

**From:** Donna Tisdale  
**To:** [Harris, Susan](#); [Koutoufidis, Nicholas](#)  
**Cc:** [Jacob, Dianne](#); [Wilson, Adam](#)  
**Subject:** Boulder Brush / Campo Wind DEIR PDS-ER-19-16-001  
**Date:** Sunday, January 12, 2020 10:45:18 AM  
**Attachments:** [Tisdale Campo Wind DEIS comments 7-8-19.pdf](#)  
[Snyder Campo Wind DEIS opinion 7-5-19.pdf](#)  
[Campo DEIS figures-7 Tisdale.pdf](#)

Hello Susan and Nicholas,

Please include the attached Campo Wind / Boulder Brush DEIS comments into the public record for the Boulder Brush / Campo Wind DEIR, PDS-ER-19-16-001, PDS2019-MUP-19-002. According to Appendix A, they were not included in the record, despite the fact that they were provided to Bronwyn Brown, the former PDS Project Manager on July 8, 2019.

Please confirm receipt and that they will be included in the formal DEIR record as required. Remaining attachments will follow in separate email message.

Thank you,  
 Ed and Donna Tisdale  
 Morning Star Ranch  
 PO Box 1275  
 Boulevard, CA 91905

----- Forwarded message -----

From: **Donna Tisdale** <[tisdale.donna@gmail.com](mailto:tisdale.donna@gmail.com)>  
 Date: Mon, Jul 8, 2019 at 4:18 PM  
 Subject: Tisdale Campo Wind DEIS comments  
 To: Hall, Harold <[harold.hall@bia.gov](mailto:harold.hall@bia.gov)>, <[amy.dutschke@bia.gov](mailto:amy.dutschke@bia.gov)>, Brown, Bronwyn  
 <[Bronwyn.Brown@sdcounty.ca.gov](mailto:Bronwyn.Brown@sdcounty.ca.gov)>

Hello,

Please find the attached Campo Wind DEIS comment letter from Ed and Donna Tisdale, with 3 of the 7 attachments. Remaining attachments will follow in separate message.

Regards  
 Donna Tisdale  
 619-766-4170

I1-1

# MORNING STAR RANCH

ED AND DONNA TISDALE, PO Box 1275, BOULEVARD, CA 91905

July 8, 2019

Dan (Harold) Hall  
Acting Chief Division of Environmental  
Cultural Resource Management and Safety  
Bureau of Indian Affairs  
via [harold.hall@bia.gov](mailto:harold.hall@bia.gov)

Bronwyn Brown, Project Manager  
San Diego County PDS  
via: [Bronwyn.brown@sdcounty.ca.gov](mailto:Bronwyn.brown@sdcounty.ca.gov)

CC: Amy Dutschke, elected officials & interested parties

## CAMPO WIND / BOULDER BRUSH DEIS – OPPOSITION COMMENTS

Dear Mr. Hall and Ms. Brown,

We hereby incorporate in full by reference the Campo DEIS comments by the Boulevard Planning Group, the Law Offices of Stephan C. Volker; Dr. Richard Carman, Wilson Ihrig (noise); and Snyder Geologic (water). All the comments letters listed above are relied upon here due to their extensive documentation, and the evidence they provide that the DEIS is seriously flawed.

The Draft EIS is vastly inadequate with many unsupported assumptions/conclusions, misrepresentations, omissions, and outright false or manipulated information included as a matter of incompetence or in an effort to reduce the appearance on paper of very significant direct, indirect, cumulative adverse impacts, and cumulatively significant adverse and disproportionate impacts related to Terra-Gen's overall massive project that has been purposely and unethically piecemealed into three projects: Campo Wind, Torrey Wind, and Boulder Brush Gen-Tie/ Substation project.

It is our position that truth and justice should prevail so we have always worked with various professionals to uncover and disclose the truth about the impacts of these dangerous projects. We have invested countless hours and provided countless research documents and professional reports over the years, many at our own expense. It is the right thing to do.

Dudek's website includes the following laudatory statement: "Our environmental planners, scientists, engineers and contractors help clients plan, design, permit, construct and manage projects that improve communities' infrastructure and natural resources"<sup>1</sup>.

We strongly disagree that the projects they have allegedly managed locally do anything to "improve communities' infrastructure and natural resources". Nothing could be further from the truth. We have now witnessed numerous massive energy and other projects unethically hustled and rushed through the

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<sup>1</sup> <https://dudek.com/>

planning process with little to no regard for scientific integrity, the impacted rural communities and property owners, our groundwater, or our scenic and sensitive natural resources; including but not limited to the following projects: Tule Wind, Soitec Solar, Jacumba Solar, Shu'luuk Wind (terminated by tribe), and the Wind Energy Ordinance that negligently reduced turbine setbacks from 8 times the turbine height to 1.1 times the height and gifted unjustified low-frequency noise waivers to Tule Wind and most of what is now the proposed Torrey Wind site, and more.

Dudek's Campo Wind DEIS is no different than the others in that it fails to address few if any of the valid public scoping comments in an honest, ethical, or scientifically valid manner. They are just hired guns doing the bidding of their Terra-Gen client regardless of whom or what they run over in the process. We now have zero faith in Dudek as an honest entity.

As a reminder, our family owns 267 acres on Tierra Real Road / Lane that share a ½ mile common boundary with the Campo Reservation and the Campo Wind project on the southeastern side of the reservation along BIA 10. We are also in the process of repossessing another 50 acres on Tierra Real Road where we carry a now defaulted note. When we place that property back on the market, we will need to fully disclose the Campo Wind project that will be highly visible and intrusive if it ever actually comes to fruition. That will lower the value on yet another of our investments.

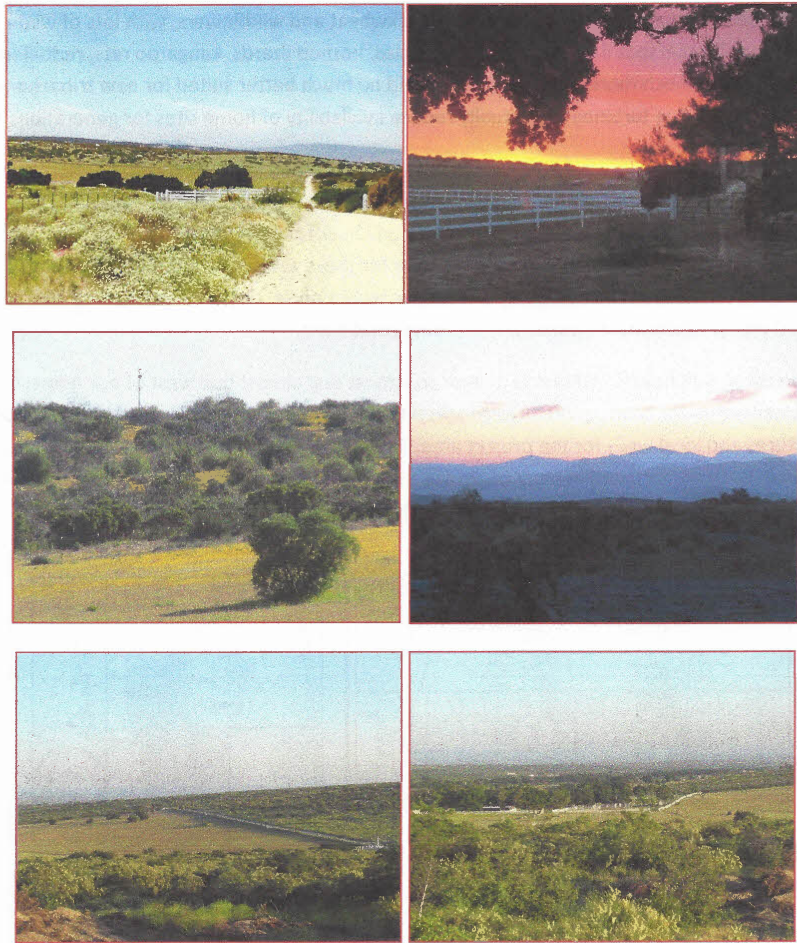
Both Campo Wind DEIS Alternatives 1 and 2 (figures 2-1A & 2-1B) include seven wind turbine sites, a cement batch plant, construction laydown yard, and O&M building right next to our properties. No coincidence there. We prefer Alternative 3 –NO PROJECT.

Figure 2-4 and Figure 14bx give a closer view of those facilities next to our place. 14bx shows our cleared pasture (1/4 mile boundary) and our chaparral covered property (1/4 mile boundary) immediately south, with rental house nestled in the oaks. 14 bx also documents golden eagle flight over the Campo Wind site and our place. This aerial photo also shows the Fordyce home to the north and just the edge of the Peterson home on the upper right edge of photo. There are other homes/families not in the photo.

Figures 10 and 11 show the suitable Quino Checkerspot Butterfly (QCB) habitat and some of QCB field observation locations on the Campo Wind site next door. Attached is a 2008 map of QCB sitings from the 2010 Campo Landfill Supplemental DSEIS in that same area next to us. The 2008 map also shows the same well field that Campo Wind proposes to use.

Our Morning Star Ranch is on the left side of the road in photo below. The sloping hillside at the west end of our road and the ridge behind it, and several to the right, are all proposed for multiple rows of 586 ft tall 4.2 MW turbines. The photo on the right shows part of our view of the site from our living room window, looking northwest. Based on the experiences of local residents with existing wind turbines, and other turbine neighbors and professionals that we have visited or communicated with, we know for a fact that all our properties and our family's health will be significantly impacted by Campo Wind in a highly negative and disruptive way. We simply will not be able to live here anymore.

I1-2  
Cont.



**Top left photo** shows one of the Campo Wind monitoring stations installed on site by Terra-Gen as viewed from our property looking southwest over chaparral that is finally recovering from the 2012 Shockey Fire. **Top right photo** shows the view that the Fordyce family has looking over the Campo Reservation to the West from their front porch. Turbines would fill their beautiful calming views to the west, north, south and southwest with giant thumping and flashing turbines. **Bottom right and left photos** are the view of our Morning Star Ranch from the Fordyce's home. The bottom left photo would include the proposed 7 turbines, the batch plant, the O& M building and the construction laydown yard.

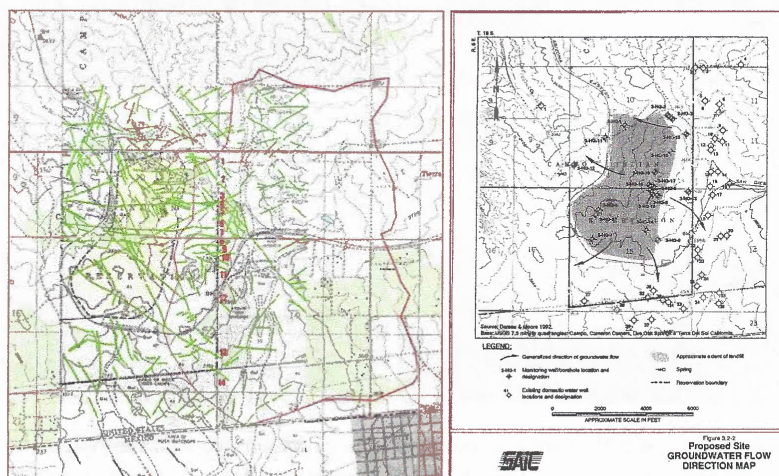
My husband and I have a combined investment of almost 98 years at our beautiful ranch. Over the last three decades, we have fought off the Campo Landfill, Shu'luuk Wind, and unsustainable bulk water sales (all with help from conscientious tribal members) and survived the 2,000 plus acre Shockey Fire. All were on the very same location that is now proposed to host seven 586 ft high 4.2 MW industrial wind turbines, a construction laydown yard, a concrete batch plant and an O& M building right smack next to us, where there are currently no structures, no lights, no utility lines, nothing; just a lovely sloping



hillside covered in chaparral, currently blooming buckwheat and wildflowers, with lots of wildlife including Quino Checkerspot Butterflies, Golden Eagles, horned lizards, kangaroo rats, redtailed hawks, mountain lions, and much more. That property would be much better suited for new tribal homes that are in demand. Installing turbines will actually reduce availability of home sites for generations to come.

Just seven 4.2 MW turbines = 29.4 million watts of energy planned far too close to our home and others. We know it is no coincidence that the obnoxious turbines, batch plant, laydown yard and O&M building are proposed as close as possible to our property as pay back for defending ourselves from other dangerous projects over the years. The proposed site for those project facilities is undeveloped and sits at an elevated position from our property and homes where noise, dust, and potentially contaminated water could create additional nuisance and trespass conditions.

The Campo Wind well field is within one mile or so almost due almost due west of our domestic wells with documented water bearing fractures connecting our property with theirs. The two maps below show fractures and local wells for the project area. The fractures marked 1-7 or so are along our shared property line. Both are included in Dr. V.M. Ponce's 2010 comments on the Campo Landfill Draft Supplemental EIS that are incorporated here in full by reference<sup>2</sup>



The photo below documents the sad remains of four of our centuries old oaks that previously provided shade and habitat in our yard, where redtailed hawks and great horned owls nested. They all died after over 12 million gallons of water was mined and exported during a significant drought in 2013 from the Campo well field proposed for Campo Wind, next door. The precious potable groundwater was sold to SDG&E for construction of the ECO Substation and had to be curtailed well before the contracted 57 million gallons was met due to significant impacts to groundwater. Details of that situation are included in the Boulevard Planning Group letter. Attached is the County produced hydrograph of groundwater monitoring at our ranch through June 21, 2019. The gap during the bulk water sale time frame was when San Diego County failed to fund the monitoring.

<sup>2</sup> [http://ponce.sdsu.edu/comments\\_to\\_dseis\\_100505.html](http://ponce.sdsu.edu/comments_to_dseis_100505.html)



Attached is a detailed letter that I submitted to Amy Baker at the CPUC (8-26-13) regarding Campo's bulk water sales for ECO Substation construction, just over one month after the water sales started in July 2013. It includes the following excerpt:

- **REPORTS OF ADVERSE IMPACTS TO DOMESTIC WELLS AND SPRING-FED SOURCES:**
  - a. Campo tribal members report that wells and springs that provide the sole source of water to several homes, located along BIA 15 adjacent to extraction well field, have already been impacted by bulk water sales for SDG&E's ECO Substation.
  - b. Several off-reservation neighbors also report unusual fluctuations in water pressure and availability in their wells that are located in highly fractured bedrock, since heavy pumping for bulk sales project commenced in July.
  - c. No off-reservation wells were mapped or are being monitored by ENSI and no neighbors report being contacted for monitoring by anyone.
  - d. Tribal members report that Campo EPA has not been involved in any water monitoring for impacts to groundwater levels, water quality, or to biological or cultural resources— in violation of governing documents.

**My 2013 letter to the CPUC also includes the following relevant excerpt:**

- a. San Diego County comments on Shu'luuk Wind DEIS<sup>3</sup> strongly recommended that off-reservation well interference monitoring and aquifer analyses were needed if Wells HG-31 and HG 60 were going to be used for Shu'luuk Wind construction.
- b. Dr. V. M. Ponce's formal review on the Shu'luuk Wind<sup>4</sup> project and cumulative project impacts concluded that only 39 AcFt could be safely extracted annually from the local aquifer—not the 164-175 AcFt supported by the ENSI report.
  - i. **5.1 Rock aquifer:** The Shu'luuk Wind project site is underlain by a rock aquifer of difficult characterization. The rocks are extensively fractured, due either to batholith cooling or tectonic uplift. Previous studies have revealed the considerable extent of the fractures in the vicinity of the proposed Shu'luuk Wind project site (Ponce 2006). These fractures provide underground connections and preferential flow paths between the Shu'luuk Wind project site and neighboring watersheds. Many of the identified fracture alignments cross the landfill site in a predominantly west-east direction. At least fourteen (14)

<sup>3</sup> County of San Diego Shu'luuk Wind DEIS comments to BIA Superintendent Eben dated February 25, 2013

<sup>4</sup> <http://ponce.tv/shuluuk.html>

fracture alignments cross the boundary between the Campo Indian reservation and privately owned land immediately east of it (Fig. 6). The DEIS lacks an updated assessment as to the extent of these fracture systems and their effect on the groundwater flow patterns. In addition, the potential for off-site impacts to existing wells, springs, seeps, and riparian vegetation are not adequately addressed in the DEIS (AECOM 2012b).

- ii. The map with fractures 1-14 connecting with off-site properties reliant on the same ground water resources is Figure 6 Dr Ponce's Shu'luuk Wind review.

That same letter also documents in detail the premeditated misrepresentation, and basic deceit perpetrated by the Campo leadership and the contractor at the time. There have been recent public allegations from a water truck driver, who hauled lots of that water, that there appeared to be little oversight over how much water was being hauled and how many hours per day the trucks ran. He said it concerned him and others.

**In this Campo Wind DEIS situation we believe the definition of deceit applies equally to the Campo Tribal leadership, Terra-Gen, and Dudek:**

**Deceit:** One who willfully deceives another with intent to induce the other to alter his or her position to his or her injury or risk is liable for any damage suffered as a result of the deceit. [Civ. Code §1709] **There are four categories of deceit** [Civ. Code §1710]:

1. **intentional misrepresentation**
2. **negligent misrepresentation**
3. **concealment**
4. **false promise**

As immediate long-term neighbors of the Campo Reservation and tribal members we have been front row observers of what we believe to be almost constant systemic corruption at the upper levels of tribal management, with a few years of respite when leadership changed hands before reverting back to the same basic corrupt cabal. The current and recently past Campo tribal leadership, including Campo Executive Committee, Muht-Hei, and Campo EPA (CEPA), have all failed to honestly or ethically manage or adequately protect their finite natural and economic resources. In the process they have not only failed their own tribal members, who often confide in us, but also their off-reservation neighbors who have no vote on tribal decisions that can and do alter the physical and financial well being of locals.

The basic beauty, the sense of this place, and aromatic essence cannot be fully conveyed with photos. Today, the buckwheat and other wildflowers are blooming with an abundance of Checkered White butterflies floating on the fragrant breeze from bloom to bloom. This morning, Acmon Blues, Funereal Duskywings, Common Buckeyes butterflies and others circled our flower garden searching for the right place to alight. All of this will be forever altered if Terra-Gen's Campo Wind is authorized to move forward in any form.

The project's Batch Plan, O&M and Laydown yard facilities should be located within the Campo Reservation interior on already disturbed land at or near the existing Campo Materials location on

Church Road, where utilities, water source, and paved road already exist and do not need to be constructed. There is no utility easement in the area on BIA 10 and the closest connection would need to come from within the Reservation. Terra-Gen has no imminent domain rights to create utility easements where none exist.

**If the project is approved, BIA 10 should be paved** to help mitigate the dust that billows down across our properties when traffic passes by. Adding construction traffic would significantly increase dust, noise, and potential runoff, erosion, and contamination impacts from our western ½ mile common boundary.

