night	51	76	33	65	49	38	35	1
7:00	Day	54	79	35	66	54	45	42	1
8:00	Day	54	79	37	66	52	43	39	1
9:00	Day	51	72	36	65	53	40	38	1
10:00	Day	55	73	36	67	58	45	38	1
11:00	Day	58	83	35	70	58	44	37	1
12:00	Day	57	77	35	70	59	44	38	1
13:00	Day	57	81	36	70	57	44	37	1
14:00	Day	56	76	35	68	58	45	37	1
15:00	Day	56	78	34	68	58	43	37	1
16:00	Day	63	93	35	67	57	42	37	1
17:00	Day	53	74	35	63	57	41	37	1
18:00	Day	52	77	34	64	48	38	36	1
19:00	Day	51	68	35	65	52	40	38	1
20:00	Day	51	73	32	63	54	40	37	1
21:00	Day	50	71	31	61	54	40	36	1
22:00	Night	45	61	33	57	46	40	36	1
23:00	Night	44	63	31	58	42	37	33	1
Overall	Max	63	93	37	70	59	45	42	1
	Median	51	73	34	65	54	40	37	1
	Min	39	60	26	47	38	34	31	1
Daytime	Max	63	93	37	70	59	45	42	1
7am-10pm	Median	54	77	35	66	57	43	37	1
	Min	50	68	31	61	48	38	36	1
Nighttime	Max	51	76	33	65	57	40	36	1
10pm-7am	Median	49	67	30	61	49	37	34	1
	Min	39	60	26	47	38	34	31	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 12/28/2012

24hr Summary

L_{DN} = 59 dBA C_{NEL} = 59 dBA $L_{eq(24hr)}$ = 55 dBA



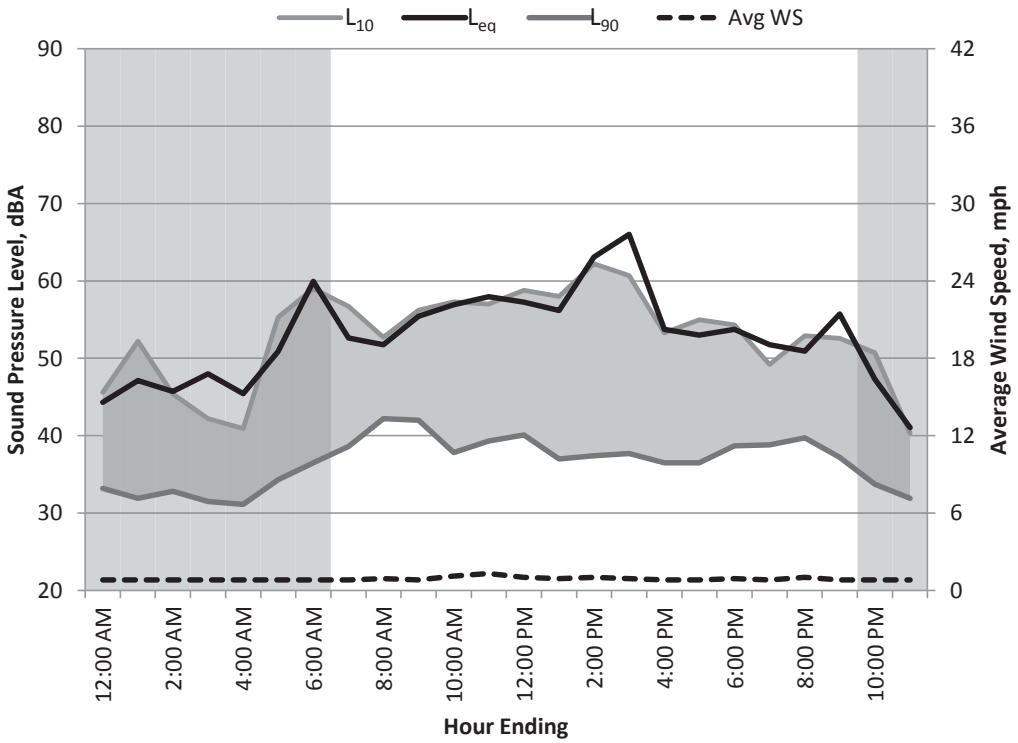
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	50	63	32	61	55	39	36	1
1:00	Night	45	64	31	58	44	37	33	1
2:00	Night	45	60	30	57	49	39	35	1
3:00	Night	51	66	26	64	51	38	34	1
4:00	Night	53	70	30	68	55	40	34	1
5:00	Night	54	73	32	66	59	42	36	1
6:00	Night	52	75	33	65	55	43	37	1
7:00	Day	59	89	34	67	57	44	39	1
8:00	Day	54	78	38	66	55	45	41	1
9:00	Day	54	73	36	67	56	43	39	1
10:00	Day	54	79	36	64	56	44	38	1
11:00	Day	57	81	36	69	59	45	40	1
12:00	Day	56	79	35	70	58	44	39	1
13:00	Day	61	88	35	71	59	46	38	1
14:00	Day	58	79	35	71	58	42	37	1
15:00	Day	57	80	34	70	59	44	37	1
16:00	Day	56	79	35	68	57	42	37	1
17:00	Day	52	74	34	65	55	39	36	1
18:00	Day	56	80	36	65	58	47	38	1
19:00	Day	51	75	35	63	51	39	37	1
20:00	Day	52	69	33	64	56	40	37	1
21:00	Day	55	75	32	66	59	42	36	1
22:00	Night	49	66	30	61	52	40	35	1
23:00	Night	48	64	30	62	46	38	33	1
Overall	Max	61	89	38	71	59	47	41	1
	Median	54	75	34	66	56	42	37	1
	Min	45	60	26	57	44	37	33	1
Daytime	Max	61	89	38	71	59	47	41	1
7am-10pm	Median	56	79	35	67	57	44	38	1
	Min	51	69	32	63	51	39	36	1
Nighttime	Max	54	75	33	68	59	43	37	1
10pm-7am	Median	50	66	30	62	52	39	35	1
	Min	45	60	26	57	44	37	33	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 12/29/2012

24hr Summary

L_{DN} = 60 dBA C_{NEL} = 60 dBA $L_{eq(24hr)}$ = 57 dBA



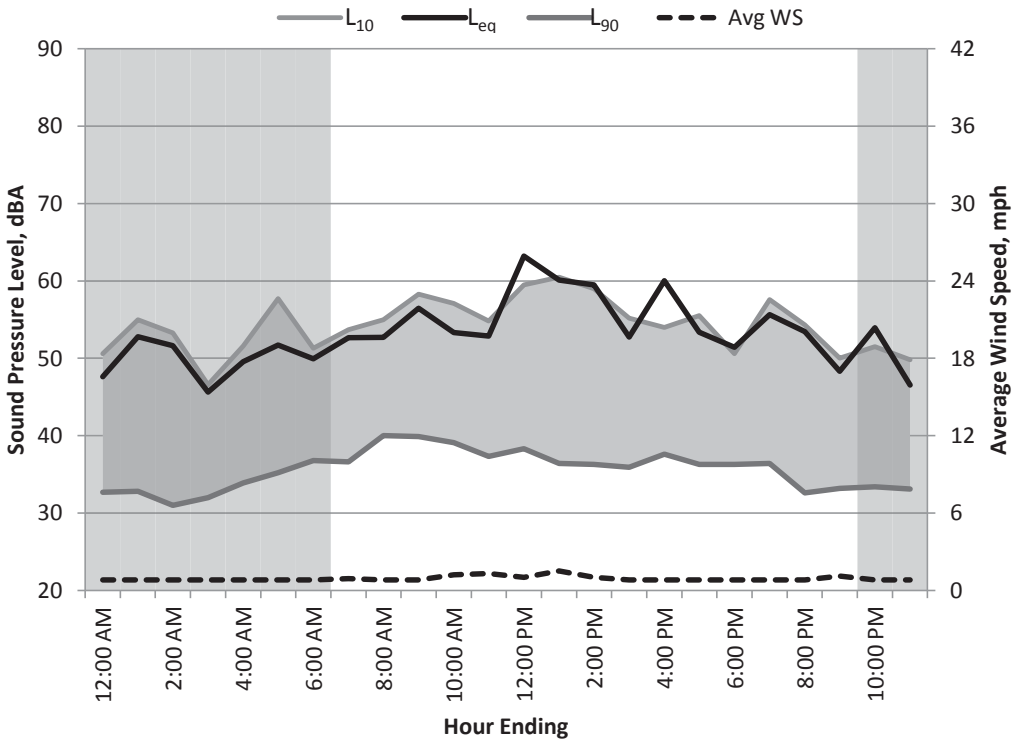
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	44	59	30	57	46	38	33	1
1:00	Night	47	63	28	59	52	38	32	1
2:00	Night	46	65	29	58	45	37	33	1
3:00	Night	48	67	28	62	42	36	32	1
4:00	Night	45	62	28	60	41	35	31	1
5:00	Night	51	67	30	62	55	38	34	1
6:00	Night	60	90	33	68	59	40	37	1
7:00	Day	53	71	35	65	57	42	39	1
8:00	Day	52	73	39	64	53	45	42	1
9:00	Day	55	80	38	67	56	46	42	1
10:00	Day	57	82	35	69	57	44	38	1
11:00	Day	58	81	35	70	57	45	39	1
12:00	Day	57	78	35	70	59	48	40	1
13:00	Day	56	82	35	67	58	46	37	1
14:00	Day	63	90	35	75	62	46	37	1
15:00	Day	66	91	35	80	61	46	38	1
16:00	Day	54	76	35	67	53	42	37	1
17:00	Day	53	73	35	66	55	41	37	1
18:00	Day	54	76	36	67	54	43	39	1
19:00	Day	52	75	37	64	49	41	39	1
20:00	Day	51	76	34	63	53	43	40	1
21:00	Day	56	83	34	64	53	41	37	1
22:00	Night	47	64	31	60	51	39	34	1
23:00	Night	41	64	29	52	40	36	32	1
Overall	Max	66	91	39	80	62	48	42	1
	Median	53	76	35	65	54	41	37	1
	Min	41	59	28	52	40	35	31	1
Daytime	Max	66	91	39	80	62	48	42	1
7am-10pm	Median	55	78	35	67	56	44	39	1
	Min	51	71	34	63	49	41	37	1
Nighttime	Max	60	90	33	68	59	40	37	1
10pm-7am	Median	47	64	29	60	46	38	33	1
	Min	41	59	28	52	40	35	31	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 12/30/2012

