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December 16, 2013

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street NE, Room 1A
Washington, DC 20426

Re: Sierrita Pipeline Project Draft Environmental Impact Statement

Dear Secretary Bose:

The Arizona Game and Fish Department (Department), along with the U.S. Fish and Wildlife Service, Buenos Aires National Wildlife Refuge (BANWR), and U.S. Customs and Border Protection, is a cooperating agency with the Federal Energy Regulatory Commission (FERC) for the National Environmental Policy Act (NEPA) analysis of the project. We have participated in the planning and review of this project with the FERC, Sierrita Gas Pipeline LLC (Sierrita), and the other cooperating agencies since early 2012. Although Sierrita has submitted to the FERC a considerable amount of detailed information pertaining to the design, construction, and post-construction restoration of the pipeline, there remains a lack of sufficient detail in some of Sierrita's plans to engender confidence that the pipeline will not result in unmitigated impacts to wildlife habitat in the Altar Valley.

Upon review of the Draft Environmental Impact Statement (EIS), the Department submits for your consideration a number of recommendations we feel would help offset wildlife and habitat impacts that would result if the pipeline is certificated. To aid in your response to comments, this letter is structured such that supporting information for each major comment is presented in descriptive paragraphs with specific actions summarized in bolded, italicized bullets.

MITIGATION

There is no mitigation proposed for the 376.7 acres of permanent disturbance (*i.e.*, acres of vegetation within the 50-foot-wide permanent ROW or occupied by aboveground facilities). It is the policy of the Arizona Game and Fish Commission and the Arizona Game and Fish Department to seek compensation at a 100 percent level, when feasible, for actual or potential habitat losses resulting from land and water projects. Following is text from the Department's Wildlife and Wildlife Habitat Compensation policy:

The Director of the Arizona Game and Fish Department is authorized under A.R.S. Title 17-211, Subsection D, to perform the necessary administrative tasks required to manage the wildlife resources of

the State of Arizona. Pursuant to those duties and in accordance with federal environmental laws and resource management acts, such as the National Environmental Policy Act, Fish and Wildlife Coordination Act, and Endangered Species Act, the Director is further charged with cooperating in the determination of potential impacts to Arizona's wildlife resources resulting from federally funded land and water projects. In addition, a Commission M.O.U. assigns similar responsibilities for evaluating proposed projects on lands administered by the State Land Department. An integral part of this process is the development of adequate compensation measures aimed at eliminating or reducing project-associated impacts.

The Department has initiated discussion with the State Land Department to develop adequate compensation measures to offset project-related impacts.

- ***Expand the project mitigation package to include compensation for the 376.7 acres of permanent impact***

REVEGETATION

Sierrita's biological consultant documented more than 100 native plant species within the project area; Sierrita's revegetation plan recommends a seed mix of only 11 species for semidesert grassland areas and 14 species for Sonoran desertscrub areas. The NRCS employs the use of Ecological Site Descriptions (ESD) in monitoring rangeland condition and determining a site's ability to respond to disturbance. In addition to vegetation information, ecological site classification incorporates climate, soil, and hydrology in describing an area's ecological potential. The Department therefore recommends Sierrita plan its revegetation and monitoring activities using the ESDs occurring in the project area.

Ecological Sites within the Project Area		
Site ID	Site Name	Major Land Resource Areas (MLRA)
R040XA102AZ	Clayey Swale 10-13" p.z.	Sonoran Basin and Range
R040XA112AZ	Loamy Swale 10-13" p.z.	Sonoran Basin and Range
R040XA114AZ	Loamy Upland 10-13" p.z.	Sonoran Basin and Range
R040XA115AZ	Sandy Wash 10-13" p.z.	Sonoran Basin and Range
R040XA117AZ	Sandy Loam Upland 10-13" p.z.	Sonoran Basin and Range
R040XA118AZ	Sandy Loam Upland 10-13" p.z.	Sonoran Basin and Range
R041XC306AZ	Granitic Hills 12-16" p.z.	Southeastern Arizona Basin and Range
R041XC313AZ	Loamy Upland 12-16" p.z.	Southeastern Arizona Basin and Range
R041XC314AZ	Loamy Slopes 12-16" p.z.	Southeastern Arizona Basin and Range
R041XC316AZ	Sandy Wash 12-16" p.z.	Southeastern Arizona Basin and Range
R041XC318AZ	Sandy Loam 12-16" p.z.	Southeastern Arizona Basin and Range
R041XC319AZ	Sandy Loam Upland 12-16" p.z.	Southeastern Arizona Basin and Range
R041XC322AZ	Granitic Upland 12-16" p.z.	Southeastern Arizona Basin and Range