- Proposed turbines and facilities on BIA 10 are far too close to occupied off-reservation properties with homes and wells, including our own properties.
- The same is true for the proposed Batch Plant, O&M and Laydown Yard proposed on Old Hwy 80 between Williams Road and the Golden Acorn Casino where a school bus stop appears to exist adjacent to existing tribal and private homes.
- Here are two examples of adverse dust / contaminant impacts from wind projects:
  - **June 30, 2019: The Age.com: Award-winning sheep farmers sue AGL over wind farm construction**<sup>5</sup>: (excerpt) "in a statement of claim filed with the Supreme Court in January, the Gardners say 260 of their 400 ultra-fine-wool sheep died after construction on AGL's adjoining Macarthur Wind Farm, near Hamilton in western Victoria, from late 2011 to mid-2012. They allege dust emissions caused by construction of the wind farm were "noxious" and "caused a material injury to the sheep".
  - **January 31, 2018: Credit: Bonnie Heslop [www.iheartradio.ca](http://www.iheartradio.ca)** : Construction dust from a wind turbine project in Niagara is behind a \$10 million lawsuit:<sup>6</sup> (excerpt & photo) St. Ann's resident Stefanos Karatopis says he was visiting his sister back in 2015 when cement dust from a nearby Wind Farm project blew into the home sending 5 people to hospital. Karatopis, who is also a member of the Niagara Land Owners Association, says the dust was so bad it was hard to return home. Lawyer Akradi Bouchelev represents Karatopis and says the dust contains very harmful chemicals that can impact a person's health. The \$10 million dollar personal injury and damage claim has been filed against the Wind Farm, construction companies involved, the Niagara Region, and West Lincoln.



<sup>5</sup> <https://www.theage.com.au/national/victoria/award-winning-sheep-farmers-sue-agl-over-wind-farm-construction-20190628-p522c8.html>

<sup>6</sup> <https://www.wind-watch.org/news/2018/02/01/construction-dust-from-a-wind-turbine-project-in-niagara-is-behind-a-10-million-lawsuit/>

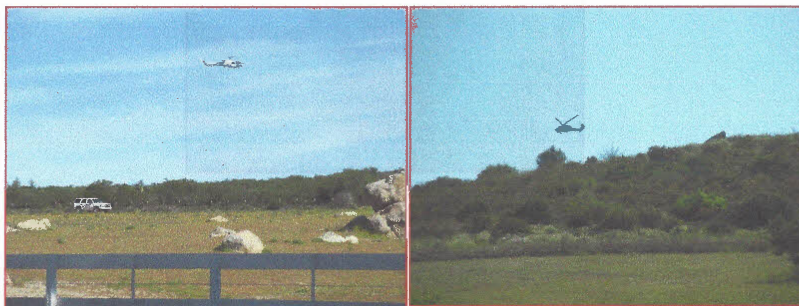


#### Noise:

- In addition to our previous comments and the comments and reports from Dr. Carman with Wilson Ihrig, we strongly dispute Table 6 Calculated A-Weighted Day/Night Sound Levels from Field-Collected Survey Data Receiver ID Ambient Ldn Noise Level (dBA) LT1 51
- The LT1 location appears to be positioned on our western common boundary line with BIA Rt 10 and the Campo Reservation.
- Our property and neighborhood are very quiet with sound carrying great distances.
- The same Campo Wind project area next to our property was previously proposed for the Campo Landfill project where 25 dBA was documented at approximately the same location on our western common boundary along BIA Route 10, at location #5.
- See the attached 1992 Campo Landfill DEIS **Figure 3.10-1 Locations of short-term noise measurements** (map) at page 3-102 and **Table 3.10-2 Short-term noise levels and traffic data - 25 dBA record.** (campo landfill DEIS-25 db) at page 3-103
- The DEIS noise models are basically a sham, meant to deceive folks into believing that the impacts will be much less severe and wide spread than they will actually be.
- Where are the low-frequency noise and infrasound impact models?
- Where are the shadow flicker models?

#### Homeland Security / Military / Fire & Emergency air conflicts with turbines:

- The two photos below were taken from our yard showing low-flying border patrol and military helicopters. These operations are very frequent in our border area that is also in the military route of travel. We are grateful for their service and glad to have them on duty in our area.
- However, helicopters and wind turbines don't mix.
- Turbines represent a major aviation obstacle and hazard that would severely restrict or prevent Border Patrol, Fire and Emergency and military training operations here.
- That puts our property and general area at increased risk of smuggling activities, fire, and potential loss of other critical emergency services including Life Flight.
- If the turbines had been here during the Shockey Fire, CalFire would not have been able to attack it as aggressively as they did. Future fires in the area will likely be much larger due to almost 600 ft tall turbine obstacles that will line numerous ridges in a 10 mile stretch north to south from the US/Mexico border to north of I-8 and 2-3 miles east to west.

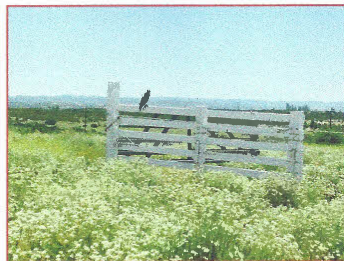


### Wildlife:

- The tiny horned lizard in the photo below was a victim of the Shockey Fire that I found on the Campo Wind side of BIA 10 after the fire. It looks similar to Blainville's Horned Lizard - *Phrynosoma blainvillii*<sup>7</sup>
- The turkey vultures were on clean up duty that day. They are always around.



- The alert hawk below sat patiently for me to take the photo of him sitting pretty on our fence, with distant uncluttered views into Mexico. He looks like a redtail but seems too dark and looks slightly different than most of our redtails.



- The Kangaroo Rat, photo below, was the unfortunate victim of a fatal encounter with a vehicle in June 2019 on Tierra Real Road adjacent to BIA 10. It appears very similar to the FWS photo on the right of the endangered Stephen's Kangaroo Rats<sup>8</sup>. These kangaroo rats are prevalent in the Tierra Del Sol / Campo Reservation area with dozens seen jumping and scurrying around during almost any night drive down our local roads and on our properties.



<sup>7</sup> <http://www.californiaherps.com/lizards/pages/p.blainvillii.html>

<sup>8</sup> <https://www.fws.gov/cno/newsroom/featured/2019/skr-grazing/>



The toad photos above were taken in our yard. Not sure what type they are. Spadefoot? We also have lost of lizards and tree frogs. I have been told by tribal members that Arroyo Toads do exist on the Campo Reservation including in the High Bridge area of Campo Creek.

There is never enough time, energy, or money to adequately defend ourselves and our community from these threatening projects. Campo Wind, Torrey Wind, and Boulder Brush all need to be terminated one way or another. They are not compatible with our community character, public health and safety, and nature in general.

Regards

*Ed Tisdale*  
*Donna Tisdale*  
Ed and Donna Tisdale

619-766-4170

**Attachments:**

Snyder Geologic, Campo Wind DEIS groundwater  
Wilson Ihrig Campo Wind DEIS Noise  
Campo Wind DEIS – 7 scanned figures  
2010 Campo landfill Quino sightings  
2010 Campo Landfill DSEIS noise level  
Tisdale hydrograph 6-21-19  
Tisdale to Baker Campo Water Sales 8-26-13

I1-2  
Cont.



July 5, 2019  
Project No. 0023.004

Backcountry Against Dumps  
c/o Donna Tisdale  
PO Box 1275  
Boulevard, CA 91905-0375

Subject: Campo Wind Draft Environmental Impact Statement (EIS) with Boulder Brush Facilities  
Draft EIS Review and Opinion

Dear Ms. Tisdale,

We are pleased to present this report to Backcountry Against Dumps that provides an independent, technical review of relevant groundwater portions of the Campo Wind Draft EIS, prepared by Dudek, for the Campo Wind Project with Boulder Brush Facilities (project). Scott Snyder is a California Professional Geologist and Certified Hydrogeologist with 25 years of experience in hydrogeology, 18 of which have been in San Diego County.

11-3

#### **PURPOSE**

The purpose of this report is to provide opinions on the following: whether or not the groundwater technical work (Groundwater Resource Evaluation – Appendix F of the Draft EIS) was conducted in accordance with County of San Diego guidelines (standards to which Dudek stated they would compare their work); if the hydrogeologic work meets the standard of care for the industry; and if the protections proposed for the groundwater users surrounding the project site are adequate.

This report addresses the following:

1. Whether the reports follow the standard of care in San Diego County for such investigations (the County has no jurisdiction on this project, which is on Tribal land; however, Dudek has indicated they used the County guidelines for significance thresholds and the guidance in order to compare this project to others in the County),
2. Whether the investigations were conducted in a competent manner,
3. Whether the report's conclusions are consistent with the results of the investigations,
4. Whether the proposed protections are adequate for groundwater users near the site, and
5. Whether the conclusions of the report are considered within the context of the entire project.



## DOCUMENTS REVIEWED

We reviewed the following documents found on the Bureau of Indian Affairs website for Campo Wind ([www.campowind.com](http://www.campowind.com)):

- Draft EIS Section 1 – Introduction
- Draft EIS Section 2 – Project Description and Alternatives
- Draft EIS Section 3.2 – Affected Environment and Areas Not Further Discussed, Water Resources
- Draft EIS Section 4.2 – Environmental Consequences, Water Resources
- Draft EIS Appendix B – Project Description Details
- Draft EIS Appendix C – Regulatory Settings
- Draft EIS Appendix D – Environmental Resources Section Tables and Graphs
- Draft EIS Appendix E – EIS Figures
- Draft EIS Appendix F – Groundwater Resource Evaluation (GRE)
- Draft EIS Appendix P – Mitigation Measures

Other reports that were reviewed in whole or in part include:

- Groundwater Resources Investigation Report, Tierra Del Sol Solar Farm Project (Dudek)
- Study Area Photolineament Map, Proposed Campo Landfill (Dames & Moore)
- Draft EIS, Campo Solid Waste Management Project (SAIC)
- East County Substation Amended Construction Water Supply Plan (BETA/SDG&E)
- East County Substation Construction Water Use Report, November 1 to 30, 2013 (SDG&E)

## PROJECT LOCATION AND DESCRIPTION, AND PROJECTED WATER USE

The proposed project would be a wind farm on the Campo Reservation located in the east county San Diego mountains. The Campo Reservation lies among several unincorporated communities of San Diego County including Boulevard, Campo, Live Oak Springs, and Clover Flat. All of the communities in the east county mountains are fully reliant on groundwater for their water supply through either privately owned wells or community water systems that derive their water from groundwater sources. There are no imported water supplies to this region.

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The Campo Wind project would be located on 2,200 acres of the approximately 16,000 acres of reservation land. Additionally, the Boulder Brush Facilities (a transmission and storage facility) would be constructed on approximately 500 acres of privately held land under lease that is adjacent to, and would be connected to, the wind farm project. The project as proposed would include the construction of up to 60 wind turbines and associated infrastructure including roads, meteorological towers, an operations and maintenance facility, and transmission lines.

#### **DEMAND/PROJECT PLAN**

The projected water demand from the project is 173 acre feet (AF), or 56,370,000 gallons, over a 14-month construction period. For the wind farm portion of the project, 123 AF will be required, with approximately 36 AF of water for concrete mixing and 87 AF for dust suppression. For the Boulder Brush Facility Project, the projected water demand is 50 AF, with 15 AF for concrete mixing and 35 AF for dust suppression.

During the first 3 months of construction (peak construction), it is estimated that the project will use 250,000 gallons per day (gpd, 0.76 AF per day) or 173 gallons per minute (gpm) over a 24-hour period (the rate would be higher if work days are less than 24 hours per day). During the remaining 11 months of construction it is estimated that the project will use 120,000 to 150,000 gpd (0.37 to 0.46 AF per day) or 84 to 105 gpm over a 24-hour period (the rate would be higher if work days are less than 24 hours per day).

The project proposes to use water from three sources: the on-reservation "South Well Field" consisting of four groundwater supply wells (presumably PD-1 through PD-4, though this is not stated in the EIS) on the Campo Reservation; the Jacumba Community Services District (JCSD); and Padre Dam Municipal Water District (PDMWD). The proportion of water expected to be supplied to the project from these three sources is not provided in the Draft EIS.

#### **EXISTING GROUNDWATER DEMAND**

The existing groundwater demand in the basin was tabulated in the GRE at 185.4 AF per year (AFY). The basin is estimated to hold approximately 3,000 AF, some of which is not available for withdrawal due to physical constraints. The GRE reports that current demand on the basin is 6% of the groundwater in storage. However, there are several assumptions that are liberal in nature, which likely underestimate the actual or potential groundwater consumption. These are discussed in more detail below.

##### Residential Wells

For the existing water demand (Section 3.4) the groundwater withdrawal rate for a residential property was assumed to be 0.5 AFY, equivalent to 0.31 gpm or 446 gpd. While this may be water use for a typical American family on a standard-sized lot, this consumption rate for residents of the project area is grossly underestimated for some of the land owners, and at the very least places an undue burden and restriction on residents. The size of the properties for many residents in the area can exceed 10 acres and some

I1-3  
Cont.

own 100 acres or more. In addition, many residents have livestock or landscaping which both place an additional demand on groundwater resources. Residential properties can use up to 20,000 gpd without being considered a water intensive use (i.e., without special permission from the County), and this is not factored into the storage calculations. As a conservative approach, the 50% reduction in storage analysis which reflects potential conditions should consider the maximum permitted withdrawal by residences, or 22.4 AFY per property.

While many of the residents of the area choose to conserve water as much as possible, they are permitted to use such quantities; as mentioned, it is entirely likely that many do use much more than 450 gpd for their large properties.

#### Golden Acorn Casino

As the Golden Acorn Casino is also owned by the reservation who will provide groundwater for the Campo Wind Project, annual groundwater use data should be provided to aid in a more accurate calculation of the existing water demand. The groundwater use for the casino (owned by the Campo Indians) was not provided for this GRE; instead Dudek had to rely on estimated use of 23.4 AFY, as provided in the proposed project report.

#### Live Oak Springs Water Company

According to the GRE, Live Oak Springs Water Company (LOSWC) has a total of 97 connections. It also states that in 2011 (more recent data was not used), 14.5 AF of groundwater was used. While these data may be accurate for 2011, the data are 8 years out-of-date, and more recent data should be provided for the GRE. The 14.5 AFY does not represent a worst-case scenario of water use within the water company. The connections could use far more water in the future should landowners change their land use and thus water consumption. At a minimum, the calculations should conservatively use 0.5 AFY per connection if this is the number that was used for the private wells on residential property (although, as discussed above, this number is not considered a maximum allowable use).

In addition to the demand on the LOSWC for domestic and commercial uses of groundwater, Live Oak Springs has also provided groundwater for retail sale for several projects in the area similar to this project. Dudek should evaluate current and future projects that are planned and make an assumption of groundwater that might be sold on the retail market and add those estimates to the total water demand for LOSWC and the basin.

### **GROUNDWATER QUANTITY IMPACT ANALYSIS**

Dudek conducted a groundwater quantity impact analysis (Section 4) in the GRE. The results of this analysis were compared to significance criteria contained in the County of San Diego regu-

I1-3  
Cont.

lation "County Groundwater Ordinance and Guidelines for Determining Significance and Report Format Content Requirements: Groundwater Resources." Two primary thresholds were used to evaluate the impact of the project on groundwater resources:

- A soil moisture balance or equivalent analysis using a minimum of 30 years of precipitation data must show that groundwater in storage is not reduced to a level of 50% or less.
- After a 5-year projection of drawdown, water levels in off-site wells must not be decreased more than 20 feet.

These criteria and other indications of possible impact to local groundwater resources and users are further described below.

#### Well Depths

The depths of the production wells are not given in the EIS; however, their depths may be of concern during groundwater extraction. The average depth of wells in the area is 350 feet and the median depth is 300 feet. There is a reasonable concern that a deep well or wells, while perhaps not reducing groundwater in storage to less than 50%, could reduce the overall groundwater levels below the depths of shallower private residential wells. Even in the short term, this could negatively affect the private well users' use of groundwater, which is their only source of water.

#### 50% Reduction in Storage Calculations

For the 50% reduction in storage calculations for the GRE, a groundwater withdrawal rate for residential properties of 0.5 AFY was assumed, equivalent to 0.31 gpm or 446 gpd. While this may be water use for a typical American family on a standard-sized lot, this extraction rate for residents of the project area is grossly underestimated for some of the land owners, and at the very least places an undue burden and restriction on residents. The size of the properties for many residents in the area can exceed 10 acres and some own 100 acres or more. In addition, many residents have livestock or landscaping which both place an additional demand on the water resources. Residential properties can use up to 20,000 gpd without being considered a water intensive use (i.e., without special permission from the County), and this is not factored into the storage calculations. As a conservative approach, the 50% reduction in storage analysis which reflects potential conditions should consider the maximum permitted withdrawal by residences, or 22.4 AFY per property. While many of the residents of the area choose to conserve water as much as possible, they are permitted to use such quantities; as mentioned, it is entirely likely that they do use much more than 450 gpd (0.5 AFY).

According to the GRE, LOSWC has a total of 97 connections. It also states that in 2011 (more recent data was not given), 14.5 AF of groundwater was used. While this data may be accurate, it does not represent a worst case scenario of water use within the wa-

I1-3  
Cont.



ter company. The connections could use far more water in the future should landowners change their land use and thus water consumption. At a minimum, the calculations should conservatively use 0.5 AF per connection if this is the number used for the private wells on residential property.

In addition to the demand on the LOSWC for domestic and commercial uses of groundwater, Live Oak Springs has also provided groundwater for retail sale for several projects in the area similar to this project. Dudek should evaluate current and future projects that are planned and make an assumption of groundwater that might be sold on the retail market and add those estimates to the total water demand for LOSWC.

As the Golden Acorn Casino is also owned by the reservation who will provide groundwater for the Campo Wind Project, annual groundwater use data should be provided to aid in a more accurate calculation of the existing water demand. The data for the casino used in the analysis was 23.4 AFY, based on a 2008 project water use study.

#### Groundwater Levels in Off-Site Wells

The second of the two significant impact tests according to County of San Diego Guidelines is that residual drawdown in off-site wells after 5 years must not exceed 20 feet. The nearest well to the well field is reported to be 4,500 feet. Therefore, the drawdown in this well was estimated in order to evaluate the County criterion.

A significant omission in the report was the variable Q (pumping rate) which was not presented or discussed, so the validity of the calculations using Q cannot be independently verified for all three calculated scenarios (Tierra Del Sol [TDS], Border Patrol Well 2, and Border Patrol Well 3). It is not known if Q was used from each pumping test that was analyzed (and whether that is a reasonable rate for the on-site wells) or if Q was used from rates at the well field that were developed during the ECO Substation project.

Transmissivity (T) for the equation in Section 4.2 is presented in gallons per day per foot, whereas the transmissivity for each pumping scenario is presented as ft<sup>2</sup> per day. At a minimum the transmissivities in Table 4-2 should be presented in units that are consistent with the equation used.

For the TDS well scenario, an estimate of Storativity (S) was presented as 0.001 since S could not be calculated for the TDS project. The calculation resulted in a residual drawdown of 19 feet after 5 years, one foot below the criterion of 20 feet. The arbitrary nature of the storativity value selection must be re-evaluated. Given that the transmissivity for the TDS well was 75 percent lower than the transmissivities for the Border Patrol wells, it seems appropriate to select a storativity value that is also proportionately lower than the Border Patrol wells (i.e., 0.00012 to 0.00019). However, we calculated the 5-year drawdown under the TDS well scenario at the nearest off-site well using the two storativity

I1-3  
Cont.

values from the Border Patrol wells (0.00074 and 0.00048) and the resulting drawdown values were 21.89 and 26.25 feet, respectively. Using the storage value (S) used by Dudek in their own calculation of groundwater in storage in the basin (0.0005), the draw-down after 5 years at the nearest off-site well under the TDS well scenario is 25.84 feet.