24hr Summary

L_{DN} = 59 dBA C_{NEL} = 59 dBA $L_{eq(24hr)}$ = 55 dBA



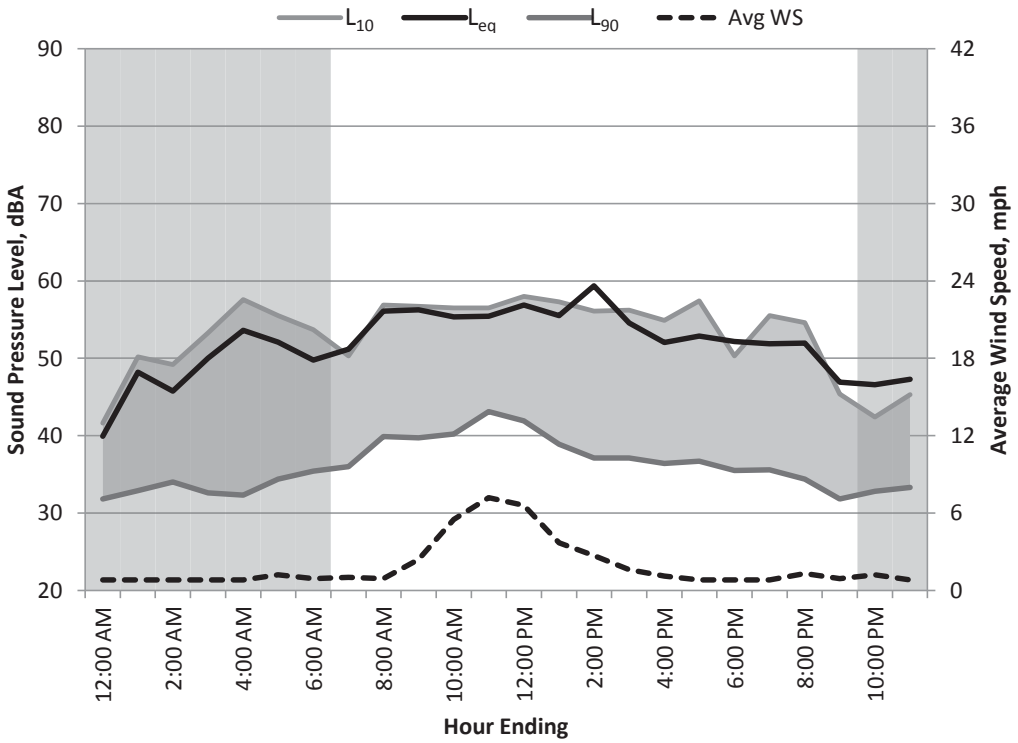
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	48	65	27	60	51	37	33	1
1:00	Night	53	78	24	64	55	37	33	1
2:00	Night	52	71	27	64	53	36	31	1
3:00	Night	46	65	26	57	47	36	32	1
4:00	Night	50	75	31	61	52	39	34	1
5:00	Night	52	66	32	62	58	40	35	1
6:00	Night	50	70	34	63	51	40	37	1
7:00	Day	53	80	32	64	54	41	37	1
8:00	Day	53	78	38	64	55	42	40	1
9:00	Day	56	80	37	68	58	46	40	1
10:00	Day	53	74	36	65	57	43	39	1
11:00	Day	53	72	36	65	55	42	37	1
12:00	Day	63	90	36	75	60	47	38	1
13:00	Day	60	83	34	73	61	43	36	2
14:00	Day	60	82	34	73	59	44	36	1
15:00	Day	53	74	35	65	55	41	36	1
16:00	Day	60	89	36	66	54	42	38	1
17:00	Day	53	76	35	64	56	39	36	1
18:00	Day	51	74	35	65	51	39	36	1
19:00	Day	56	80	35	64	58	38	36	1
20:00	Day	53	82	29	62	54	37	33	1
21:00	Day	48	64	29	60	50	38	33	1
22:00	Night	54	80	30	65	52	38	33	1
23:00	Night	47	61	26	58	50	37	33	1
Overall	Max	63	90	38	75	61	47	40	2
	Median	53	76	34	64	55	40	36	1
	Min	46	61	24	57	47	36	31	1
Daytime	Max	63	90	38	75	61	47	40	2
7am-10pm	Median	53	80	35	65	55	42	36	1
	Min	48	64	29	60	50	37	33	1
Nighttime	Max	54	80	34	65	58	40	37	1
10pm-7am	Median	50	70	27	62	52	37	33	1
	Min	46	61	24	57	47	36	31	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 12/31/2012

24hr Summary

L_{DN} = 57 dBA C_{NEL} = 57 dBA $L_{eq(24hr)}$ = 53 dBA



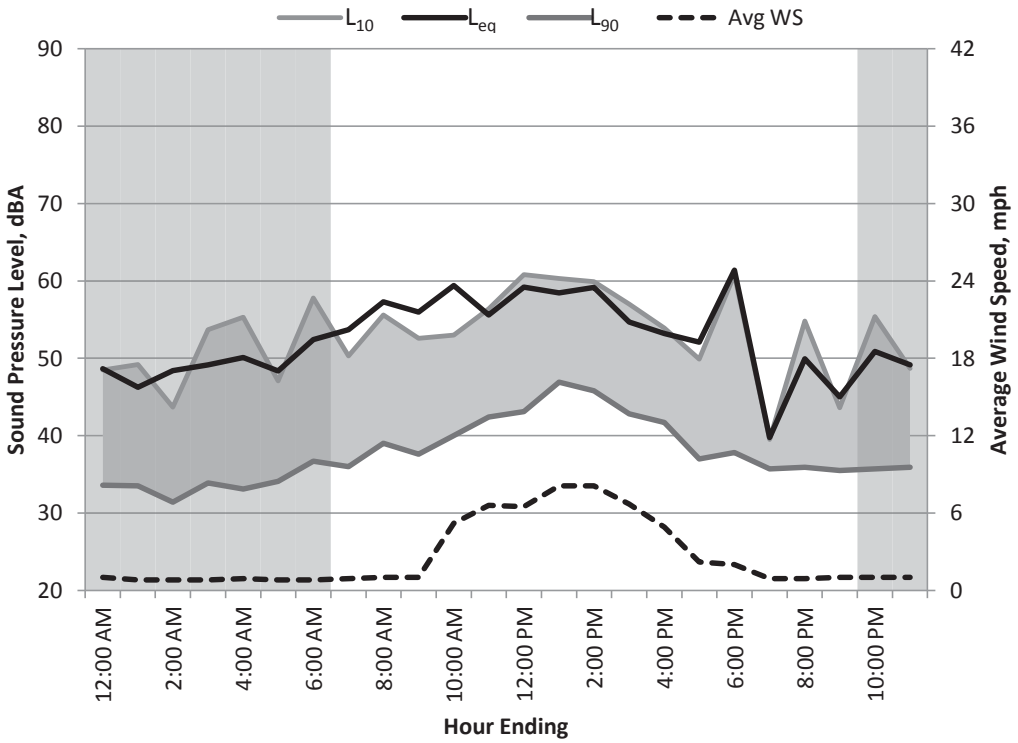
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	40	59	27	49	42	36	32	1
1:00	Night	48	68	29	60	50	37	33	1
2:00	Night	46	61	29	57	49	38	34	1
3:00	Night	50	67	29	62	53	36	33	1
4:00	Night	54	73	27	66	58	37	32	1
5:00	Night	52	76	31	64	56	39	34	1
6:00	Night	50	66	31	62	54	41	35	1
7:00	Day	51	70	32	65	50	39	36	1
8:00	Day	56	81	37	68	57	44	40	1
9:00	Day	56	80	38	69	57	45	40	2
10:00	Day	55	76	37	67	57	48	40	6
11:00	Day	55	76	38	68	57	48	43	7
12:00	Day	57	80	39	68	58	49	42	7
13:00	Day	56	75	36	69	57	44	39	4
14:00	Day	59	85	35	69	56	41	37	3
15:00	Day	55	74	34	68	56	42	37	2
16:00	Day	52	75	34	64	55	42	36	1
17:00	Day	53	73	35	64	57	40	37	1
18:00	Day	52	79	33	66	50	38	36	1
19:00	Day	52	74	34	64	56	38	36	1
20:00	Day	52	74	29	65	55	38	34	1
21:00	Day	47	73	28	59	45	36	32	1
22:00	Night	47	72	30	60	42	36	33	1
23:00	Night	47	70	30	60	45	37	33	1
Overall	Max	59	85	39	69	58	49	43	7
	Median	52	74	33	64	55	39	36	1
	Min	40	59	27	49	42	36	32	1
Daytime	Max	59	85	39	69	58	49	43	7
7am-10pm	Median	55	75	35	67	56	42	37	1
	Min	47	70	28	59	45	36	32	1
Nighttime	Max	54	76	31	66	58	41	35	1
10pm-7am	Median	48	68	29	60	50	37	33	1
	Min	40	59	27	49	42	36	32	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 1/1/2013

24hr Summary

L_{DN} = 58 dBA C_{NEL} = 58 dBA $L_{eq(24hr)}$ = 55 dBA



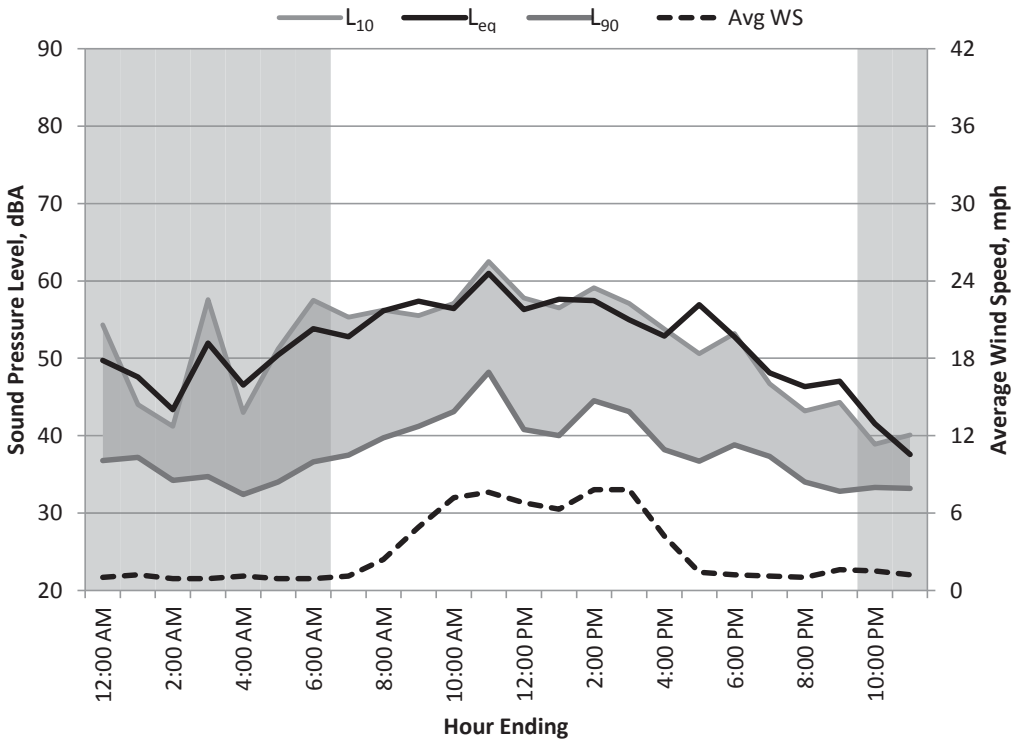
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	49	69	29	62	49	38	34	1
1:00	Night	46	65	28	57	49	38	34	1
2:00	Night	48	65	28	62	44	36	31	1
3:00	Night	49	69	31	60	54	38	34	1
4:00	Night	50	72	29	60	55	38	33	1
5:00	Night	48	74	31	59	47	38	34	1
6:00	Night	52	67	34	62	58	43	37	1
7:00	Day	54	73	32	67	50	40	36	1
8:00	Day	57	80	36	69	56	43	39	1
9:00	Day	56	78	36	69	53	40	38	1
10:00	Day	59	86	38	71	53	45	40	5
11:00	Day	56	76	39	69	56	48	42	7
12:00	Day	59	78	38	72	61	49	43	7
13:00	Day	58	78	42	71	60	52	47	8
14:00	Day	59	85	41	71	60	52	46	8
15:00	Day	55	77	39	65	57	50	43	7
16:00	Day	53	74	39	65	54	46	42	5
17:00	Day	52	79	35	65	50	39	37	2
18:00	Day	61	89	36	74	61	40	38	2
19:00	Day	40	63	34	45	40	37	36	1
20:00	Day	50	71	33	61	55	39	36	1
21:00	Day	45	61	32	58	44	38	36	1
22:00	Night	51	69	33	63	55	39	36	1
23:00	Night	49	66	33	63	49	38	36	1
Overall	Max	61	89	42	74	61	52	47	8
	Median	52	73	34	64	54	39	36	1
	Min	40	61	28	45	40	36	31	1
Daytime	Max	61	89	42	74	61	52	47	8
7am-10pm	Median	56	78	36	69	55	43	39	2
	Min	40	61	32	45	40	37	36	1
Nighttime	Max	52	74	34	63	58	43	37	1
10pm-7am	Median	49	69	31	62	49	38	34	1
	Min	46	65	28	57	44	36	31	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 1/2/2013