Note: this analysis was done for the 100-ft construction ROW only and may include more Ecological Sites once temporary work spaces and access roads are included

The Department is available to assist the FERC in identifying local practitioners experienced with seed collection, propagation, and restoration in southern Arizona habitats like those in the project area.

- *Use locally collected seed to ensure the greatest likelihood of survival and genetic integrity*
- *Develop separate revegetation seed mixes for each of the NRCS Ecological Sites occurring in the project area*
- *Allow and/or promote regrowth of sub-shrub, shrub, and small tree species within the permanent 50-foot ROW, exclusive of a 10-foot swath centered over the pipeline, the entire length of the pipeline*

The Department recommends including important wildlife forage species in the restoration seed mix. The Mule Deer Working Group has prepared a list of important forage plants for mule deer in the Southwest Deserts Ecoregion (Heffelfinger et al., 2006). Several of the species listed by the Mule Deer Working Group were observed by EPNG’s consultant during vegetation surveys of the ROW, however many more mule deer forage plants are likely to occur in the project area yet were undetected during surveys, and would therefore be appropriate to include in the seed mix. The table below is adapted for the proposed pipeline from that publication.

Important Mule Deer Forage in the Project Area	Common Name	Scientific Name
Group 1 (especially important)	Abert’s buckwheat	<i>Eriogonum abertianum</i>
	Buckwheat	<i>Eriogonum</i> sp.
	Catclaw acacia	<i>Acacia greggii</i>
	Fairyduster	<i>Calliandra eriophylla</i>
	Jojoba	<i>Simmondsia chinensis</i>
	Mesquite mistletoe	<i>Phoradendron californicum</i>
	Prairie clover	<i>Dalea</i> sp.
	Spiny hackberry	<i>Celtis ehrenbergiana</i>
	Tahitian kidneywood	<i>Eysenhardtia orthocarpa</i>
	Group 2 (less important or important during limited periods)	Blue paloverde
California barrel cactus		<i>Ferocactus cylindraceus</i>
Candy barrel cactus		<i>Ferocactus wislizeni</i>
Catclaw mimosa		<i>Mimosa aculeaticarpa</i>
Desert ironwood		<i>Olneya tesota</i>
Desert zinnia		<i>Zinnia acerosa</i>
Fleabane		<i>Erigeron</i> sp.
Lacy tansyaster		<i>Machaeranthera pinnatifida</i>
Littleleaf ratany		<i>Krameria erecta</i>
Ocotillo		<i>Fouquieria splendens</i>
Prairie acacia		<i>Acacia angustissima</i> var. <i>suffrutescens</i>
Slender janusia		<i>Janusia gracilis</i>
Tansy aster		<i>Machaeranthera</i> sp.
Thurber’s desert honeysuckle		<i>Anisacanthus thurberi</i>
Velvet mesquite		<i>Prosopis velutina</i>
Velvetpod mimosa		<i>Mimosa dysocarpa</i>
Whitethorn acacia		<i>Acacia constricta</i>

- *Include important wildlife forage species in the restoration seed mix*

Precipitation in the Sonoran Desert is bimodal with two corresponding growing seasons, each with its own suite of plant species. The restoration seed mix should therefore include a variety of species that bloom in response to this bimodal rainfall pattern. Similarly, the mix should include a diversity of annual and perennial plants to mimic those naturally occurring in the project area.