No discussion was presented as to the comparability of the well tests conducted at TDS, or Border Patrol Wells 2 and 3 to the wells at the southern well field on the reservation. No details regarding well depths, well diameters, geologic conditions, or pumping rates for the three off-site well tests versus the on-site wells' production during the SDG&E ECO Substation project were given. Therefore, it is impossible to know if the calculations provided in Section 4.2 accurately reflect the conditions that would result from actual pumping tests of the product wells at the southern well field.

Groundwater levels in off-site wells (Section 4.2) should be monitored during constant rate pumping tests at the southern well field to assess potential impacts. However, in the absence of pumping test data, the Section 4.2 estimates of residual drawdown in the nearest off-site well should be recalculated.

#### Groundwater Use and Water Levels During ECO Substation Project

The SDG&E ECO Substation project obtained groundwater from the southern well field on the reservation from July to November 2013. During the project, SDG&E extracted more than 36.4 AF, or 9.1 AF per month. This project proposes to use 22.8 AF per month for 3 months and 11.1 to 13.8 AF per month for 11 months, both of which exceed the amount of water extracted during the ECO Substation project. Since the amount and timing of water use from each of the three potential water purveyors is not known at this time, it should be conservatively assumed that all of the water would come from the reservation wells. Groundwater testing should be conducted based on this assumption. If the water use from the reservation is known, then the wells should be tested based on the known planned extraction rates.

Dudek stated that groundwater levels in the four production wells PD-1 through PD-4 did not fall more than 110 feet during pumping for the ECO Substation project, and referred to Appendix A of the GRE as evidence of this statement. However, in reviewing the hydrographs for the four wells, it is evident the groundwater fell in these wells much further than 110 feet. In fact, wells PD-1 through PD-4 water levels dropped a maximum of 202, 145, 165, and 165 feet, respectively, or 32 to 83% more than reported in the GRE. It is not entirely clear how this error occurred except that the groundwater levels dropped below the transducers in the wells and thus it appeared that only 110 feet of water decline occurred; however, the manual readings clearly indicate a greater decline. Since the total depths of the wells were not provided in the GRE, how close to the bottom of the well or the pump intake the water levels dropped to is not known, which could indicate whether the wells had been pumped to their maximum capacity.

I1-3  
Cont.

Neighbors reported that their water levels were substantially lower during this time and that after the pumping occurred in 2013 during the ECO Substation project, four large oak trees on one adjacent neighbor's property died, presumably due to lack of available shallow groundwater.

#### ITEMS NOT ADDRESSED

These items were either omitted from the report and should be included, or were stated as a goal of the investigations and were not discussed.

##### Comparison to Local Projects

In Section 2, Study Methodology, Dudek stated that the GRE would use the County's significance thresholds to "clearly investigate groundwater impacts from Project groundwater use." However, Dudek did not investigate the groundwater conditions at the site or surrounding area. There appears to be no evidence that any investigation was conducted that included actual testing of the groundwater wells in the southern well field. No information was provided that discusses the sustainable groundwater pumping rates of the proposed production wells, or the effect their pumping may have on the wells of other local groundwater users, specifically, private wells. Instead what was presented in the GRE report was water level data from the SDG&E ECO Substation project from 2013 that did not provide groundwater pumping rates or duration, or any off-site impacts to groundwater wells in the area during pumping.

Also provided were assumptions and projections on how the south well field supply wells would perform and affect local resources using hydrogeologic data from wells that are several miles from the project site for which there was incomplete data (discharge rate), liberal assumptions were made (storativity value), and no basis for the pumping rate used in the calculations (the pumping rate also was not stated). Those liberal assumptions led to a conclusion that the County significance criteria would not be exceeded. A calculation of this criterion by Snyder Geologic using data that Dudek presented elsewhere in the report (a storativity of 0.0005 instead of 0.001) led to the conclusion that in fact the 5-year, 20-foot residual drawdown criterion would be exceeded at the nearest off-site private well.

Dudek also stated in Section 2 that their investigation would "allow for comparison of impacts between this Project and other projects within the County." No such comparisons were made to recent local projects including ECO Substation, Tule Wind, or Soitec Solar.

I1-3  
Cont.

## SUMMARY/RECOMMENDATIONS

Based on the review of the GRE, we make the following recommendations:

- We recommend that this report be used to provide the decision makers with information regarding the lack of appropriate groundwater data to make an informed decision as to whether groundwater extraction from the reservation's southern well field would have a significant impact to groundwater resources in the basin and a detrimental impact on private wells in the area.
- Specifically, this report should be used to provide the project proponent with specific recommendations for further investigation of the southern well field itself, analysis of available data, and re-analysis of the data presented in this report using more conservative assumptions, or no assumptions wherever actual data can be collected.

The following section provides more detail with respect to data gaps that need to be addressed.

## SIGNIFICANT DATA GAPS

There are several significant data gaps that should be addressed, or re-analysis of data that should occur, to better analyze the impact on groundwater supplies from the proposed project.

- The identification and location of wells is not provided on any map anywhere in the EIS document, nor are the well details (total depth, geologic conditions, yield) provided. There is no information regarding the safe pumping capacity for any of the wells that would be used for water production. Constant rate pumping tests with a minimum 72-hour duration should be conducted on any of the water supply wells that are proposed to supply water to the project. These tests will determine the safe yield for each well and will allow monitoring of water levels in nearby residential wells for potential impacts.
- The soil moisture balance calculations (Section 4.1.1) and groundwater in storage (Section 4.1.2 and a San Diego County significant impact criterion) should be recalculated using average rainfall data rather than rainfall data from the one weather station that is furthest of all five stations from the well field and is 1,000 feet lower in elevation. The rainfall amount should be calculated either by averaging all five stations (14.9 inches), or by omitting the highest and lowest rainfall amount stations and averaging the three remaining rainfall stations (15.6 inches).

Groundwater in storage calculations (related to the 50% reduction in storage analysis significance criterion) should be reanalyzed using the maximum permitted groundwater use per residence/private well of 22.4 AFY.

- The second of the two significant impact tests, according to County of San Diego Guidelines, is residual drawdown in off-site wells after 5 years must not exceed 20 feet. The nearest well to the well field is reported to be 4,500 feet. Therefore, the drawdown in this well was estimated in order to evaluate the County criterion.

I1-3  
Cont.



A significant omission in the report was the variable Q (pumping rate) which was not presented or discussed, so the validity of the calculations using Q cannot be independently verified for all three calculated scenarios. It is not known if Q was used from each pumping test that was analyzed (and whether that is a reasonable rate for the on-site wells) or if Q was used from rates at the well field that were developed during the ECO Substation project.

Transmissivity (T) for the equation in Section 4.2 is presented in gallons per day per foot, whereas the transmissivity for each pumping scenario is presented as  $\text{ft}^2$  per day. At a minimum the transmissivities in Table 4-2 should be presented in units that are consistent with the equation used.

For the Tierra Del Sol (TDS) well scenario, an estimate of Storativity (S) was presented as 0.001 since S could not be calculated for the TDS project, which resulted in a residual drawdown of 19 feet after 5 years, one foot below the criterion of 20 feet. The arbitrary nature of the storativity value selection must be re-evaluated. Given that the transmissivity for the TDS well was 75 percent lower than the transmissivities for the Border Patrol wells, it seems appropriate to select a storativity value that is also proportionately lower than the Border Patrol wells (i.e., 0.00012 to 0.00019). However, we calculated the 5-year drawdown under the TDS well scenario at the nearest off-site well using the two storativity values from the Border Patrol wells (0.00074 and 0.00048) and the resulting drawdown values were 21.89 and 26.25 feet, respectively. Using the storage value used by Dudek in their own calculation of groundwater in storage in the basin (0.0005), the drawdown after 5 years at the nearest off-site well under the TDS well scenario is 25.84 feet.

No discussion was presented as to the comparability of the well tests conducted at TDS, or Border Patrol wells 2 and 3 to the wells at the southern well field on the reservation. No details regarding well depths, well diameters, geologic conditions, or pumping rates for the three off-site well tests versus the on-site well production during the SDG&E ECO Substation project were given. Therefore, it is impossible to know if the calculations provided in Section 4.2 accurately reflect the conditions that would result from actual pumping tests of the product wells at the southern well field.

- The effects of pumping on the basin and on water levels in nearby residential wells use estimates of aquifer parameters from unacceptable proxies to actual groundwater pumping tests. It is our opinion that the standard of care is not being met by using estimates of storativity and using transmissivities from other wells in other locations many miles from the project site to evaluate if there will be unacceptable off-site impacts. When these estimates were used, the result was within 5% of the acceptable limit. This is an unacceptable margin for error given the broad assumptions that are being made. Our recalculations indicated the 20-foot drawdown limit would be exceeded.

I1-3  
Cont.

- No groundwater protections were proposed as part of this project because the GRE stated there would be no groundwater impact. Given the data provided and assumptions made in this report, it is premature to make such a statement. Until actual groundwater investigations can be undertaken and more conservative assumptions can be made with regard to groundwater in storage and off-site impacts, it should be assumed that the project will have negative, unacceptable, and avoidable impacts. Along with the investigation and re-analysis of data, groundwater protections including well extraction rate caps and intensive off-site well monitoring should be included in any approval for the project, if it were to move forward. These protections would be necessary to ensure that nearby private well owners would continue to have sufficient groundwater resources to meet their consumptive needs, as the basin is their only resource for a water supply.

These changes and additional analyses will provide substantially more protection for the groundwater dependent communities in the area of the project. Some of the changes and re-analysis will also further clarify the use of groundwater during the project.

Respectfully submitted,  
**SNYDER GEOLOGIC, INC.**



Scott Snyder PG 7356, CHG 748, QSD/P 445  
Principal Hydrogeologist

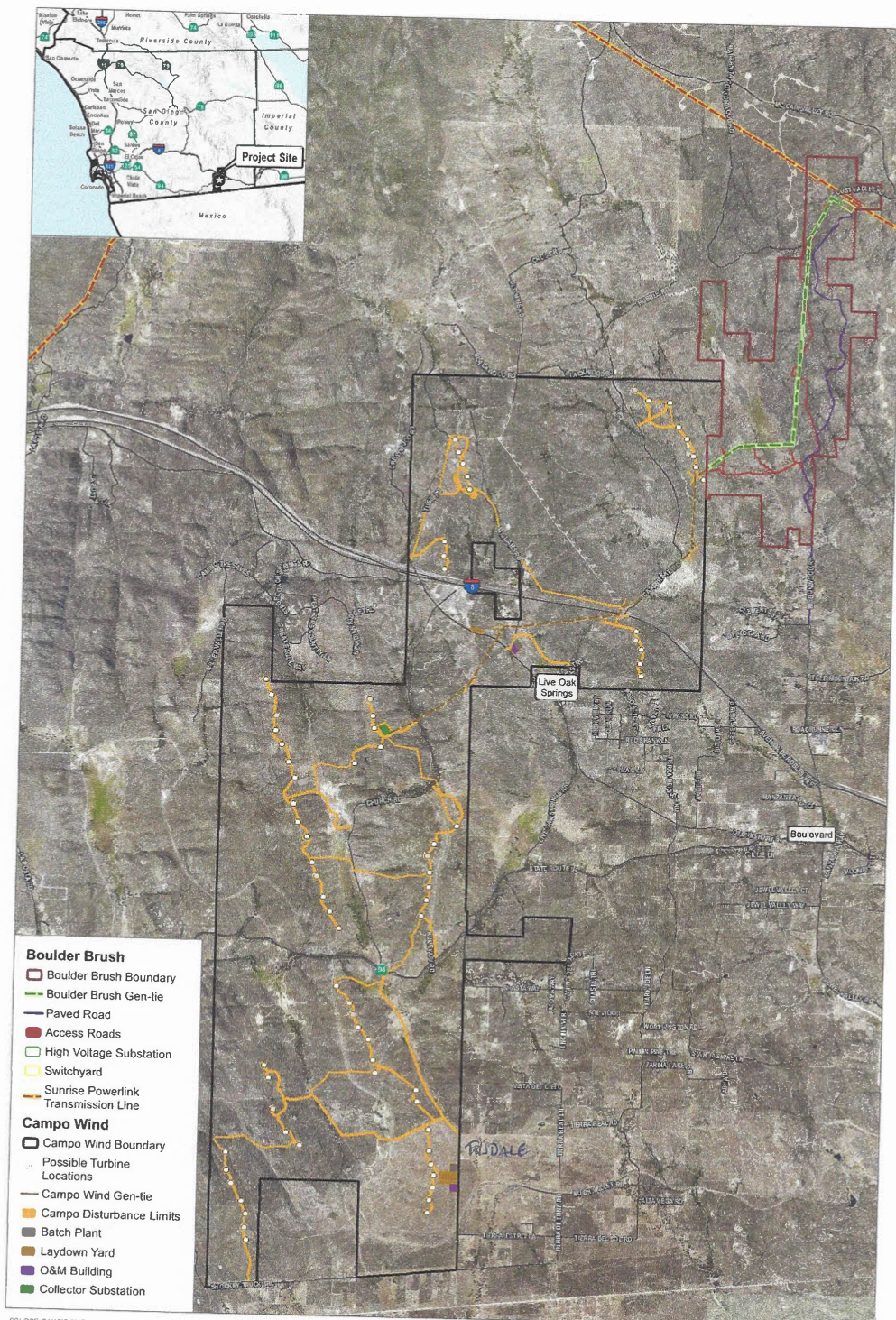


I1-3  
Cont.



**FIGURE 14b**  
Impacts to Vegetation Communities and Landcovers  
Campo Verde with Boulder Brush Habitat Biological Technical Report





SOURCE: SANGIS 2017

**DUDEK** 0 3,000 4,000 Feet

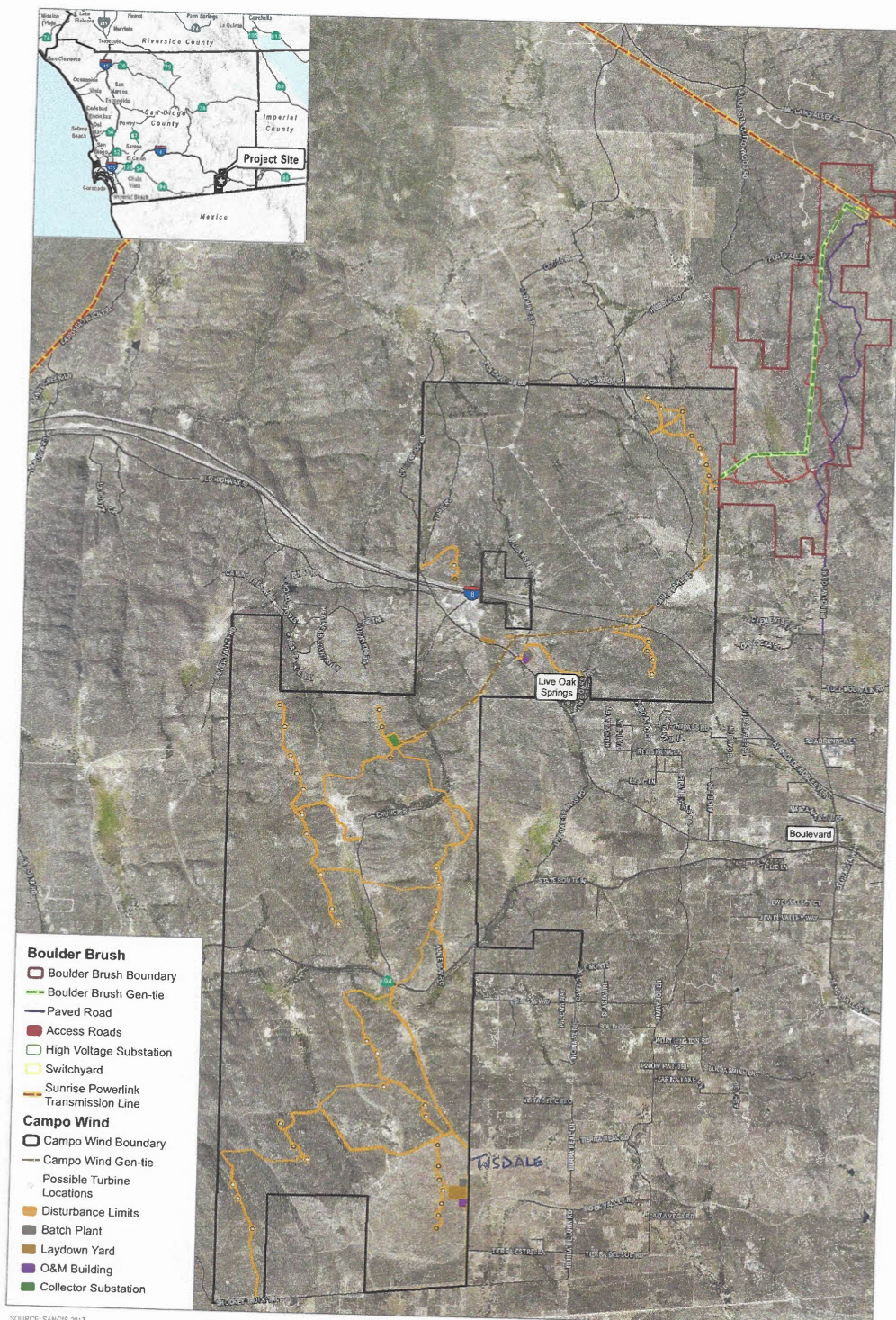
**FIGURE 2-1A**

**Alternative 1 Project Layout**

Campo Wind Project Draft Environmental Impact Statement

I1-4  
Cont.