24hr Summary

L_{DN} = 57 dBA C_{NEL} = 58 dBA $L_{eq(24hr)}$ = 54 dBA



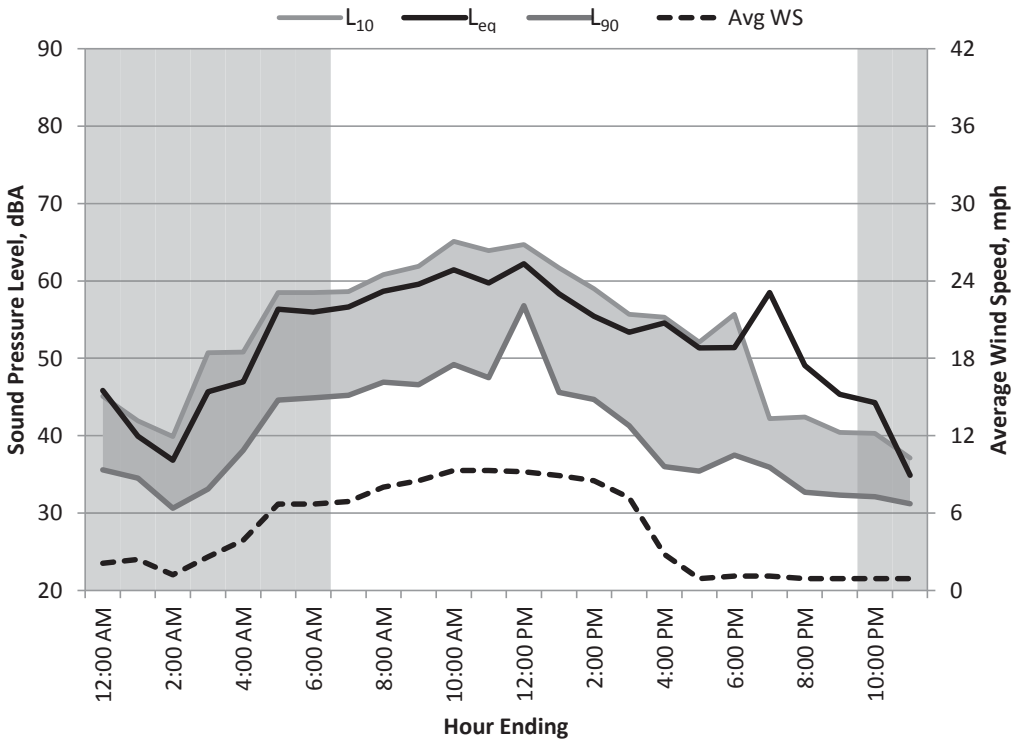
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	50	72	33	60	54	40	37	1
1:00	Night	48	64	34	62	44	40	37	1
2:00	Night	43	61	31	57	41	37	34	1
3:00	Night	52	66	32	62	58	39	35	1
4:00	Night	47	76	30	56	43	35	32	1
5:00	Night	50	69	32	64	51	37	34	1
6:00	Night	54	75	33	66	58	40	37	1
7:00	Day	53	77	35	64	55	42	38	1
8:00	Day	56	79	37	67	56	44	40	2
9:00	Day	57	82	37	69	56	45	41	5
10:00	Day	56	81	39	68	57	49	43	7
11:00	Day	61	87	41	71	63	56	48	8
12:00	Day	56	78	37	68	58	47	41	7
13:00	Day	58	83	36	69	57	45	40	6
14:00	Day	57	77	41	70	59	50	45	8
15:00	Day	55	75	39	67	57	49	43	8
16:00	Day	53	75	36	65	54	43	38	4
17:00	Day	57	86	35	64	51	38	37	1
18:00	Day	53	80	37	64	53	41	39	1
19:00	Day	48	70	35	60	47	40	37	1
20:00	Day	46	69	29	58	43	37	34	1
21:00	Day	47	74	30	58	44	37	33	2
22:00	Night	42	67	30	47	39	36	33	2
23:00	Night	38	46	30	43	40	37	33	1
Overall	Max	61	87	41	71	63	56	48	8
	Median	53	75	35	64	54	40	37	1
	Min	38	46	29	43	39	35	32	1
Daytime	Max	61	87	41	71	63	56	48	8
7am-10pm	Median	56	78	37	67	56	44	40	4
	Min	46	69	29	58	43	37	33	1
Nighttime	Max	54	76	34	66	58	40	37	2
10pm-7am	Median	48	67	32	60	44	37	34	1
	Min	38	46	30	43	39	35	32	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 1/3/2013

24hr Summary

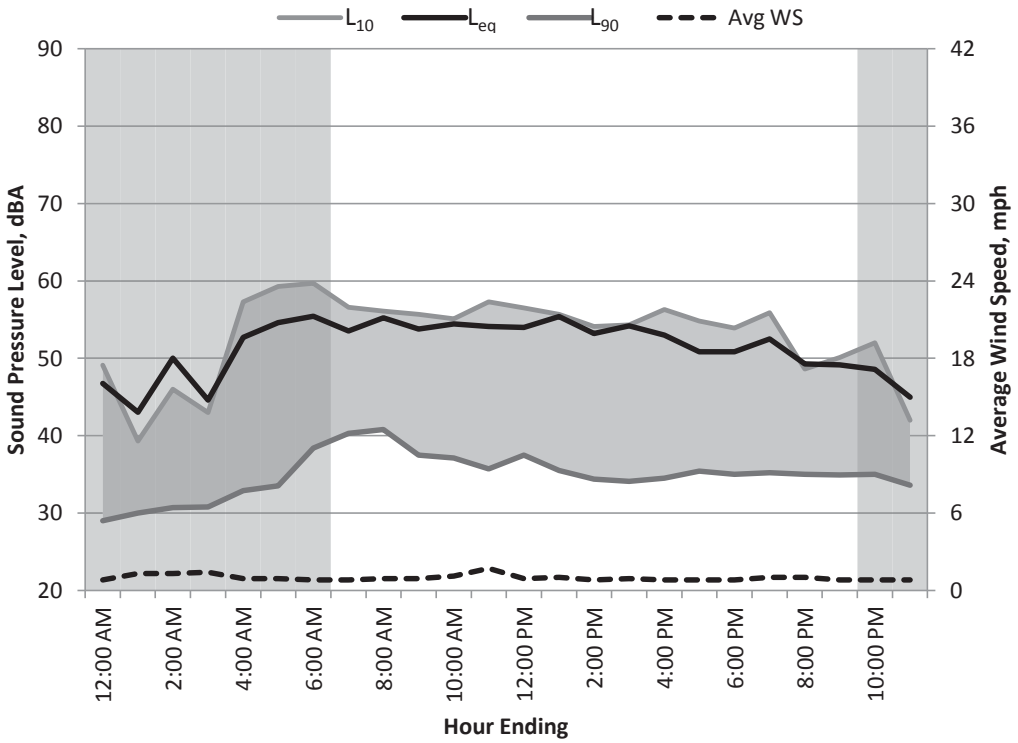
L_{DN} = 59 dBA C_{NEL} = 59 dBA $L_{eq(24hr)}$ = 56 dBA



Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	46	61	33	59	45	38	36	2
1:00	Night	40	58	32	50	42	37	35	2
2:00	Night	37	49	26	44	40	35	31	1
3:00	Night	46	60	29	56	51	39	33	3
4:00	Night	47	65	35	57	51	42	38	4
5:00	Night	56	77	40	67	59	51	45	7
6:00	Night	56	76	40	67	59	50	45	7
7:00	Day	57	77	41	69	59	50	45	7
8:00	Day	59	78	42	71	61	52	47	8
9:00	Day	60	86	42	70	62	52	47	9
10:00	Day	61	81	45	71	65	56	49	9
11:00	Day	60	75	42	70	64	54	48	9
12:00	Day	62	79	53	71	65	60	57	9
13:00	Day	58	77	42	69	62	52	46	9
14:00	Day	55	70	40	66	59	50	45	9
15:00	Day	53	71	37	65	56	47	41	7
16:00	Day	55	78	35	67	55	43	36	3
17:00	Day	51	74	34	65	52	37	35	1
18:00	Day	51	70	35	62	56	40	38	1
19:00	Day	59	90	34	61	42	38	36	1
20:00	Day	49	76	29	59	42	37	33	1
21:00	Day	45	73	29	55	40	35	32	1
22:00	Night	44	68	29	58	40	35	32	1
23:00	Night	35	44	27	41	37	34	31	1
Overall	Max	62	90	53	71	65	60	57	9
	Median	54	74	35	65	56	42	38	3
	Min	35	44	26	41	37	34	31	1
Daytime	Max	62	90	53	71	65	60	57	9
7am-10pm	Median	57	77	40	67	59	50	45	7
	Min	45	70	29	55	40	35	32	1
Nighttime	Max	56	77	40	67	59	51	45	7
10pm-7am	Median	46	61	32	57	45	38	35	2
	Min	35	44	26	41	37	34	31	1