SOURCE: SANDAG 2017

**DUDEK** 0 1,950 3,900 Feet

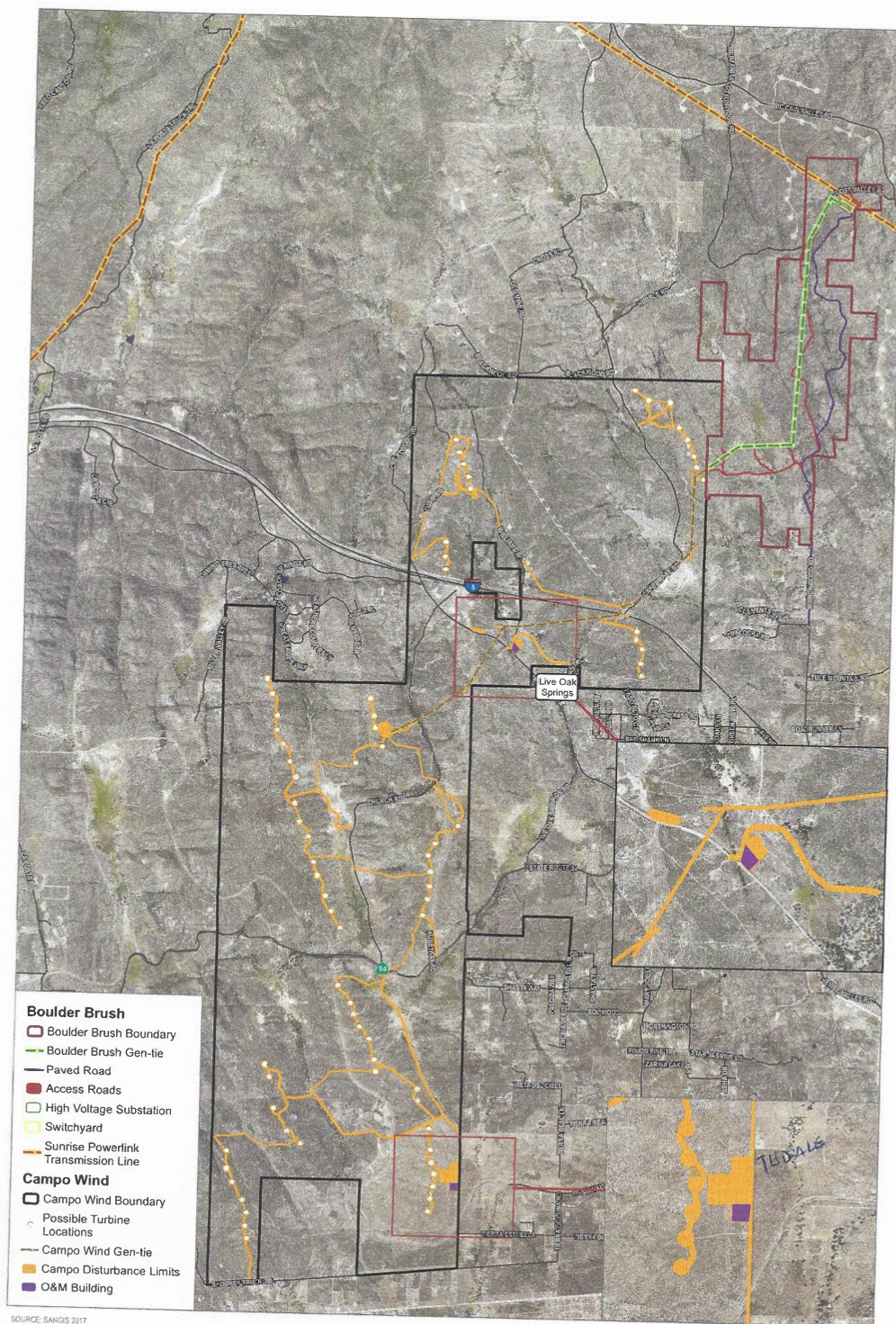
FIGURE 2-1B

Alternative 2 Project Layout

Campo Wind Project Draft Environmental Impact Statement

I1-4  
Cont.





SOURCE: SANGIS 2017

DUDEK 0 2,000 4,000 Feet

**FIGURE 2-4**  
Possible O&M Building Locations  
Campo Wind Project Draft Environmental Impact Statement

I1-4  
Cont.



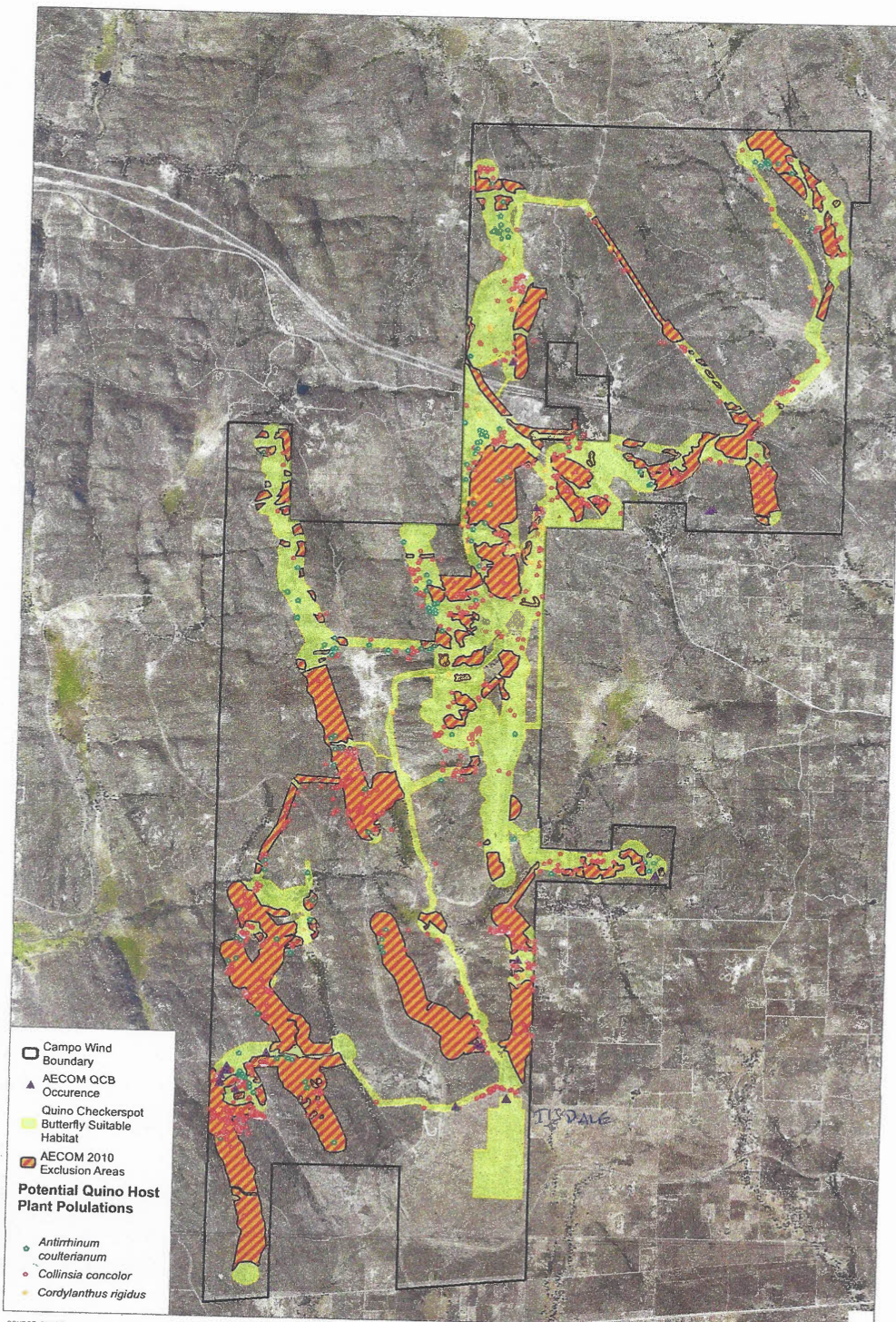
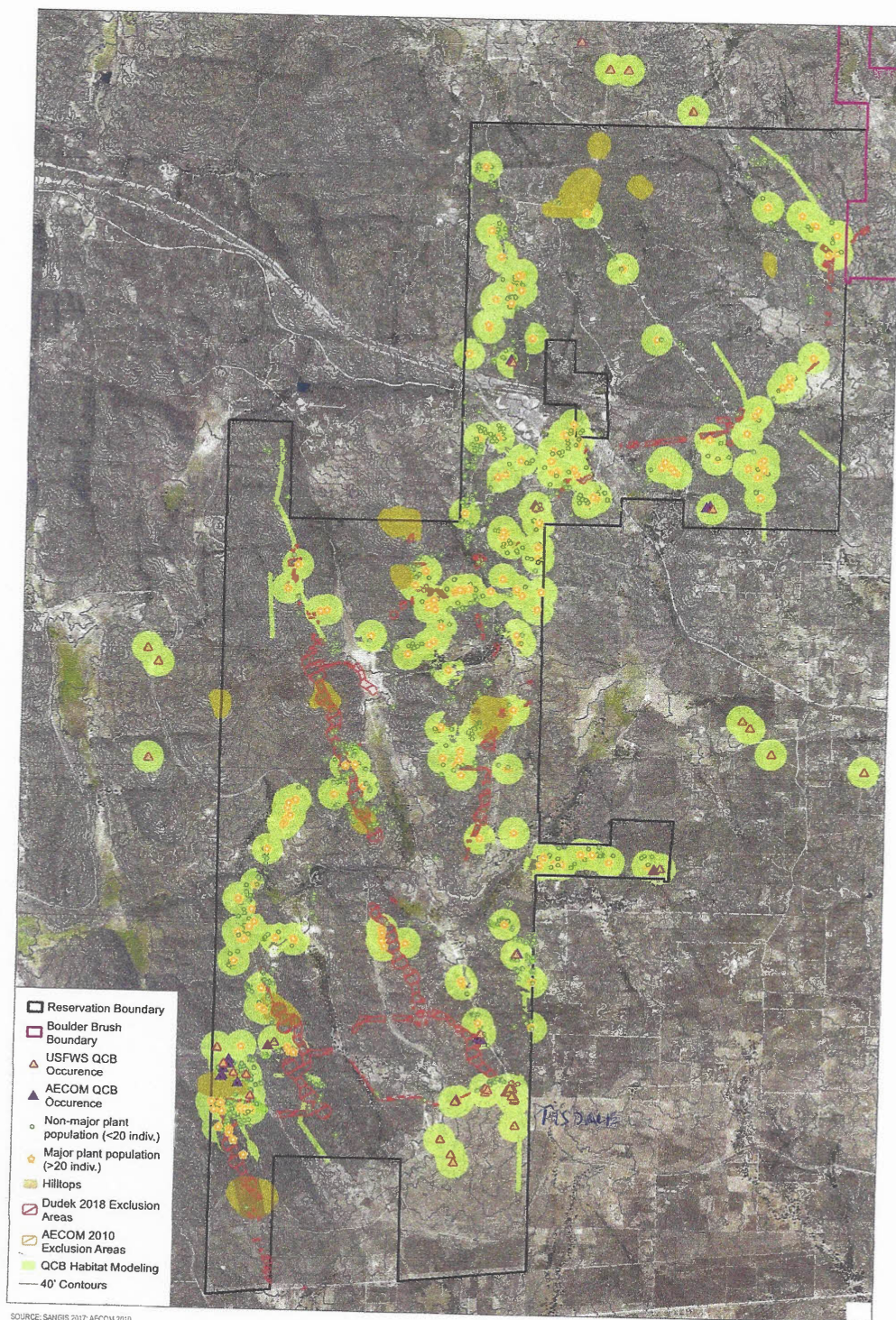


FIGURE 10  
 2010 Quino Checkerspot Butterfly Survey Results  
 Campo Wind Project Biological Technical Report

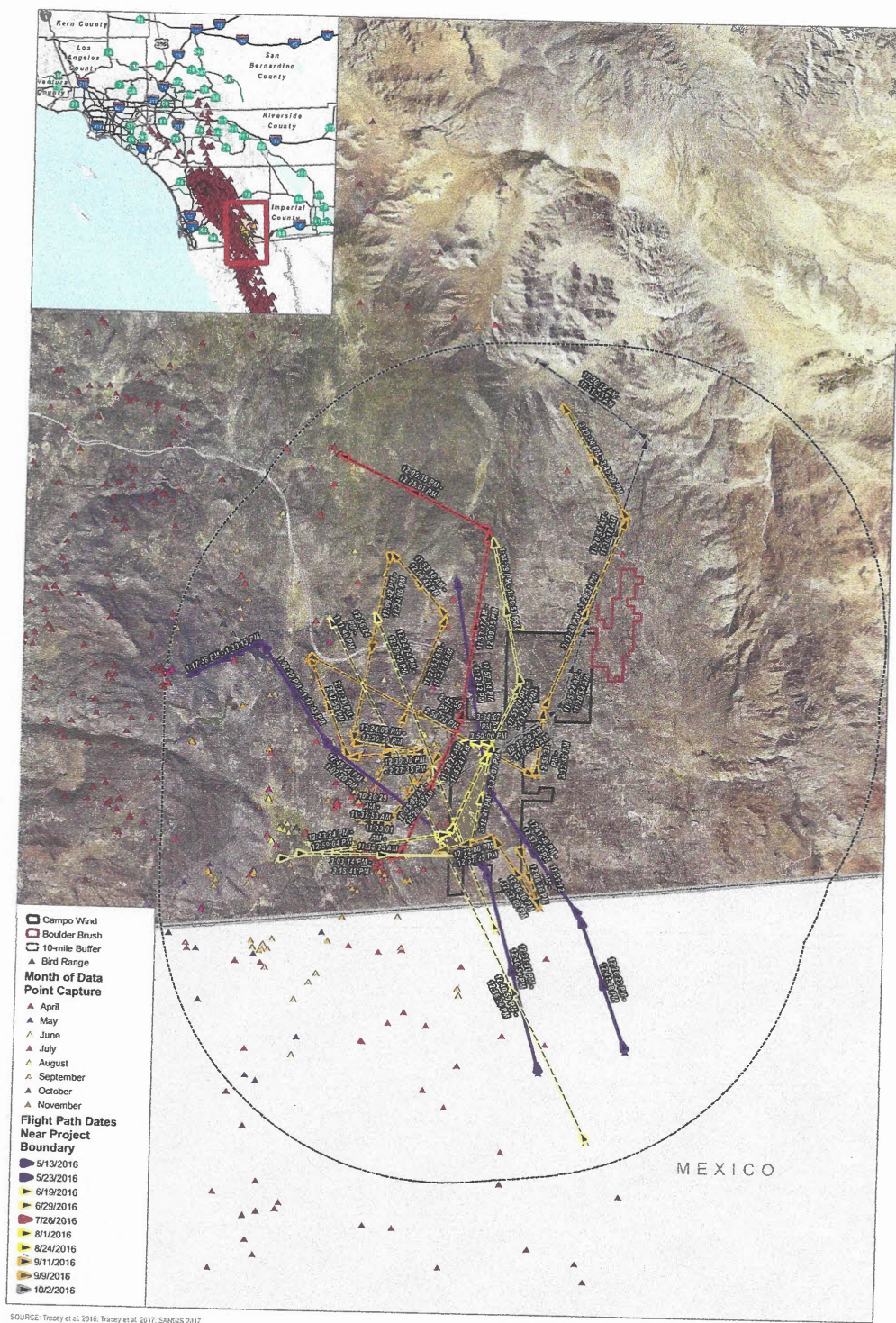
I1-4  
 Cont.





I1-4  
Cont.





SOURCE: Tracey et al. 2016; Tracey et al. 2017; SANGIS 2017

**DUDEK** 0 1.5 3 Miles

**FIGURE 131**  
**USGS Golden Eagle Bird M007 - 2016**  
 Campo Wind with Boulder Brush Facilities Biological Technical Report

I1-4  
 Cont.

**From:** Donna Tisdale  
**To:** [Harris, Susan](#); [Koutoufidis, Nicholas](#)  
**Cc:** [Jacob, Dianne](#); [Wilson, Adam](#)  
**Subject:** Tisdale Boulder Brush DEIR comments attachments  
**Date:** Sunday, January 12, 2020 10:52:35 AM  
**Attachments:** [Carman Campo Wind DEIS review 7-8-19.pdf](#)  
[Quino siting Campo Landfill 2010.pdf](#)  
[Campo Landfill DEIS-25db.pdf](#)  
[Tisdale hydrograph 6-21-19.pdf](#)  
[Tisdale to Baker Campo Water Sales 8-26-13-signed.pdf](#)

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**RE: Boulder Brush / Campo Wind DEIR PDS2019-ER-19-16-001, MUP PDS 2019-MUP-19-002**

Please include the attached documents that support the Ed and Donna Tisdale comments on the Campo Wind/ Boulder Brush DEIS into the formal record for the Boulder Brush / Campo Wind DEIR. They support our DEIS comment letter submitted to you just moments ago and previously on July 8, 2019 to Bronwyn Brown, the former PDS project manager.

Please confirm receipt and that these comments will be included into the formal Boulder Brush / Campo Wind DEIR record.

Regards,  
Donna Tisdale  
619-766-4170

----- Forwarded message -----

From: **Donna Tisdale** <[tisdale.donna@gmail.com](mailto:tisdale.donna@gmail.com)>  
Date: Mon, Jul 8, 2019 at 4:31 PM  
Subject: Tisdale Campo Wind DEIS-attachments  
To: Hall, Harold <[harold.hall@bia.gov](mailto:harold.hall@bia.gov)>, <[amy.dutschke@bia.gov](mailto:amy.dutschke@bia.gov)>  
Cc: Brown, Bronwyn <[Bronwyn.Brown@sdcounty.ca.gov](mailto:Bronwyn.Brown@sdcounty.ca.gov)>

Hello again,

It looks like one of my 3 attachments did not attach with our comment letter. So this message includes 5 of the 7 attachments. I have one more pending.

Regards  
Donna Tisdale  
619-766-4170

11-5

# BACKCOUNTRY AGAINST DUMPS

PO Box 1275, BOULEVARD, CA 91905

Amy Baker, CPUC Project Manager  
California Public Utilities Commission  
505 Van Ness Avenue  
San Francisco CA 94102  
via [amy.baker@cpuc.ca.gov](mailto:amy.baker@cpuc.ca.gov)

August 26, 2013

**RE: A.09-08-003: FORMAL REQUEST FOR REVERSAL OF ALL CPUC APPROVALS FOR THE MISREPRESENTED AND CONTROVERSIAL CAMPO RESERVATION GROUNDWATER SOURCE FOR CONSTRUCTION OF SDG&E'S ECO SUBSTATION—SIGNIFICANT NEW ADVERSE EFFECTS ON THE ENVIRONMENT WITH CONSIDERABLY CUMULATIVE EFFECTS ON SOLE SOURCE GROUNDWATER RESOURCES; INVALID CAMPO TRIBAL APPROVAL; AND OTHER MISREPRESENTATION OF FACTS**

Dear Ms. Baker,

Thank you for sending the requested Campo Reservation water supply information included as **Attachment F of SDG&E's East County Substation Project Amended Construction Water Supply Plan (WSP)** prepared by BETA for SDG&E and revised July 3, 2012. **For the record, the CPUC has failed to respond to our July 17<sup>th</sup> Public Records Act Request for the monthly WSP invoices that SDG&E is required to produce for this project.**

The revised WSP was belatedly posted on the CPUC's project website—*after significant undisclosed earthmoving had commenced and 10,000 gallon water tankers started rolling to and from tribal wells (adjacent to tribal and off-reservation homes) that were drilled in the early 90's for the formerly proposed 600 acre Campo Landfill site<sup>1</sup> located south of Hwy 94 and south of BIA 15--far from the allegedly 'authorized' source at Campo Materials facility located on Church Road north of Hwy 94.*

Our public benefit grass-roots non-profit; Backcountry Against Dumps (BAD) was launched over two decades ago to protect groundwater resources<sup>2</sup> when the Campo Landfill was proposed for the very same Campo Reservation location where the CPUC approved mining of over 50 million gallons of precious groundwater resources. In 1993, the USEPA granted our petition and formally designated the Campo-Cottonwood Creek Sole Source Aquifer<sup>3</sup>. Since then, we have worked with many professionals and various agencies. The Campo General Council finally voted the landfill down in 2010. Groundwater concerns were high on the list of objections. The same is true today.