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 1/4/2013

24hr Summary		
L_{DN} = 58 dBA	C_{NEL} = 58 dBA	$L_{eq(24hr)}$ = 53 dBA



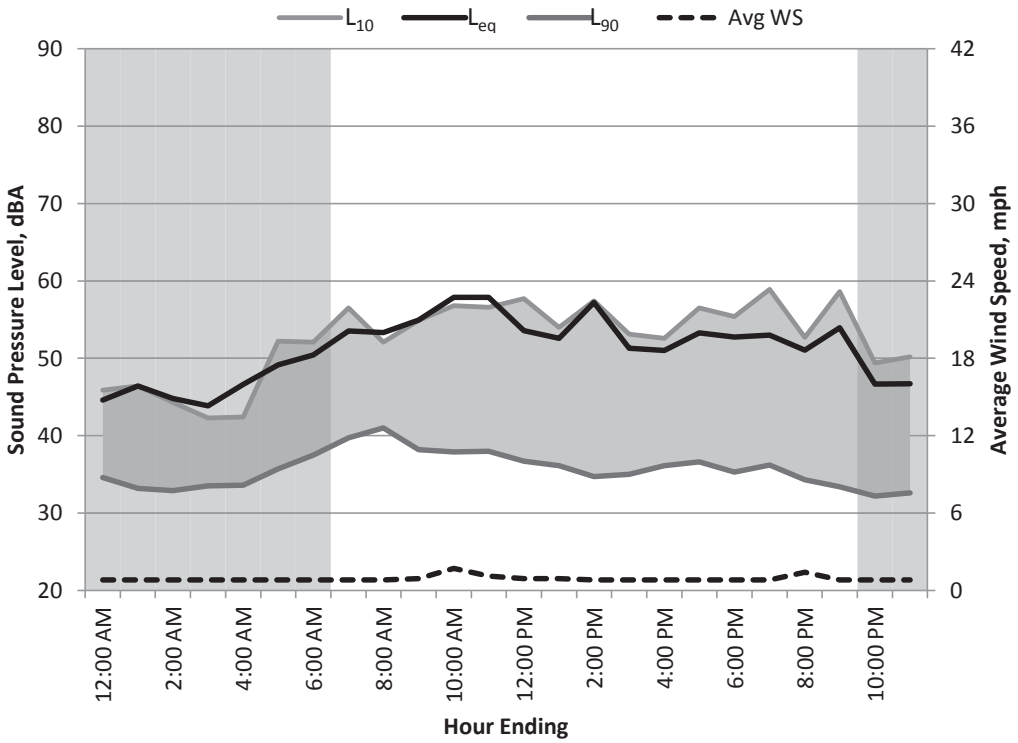
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	47	64	26	60	49	32	29	1
1:00	Night	43	58	27	56	39	33	30	1
2:00	Night	50	67	27	63	46	35	31	1
3:00	Night	45	63	26	59	43	35	31	1
4:00	Night	53	67	27	64	57	39	33	1
5:00	Night	55	71	29	67	59	40	34	1
6:00	Night	55	74	34	67	60	45	38	1
7:00	Day	54	73	35	66	57	46	40	1
8:00	Day	55	78	37	67	56	46	41	1
9:00	Day	54	78	35	65	56	43	38	1
10:00	Day	54	77	35	67	55	42	37	1
11:00	Day	54	74	34	67	57	41	36	2
12:00	Day	54	74	31	66	57	46	38	1
13:00	Day	55	79	34	67	56	41	36	1
14:00	Day	53	74	33	66	54	39	34	1
15:00	Day	54	79	33	66	54	39	34	1
16:00	Day	53	70	33	65	56	40	35	1
17:00	Day	51	73	34	62	55	38	35	1
18:00	Day	51	68	34	63	54	37	35	1
19:00	Day	53	77	34	64	56	37	35	1
20:00	Day	49	73	32	60	49	38	35	1
21:00	Day	49	75	30	61	50	40	35	1
22:00	Night	49	70	32	60	52	39	35	1
23:00	Night	45	63	30	59	42	37	34	1
Overall	Max	55	79	37	67	60	46	41	2
	Median	53	73	33	65	55	39	35	1
	Min	43	58	26	56	39	32	29	1
Daytime	Max	55	79	37	67	57	46	41	2
7am-10pm	Median	54	74	34	66	56	40	35	1
	Min	49	68	30	60	49	37	34	1
Nighttime	Max	55	74	34	67	60	45	38	1
10pm-7am	Median	49	67	27	60	49	37	33	1
	Min	43	58	26	56	39	32	29	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 1/5/2013

24hr Summary

L_{DN} = 56 dBA C_{NEL} = 56 dBA $L_{eq(24hr)}$ = 53 dBA



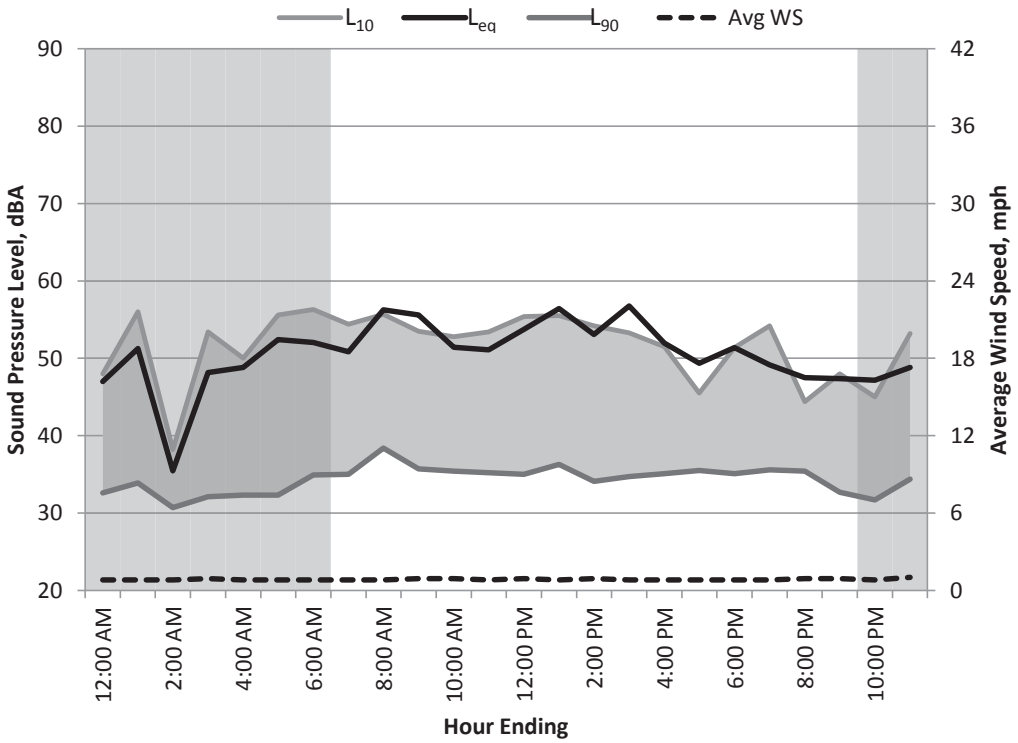
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	45	61	29	57	46	38	35	1
1:00	Night	46	62	30	60	46	37	33	1
2:00	Night	45	60	28	59	44	37	33	1
3:00	Night	44	63	32	58	42	37	34	1
4:00	Night	47	76	32	54	42	37	34	1
5:00	Night	49	69	32	60	52	40	36	1
6:00	Night	50	70	34	64	52	41	38	1
7:00	Day	54	77	36	65	57	44	40	1
8:00	Day	53	79	39	65	52	44	41	1
9:00	Day	55	79	36	67	55	43	38	1
10:00	Day	58	84	36	69	57	44	38	2
11:00	Day	58	85	36	69	57	44	38	1
12:00	Day	54	74	35	65	58	41	37	1
13:00	Day	53	78	34	64	54	41	36	1
14:00	Day	57	83	33	68	57	39	35	1
15:00	Day	51	76	33	64	53	38	35	1
16:00	Day	51	74	34	63	53	39	36	1
17:00	Day	53	75	34	65	57	41	37	1
18:00	Day	53	75	34	65	55	37	35	1
19:00	Day	53	68	34	63	59	39	36	1
20:00	Day	51	72	28	63	53	39	34	1
21:00	Day	54	73	27	65	59	41	33	1
22:00	Night	47	67	27	58	49	38	32	1
23:00	Night	47	61	29	59	50	37	33	1
Overall	Max	58	85	39	69	59	44	41	2
	Median	52	74	34	64	53	39	36	1
	Min	44	60	27	54	42	37	32	1
Daytime	Max	58	85	39	69	59	44	41	2
7am-10pm	Median	53	76	34	65	57	41	36	1
	Min	51	68	27	63	52	37	33	1
Nighttime	Max	50	76	34	64	52	41	38	1
10pm-7am	Median	47	63	30	59	46	37	34	1
	Min	44	60	27	54	42	37	32	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 1/6/2013

24hr Summary

L_{DN} = 57 dBA C_{NEL} = 57 dBA $L_{eq(24hr)}$ = 52 dBA



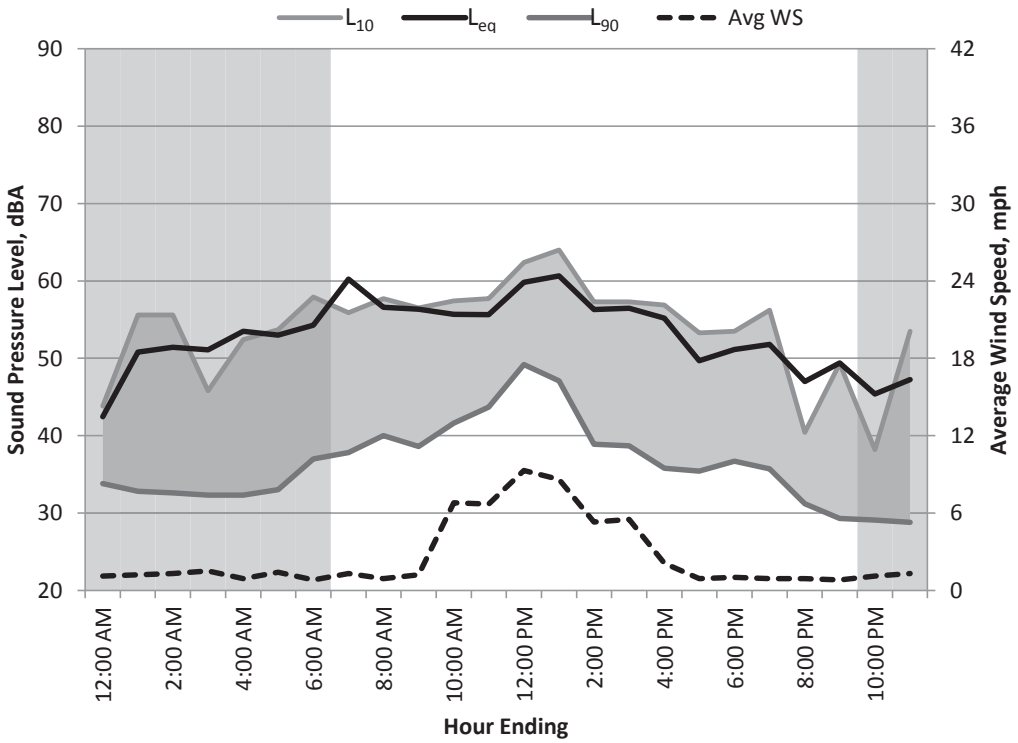
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	47	61	29	60	48	36	33	1
1:00	Night	51	65	30	63	56	39	34	1
2:00	Night	35	46	27	42	38	34	31	1
3:00	Night	48	65	28	59	53	37	32	1
4:00	Night	49	70	30	60	50	35	32	1
5:00	Night	52	76	28	65	56	39	32	1
6:00	Night	52	74	32	64	56	39	35	1
7:00	Day	51	72	31	62	54	39	35	1
8:00	Day	56	79	36	69	56	43	38	1
9:00	Day	56	81	34	66	54	39	36	1
10:00	Day	51	72	34	64	53	38	35	1
11:00	Day	51	70	33	64	53	40	35	1
12:00	Day	54	75	33	66	55	41	35	1
13:00	Day	56	83	34	67	56	46	36	1
14:00	Day	53	73	33	67	54	38	34	1
15:00	Day	57	86	33	65	53	41	35	1
16:00	Day	52	74	34	66	52	38	35	1
17:00	Day	49	74	34	62	46	38	36	1
18:00	Day	51	73	34	65	51	37	35	1
19:00	Day	49	65	34	61	54	38	36	1
20:00	Day	47	71	30	60	44	38	35	1
21:00	Day	47	69	28	59	48	38	33	1
22:00	Night	47	63	27	62	45	37	32	1
23:00	Night	49	66	30	60	53	39	34	1
Overall	Max	57	86	36	69	56	46	38	1
	Median	51	72	32	63	53	38	35	1
	Min	35	46	27	42	38	34	31	1
Daytime	Max	57	86	36	69	56	46	38	1
7am-10pm	Median	51	73	34	65	53	38	35	1
	Min	47	65	28	59	44	37	33	1
Nighttime	Max	52	76	32	65	56	39	35	1
10pm-7am	Median	49	65	29	60	53	37	32	1
	Min	35	46	27	42	38	34	31	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 1/7/2013

24hr Summary

L_{DN} = 59 dBA C_{NEL} = 59 dBA $L_{eq(24hr)}$ = 55 dBA



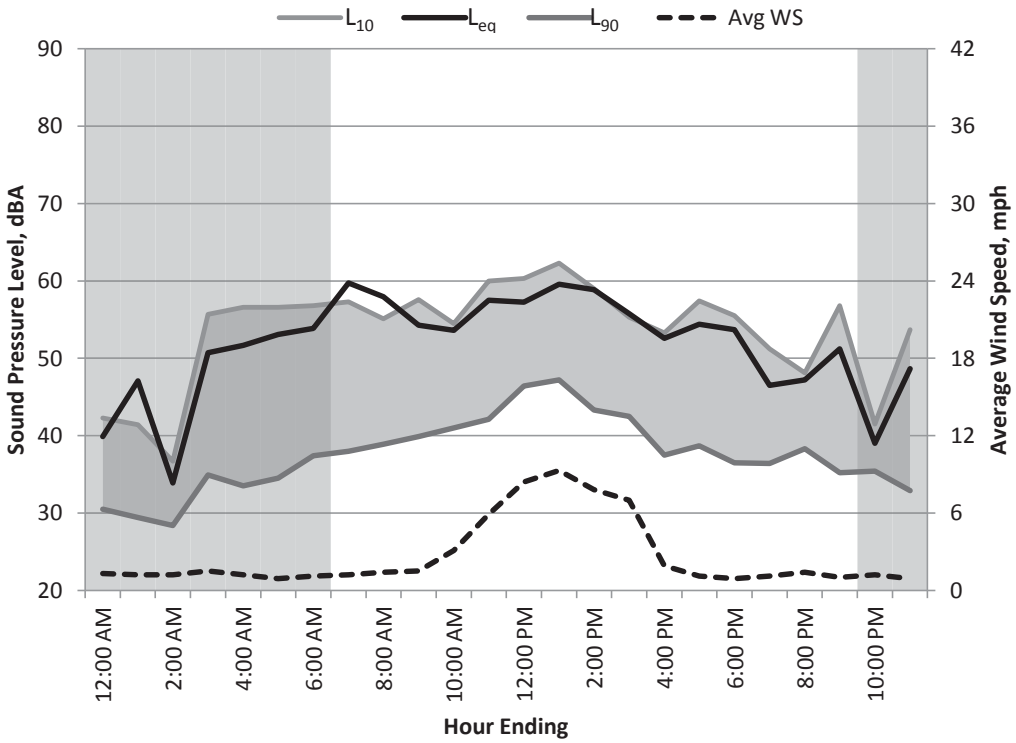
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	42	63	29	54	44	38	34	1
1:00	Night	51	66	29	63	56	38	33	1
2:00	Night	51	66	30	63	56	38	33	1
3:00	Night	51	71	28	66	46	36	32	2
4:00	Night	53	70	29	66	52	37	32	1
5:00	Night	53	76	29	65	54	39	33	1
6:00	Night	54	76	33	66	58	43	37	1
7:00	Day	60	90	35	67	56	42	38	1
8:00	Day	57	81	37	68	58	44	40	1
9:00	Day	56	78	36	69	57	43	39	1
10:00	Day	56	77	36	68	57	48	42	7
11:00	Day	56	75	40	68	58	49	44	7
12:00	Day	60	80	43	70	62	55	49	9
13:00	Day	61	81	41	71	64	55	47	9
14:00	Day	56	77	36	68	57	47	39	5
15:00	Day	56	79	35	68	57	46	39	6
16:00	Day	55	79	34	68	57	40	36	2
17:00	Day	50	71	34	61	53	38	35	1
18:00	Day	51	74	35	63	54	39	37	1
19:00	Day	52	76	34	61	56	39	36	1
20:00	Day	47	71	29	60	40	36	31	1
21:00	Day	49	72	27	62	49	32	29	1
22:00	Night	45	61	26	60	38	33	29	1
23:00	Night	47	63	24	58	54	33	29	1
Overall	Max	61	90	43	71	64	55	49	9
	Median	53	75	34	66	56	39	36	1
	Min	42	61	24	54	38	32	29	1
Daytime	Max	61	90	43	71	64	55	49	9
7am-10pm	Median	56	77	35	68	57	43	39	1
	Min	47	71	27	60	40	32	29	1
Nighttime	Max	54	76	33	66	58	43	37	2
10pm-7am	Median	51	66	29	63	54	38	33	1
	Min	42	61	24	54	38	33	29	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 1/8/2013

24hr Summary

L_{DN} = 58 dBA C_{NEL} = 58 dBA $L_{eq(24hr)}$ = 55 dBA



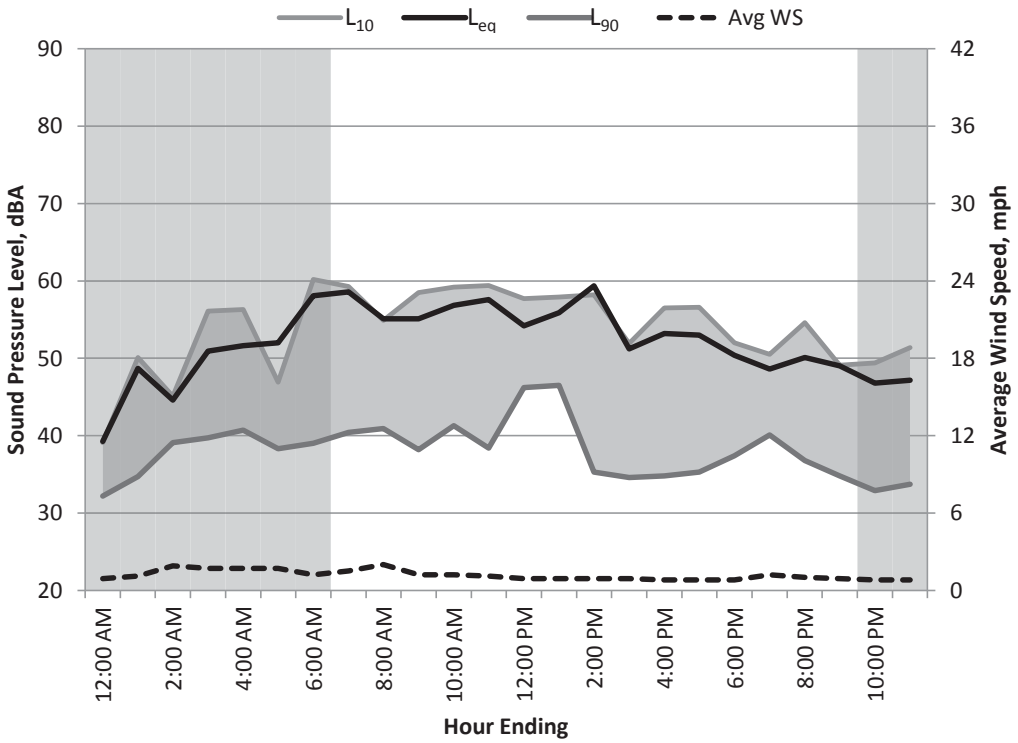
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	40	56	26	51	42	35	31	1
1:00	Night	47	64	25	62	41	34	29	1
2:00	Night	34	45	24	39	37	33	28	1
3:00	Night	51	64	29	62	56	39	35	2
4:00	Night	52	69	30	62	57	38	34	1
5:00	Night	53	76	30	66	57	38	35	1
6:00	Night	54	74	33	66	57	43	37	1
7:00	Day	60	90	35	69	57	42	38	1
8:00	Day	58	84	37	69	55	44	39	1
9:00	Day	54	77	37	66	58	43	40	2
10:00	Day	54	77	37	67	55	45	41	3
11:00	Day	57	78	39	69	60	50	42	6
12:00	Day	57	78	43	68	60	52	46	8
13:00	Day	60	79	43	71	62	53	47	9
14:00	Day	59	82	40	71	59	49	43	8
15:00	Day	56	84	37	65	55	48	43	7
16:00	Day	53	76	36	65	53	41	38	2
17:00	Day	54	76	36	65	57	46	39	1
18:00	Day	54	78	35	63	56	41	37	1
19:00	Day	46	65	35	58	51	39	36	1
20:00	Day	47	71	35	56	48	41	38	1
21:00	Day	51	64	32	62	57	39	35	1
22:00	Night	39	46	32	44	42	38	35	1
23:00	Night	49	61	30	60	54	37	33	1
Overall	Max	60	90	43	71	62	53	47	9
	Median	53	76	35	65	56	41	37	1
	Min	34	45	24	39	37	33	28	1
Daytime	Max	60	90	43	71	62	53	47	9
7am-10pm	Median	54	78	37	66	57	44	39	2
	Min	46	64	32	56	48	39	35	1
Nighttime	Max	54	76	33	66	57	43	37	2
10pm-7am	Median	49	64	30	62	54	38	34	1
	Min	34	45	24	39	37	33	28	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 1/9/2013

24hr Summary

L_{DN} = 59 dBA C_{NEL} = 59 dBA $L_{eq(24hr)}$ = 54 dBA



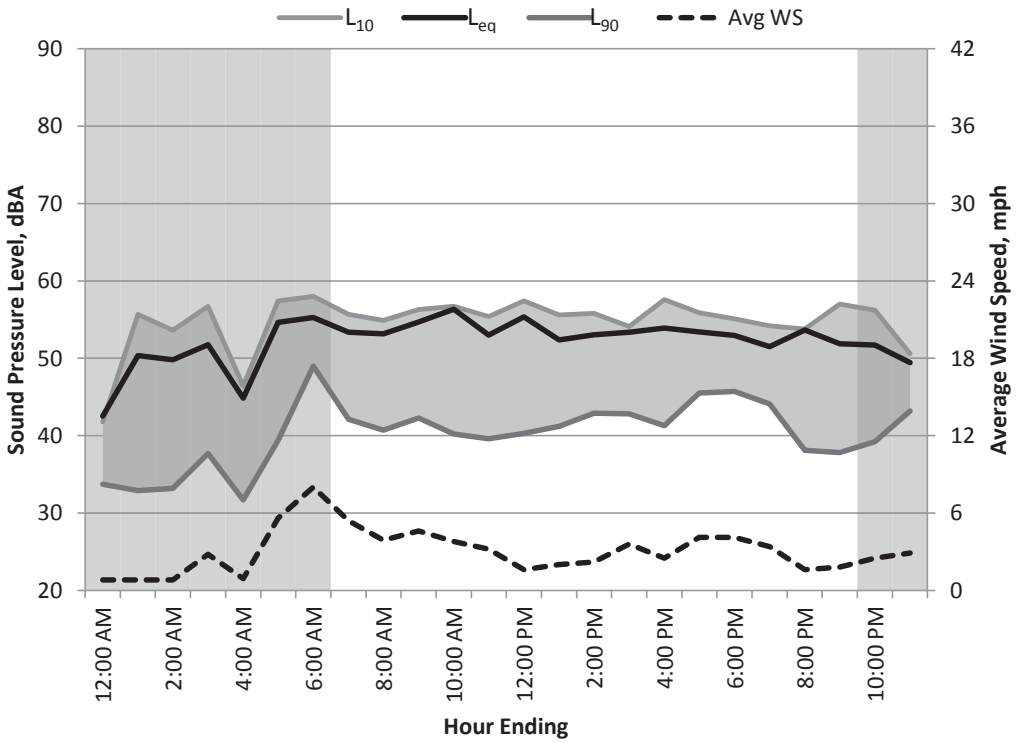
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	39	61	29	51	39	35	32	1
1:00	Night	49	65	32	61	50	38	35	1
2:00	Night	45	57	37	55	45	41	39	2
3:00	Night	51	65	36	62	56	42	40	2
4:00	Night	52	74	38	62	56	43	41	2
5:00	Night	52	72	35	67	47	42	38	2
6:00	Night	58	84	35	67	60	42	39	1
7:00	Day	59	89	34	67	59	45	40	2
8:00	Day	55	78	38	68	55	45	41	2
9:00	Day	55	70	36	64	59	53	38	1
10:00	Day	57	76	35	66	59	55	41	1
11:00	Day	58	77	35	71	59	51	38	1
12:00	Day	54	77	43	63	58	49	46	1
13:00	Day	56	79	35	67	58	50	47	1
14:00	Day	59	88	33	70	58	42	35	1
15:00	Day	51	71	33	64	52	38	35	1
16:00	Day	53	72	33	66	57	38	35	1
17:00	Day	53	76	34	63	57	39	35	1
18:00	Day	50	70	35	63	52	42	37	1
19:00	Day	49	67	37	60	51	44	40	1
20:00	Day	50	69	28	61	55	44	37	1
21:00	Day	49	73	30	60	49	40	35	1
22:00	Night	47	67	28	58	49	36	33	1
23:00	Night	47	65	30	58	51	38	34	1
Overall	Max	59	89	43	71	60	55	47	2
	Median	52	72	35	63	56	42	38	1
	Min	39	57	28	51	39	35	32	1
Daytime	Max	59	89	43	71	59	55	47	2
7am-10pm	Median	54	76	35	64	57	44	38	1
	Min	49	67	28	60	49	38	35	1
Nighttime	Max	58	84	38	67	60	43	41	2
10pm-7am	Median	49	65	35	61	50	41	38	1
	Min	39	57	28	51	39	35	32	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 1/10/2013