**After review of the revised WSP, Environmental Navigation Service's (ENSI) SE Campo Water report, the undated Muht-Hei, Inc. letter addressed to Jed Francis Inc., tribal governing documents, Professional Standards and Code of Conduct for Professional Geologists, discussions with various Campo tribal members, and other research, we hereby request a full reversal of CPUC's approvals for use of Campo well water based on but not limited to the following issues and documentation:**

**1. APPARENT VIOLATION OF CPUC RULE 1.1 BY SDG&E, TRIBAL LEADERS, ENSI AND OTHERS:**

<sup>1</sup> <http://www.cpuc.ca.gov/environment/info/dudek/ecosub/Amended%20Construction%20Water%20Supply%20Plan.pdf>

<sup>2</sup> <http://yosemite.epa.gov/water/adopt.nsf/by+State/0C53A7ECB229B3E085257921001CB658>

<sup>3</sup> Campo-Cottonwood Creek SSA: <http://www.epa.gov/region9/water/groundwater/ssa.html>; map: [http://www.epa.gov/safewater/sourcewater/pubs/qrq\\_ssamap\\_campocottonwood.pdf](http://www.epa.gov/safewater/sourcewater/pubs/qrq_ssamap_campocottonwood.pdf)

- a. **Apparent intent to deceive and potential violation of Rule 1.1** by SDG&E, Muht-Hei Inc. (MHI), several tribal leaders (including Chairman Ralph Goff and Michael Connolly, MHI Board VP), Jay Jones, PG, and his Environmental Navigation Services Inc (ENSI), and/ or their representatives: “... *never to mislead the Commission or its staff by an artifice or false statement of fact or law.*”<sup>4</sup>
- b. **Factual Misrepresentation of actual location of the bulk water source (wells)** that is contrary to the Campo Materials Facility<sup>5</sup> source referenced in the undated MHI letter to Jed Francis, Inc., (see Attachment 4 of ENSI report ; WSP @pg 79)
- c. **SDG&E was previously fined \$1.1 million by CPUC for misrepresentations** during the Sunrise Powerlink PTC process related to proposed routes to avoid local tribal lands.
- d. **\$200,000 of that \$1.1 million fine was to support ethics training**<sup>6</sup> for SDG&E’s officers and executives. That training was also to be made available to SDG&E’s staff in San Francisco, as well as to the PUC and outsiders.
- e. **An investigation into, and appropriate fines should apply to, current the misrepresentations made to the CPUC** that have placed sole-source groundwater resources at risk for tribal members, off-reservation residents, and cross-border residents in Jardines Del Rincon in the municipality of Tecate, Baja California, Mexico.

## 2. REPORTS OF ADVERSE IMPACTS TO DOMESTIC WELLS AND SPRING-FED SOURCES:

- a. Campo tribal members report that wells and springs that provide the sole source of water to several homes, located along BIA 15 adjacent to extraction well field, have already been impacted by bulk water sales for SDG&E’s ECO Substation.
- b. Several off-reservation neighbors also report unusual fluctuations in water pressure and availability in their wells that are located in highly fractured bedrock, since heavy pumping for bulk sales project commenced in July.
- c. No off-reservation wells were mapped or are being monitored by ENSI and no neighbors report being contacted for monitoring by anyone.
- d. Tribal members report that Campo EPA has not been involved in any water monitoring for impacts to groundwater levels, water quality, or to biological or cultural resources—in violation of governing documents.

## 3. FAILURE TO ENSURE “COMPLIANCE WITH ALL APPLICABLE RULES & LAWS” INCLUDING CEQA REQUIREMENTS & WATER SUPPLY PLAN:

- a. CEQA requires “ensuring informed governmental decisions”.
- a. Identifying ways to avoid or reduce environmental damage through mitigation or project alternatives, and providing for public disclosure (14 CCR § 15002(a)(1)-(4));
- b. CEQA requirements apply to government action including “activities directly undertaken by a governmental agency, activities financed in whole or in part by a governmental agency, or private activities which require approval from a governmental agency” (14 CCR § 15002(b)(1)-(2);
- c. CEQA also applies to private actions if the action includes governmental participation, financing, or approval (14 CCR § 15002(c); 14 CCR § 15378(a)(2))<sup>7</sup>.
- d. **Failure to comply with MM HYD -3.**
- e. Failure to provide evidence of compliance with “*all applicable laws and regulations*” including Campo tribal governing documents: *Campo Constitution; Campo Land Use Plan; Campo Land Use Code; Campo EPA regulations.*

I1-6  
Cont.

<sup>4</sup> [http://www.cpuc.ca.gov/rpp/#\\_Toc294700796](http://www.cpuc.ca.gov/rpp/#_Toc294700796)

<sup>5</sup> Campo Materials: <http://www.campo-nsn.gov/materials.html>

<sup>6</sup> <http://www.utsandiego.com/news/2009/Mar/07/1b7sdge215517-sdgame-set-pay-after-misstating-sun/?zIndex#article-copy>

<sup>7</sup>



- f. Failure of SDG&E's Project Director to effectively "*comply with all project policies, requirements, and procedures*" as required by the MMCRP<sup>8</sup>.
- g. Failure to ensure or provide documentation of *compliance with governing documents of the Campo Band*, including their constitutional requirement for approval by a vote of a quorum of 20% of their adult General Council members for "selling of assets".
- h. Failure to comply with MM-HYD 3 to ensure compliance "*prior to construction*" and mitigate project impacts that "*could deplete local water supplies*"
- i. Inadequate, invalid, and misleading documentation provided by SDG&E through ENSI and Muht-Hei, Inc. that failed to clearly disclose the actual location of controversial wells HG 21 A, HG 31 and HG 60 at the site of the previously proposed Campo Landfill<sup>9</sup> site in the SE corner of tribal lands, and impacts.

**4. FALSE STATEMENTS OF FACT: ALLEGEDLY "AUTHORIZED" TRIBAL WELLS ARE NOT THE WELLS BEING MINED FOR EXPORT TO THE ECO SUBSTATION PROJECT:**

- a. The undated Muht-Hei, Inc. (MHI) *Sales and Storage Agreement* letter addressed to Jed Francis (attachment # 4 of the ENSI Report), was signed by MHI President, Marcus Cuero, and Chairman Ralph Goff, and states that: "...MHI is granting JFI the right to use water at the CMC facility".
- b. The MHI letter *only references the Campo Materials facility, which has numerous violations as recorded in the recent Shu'luuk Wind Draft EIS.*
- c. Contrarily, ENSI SE Campo ground water report does not cover Campo Materials water sources.
- d. Campo Materials facility is located at 36501 Church Road, Campo, CA 91906, in the Diabold Creek watershed<sup>10</sup>, which is several miles to the north, of the current extraction well field that is located in the Upper Campo Creek recharge zone and watershed.
- e. The ENSI Report, signed by Jay W. Jones, PG # 4106, only covers specific wells located in the Upper Campo Creek recharge area south of BIA 15 and west of BIA 10 and the railroad tracks. (See ENSI Report Figures 2, 3 and 4)
- f. The ENSI Report does not identify or map the numerous domestic tribal and off-reservation wells that are well within any potential impact zone within our highly fractured and federally designated Campo-Cottonwood Creek Sole Source Aquifer.
- g. Nor did the ENSI Report, or any other publicized information, provide any maps showing the existence and location of the adjacent tribal and off-reservation wells located at homes in the impacted neighborhoods near BIA 10 and BIA 15.
- h. Jay Jones has been professionally involved with the Campo Band, Chairman Goff, and with Michael Connolly, former Director of Campo EPA and former tribal Treasurer, since the early days of the Campo Landfill proposal. None of them can claim ignorance.

**5. FAILURE TO COMPLY WITH GOVERNING DOCUMENTS FOR THE CAMPO BAND & INDIAN CIVIL RIGHTS ACT:**

- a. Non-compliance with the Campo Land Use Plan; Campo Land Use Code; Constitution (Article IV Section 1 c,d,g,h,i; Article 6 Section 4 (meetings), and Campo EPA's regulations.
- b. Lack of compliance with required tribal notification and public hearings with detailed project information needed for informed decision making.
- c. Lack of documentation of valid General Council approval by the required majority (20% per constitution)<sup>11</sup>-- as required for permits and/or the sale of any tribal "assets"<sup>12</sup>.

11-6  
Cont.

<sup>8</sup> <http://www.cpuc.ca.gov/environment/info/dudek/ecosub/MMCRP.pdf>

<sup>9</sup> Map of Campo Landfill site from Campo's own website: <http://www.campolandfill.com/map.html>

<sup>10</sup> <http://www.campo-nsn.gov/materials.html>; <https://plus.google.com/108053712116746836317/about?gl=US&hl=en-US>

- d. Failure to comply with tribal regulations requiring Campo EPA (CEPA) review, comment, permitting and monitoring as required by both the Campo Land Use Plan<sup>13</sup> and Land Use Code documents that repeatedly state CEPA 'shall' be involved.
- e. **The Campo Band's own website includes the following statement, front and center:**  
 "The Campo Indian Reservation is governed under authority of the Campo Constitution passed by the tribal community on July 13, 1975. Under the Campo Constitution the lawmaking authority for the Band is exercised by a General Council comprised of all adult members (18 & older). An Executive Committee of elected members executed policy and resolutions passed by the General Council. Some Powers of the General Council have been delegated by resolution to the Executive Committee, however, all matters involving the leasing or selling of tribal assets must go to the General Council for approval".(emphasis added)
- f. Failure to conduct public /tribal review or provide opportunity to challenge the misleading, inaccurate, and limited information in the Environment Navigation Services Inc (ENSI) Report dated June 14, 2013 addressed to Jed Francis Inc (JFI).
- g. **Perceived violation of the equal protections and due process provisions of the Indian Civil Rights Act** (1968), 25 U.S.C. Secs. 1301 et seq "8. deny to any person within its jurisdiction the equal protection of its laws or deprive any person of liberty or property without due process of law".<sup>14</sup>
- h. Failure to comply with Environmental Justice requirements.

6. **PERCEIVED VIOLATIONS BY MUHT-HEI INC:**

- a. MHI's failure to comply with tribal governing documents and regulations and misrepresentation of bulk water sales, failure to provide details or disclose cumulative impacts from both bulk water sales and concrete sales consuming high levels of water assets at two separate locations on tribal lands<sup>15</sup>.
- b. **Misrepresentation of the tribal authorization requirements**, by claiming that MHI had full approval authority when, in fact, they do not.
- c. Failure to properly disclose or to inform the General Council of the extent, intensity of the water sales, the necessary road widening, removal of Quino Checkerspot Butterfly habitat, cumulatively considerable impacts related to both water sales and concrete sales (with related water consumption) or up to 14 month duration of the "project".
- d. **The June 2013 MHI report to the General Council included these two vague project descriptions:**
  - i. **"Water sales**-MHI is working with the Executive Committee to do limited water sales for construction over the next few months."
  - ii. **"Campo Materials**-A large contract to provide concrete to construction projects in the region should start in July."
- e. Failure to comply with Campo Constitutional requirement for a General Council vote on the sale of water "assets".
- f. Tribal leaders, including the MHI Board and Chairman Goff, reportedly failed to show up for their own General Council meeting they had called for August 11<sup>th</sup>.
- g. Tribal members claim their leaders absence was intentional in order to avoid an organized backlash from many Campo tribal members who wanted to shut down the bulk water sales.

I1-6  
Cont.

<sup>11</sup> See attached Campo Constitution

<sup>12</sup> <http://www.campo-nsn.gov/leaders.html>

<sup>13</sup> See attached Campo Land Use Plan and Land Use Code documents

<sup>14</sup> <http://www.answers.com/topic/indian-civil-rights-act#ixzz2bOKkVulz>

<sup>15</sup> MHI report to General Council dated 6-9-13: attached

- h. Recall efforts are reportedly underway along with alleged internal tribal sabotage of the bulk water storage equipment.

**7. PERCEIVED VIOLATION OF 2013 PROFESSIONAL GEOLOGIST AND GEOPHYSICIST ACT<sup>16</sup> AND CODE OF PROFESSIONAL CONDUCT<sup>17</sup> BY JAY JONES, PG, THROUGH HIS VASTLY INADEQUATE AND MISREPRESENTATIVE ENSI SE CAMPO WATER SUPPLY EVALUATION REPORT:**

- a. **Violation of 7810.1. Protection of the public:**
- b. Protection of the public shall be the highest priority for the board in exercising its licensing, regulatory, and disciplinary functions. Whenever the protection of the public is inconsistent with other interests sought to be promoted, the protection of the public shall be paramount
- c. Misrepresentation, fraud, or deceit by a geologist or geophysicist in his or her practice.
- d. Negligence or incompetence by a geologist or geophysicist in his or her practice.
- e. Conduct in the course of practice as a geologist or geophysicist that violates professional standards adopted by the board.
- f. Aiding or abetting any person in a violation of this chapter or any regulation adopted by the board pursuant to this chapter
- g. **Board for Geologists and Geophysicists Code of Professional Standards – California Code of Regulations (CCR) Title 16, Division 29 §3065 was amended (effective April 25, 2008) to read as follows:** “To protect and safeguard the health, safety, welfare, and property of the public, and California's environmental quality, every person who is licensed by the Board for Geologists and Geophysicists (Board) as a professional geologist or professional geophysicist, including licensees employed in any manner by a governmental entity or in private practice, shall comply with the professional standards in this section. A violation of any of the following professional standards shall constitute unprofessional conduct and shall be sufficient grounds for disciplinary action.
- h. (a) Compliance with Applicable Law:
- i. Professional Standards and Code of Professional Conduct - Professional Geology and Geophysics. A licensee shall provide all geologic and geophysical services in a manner consistent with applicable laws, codes, ordinances, rules and regulations.
- j. Failure to address cumulative impact projects, including concrete sales from the Campo Materials Facility that will also require significant amounts of limited groundwater supplies.
- k. Failure to conduct pre-project static water levels at all wells within .05 miles (which is vastly inadequate in our highly fractured aquifer), or to require on-going monitoring of water levels and water quality to protect existing tribal and off-reservation uses.
- l. Failure to address off-reservation impacts and cumulative impacts to sole source groundwater supplies in the highly fractured federally designated Campo-Cottonwood Creek Sole Source Aquifer.

**8. Discrepancies between ENSI Report and other available reports and/or analyses for the same wells and /or same general area within the federally designated Campo-Cottonwood Creek Sol Source Aquifer:**

- a. Discrepancies within the ENSI report and with ENSI reference documents from other tribal projects (Campo Landfill; Shu’luuk Wind), including well production and sustainability.
- b. ENSI Report Attachment 3 discloses inadequate “1-hour air lift test” with estimated production for HG-21A & HG-31 and HG 60, and claims that well locations and logs are

I1-6  
Cont.

<sup>16</sup> [http://www.bpelsg.ca.gov/laws/gg\\_act.pdf](http://www.bpelsg.ca.gov/laws/gg_act.pdf)

<sup>17</sup> <http://www.bpelsg.ca.gov/laws/475.pdf>

- confidential when, in fact, they were previously publicized and distributed in documents for Shu'luuk Wind and the Campo Landfill.
- c. AECOM 2012 report<sup>18</sup> @ page 12 shows 50% of Shu'luuk Wind water needs for first three months (88 gpm) would need to come from sources other than wells HG 31 & HG 60 (attached)
  - d. San Diego County comments on Shu'luuk Wind DEIS<sup>19</sup> strongly recommended that off-reservation well interference monitoring and aquifer analyses were needed if Wells HG-31 and HG 60 were going to be used for Shu'luuk Wind construction.
  - e. Dr. V. M. Ponce's formal review on the Shu'luuk Wind<sup>20</sup> project and cumulative project impacts concluded that only 39 AcFt could be safely extracted annually from the local aquifer—not the 164-175 AcFt supported by the ENSI report.
  - f. Failure to notify adjacent tribal and private well owners of this potential threat to our only source of water and invitation to participate in monitoring program as required by MM HYD 3 and tribal regulations
  - g. No Map in ENSI Report showing the location of the Campo Materials water source referenced in the undated Muht-Hei Inc letter to JFI or the distance between the location of the actual well water source referenced in the ENSI Report.
  - h. No maps showing the location of the tribal and private domestic wells that are well within the zone of influence for adverse impacts to water levels, water quality, including potential overdraft.
  - i. SDSU Professor, Dr. Victor M. Ponce's<sup>21</sup> 2006 Campo Landfill impact study, using 1992 Dames & Moore Campo Landfill EIS maps, states the following: *"Many of the identified fracture alignments cross the landfill site in a predominantly west-east direction. At least fourteen (14) fracture alignments cross the boundary between the Campo Indian reservation and privately owned land immediately east of it (Fig. 11)".*<sup>22</sup>
  - j. The ENSI Report provides no evidence or identification of either on-reservation or off-site monitoring wells as required by MM HYD and the Campo Land Use Plan and Land Use Code.
  - k. Nor is there any evidence of pre-operation monitoring data establishing baseline conditions upon which to determine well interference--as required.
  - l. No evidence of metering or mandated restrictions or curtailment in light of adverse impacts to source wells and / or adjacent residential wells.
  - m. No attempt to mitigate adverse impacts to water quality, water quantity, increased energy to pump water from lower depths in impacted wells, or adverse impacts to existing adjacent springs or already stressed oak woodlands—that are part of the local ecological system.
  - n. No evidence of GHG emissions analysis for diesel fueled generator(s) that are now pumping groundwater into multiple storage bladders documented in photographs by tribal members.
  - o. Dr. Ponce did conduct a cumulative impact analysis of groundwater impacts for large-scale energy projects planned in the same general area.<sup>23</sup>
  - p. USEPA letter on Campo Landfill Re-circulated DEIS (May 12, 2010) rated the document as Environmental Concerns – Insufficient Information (EC-2) seeking more protection for groundwater<sup>24</sup>:

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Cont.

<sup>18</sup> AECOM 2012 Shu'luuk Wind DEIS Groundwater Analysis report attached ([www.shuluukwind.com](http://www.shuluukwind.com) has been shutdown)

<sup>19</sup> County of San Diego Shu'luuk Wind DEIS comments to BIA Superintendent Eben dated February 25, 2013

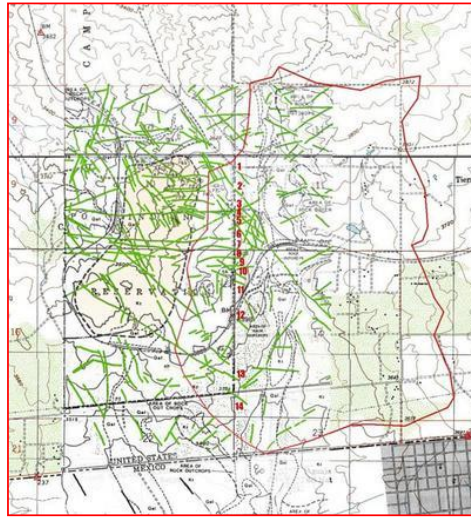
<sup>20</sup> <http://ponce.tv/shuluuk.html>

<sup>21</sup> Dr Ponce's bio: [http://www.victormiguelponce.com/520biographical\\_sketch.html](http://www.victormiguelponce.com/520biographical_sketch.html)

<sup>22</sup> See Figure 11 of Dr. Ponce's report: [http://ponce.sdsu.edu/tierra\\_del\\_sol\\_study.html](http://ponce.sdsu.edu/tierra_del_sol_study.html)

<sup>23</sup> <http://ponce.tv/boulevardenergy.html>

<sup>24</sup> <http://www.epa.gov/region9/nepa/letters/CampoRegLandfill-ProjCampoIndianResDSEIS.pdf>



The map with fractures 1-14 was taken from Dr Ponce's 2006 report dated

- q. USEPA comment letter on Shu'luuk Wind DEIS, dated 3-4-13, included the following:  
**"Groundwater supply** The DEIS indicates that water demand during the construction phase could exceed the yield of the on-Reservation groundwater wells for the first 3 months of construction activity but would be supplemented by water purchased from other on- or off-Reservation sources and, possibly, from the use of reclaimed water from the Tribe's Acorn Casino (p. 4.2-5). The DEIS states that water levels in supply wells and monitoring wells would be monitored throughout project construction to ensure drawdown does not exceed current modeling estimates and, if drawdown exceeds modeling estimates, the applicant would purchase additional supply from off-Reservation sources (p. 4.2-6). It is not clear whether water purchase would be triggered by the drawdown of the wells or by the amount of water used during construction. The modeling estimates seem to reference amount of water used, not well water drawdown. It is also not clear if there would be other impacts from groundwater use during the construction phase, such as drawdown impacts to other water wells in the vicinity. **Recommendation:** Clarify the groundwater monitoring commitment and identify it as a mitigation measure with additional information regarding the conditions that would trigger on and off-Reservation water purchase. Discuss potential impacts to other groundwater wells. We encourage the use of reclaimed water to the extent permissible by the California state regulations for reclaimed wastewater referenced on p. 3.2-8.

9. **CAMPO WELL WATER IS THE SECOND UNAUTHORIZED LOCAL GROUNDWATER SOURCE FROM THE CAMPO-COTTONWOOD CREEK SOLE SOURCE AQUIFER APPROVED BY CPUC FOR SDG&E'S ECO SUBSTATION:**

- a. In March 2013, the CPUC's Division of Water Audits suspended unauthorized bulk water sales from the controversial Live Oak Springs Water Company—*after Live Oak Springs Water was approved for the ECO Substation WSP*<sup>25</sup>.
- b. CPUC Project Manager, Amy Baker, confirmed being informed by DWA of that unauthorized bulk water sales from Live Oak Springs Water were suspended.

I1-6  
Cont.

<sup>25</sup> CPUC DWA Notice of Violation to Live Oak Springs Water dated 3-28-13



- c. San Diego County Groundwater Geologist, Jim Bennett, has confirmed that Planning and Development Services is advising project developers to remove Live Oak Springs as a source for their projects<sup>26</sup>.
- d. However, Live Oak Springs Water Company is still listed as a source on the Revised WSP, dated July 3, 2013, despite CPUC staff recommendations for over \$1 million in fines for misrepresentations made Live Oak Springs representatives during the CPUC initiated investigation<sup>27</sup>, and a long history of non-compliance and violations.
- e. ECO Substation FEIR D.12 Water Resources<sup>28</sup> section did not address use of groundwater resources from sovereign nations out of reach of local enforcement agencies
- f. Both Campo and Live Oak Springs Water sources should be removed from the ECO Substation WSP as non-compliant.

**10. NO RESPONSE FROM THE BUREAU OF INDIAN AFFAIRS, THE CAMPO EPA, OR LEADERSHIP:**

- a. Written requests for information sent on July 26<sup>th</sup> to Amy Dutsche, Regional Director of the Bureau of Indian Affairs, Ralph Goff Campo Chairman, and Melissa Estes, Director of Campo EPA, have not yet been responded to.
- b. A direct phone call to Campo EPA Director referred all questions to Chairman Goff's office. Tribal members also report a lack of information and or/ inadequate responses from their leaders and that the Campo EPA has been directed to stand down in violation of governing documents.
- c. Tribal leaders failed to show up at the August 11<sup>th</sup> General Council meeting that they had scheduled themselves via notices mailed to all adult Campo tribal members of voting age.

**11. RELEVANT WATER IMPACT REPORTS PRODUCED BY SDSU'S DR. V.M. PONCE:**

- a. Since the late 1980's we have worked with a variety of agencies and professionals, including San Diego County groundwater geologists on long-term groundwater monitoring; and with San Diego State University Professor, Dr. Victor Miguel Ponce<sup>29</sup>, to document, study, and help protect groundwater resources that are the life blood of our arid high-desert.
- b. Dr. Ponce is a recognized expert in this field and has many published papers and reports available on his website, including the following that directly address potential impacts to local groundwater supplies from proposed large-scale projects<sup>30</sup>:
- c. Dr Ponce's review and analysis of Shu'luuk Wind Project DEIS includes the following<sup>31</sup> (AECOM 2012a):
  - a. Figure 3 shows locations of both Campo Materials facility located on Church Road;
  - b. figure 2 shows two of the wells used for the ENSI report;
  - c. Figure 6 shows a map of the well field and surrounding areas crisscrossed by dozens of potentially water bearing fractures connecting both tribal and off-site wells domestic wells with the well field.
- d. Dr Ponce has produced the following relevant reports that address groundwater and project related impacts:
  - i. CUMULATIVE IMPACTS ON WATER RESOURCES OF LARGE-SCALE ENERGY PROJECTS IN BOULEVARD AND SURROUNDING COMMUNITIES, SAN DIEGO COUNTY, CALIFORNIA April 30, 2013<sup>32</sup>:

I1-6  
Cont.

<sup>26</sup> Personal conversation

<sup>27</sup> CPUC DWA investigation:

<sup>28</sup> [http://www.cpuc.ca.gov/environment/info/dudek/ecosub/Final\\_EIR/D.12\\_Water\\_Resources.pdf](http://www.cpuc.ca.gov/environment/info/dudek/ecosub/Final_EIR/D.12_Water_Resources.pdf)

<sup>29</sup> <http://ponce.sdsu.edu/biographicalsketch.html>

<sup>30</sup> <http://ponce.tv/>

<sup>31</sup> <http://ponce.tv/shuluuk.html>

- ii. 2010 comments on the DEIS for the Campo Landfill impacts to groundwater resources and : [http://ponce.tv/comments\\_to\\_dseis\\_100505.html](http://ponce.tv/comments_to_dseis_100505.html)
- iii. 2006 report on the Campo Landfill: IMPACT OF THE PROPOSED CAMPO LANDFILL ON THE HYDROLOGY OF THE TIERRA DEL SOL WATERSHED A REFERENCE STUDY [http://ponce.tv/tierra\\_del\\_sol\\_study.html](http://ponce.tv/tierra_del_sol_study.html)
- iv. 2006 Brief History on the Campo Valley: [http://ponce.tv/campo\\_valley\\_hydrology\\_history.html](http://ponce.tv/campo_valley_hydrology_history.html)
- v. Additional technical reports: [http://ponce.tv/5803technical\\_reports.html](http://ponce.tv/5803technical_reports.html)

In the last three years, the Campo Band's General Council voted down both the Campo Landfill and the Shu'luuk Wind projects. Based on the calls I am getting, I believe the General Council will likely vote down the selling of their priceless water resource "assets" to JFI or to any other party, or will recall them—if their laws are followed and their right to vote is not denied by their current ethically challenged leadership, they will find a way to vote.

Please reverse/revoke any Campo groundwater source approvals now and in the future, based in part on non-compliance and the lack of State jurisdiction to enforce or ensure adequate environmental protections.

Please forward this letter to the appropriate decision maker. My apologies for not producing a more polished letter. Any errors or omissions are unintentional. However, time is of the essence and the big water trucks must be stopped.

Sincerely,



Donna Tisdale, President

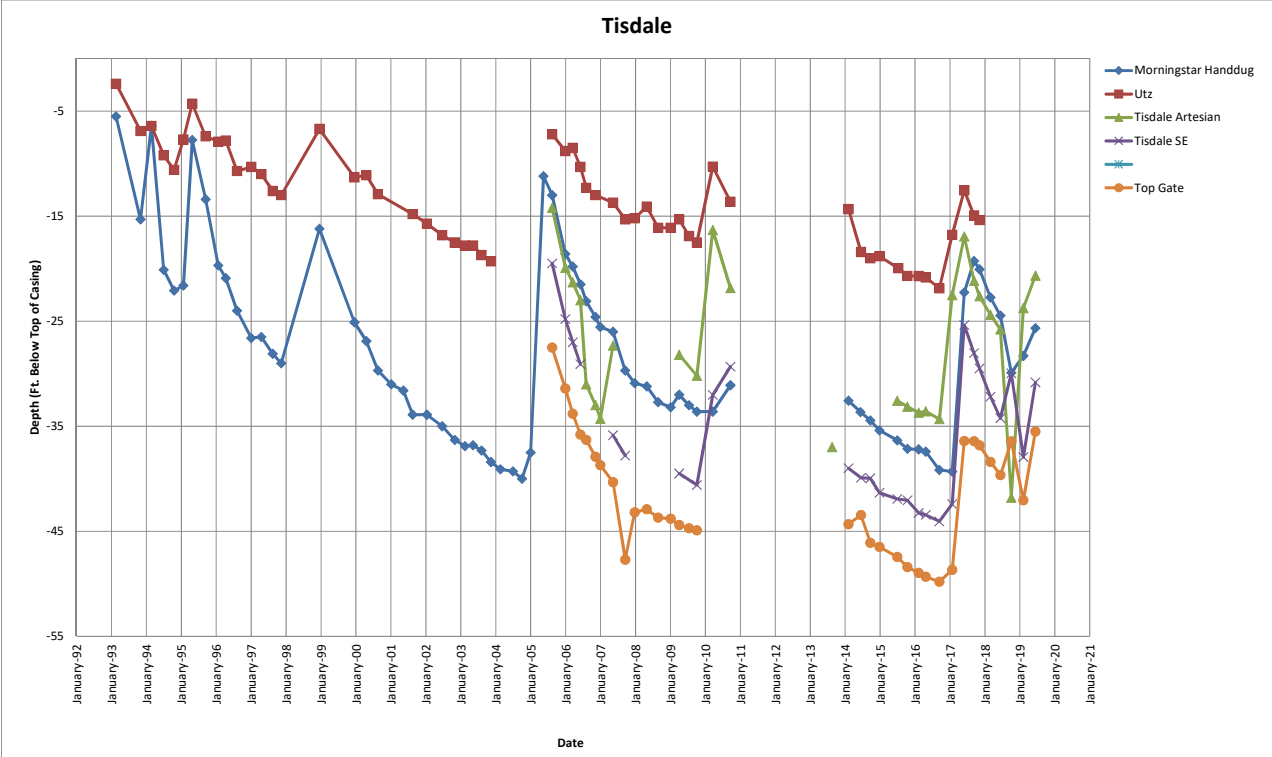
619-766-4170

[tisdale.donna@gmail.com](mailto:tisdale.donna@gmail.com)

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<sup>32</sup> <http://ponce.tv/boulevardenergy.html>



I1-6  
Cont.

**DRAFT ENVIRONMENTAL IMPACT STATEMENT**

**CAMPO  
SOLID WASTE MANAGEMENT  
PROJECT**

**CAMPO INDIAN RESERVATION  
SAN DIEGO COUNTY, CALIFORNIA**

**February 1992**



**Prepared for the Lead Agency:  
U.S. Department of the Interior  
Bureau of Indian Affairs**

**Cooperating Agencies:  
Campo Band of Mission Indians  
Campo Environmental Protection Agency**

11-7





emergency vehicle, an illegal muffler, or other anomalous event occurred during the hour of 8:00 to 9:00 P.M. on January 8. The maximum noise level during this hour was 96 dB and the  $L_{eq}$  was 65.5 dB.

Table 3.10-2

## Short-Term Measured Noise Levels and Traffic Data

<i>Location</i> <sup>1</sup>	<i>Date</i>	<i>Distance</i> <sup>2</sup> (feet)	<i>Time</i>	<i>L<sub>eq</sub></i> <sup>3</sup>	<i>Cars</i>	<i>Medium Trucks</i>	<i>Heavy Trucks</i>
A	1/9/91	40	7:50-8:10 A.M.	62	24	0	2
B	1/9/91	40	8:25-8:45 A.M.	64	27	0	2
C	1/8/91	200	4:25-4:40 P.M.	65	516	3	45
D	1/8/91	--	3:50-3:55 P.M.	29	--	--	--
E	1/8/91	--	3:25-3:30 P.M.	25	--	--	--

- Notes:**
- Noise measurement locations (see Figure 3.10-1) are as follows:
    - Buckman Springs Road; south of Lake Morena Drive.
    - SR-94; west of La Posta Road.
    - Interstate 8; east of Cameron Interchange.
    - Reservation; west side, south of SR-94.
    - Reservation; southeastern property line.
  - Distance of noise measurement location from the centerline of the road.
  - $L_{eq}$  = The average A-weighted noise level during the measurement period.

No measurements were conducted at Old Highway 80 or Live Oak Springs Road, but noise levels are expected to be comparable to the levels calculated for La Posta Road, since the traffic volumes are similar.

Existing  $L_{eq}$  noise levels were calculated based on the current traffic volume for the roads using the Federal Highway Administration Traffic Noise Prediction Model - Stamina 2.0 and California Vehicle Noise (CALVENO) emission factors. The model is based upon the Federal Highway Traffic Noise Model (FHWA-RD-77-108). The model calculates the  $L_{eq}$  noise level for a particular reference set of input conditions, and makes a series of adjustments for site-specific traffic volumes and truck percentages, distances, speeds, and noise barriers. The distances to various existing peak-hour noise levels are shown in Table 3.10-4. The contour distances assume there is no intervening topography or buildings which would attenuate the traffic noise.

### 3.10.2 Proposed Site

The closest residence to the Proposed Site is located off the reservation approximately 2,100 feet from the eastern edge of the proposed landfill area; another residence is 3,200 feet to the east. The nearest residence on the reservation is at a distance of about 3,500 feet from the western edge of the Proposed Site. Other homes are also located to the north, south and east at

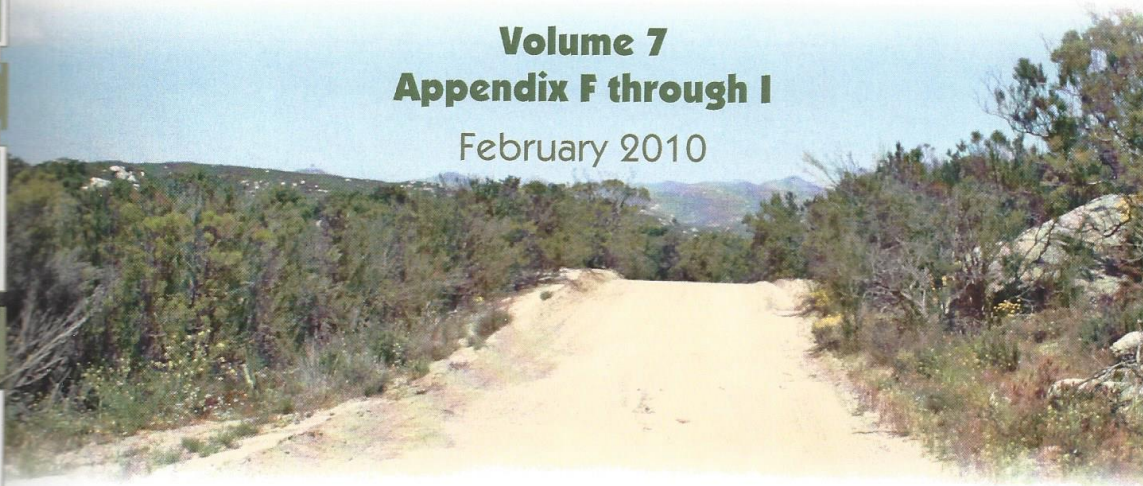
Public Draft Supplemental  
Environmental Impact Statement

# **CAMPO REGIONAL LANDFILL PROJECT**

**Campo Indian Reservation  
San Diego County, California**

**Volume 7  
Appendix F through I**

February 2010



Prepared for the Lead Agency:  
U.S. Department of the Interior  
Bureau of Indian Affairs  
Pacific Region

Cooperating Agencies:  
Campo Band of Mission Indians  
Campo Environmental Protection Agency  
U.S. Environmental Protection Agency

I1-8



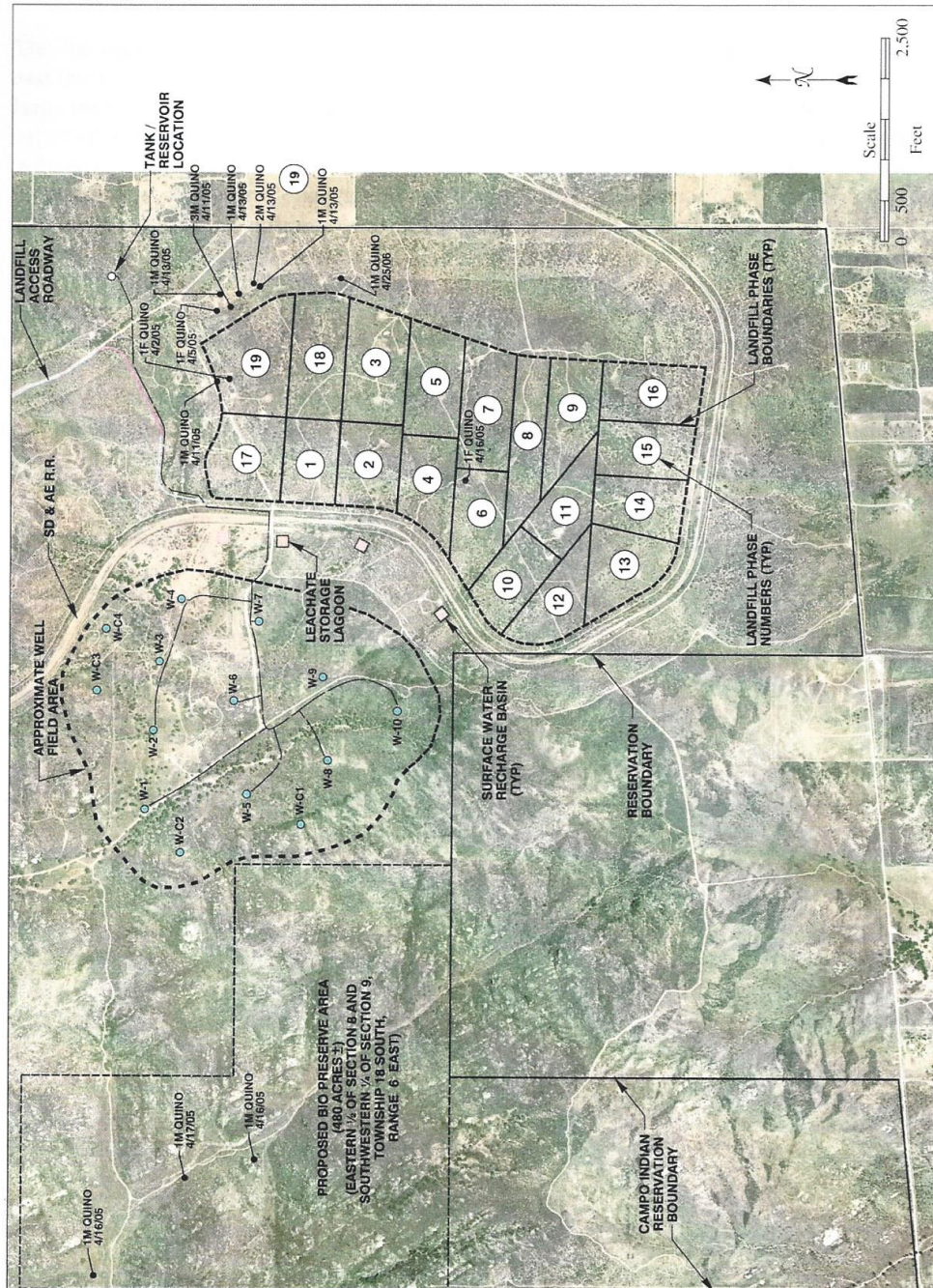


Figure 3-1. Project Vicinity and Quino Siting Locations



WI #18-063

July 7, 2019

Donna Tisdale  
Backcountry Against Dumps  
PO Box 1275  
Boulevard, California 91905

Subject: Review of Campo Wind Project and Boulder Brush Facilities DEIS Noise Analysis

Dear Donna Tisdale,

As requested, below please find our review of the environmental noise analysis<sup>1</sup> for the Campo Wind DEIS<sup>2</sup> prepared by Dudek for the Campo Wind Project with Boulder Brush Facilities (Project).