24hr Summary

L_{DN} = 58 dBA C_{NEL} = 59 dBA $L_{eq(24hr)}$ = 53 dBA



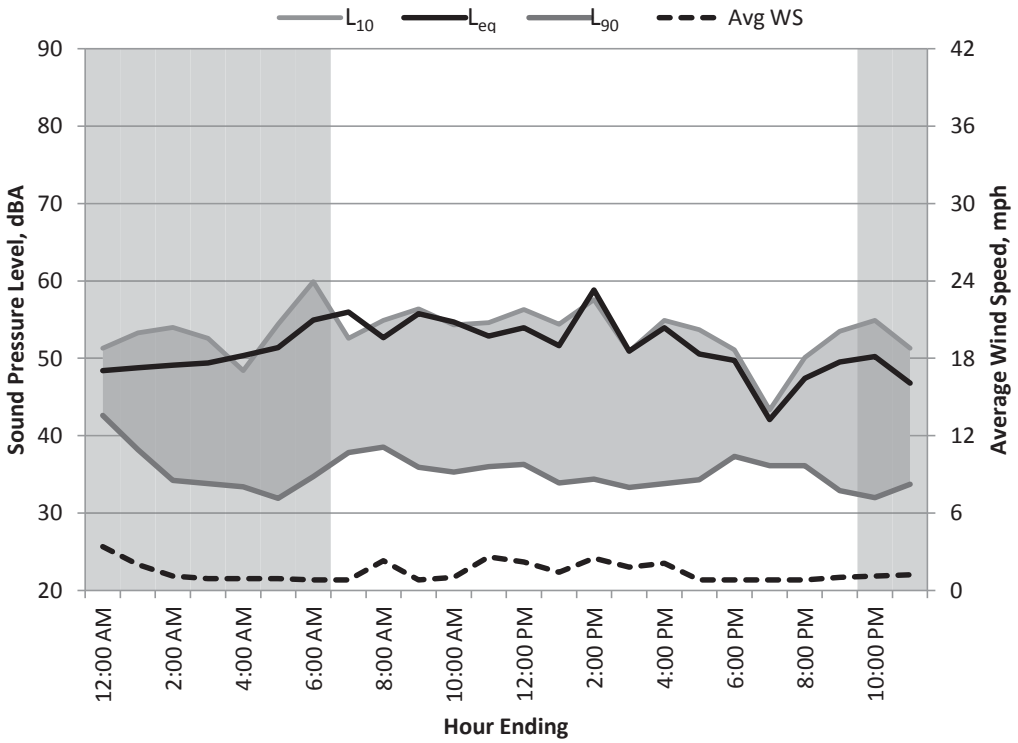
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	43	61	28	56	42	37	34	1
1:00	Night	50	62	30	61	56	38	33	1
2:00	Night	50	66	29	62	54	37	33	1
3:00	Night	52	67	33	62	57	44	38	3
4:00	Night	45	68	29	56	46	37	32	1
5:00	Night	55	72	34	66	57	49	39	6
6:00	Night	55	75	44	64	58	53	49	8
7:00	Day	53	75	39	65	56	47	42	5
8:00	Day	53	75	38	65	55	45	41	4
9:00	Day	55	77	39	67	56	46	42	5
10:00	Day	56	82	36	68	57	46	40	4
11:00	Day	53	71	36	66	55	44	40	3
12:00	Day	55	74	37	68	57	46	40	2
13:00	Day	52	71	38	63	56	47	41	2
14:00	Day	53	73	39	65	56	47	43	2
15:00	Day	53	74	39	65	54	49	43	4
16:00	Day	54	72	38	65	58	45	41	3
17:00	Day	53	77	41	63	56	49	46	4
18:00	Day	53	73	43	63	55	49	46	4
19:00	Day	51	65	41	61	54	49	44	3
20:00	Day	54	82	33	65	54	42	38	2
21:00	Day	52	74	34	61	57	43	38	2
22:00	Night	52	66	35	63	56	46	39	3
23:00	Night	49	64	40	61	51	46	43	3
Overall	Max	56	82	44	68	58	53	49	8
	Median	53	72	37	64	56	46	41	3
	Min	43	61	28	56	42	37	32	1
Daytime	Max	56	82	43	68	58	49	46	5
7am-10pm	Median	53	74	38	65	56	46	41	3
	Min	51	65	33	61	54	42	38	2
Nighttime	Max	55	75	44	66	58	53	49	8
10pm-7am	Median	50	66	33	62	56	44	38	3
	Min	43	61	28	56	42	37	32	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 1/11/2013

24hr Summary

L_{DN} = 58 dBA C_{NEL} = 58 dBA $L_{eq(24hr)}$ = 53 dBA



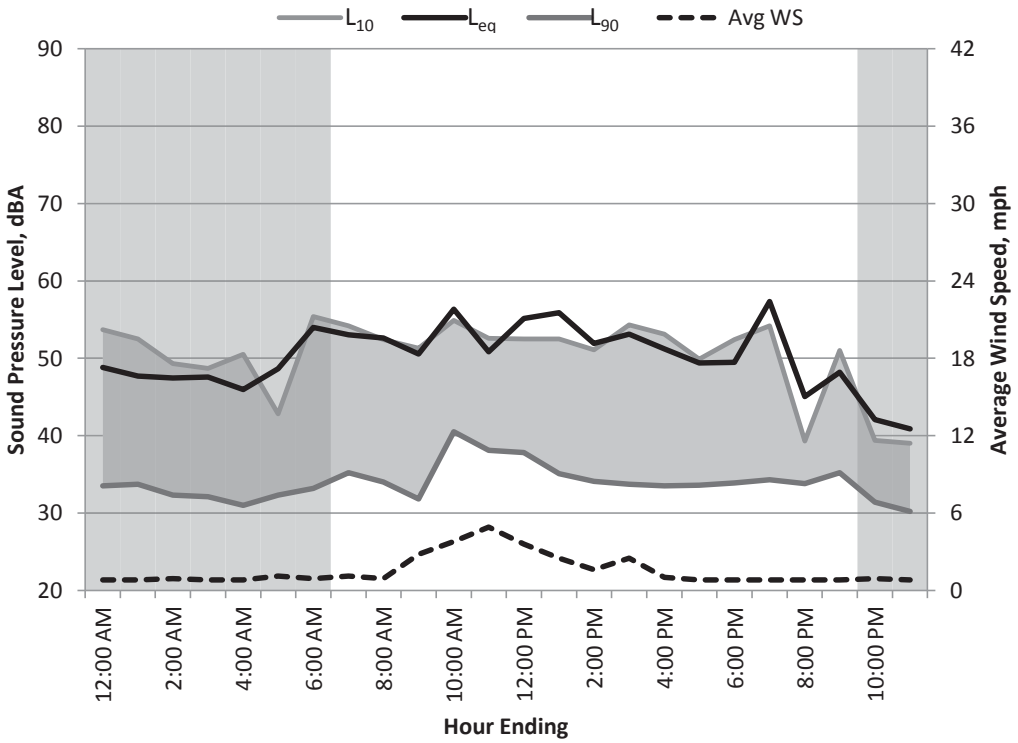
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	48	60	40	58	51	46	43	3
1:00	Night	49	64	36	60	53	41	38	2
2:00	Night	49	64	31	61	54	38	34	1
3:00	Night	49	67	31	62	53	37	34	1
4:00	Night	50	73	30	63	48	36	33	1
5:00	Night	51	69	30	65	54	37	32	1
6:00	Night	55	76	32	66	60	41	35	1
7:00	Day	56	81	32	67	53	43	38	1
8:00	Day	53	73	35	65	55	44	39	2
9:00	Day	56	79	28	67	56	46	36	1
10:00	Day	55	79	33	68	54	39	35	1
11:00	Day	53	74	33	65	55	41	36	3
12:00	Day	54	75	33	67	56	44	36	2
13:00	Day	52	71	32	64	54	40	34	1
14:00	Day	59	86	33	69	58	43	34	3
15:00	Day	51	72	32	64	51	38	33	2
16:00	Day	54	75	33	67	55	37	34	2
17:00	Day	51	74	32	62	54	38	34	1
18:00	Day	50	69	34	63	51	41	37	1
19:00	Day	42	60	34	52	43	38	36	1
20:00	Day	47	72	29	57	50	42	36	1
21:00	Day	50	74	30	60	54	37	33	1
22:00	Night	50	64	29	62	55	37	32	1
23:00	Night	47	60	28	58	51	39	34	1
Overall	Max	59	86	40	69	60	46	43	3
	Median	51	72	32	63	54	39	35	1
	Min	42	60	28	52	43	36	32	1
Daytime	Max	59	86	35	69	58	46	39	3
7am-10pm	Median	53	74	33	65	54	41	36	1
	Min	42	60	28	52	43	37	33	1
Nighttime	Max	55	76	40	66	60	46	43	3
10pm-7am	Median	49	64	31	62	53	38	34	1
	Min	47	60	28	58	48	36	32	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 1/12/2013

24hr Summary

L_{DN} = 56 dBA C_{NEL} = 57 dBA $L_{eq(24hr)}$ = 52 dBA

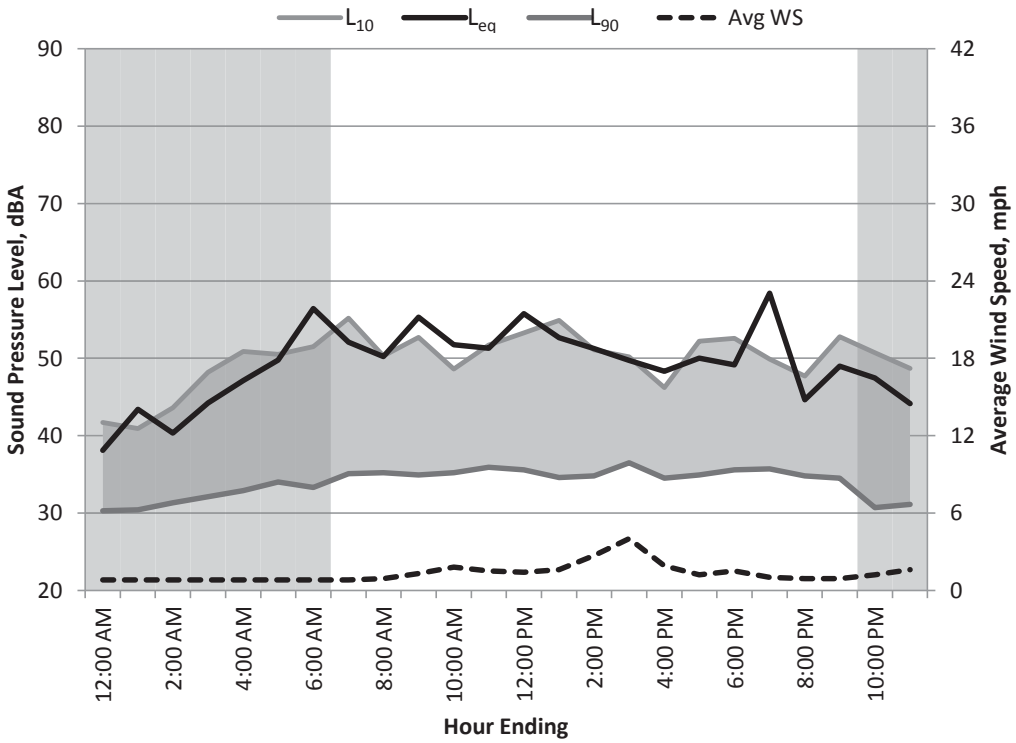


Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	49	62	30	59	54	39	34	1
1:00	Night	48	61	30	59	53	38	34	1
2:00	Night	47	61	26	59	49	38	32	1
3:00	Night	48	64	29	60	49	37	32	1
4:00	Night	46	60	28	58	51	36	31	1
5:00	Night	49	77	29	62	43	36	32	1
6:00	Night	54	78	29	67	55	37	33	1
7:00	Day	53	77	33	66	54	39	35	1
8:00	Day	53	79	31	64	52	38	34	1
9:00	Day	51	73	29	63	51	43	32	3
10:00	Day	56	82	36	67	55	45	41	4
11:00	Day	51	71	36	63	53	45	38	5
12:00	Day	55	83	34	65	53	44	38	4
13:00	Day	56	83	34	67	53	40	35	3
14:00	Day	52	72	32	65	51	37	34	2
15:00	Day	53	71	32	67	54	38	34	3
16:00	Day	51	74	32	64	53	41	34	1
17:00	Day	49	76	32	60	50	36	34	1
18:00	Day	49	72	32	61	52	36	34	1
19:00	Day	57	89	33	61	54	36	34	1
20:00	Day	45	71	33	58	39	35	34	1
21:00	Day	48	73	34	60	51	37	35	1
22:00	Night	42	60	28	56	39	35	31	1
23:00	Night	41	59	28	53	39	33	30	1
Overall	Max	57	89	36	67	55	45	41	5
	Median	50	72	32	62	52	37	34	1
	Min	41	59	26	53	39	33	30	1
Daytime	Max	57	89	36	67	55	45	41	5
7am-10pm	Median	52	74	33	64	53	38	34	1
	Min	45	71	29	58	39	35	32	1
Nighttime	Max	54	78	30	67	55	39	34	1
10pm-7am	Median	48	61	29	59	49	37	32	1
	Min	41	59	26	53	39	33	30	1

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 1/13/2013

24hr Summary

L_{DN} = 56 dBA C_{NEL} = 57 dBA $L_{eq(24hr)}$ = 52 dBA



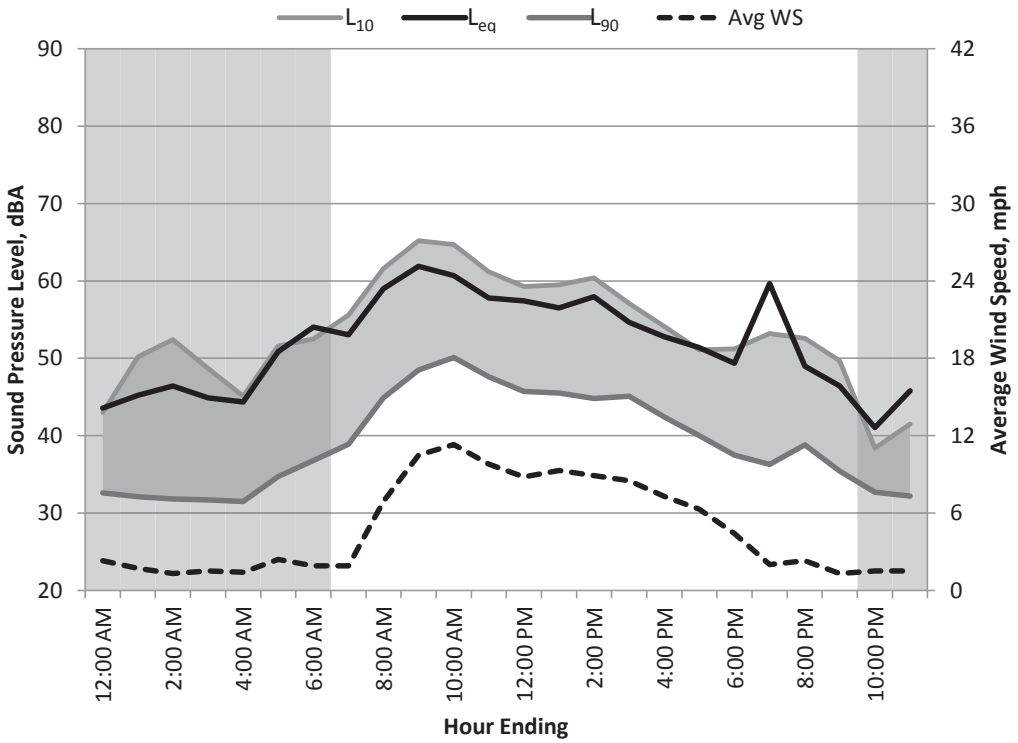
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	38	54	28	49	42	33	30	1
1:00	Night	43	66	28	56	41	33	30	1
2:00	Night	40	56	29	52	44	33	31	1
3:00	Night	44	58	30	55	48	36	32	1
4:00	Night	47	68	31	59	51	37	33	1
5:00	Night	50	78	30	60	51	39	34	1
6:00	Night	56	84	30	67	52	39	33	1
7:00	Day	52	69	32	64	55	42	35	1
8:00	Day	50	72	31	64	50	41	35	1
9:00	Day	55	81	32	66	53	39	35	1
10:00	Day	52	78	34	65	49	37	35	2
11:00	Day	51	74	34	64	52	39	36	2
12:00	Day	56	83	34	66	53	42	36	1
13:00	Day	53	73	33	65	55	40	35	2
14:00	Day	51	74	33	63	51	40	35	3
15:00	Day	50	70	34	63	50	41	37	4
16:00	Day	48	71	33	62	46	36	35	2
17:00	Day	50	77	33	58	52	37	35	1
18:00	Day	49	70	34	60	53	38	36	2
19:00	Day	58	90	35	60	50	38	36	1
20:00	Day	45	70	33	54	48	36	35	1
21:00	Day	49	74	33	61	53	36	35	1
22:00	Night	47	64	28	60	51	34	31	1
23:00	Night	44	58	28	56	49	34	31	2
Overall	Max	58	90	35	67	55	42	37	4
	Median	50	72	32	61	51	38	35	1
	Min	38	54	28	49	41	33	30	1
Daytime	Max	58	90	35	66	55	42	37	4
7am-10pm	Median	51	74	33	63	52	39	35	1
	Min	45	69	31	54	46	36	35	1
Nighttime	Max	56	84	31	67	52	39	34	2
10pm-7am	Median	44	64	29	56	49	34	31	1
	Min	38	54	28	49	41	33	30	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 1/14/2013

24hr Summary

L_{DN} = 58 dBA C_{NEL} = 58 dBA $L_{eq(24hr)}$ = 55 dBA



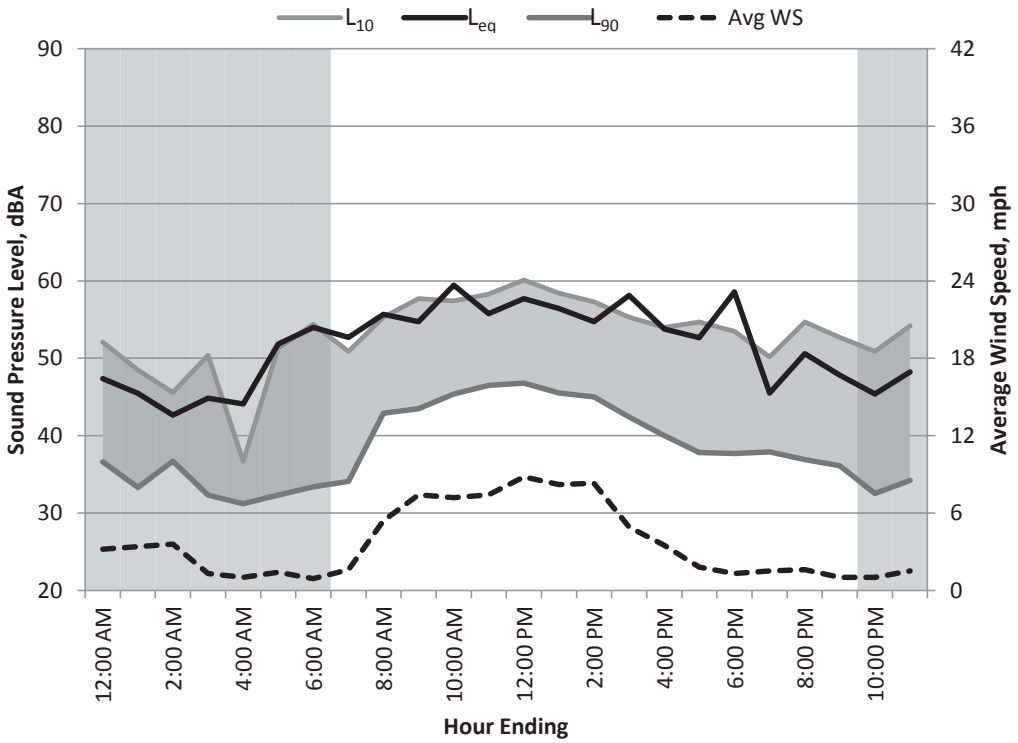
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	44	66	29	55	43	37	33	2
1:00	Night	45	60	28	57	50	35	32	2
2:00	Night	46	61	30	57	52	34	32	1
3:00	Night	45	61	29	56	49	35	32	2
4:00	Night	44	71	28	52	45	34	32	1
5:00	Night	51	76	32	64	52	38	35	2
6:00	Night	54	76	34	67	53	41	37	2
7:00	Day	53	73	36	66	56	44	39	2
8:00	Day	59	77	37	71	62	52	45	7
9:00	Day	62	79	42	73	65	55	49	11
10:00	Day	61	77	45	70	65	56	50	11
11:00	Day	58	73	43	69	61	53	48	10
12:00	Day	57	79	39	70	59	51	46	9
13:00	Day	57	76	41	68	60	51	46	9
14:00	Day	58	79	40	69	60	52	45	9
15:00	Day	55	76	40	66	57	49	45	9
16:00	Day	53	73	38	65	54	47	42	7
17:00	Day	51	78	37	62	51	44	40	6
18:00	Day	49	72	36	61	51	42	38	4
19:00	Day	60	92	34	61	53	38	36	2
20:00	Day	49	70	37	59	53	42	39	2
21:00	Day	46	70	34	55	50	38	35	1
22:00	Night	41	57	30	55	38	35	33	2
23:00	Night	46	61	29	60	42	36	32	2
Overall	Max	62	92	45	73	65	56	50	11
	Median	52	73	36	63	53	42	38	2
	Min	41	57	28	52	38	34	32	1
Daytime	Max	62	92	45	73	65	56	50	11
7am-10pm	Median	57	76	38	66	57	49	45	7
	Min	46	70	34	55	50	38	35	1
Nighttime	Max	54	76	34	67	53	41	37	2
10pm-7am	Median	45	61	29	57	49	35	32	2
	Min	41	57	28	52	38	34	32	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 1/15/2013