#### Reviewer Qualifications:

This review was led by Dr. Richard A. Carman. Dr. Carman has been an acoustical consultant with Wilson Ihrig for 33 years and is now semi-retired since 2017. His acoustical consulting work has included both large and small environmental studies to evaluate noise and vibration impacts on local communities. He has been the noise and vibration consultant on numerous EIR and EIS projects and is very familiar with establishing noise criteria, assessment of impacts and their mitigation. He has also consulted on many projects on the acoustical evaluation and design of building interiors and the noise control for indoor and outdoor mechanical equipment. He is the primary author on numerous articles on noise and acoustics as well as noise conference presentations. He was the Principal Investigator on two large research studies<sup>3,4</sup> conducted under the auspices of the National Academy of Sciences, Engineering and Medicine – Transportation Research Board. He received his Ph.D. in

<sup>1</sup> DRAFT Acoustical Analysis Report for the Campo Wind Project and Boulder Brush Facilities, prepared by Dudek for the Bureau of Indian Affairs, May 2019.

<sup>2</sup> DRAFT Environmental Impact Statement for the Campo Wind Project with Boulder Brush Facilities, prepared by Dudek for the Bureau of Indian Affairs, May 2019.

<sup>3</sup> NHCPR Research Report 25-25/Task 72, Current Practices to Address Construction Vibration and Potential Effects on Historic Buildings Adjacent to Transportation Projects, sponsored by the AASHTO Committee on Environment and Sustainability, September 2012.

<sup>4</sup> ACRP Research Report 175, Improving Speech Intelligibility of Airport Terminal Public Address Systems, sponsored by the Federal Aviation Administration, 2017.

mechanical engineering from U.C. Berkeley and is a licensed Mechanical Engineer in the State of California.

## 1 Summary:

We conclude that the noise analysis is deficient for the following reasons:

1. The DEIS preparer relied on three federal documents and two San Diego County ordinances for regulatory criteria and neglected to address other relevant government criteria.
2. The analysis fails to recognize a limitation of the preparer's noise logging instrumentation, which was used to measure and characterize the existing ambient noise in the Project area. The instrument used has an internal "noise floor" that prevents it from measuring noise levels less than 30 dBA. Noise levels in many locations in the Project area are less than this throughout the day, in particular those away from local roadways. Noise levels less than 30 dBA have been documented in measurements by others. The consequence is an overstatement of the existing ambient noise resulting in an incorrect assessment of the impact of Project noise.
3. The analysis fails to address the substantial increase in ambient noise that would occur in the operational phase of the Project resulting in a significant impact to Noise Sensitive Local Uses (NSLUs). Federal guidelines<sup>5</sup>, which Dudek used to assess Project construction noise, were not used to assess Project impacts that would be caused by increases in ambient noise caused by the Project in the operational phase. Application of these federal guidelines indicate a substantial increase in noise resulting in a significant impact.
4. The analysis fails to adequately address the effects of low frequency noise on NSLUs.
5. The analysis fails to adequately address the effects on NSLUs of "amplitude modulation" associated with low frequency wind turbine noise.
6. The analysis fails to adequately address the effects of infrasound on NSLUs.
7. The DEIS noise analysis relies on the computer program CadnaA to predict noise generated by Project wind turbines. Although CadnaA was not intended to be applied to prediction of noise generated by large wind turbines due to inherent limitations in the modeling methodology, the DEIS claims to overcome these limitations by introducing a factor of conservatism recommended by a wind turbine acoustics report<sup>6</sup>. In spite of this claimed conservatism, the DEIS understates noise impacts.

I1-9  
Cont.

<sup>5</sup> FTA (Federal Transit Administration), Transit Noise and Vibration Impact Assessment, May 2006.

<sup>6</sup> RSG (Resource Systems Group, Inc.), Massachusetts Study on Wind Turbine Acoustics, Report 2.18.2016, 2016.



## 2 Regulatory Setting

Dudek relied on three federal guidelines<sup>7,8,9</sup> and two San Diego County noise ordinances<sup>10,11</sup> to establish significance criteria for Project generated noise. When assessing operational noise impacts to NSLUs on private land the analysis relies on San Diego County noise ordinances No. 9962 and No. 10262. County ordinance No. 9962 sets absolute limits on A-weighted noise based on the time of day (i.e., 50 dBA for daytime and 45 dBA for nighttime). County ordinance No. 10262 sets a limit on C-weighted noise relative to the A-weighted ambient noise.

The Project DEIS uses FTA guidelines to establish significance criteria for construction noise and vibration impact assessment. However, the DEIS ignores FTA criteria for operational noise. The FTA construction noise and vibration criteria recommend limiting daytime noise for residential land use to 80 dBA energy-averaged over an 8-hour period ( $L_{eq}(8hr)$ ). The Project DEIS uses an FTA vibration criterion of 0.2 inches per second (ips) PPV to limit damage to “non-engineered structures.” Although this is generally accepted practice, this criterion does not ensure no damage will occur to residential structures. The 0.2 ips PPV criterion is generally viewed as a “structural damage” criterion. Damage to plaster walls and drywall can occur at lower levels of vibration.

The Project DEIS noise analysis uses the U.S. Bureau of Land Management (BLM) noise criterion for rural land (RU) to assess noise impacts to the local population residing on the Campo Indian reservation. While the primary purpose of this review pertains to impacts to NSLUs on private land, we would comment that the BLM noise criterion relies on criteria in the 1974 EPA document. The EPA criteria is commonly referred to as “absolute” (i.e., levels not to be exceeded) noise criteria. We include the following quote from the 1974 EPA guidelines:

*Not all of the scientific work that is required for basing such levels of environmental noise on precise objective factors has been completed. Some investigations are currently underway, and the need for others has been identified.*

More recent criteria reflect contemporary thinking on noise impacts as expressed in the current FTA guidelines, which combine absolute criteria and “relative” (i.e., change in level) criteria. Relative noise criteria accounts for the impact due to increases in ambient noise that are caused by new (i.e., Project) noise sources. The FTA criteria for operational noise impacts are discussed below.

### 2.1 San Diego County Noise Criteria

San Diego County noise ordinance 9962 limits exterior noise in rural areas (zoned RU) to a one-hour average of 50 dBA during daytime hours (7 a.m. to 10 p.m.) and 45 dBA during nighttime hours (10

<sup>7</sup> U.S. Department of the Interior Bureau of Land Management, Final Programmatic Environmental Impact Statement on Wind Energy Development on BLM-Administered Land in the Western United States, June 2005.

<sup>8</sup> EPA (U.S. Environmental Protection Agency), Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety, prepared by the U.S. Environmental Protection Agency Office of Noise Abatement and Control, 550/9-74-004, March 1974.

<sup>9</sup> FTA (Federal Transit Administration), Transit Noise and Vibration Impact Assessment, May 2006.

<sup>10</sup> San Diego County, Ordinance No. 9962 (N.S.), An Ordinance Amending Title 3, Division 6, Chapter 4 of the San Diego County Code of Regulatory Ordinances Relating to Noise Control and Abatement.

<sup>11</sup> San Diego County, Ordinance No. 10262 (N.S.), An Ordinance Amending the San Diego County Zoning Ordinance Related to Large Wind Turbines

p.m. to 7 a.m.). San Diego County noise ordinance No. 10262 imposes a limit on low-frequency noise from wind turbines as measured using C-weighting.

Ordinance 10262 defines the Residual Background Sound Criterion (RBSC<sub>L90</sub>) as the Background Sound Level measured relative to A-weighting (LA<sub>90</sub>) plus 5 dBA. Ordinance 10262 further requires preparation of an acoustical study to demonstrate compliance with Section 36.401 of Ordinance 9962 and that the C-weighted sound level from each large wind turbine does not exceed the RBSC<sub>L90</sub> criterion by more than 20 dB at the property line of the lot on which the large wind turbine is located.

## 2.2 EPA Criteria

The EPA 1974 criteria, which are incorporated in the BLM criteria, have been discussed above. For rural land use with NSLUs, the BLM absolute criterion is a limit of L<sub>dn</sub> 55 dBA, which the DEIS applies to residential land on the reservation.

The EPA in a review<sup>12</sup> of the DEIS for the Shu'luuk Wind Project commented that health impacts were not discussed and referenced the World Health Organization<sup>13</sup> recommendation that "where noise is continuous, the equivalent sound pressure level should not exceed 30 dBA indoors if negative effects on sleep are to be avoided." The EPA review letter further states that "when the noise is composed of a large proportion of low-frequency sounds, a still lower guideline is recommended, because low-frequency noise can disturb rest and sleep even at low sound pressure levels." The DEIS for the Campo Wind Project with Boulder Brush Facilities does not address this concern of the EPA.

*The DEIS fails to address the EPA concern for potential impacts on sleep due to wind turbine noise that contains substantial continuous low-frequency components.*

## 2.3 Federal Noise Criteria Ignored in the DEIS

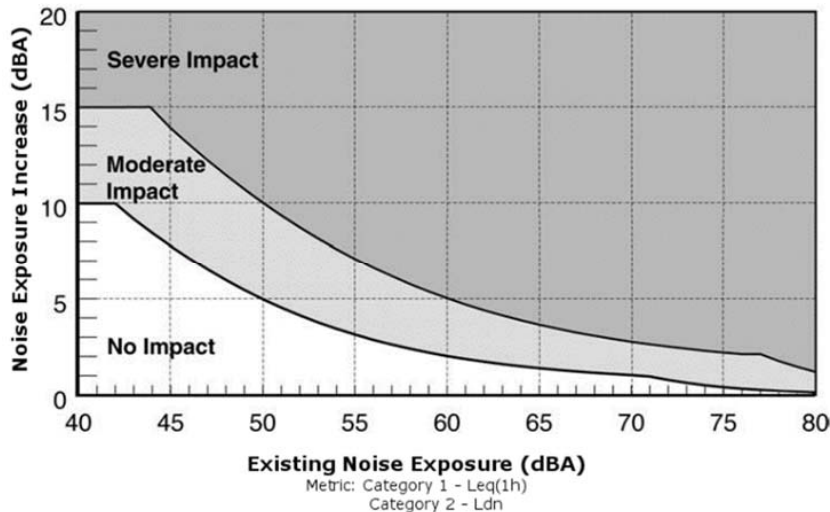
The FTA guidelines for operational noise impact assessment recognize that changes in ambient noise can adversely affect local populations. This is particularly important in rural areas (such as the Project area) where a very low ambient noise environment exists, and Project noise would result in a substantial increase over existing ambient noise. FTA criteria for project operational impacts are based on the principle that the absolute noise level alone is insufficient to assess impact and that an increase in noise generated by a project can cause significant impacts depending on the existing ambient level and the amount of increase. The FTA criteria incorporate both the existing ambient noise and the increase in noise. The reasoning behind the FTA criteria for low ambient conditions can be found in Appendix B of the FTA guidelines. Figure 1 illustrates FTA criteria for determining the level of impact as a function of the increase in ambient noise.

Much of the land surrounding the Project can be characterized as "Category 2" (i.e., residential land where nighttime sensitivity is a factor). The noise metric L<sub>dn</sub> (day-night level also denoted as DNL) is the noise metric used for Category 2 land. Where the existing ambient noise is L<sub>dn</sub> 40 dBA or less, the threshold for Moderate Impact is 10 dBA and for Severe Impact it is 15 dBA. Using County noise

<sup>12</sup> EPA, review letter dated 4 March 2013 for the DEIS, Shu'luuk Wind Project, Campo Indian Reservation, San Diego County, California (CEQ #201300001).

<sup>13</sup> See <http://www.who.int/docstore/peh/noise/Comnoise-4.pdf> p. 58.

ordinance No. 9662 alone to assess impacts to NSLUs would in some cases allow increases of 15 dBA and greater.



**Figure 1 - FTA Operational Noise Impact Criteria**

The County ordinance No. 9662 allows hourly average levels up to 50 dBA during daytime hours (7 a.m. to 10 p.m.) and 45 dBA during nighttime hours (10 p.m. to 7 a.m.). The equivalent  $L_{dn}$  based on these hourly daytime and nighttime limits is 52 dBA. We note that the BLM criteria document<sup>14</sup> indicates that an  $L_{dn}$  of 35 dBA can be expected in a typical rural environment. Consequently, if for example the existing  $L_{dn}$  is 37 dBA, then applying only the County noise limit would result in a Severe Impact (i.e., cause a 15 dBA increase) using the FTA relative criteria. Since the DEIS fails to accurately characterize the existing ambient as discussed in Section 3 below this is a real possibility.

A similar problem arises when using the absolute noise criterion for rural land of 55  $L_{dn}$  as recommended in the BLM guidelines, which rely on the 1974 EPA document. For example, if the existing  $L_{dn}$  is 37, applying only this absolute criterion would allow an 18 dBA increase, which would be a Severe Impact according to the FTA guidelines.

*The DEIS fails to consider the potential noise impacts from significant increases in ambient noise as addressed by the FTA guidelines.*

### 3 Existing Conditions

In preparing the DEIS, Dudek conducted ambient noise measurements to characterize the existing ambient noise condition at thirteen (13) locations on the Campo Indian Reservation, some at or near

<sup>14</sup> U.S. Department of the Interior Bureau of Land Management, Final Programmatic Environmental Impact Statement on Wind Energy Development on BLM-Administered Land in the Western United States, June 2005.

the reservation boundary. These measurements were limited to one twenty-four-hour (24) period at each location. The instrument used by Dudek to measure the ambient noise was a Piccolo II, Type 2 sound level meter and data logger. The manufacturer's published, specification data indicates the Piccolo II instrument is only capable of measuring sound levels equal to or greater than 30 dBA (i.e., the noise floor of the instrument).

Furthermore, since the instrument used by Dudek to measure ambient noise is a Type 2 sound level meter its accuracy is limited to  $\pm 2$  dBA. In such low background noise environments, it is necessary to use a Type 1 sound level meter with an appropriate microphone, which has a lower noise floor (capable of measuring down to 20 dBA or lower). A Type 1 sound level meter has an accuracy of  $\pm 1$  dBA.

The DEIS does not mention what type or size microphone windscreen was used or in fact if one was. Microphone windscreens are typically spherical and constructed from open-cell, porous foam. Commercially available windscreens range in size from 2.5 to 7 inches in diameter. In conducting outdoor sound measurements in low ambient noise and potential high wind conditions, a larger windscreen is imperative to minimize artificial wind noise and ensure the accuracy of measured data.

The consequence of using a smaller windscreen (e.g., 3 inch diameter) is that there is a greater likelihood that artifacts are introduced into the measured data due to noise created by air turbulence acting on the microphone. These effects can become substantial as wind speed increase. The end result is higher levels of reported noise than actually exist.

Previous measurements<sup>15</sup> in the area have documented levels less than 30 dBA. Measurements conducted at two locations (one which is in close proximity to LT-1 in the DEIS) between 15:00 and 16:00 indicated an  $L_{eq}$  (5-minute duration) of 25 and 29 dBA respectively. It is reasonable to assume that at night (i.e., 10 p.m. to 7 a.m.) the ambient noise levels are lower than this at this and other similar locations remote from roadways, but close to NSLUs. In 2018 Wilson Ihrig measured a background noise level of 25 dBA at a location close to LT-1 at approximately 16:45.

The data for LT-1 in the Campo Wind Project DEIS indicates a minimum level ( $L_{min}$ ) of 33.6 dBA for all nighttime hours. Curiously the  $L_{eq}$  for two of those hours is greater than the  $L_{min}$ , which is physically impossible. Furthermore, the statistical level noise data (i.e.,  $L_n$  or the noise level exceeded n% of the time) between 3 and 4 a.m. are all the same (e.g.,  $L_1$  and  $L_{99}$  are both 35 dBA).

A close review of the data for LT-12 indicates a serious problem. We note that the statistical noise level  $L_1$  (the level exceeded 1% of the time) is less than the  $L_5$  (the level exceeded 5% of the time) for all hours of the day and the  $L_5$  is less than the  $L_{10}$  (the level exceeded 10% of the time) from 10 a.m. until 7 p.m., both of which are impossible. A noise level that is exceeded for a longer time period cannot be greater than the level exceeded for a shorter time period (i.e., the shorter the time interval the greater the noise level). This calls into question the reliability of the instrumentation.

These are clear indications that the instrumentation used is unable to accurately measure the ambient noise when it is less than 30 dBA (i.e., the "noise floor" for the Type 2 sound level meter used). The combination of the 30 dBA noise floor of the sound level meter and the inaccuracy of the

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<sup>15</sup> DEIS, Campo Solid Waste Management Project, Campo Indian Reservation, San Diego County, California, prepared for U.S. Department of Interior, Bureau of Indian Affairs, February 1992.



Type 2 ( $\pm 2$  dBA) renders the data at lower sound levels presented in the DEIS inaccurate and unreliable.

We note that the ambient data for each location were only measured for one, 24-hour period. It is customary to measure for at least two or three days to ensure the data presented are representative and not anomalous, in particular in such low background conditions where one loud noise event can skew the  $L_{eq}$ .

*The DEIS fails to accurately characterize the existing ambient noise conditions as a result of the limitations of the noise measuring instrument(s) used and the inadequacy of measuring for only one 24-hour period.*

## 4 Impacts

### 4.1 Noise Impact Predications Based on the Computer Program CadnaA

The predicted Project noise levels for wind turbines are based on the acoustical computer program CadnaA. CadnaA incorporates the outdoor sound propagation models (i.e., formulas) contained in ISO 9613-2<sup>16</sup>. ISO 9613-2 has inherent limitations that preclude using these formulas to accurately predict wind turbine noise. Those limitations include source height and wind speed. ISO 9613-2 is intended to be used for cases where the wind speed does not exceed 5 meters/second (measured at a height of 3 to 11 meters above the ground), the noise source and receiver heights are not too dissimilar, and the source height is less than 30 meters.

The DEIS states that “wind turbines were treated as point sources located at hub height (110 meters or 361 feet) relative to grade, and receptors were assumed to be 5 feet above grade. The stated accuracy of the ISO 9613-2 formulas for a mean height of the source and receiver of between 5 meters and 30 meters is  $\pm 3$  dB. There is no stated accuracy in ISO 9613-2 for source heights greater than 30 meters. It is reasonable to believe that it would be greater than 3 dB. The proposed wind turbine hub heights are 116 meters or 86 meters greater than the specified range of applicability of ISO 9613-2 formulas.

ISO 9613-2 does not include the effects of sound refraction due to temperature or wind gradients, both of which can increase sound levels. Consequently, CadnaA does not include these effects. CadnaA would not appear to be appropriate for use in accurately predicting noise from large wind turbines.

The DEIS states that the limitations inherent in CadnaA (i.e., those of ISO 9613-2) are addressed by incorporating a “conservative factor” (i.e., +2 dB) as recommended by the RSG study<sup>17</sup>. The RSG study indicates that this 2 dB “penalty” resulted in the “greatest precision for receivers at 330 meters downwind” (i.e., at 1,072 feet). There is no mention in the RSG study of the accuracy of predications using ISO 9613-2 at other distances or other directions (e.g., upwind or crosswind). We note that it is difficult to evaluate the RSG study’s applicability to the Project and its wind turbines.

<sup>16</sup> International Standards Organization, ISO 9613-2, Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation, 1996.

<sup>17</sup> RSG, Massachusetts Study on Wind Turbine Acoustics, Report 2.18.2016, 2016.

The RSG study mentions that the wind turbines in the study were 1.5 MW and larger, but it does not specify the highest rated capacity or the range of turbine capacities. The Project wind turbines will have a rated capacity of 4.2 MW. Obviously, there is a big difference between 1.5 MW and 4.2 MW. Consequently, we question the applicability of the RSG study conclusions to the Project with regard to conservative factors that were added to the DEIS predictions.

*The DEIS fails to accurately predict Project noise levels by using a computer program based on formulas that have specified limitations and have not been validated for wind turbine noise prediction for wind turbines of the size to be constructed for the Project.*

## 4.2 Problems with the Manufacturer's Noise Data

The noise data supplied by the manufacturer is in terms of measured, sound power. Sound power is measured across the sound spectrum of importance. Based on our personal experience, it is difficult to accurately measure sound power for mechanical sources even under ideal conditions. In general, the larger the size of the noise source (machine) the more difficult it is to measure sound power accurately. Accurate sound power measurements can only be made by measuring sound radiated in all directions from a noise source.

There are methods (e.g., acoustic beamforming) that can be applied to measure sound power of large noise sources in-situ. However, no supporting documentation has been supplied in the DEIS to properly evaluate the manner in which the manufacturer's sound power data was measured and thus its accuracy. Consequently, we question the accuracy of the manufacturer's sound power measurements, particularly at lower frequencies.

Except for turbine blade noise, the main source of wind turbine noise is the generator. Unless very sophisticated means were used, it is unlikely that manufacturer's sound power measurements were made for a fully operating wind turbine given that the hub height is 116 meters. We can only surmise that the sound power measurements may have been made with the generator on the ground. At higher frequencies this may not be as much of an issue, but the wavelength of lower frequency (e.g., less than 125 Hz) sound is much longer than at higher frequencies (e.g., 1,000 Hz). For example, the wavelength of sound at 31.5 Hz is 35 feet. Accurately measuring sound power with the source on the ground of sound with a 35 foot wavelength poses a challenging if not insurmountable problem.

Typically, mechanical noise sources are directional in nature, which means that noise is not emitted uniformly in all directions. It would appear from the reported data in Appendix B of the DEIS noise analysis report that the wind turbine was modeled as an omni-directional noise source (i.e., noise is emitted uniformly in all directions). We see no evidence that the CadnaA model used in the DEIS noise analysis accounts for directionality. It is doubtful that the data pertaining to the directionality of wind turbine noise is available from the manufacturer; otherwise it would have been incorporated.

*The DEIS does indicated how the manufacturer measured noise emission data for the planned wind turbines. Consequently, it is not possible to evaluate whether or not there are inherent limitations of the turbine manufacturer's data as they pertain to noise emission from the Project's turbines.*

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### 4.3 A-weighted, Project Noise Impacts

The inability of the sound level meter used by Dudek to measure low ambient noise (i.e., less than 30 dBA) means that nighttime levels reported at several locations are inaccurate and higher than actual. This is a problem in that the calculation of  $L_{dn}$  adds 10 dB to nighttime levels to account for the increased sensitivity to noise affecting sleep. Consequently, measured nighttime levels that are higher than actual due to instrumentation limitations mean that the reported  $L_{dn}$  values in the DEIS are greater than actual. We note that the lowest existing ambient  $L_{dn}$  reported in the DEIS is 43.5 dBA (LT-9).

The overstating of ambient noise in combination with ignoring the potential for substantial increases in ambient noise due to the Project minimizes the actual impact from Project noise. For example, nighttime levels at DEIS location LT-10, are indicated as being approximately 31 dBA ( $L_{50}$ ). Actual levels in fact could be 5 to 6 dBA lower (i.e., 25 to 26 dBA). This means that if wind turbine noise is only limited to 45 dBA at night, the ambient noise could increase by up to 20 dBA. Using the FTA criteria, a 20 dBA increase would be a Severe Impact and thus a significant impact under NEPA.

*The DEIS minimizes the Project noise impacts by using inaccurate ambient noise data while applying only the County noise ordinance criteria and ignoring substantial increases in ambient noise caused by the Project.*

### 4.4 Low Frequency Noise Impacts

Low frequency noise impacts were evaluated in the DEIS using the County's noise ordinance No.10262 and the RBSLC<sub>90</sub>. The DEIS uses the CadnaA program to predict low frequency noise. As discussed above in Section 4.1, the CadnaA program has explicit limitations that preclude its use for predicting large wind turbine noise. This is particularly true with regard to low frequency noise. At lower frequencies the noise emitted by wind turbines can in certain circumstances be more directional even than at higher frequencies.

For example, Kim, et. al.<sup>18</sup> have developed a noise prediction model for amplitude modulation from large WTs. As discussed below amplitude modulation is associated with low frequency noise. The noise model developed by Kim, et. al. predicts that the overall sound pressure level is highly directional. In the case of amplitude modulation, the model predicts noise levels that are greatest on-axis (in the direction of the turbine rotor, which is also the direction that the wind is blowing) and that the amount (or depth) of modulation is greatest in the plane of the turbine blades (perpendicular to the rotor). In other words, low frequency noise from large wind turbines can be anything but omnidirectional.

*The DEIS not only uses CadnaA, with the program's inherent limitations, to model low frequency noise, it also treats noise emission at all frequencies (in particular at low frequencies) to be omni-directional. Consequently, the DEIS low frequency predictions are inaccurate.*

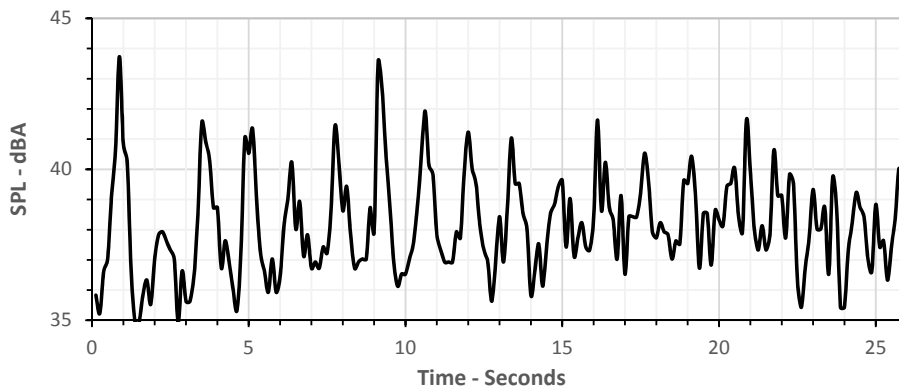
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<sup>18</sup> Lee, Seunghoon, H. Kim, Kyutae Kim, and Soogab Lee, Perception of amplitude-modulated noise from wind turbines, 17<sup>th</sup> International Congress on Sound and Vibration, Cairo, 18-22 July 2010.

## 4.5 Noise Impacts Due to Amplitude Modulation

Amplitude modulation is the rhythmic fluctuation in noise level. Pilot studies<sup>19</sup> have been conducted in a laboratory setting to investigate the effect of wind turbine noise on sleep disturbance. The study reported that “findings indicated that amplitude modulation strength, spectral frequency and the presence of strong beats might be of particular importance for adverse sleep effects.”

Measurements<sup>20</sup> conducted in the Project area demonstrate that the existing wind turbines generate amplitude modulated noise. Figure 2 illustrates amplitude modulation measured at a distance of 4,400 feet from the closest wind turbine at Tule Wind with peak-to-peak variation ranging from 4 to 9 dBA. These measurements demonstrate the presence of “excessive amplitude modulation” (peak-to-peak variation of 4 dBA or more) as defined by Cooper<sup>21</sup> or “enhanced amplitude modulation” (variation of 6 dBA) as characterized by Oerlemans<sup>22</sup>.



**Figure 2 - Example of Amplitude Modulation**

The DEIS addresses the impact of amplitude modulation by citing a study by RSG<sup>23</sup> that seems to minimize the severity of this phenomenon contrary to the evidence in Figure 2 above. Whereas the RSG study cited notes that modulations depths are rarely above 4 dB, the measurement at 4,400 feet from a Tule wind turbine indicates modulation depths up to 9 dB or *excessive* modulation under either Cooper’s or Oerlemans’ definition.

<sup>19</sup> Morsing, J.A., M.G. Smith, M. Ögren, P. Thorsson, E. Pederson, J. Forssén, and K.P. Waye, Wind Turbine Noise and Sleep: Pilot Studies on the Influence of Noise Characteristics, *International Journal of Environmental Research and Public Health*, **15**(2573), 2018.

<sup>20</sup> Wilson Ihrig, Results of Ambient Noise Measurements of the Existing Kumeyaay Wind and Tule Wind Facilities in the Area of Boulevard and Jacumba Hot Springs Pertaining to the Proposed Torrey and Campo Wind Turbine Facilities, report for Backcountry Against Dumps, 18 March 2019.

<sup>21</sup> Cooper, S., Hiding wind farm noise in ambient measurements – Noise floor, wind direction and frequency limitations, 5<sup>th</sup> International Conference on Wind Turbine Noise, Denver, 28-30 August 2013.

<sup>22</sup> Oerlemans, S., An explanation of enhanced amplitude modulation of wind turbine noise, report for the National Aerospace Laboratory, July 2011.

<sup>23</sup> RSG, Massachusetts Study on Wind Turbine Acoustics, Report 2.18.2016, 2016.



Furthermore, the DEIS attempts to address amplitude modulation by adding 2 dB to the source levels in the CadnaA model. The only effect this has is to increase the predicated A-weighted noise levels. This fails to address the actual impact of amplitude modulation in two ways. First it ignores the fact that A-weighted noise impacts, which the County noise ordinance addresses, are a short range issue. Amplitude modulation is not a short range issue and occurs up to long distances (e.g., 4,400 feet) from wind turbines. Consequently, amplitude modulation cannot be evaluated by applying the County noise ordinance criteria. Secondly the DEIS approach to assessing amplitude modulation impact misses the point altogether. The salient feature of amplitude modulation impact is the depth of the variation (i.e., peak-to-peak range) of the noise level and not the noise level itself. CadnaA cannot be used to predict amplitude modulation.

*The DEIS fails in the assessment of Project noise to accurately address amplitude modulation noise and its potential for sleep disturbance.*

#### 4.6 Noise Impacts Due to Infrasound

Infrasound (very low frequency sound, i.e., lower than 20 Hz) from large wind turbines has been clearly documented<sup>24,25,26</sup>. Infrasound from large wind turbines is characterized by its tonal nature and a spectrum that consists of sharp peaks at the “blade passage frequency”  $f_o$  (typically 1 Hz and lower) and the harmonics of the blade passage frequency (i.e.,  $2f_o$ ,  $3f_o$ ,  $4f_o$ , etc.).

An example shown in Figure 3 illustrates infrasound spectra of existing wind turbines measured in the vicinity of the Project under low wind conditions. It should be noted that infrasound tends to increase with wind speed. The infrasound spectrum in Figure 3 is a classic example of noise produced by a machine with blades (e.g., helicopter).

Previous measurements<sup>27,28</sup> in the vicinity of the Project documented the existence of infrasound generated by the four existing wind farms in the area (Kumeyaay, Tule, Ocotillo, and Energia Sierra Juarez). The noise levels shown in Figure 4 illustrate the magnitude of infrasound and low frequency noise measured at 4,400 feet from the closest wind turbine at Tule Wind. Please note that the frequency scale in Figure 3 is “logarithmic” whereas the frequency scale in Figure 4 is “linear.” The reason for doing this is to more clearly highlight the tonal nature of infrasound including the harmonics of the blade passage frequency as illustrated in Figure 3. It should also be noted that the magnitude of harmonics can often be greater than the blade passage frequency and higher wind speeds generally create higher levels of noise.

An often stated misconception is that measurements of wind turbine infrasound might be affected by microseisms (small earthquakes). This ignores the fact that small earthquakes occur randomly and

<sup>24</sup> Channel Islands Acoustics, et. al., A Cooperative Measurement Survey and Analysis of Low Frequency and Infrasound at the Shirley Wind Farm in Brown County, Wisconsin, Report No. 122412-1, December 24, 2012.

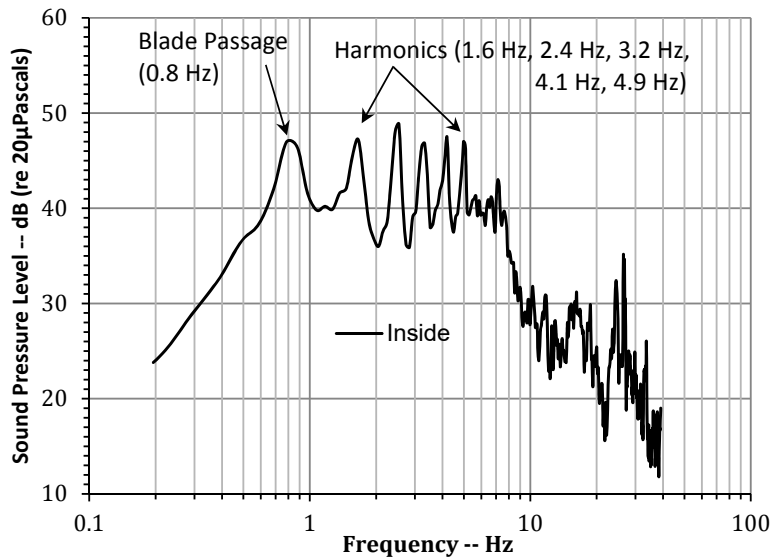
<sup>25</sup> Epsilon Associates, A Study of Low Frequency and Infrasound from Wind Turbines, July 2009.

<sup>26</sup> Ambrose, S. and R. Rand, The Bruce McPherson Infrasound and Low Frequency Noise Study, 14 December 2011.

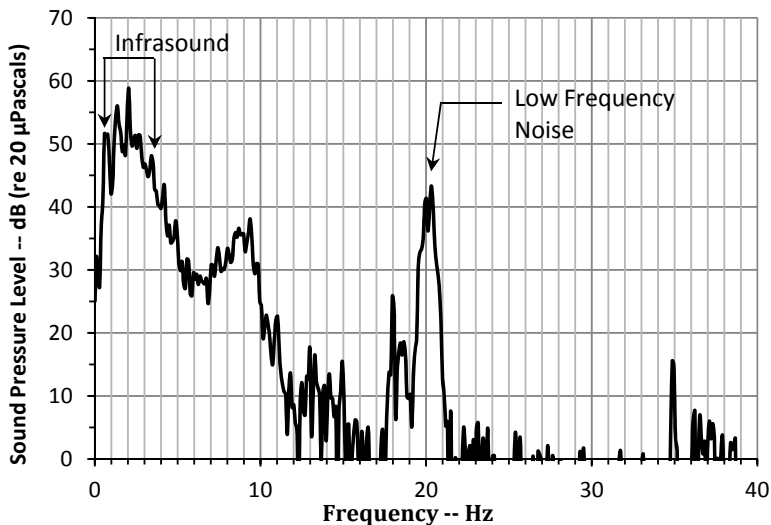
<sup>27</sup> Wilson Ihrig, Kumeyaay and Ocotillo Wind Turbine Facilities Noise Measurements, report submitted to Stephan C. Volker, Esq., 25 February 2014.

<sup>28</sup> Wilson Ihrig, Results of Ambient Noise Measurements of the Existing Kumeyaay Wind and Tule Wind Facilities in the Area of Boulevard and Jacumba Hot Springs Pertaining to the Proposed Torrey and Campo Wind Turbine Facilities, report for Backcountry Against Dumps, 18 March 2019.

typically last for only a few seconds. The spectral data in Figure 3 and Figure 4 were obtained from recorded samples that lasted for several minutes. The analytical methodology used to obtain these data minimizes any effects of very short term events that are random in nature. This misconception also ignores the fact that any sound generated by small earthquakes would be very low in magnitude (i.e., the ground is generally a poor radiator of sound). Furthermore, ground radiated sound from small earthquakes would produce a “broadband” spectrum and not one that is tonal in nature.



**Figure 3 - Example of Infrasound Measured in the Vicinity of the Project**



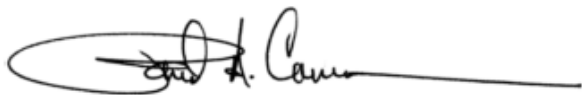
**Figure 4 - Infrasound and Low Frequency Noise Measured at 4,400 feet from a Wind Turbine**

The research work of Salt and Lichtenhan<sup>29</sup> has made a clear case for the perception of infrasound and low frequency noise (ILFN) below the threshold of hearing as defined by ISO 389-7. ISO 289-7 is related to the response of the ear's inner hair cells (IHC). Salt has demonstrated that it is possible for the ear's outer hair cells (OHC) to respond to ILFN at sound pressure levels that are much lower than the IHC threshold. Salt and Kaltenbach<sup>30</sup> have reported that ILFN levels commonly generated by wind turbines can cause physiologic changes in the ear. The DEIS neglects the research into the effects of infrasound on humans and defers to the RSG study which relies solely on an argument of audibility. The research indicates that humans could be negatively impacted at sound levels significantly below the threshold of audibility.

*The DEIS fails to adequately assess infrasound and its potential for physiologic impacts on the local population especially with regard to sleep disturbance.*

Please feel free to contact me with any questions on this information.

Sincerely,



Richard A. Carman, Ph.D., P.E.  
Principal Emeritus  
Wilson Ihrig & Associates

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Cont.

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<sup>29</sup> Salt, A. and J. Lichtenhan, Perception based protection from low frequency sounds may not be enough, *Internoise* 2012, August 2012.

<sup>30</sup> Salt, A. and J. A. Kaltenbach, Infrasound from Wind Turbines Could Affect Humans, *Bulletin of Science, Technology and Society*, **31**(4), pp. 296-302, 12 September 2011.