24hr Summary

L_{DN} = 57 dBA C_{NEL} = 57 dBA $L_{eq(24hr)}$ = 54 dBA

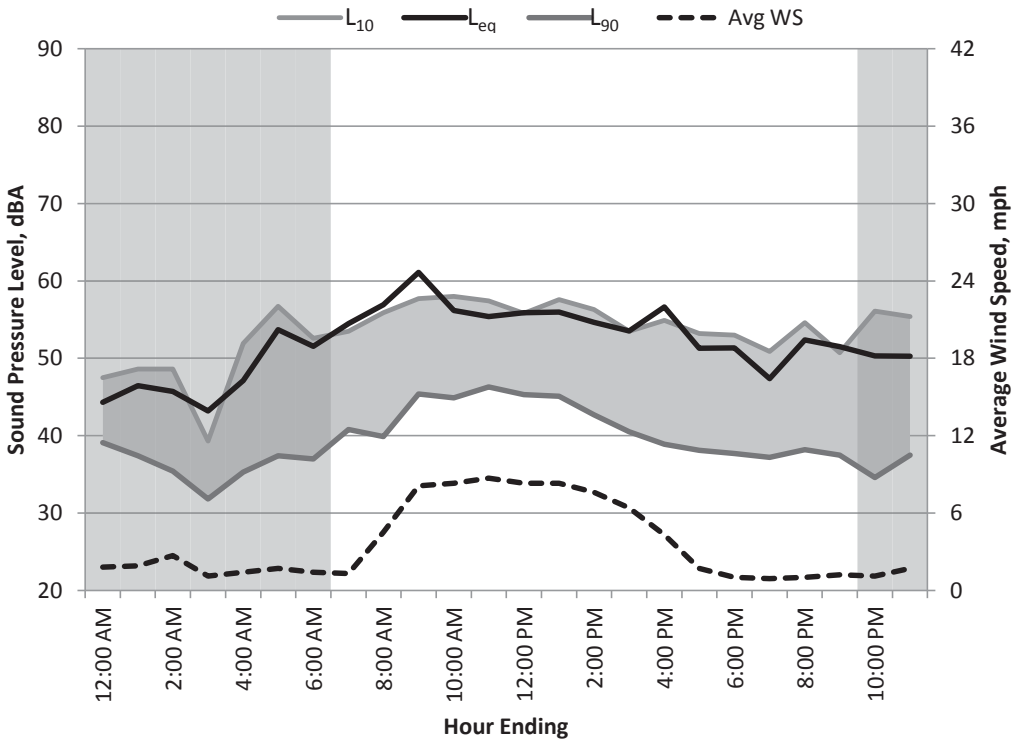


Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	47	61	34	57	52	41	37	3
1:00	Night	45	65	29	56	49	41	33	3
2:00	Night	43	59	33	50	46	40	37	4
3:00	Night	45	59	29	55	50	36	32	1
4:00	Night	44	71	29	56	37	34	31	1
5:00	Night	52	77	29	66	51	35	32	1
6:00	Night	54	78	30	67	54	41	33	1
7:00	Day	53	76	31	66	51	39	34	2
8:00	Day	56	79	39	69	55	48	43	5
9:00	Day	55	71	36	66	58	49	44	7
10:00	Day	59	86	40	70	57	50	45	7
11:00	Day	56	75	42	67	58	51	47	7
12:00	Day	58	77	43	69	60	52	47	9
13:00	Day	56	79	41	67	58	51	46	8
14:00	Day	55	73	41	66	57	50	45	8
15:00	Day	58	88	40	65	55	47	42	5
16:00	Day	54	75	37	67	54	43	40	4
17:00	Day	53	76	36	64	55	41	38	2
18:00	Day	59	90	36	65	54	41	38	1
19:00	Day	46	58	35	54	50	41	38	2
20:00	Day	51	71	35	60	55	41	37	2
21:00	Day	48	67	35	58	53	38	36	1
22:00	Night	45	62	30	56	51	37	33	1
23:00	Night	48	62	31	59	54	38	34	2
Overall	Max	59	90	43	70	60	52	47	9
	Median	53	74	35	65	54	41	37	3
	Min	43	58	29	50	37	34	31	1
Daytime	Max	59	90	43	70	60	52	47	9
7am-10pm	Median	55	76	37	66	55	47	42	5
	Min	46	58	31	54	50	38	34	1
Nighttime	Max	54	78	34	67	54	41	37	4
10pm-7am	Median	45	62	30	56	51	38	33	1
	Min	43	59	29	50	37	34	31	1

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 1/16/2013

24hr Summary

L_{DN} = 57 dBA C_{NEL} = 58 dBA $L_{eq(24hr)}$ = 54 dBA



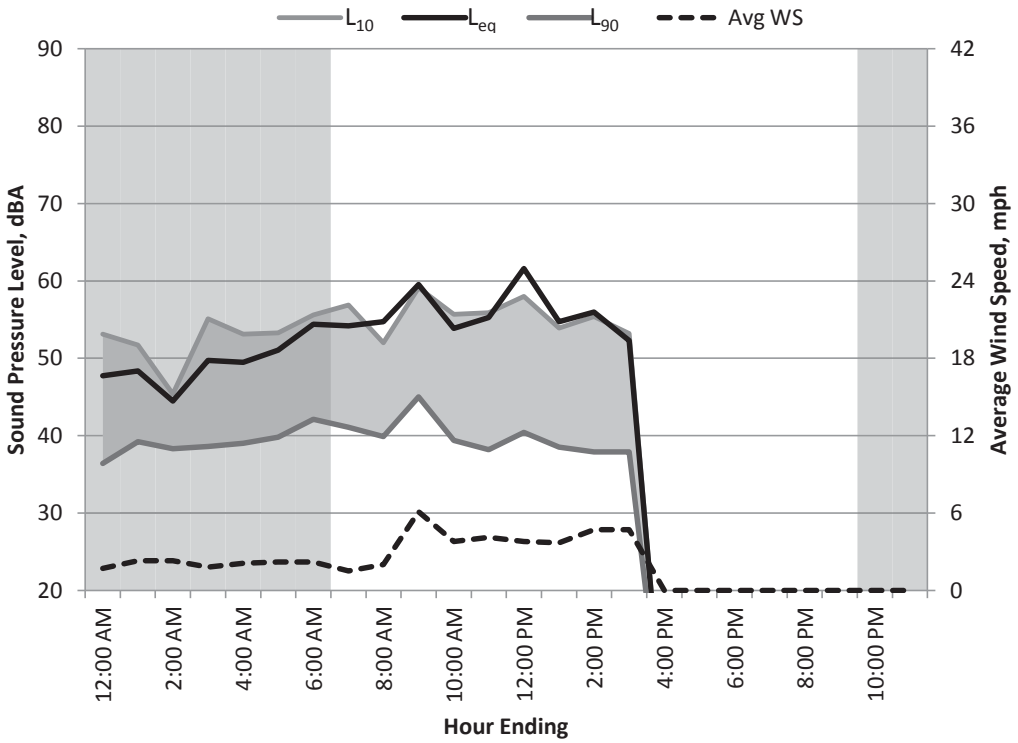
Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	44	54	35	53	48	42	39	2
1:00	Night	46	63	35	58	49	40	37	2
2:00	Night	46	62	33	56	49	39	35	3
3:00	Night	43	63	30	58	39	34	32	1
4:00	Night	47	62	32	57	52	40	35	1
5:00	Night	54	76	35	65	57	41	37	2
6:00	Night	52	72	33	65	53	41	37	1
7:00	Day	54	78	34	66	54	46	41	1
8:00	Day	57	81	35	69	56	48	40	5
9:00	Day	61	91	41	68	58	51	45	8
10:00	Day	56	74	41	68	58	51	45	8
11:00	Day	55	77	43	66	57	51	46	9
12:00	Day	56	79	42	67	56	49	45	8
13:00	Day	56	76	42	68	58	50	45	8
14:00	Day	55	75	39	66	56	48	43	8
15:00	Day	54	76	38	65	54	46	41	6
16:00	Day	57	78	37	70	55	43	39	4
17:00	Day	51	74	36	64	53	41	38	2
18:00	Day	51	76	35	64	53	41	38	1
19:00	Day	47	69	36	58	51	39	37	1
20:00	Day	52	74	36	66	55	42	38	1
21:00	Day	51	75	35	63	51	40	38	1
22:00	Night	50	63	31	61	56	39	35	1
23:00	Night	50	65	35	62	55	40	38	2
Overall	Max	61	91	43	70	58	51	46	9
	Median	52	75	35	65	54	42	38	2
	Min	43	54	30	53	39	34	32	1
Daytime	Max	61	91	43	70	58	51	46	9
7am-10pm	Median	55	76	37	66	55	46	41	5
	Min	47	69	34	58	51	39	37	1
Nighttime	Max	54	76	35	65	57	42	39	3
10pm-7am	Median	47	63	33	58	52	40	37	2
	Min	43	54	30	53	39	34	32	1

CH2MHILL

TITLE: PGE Topoc
PROJECT: 423575
POSITION: ST-3
DATE: 1/17/2013

24hr Summary

L_{DN} = -- dBA C_{NEL} = -- dBA $L_{eq(24hr)}$ = -- dBA



Hour Starting	Time Period	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	Avg WS (mph)
0:00	Night	48	66	33	58	53	40	36	2
1:00	Night	48	65	36	60	52	43	39	2
2:00	Night	44	60	35	56	45	42	38	2
3:00	Night	50	62	36	60	55	42	39	2
4:00	Night	49	64	35	61	53	43	39	2
5:00	Night	51	71	37	64	53	42	40	2
6:00	Night	54	77	38	66	56	48	42	2
7:00	Day	54	74	35	66	57	46	41	2
8:00	Day	55	80	38	67	52	44	40	2
9:00	Day	60	82	41	70	59	53	45	6
10:00	Day	54	75	37	66	56	45	39	4
11:00	Day	55	75	36	69	56	42	38	4
12:00	Day	62	92	37	69	58	49	40	4
13:00	Day	55	81	36	67	54	43	39	4
14:00	Day	56	81	36	67	55	44	38	5
15:00	Day	52	71	36	65	53	43	38	5
16:00	Day	--	--	--	--	--	--	--	--
17:00	Day	--	--	--	--	--	--	--	--
18:00	Day	--	--	--	--	--	--	--	--
19:00	Day	--	--	--	--	--	--	--	--
20:00	Day	--	--	--	--	--	--	--	--
21:00	Day	--	--	--	--	--	--	--	--
22:00	Night	--	--	--	--	--	--	--	--
23:00	Night	--	--	--	--	--	--	--	--
Overall	Max	--	--	--	--	--	--	--	--
	Median	--	--	--	--	--	--	--	--
	Min	--	--	--	--	--	--	--	--
Daytime	Max	--	--	--	--	--	--	--	--
7am-10pm	Median	--	--	--	--	--	--	--	--
	Min	--	--	--	--	--	--	--	--
Nighttime	Max	--	--	--	--	--	--	--	--
10pm-7am	Median	--	--	--	--	--	--	--	--
	Min	--	--	--	--	--	--	--	--