- ***Ensure restoration seed mixes include a diversity of annual and perennial plants that represent both the spring and late summer/monsoon/fall growing seasons***

While many areas will not have ecological conditions suitable for installation of container stock, a combination of hand watering, use of DRiWATER, and the utilization of vertical mulching and microtopography (some of which will be created to inhibit vehicle access) to enhance natural precipitation, would allow container plant establishment in some locations that are more accessible for maintenance, and to the public. Consider adding a section discussing installation of container plants of native shrubs, grasses, and trees. This section should contain lists of native plant species (and quantities) to be installed for each vegetation community, where appropriate. Plants should be grown in a local environment, using local soils and plant material. Container stock should be grown in a manner that maximizes root structure in order to increase survivability. If certain species cannot be planted directly over the pipeline due to root length restrictions, specify on planting plans where these restricted area are located, and prepare a separate species list (with quantities) for the restricted locations. Wire mesh cages or other materials should be used to protect container stock from herbivory until fully established.

- ***Include nursery-grown container plants with appropriate drylands revegetation techniques in the reclamation plan (see Bainbridge2007)***

MONITORING

The Monitoring Plan is designed to establish monitoring plots on lands held in trust by the Arizona State Land Department (ASLD). In Appendix G (page G-1, 2nd ¶) Sierrita states they are willing to include private lands crossed by the pipeline if the landowner so requests. The Monitoring Plan makes no reference to how or when private landowners would be notified of this opportunity to be included in the monitoring. The Department therefore recommends this be made quite clear to affected private landowners in a timely fashion so they may be included, if so desired, from the beginning of the monitoring effort.

- ***Notify affected private landowners in a timely fashion so they may be included in the monitoring effort, if so desired, from the beginning***

As stated above, precipitation in the Sonoran Desert is bimodal with two corresponding growing seasons, each with its own suite of plant species. Bimodal monitoring (spring and late summer/monsoon/fall) would best capture the full diversity of species (both native and nonnative) and determine true restoration success or failure. As currently written, timing of the proposed monitoring is unclear. Section 5.0 states monitoring will begin in the spring, yet Section 5.1 refers to monitoring in late summer.

- ***Establish a bimodal monitoring program, or at the very least, conduct quantitative monitoring in late summer, following summer monsoons, and qualitative (visual and/or photo) monitoring in spring***

In order to adequately measure restoration success across the diversity of vegetative communities occurring within the project area, we suggest in addition to using the NRCS Ecological Sites to develop restoration seed mixes, this same approach be used for monitoring restoration success.

- ***Establish monitoring plots within each of the NRCS Ecological Sites occurring within the project area***

As the Draft EIS points out, vegetation regeneration following construction in the Sonoran desert can be an exceptionally long process. Abella (2010) found full establishment of perennial plant coverage averaged 76 years. Sierrita's post-construction vegetation monitoring plan (DEIS Appendix G) proposes to monitor plant recovery for only 5 years. Transplanted saguaro cacti can take up to 10 years to collapse if injured during transplanting, therefore survivorship cannot be confidently determined if monitoring is conducted for fewer than 10 years (Harris et al. 2004).

- ***Monitor saguaro survivorship for a minimum of 10 years***
- ***Include saguaro "controls" in the monitoring program (i.e., monitor saguaros outside the disturbed areas)***

Given the slow recovery rate of native desert plants, the Department recommends post-construction vegetation monitoring is conducted annually for the first 5 years following construction, then at a progressively graduated schedule. If plant recovery is determined to be proceeding in accordance with recovery objectives after the first 5 years, monitoring should continue: once every 3 years for 2 monitoring periods, then if revegetation continues to meet performance criteria, monitoring would then shift to once every 5 years for 2 more monitoring periods, for a total monitoring period of 20 years. This schedule accomplishes monitoring over an extended time period with actual field work being conducted for only 9 years (see example schedule below):

<u>Monitoring Frequency</u>	<u>Years Monitored</u>
1 x year	2014 - 2018
1 x 3 years	2021, 2024
1 x 5 years	2029, 2034

- ***Establish a graduated monitoring schedule that decreases in frequency as restoration progresses, yet provides monitoring over a longer period***

Appendix G (page G-5, ¶ 1) states "Sierrita is responsible for success at particular locations along the ROW until released by the FERC and ASLD, assuming that such release is not unreasonably withheld". Sierrita should be held accountable for revegetation success throughout the project area; all areas they disturb in connection with pipeline construction and operation activities, not only those areas they intend to monitor post-construction.

- ***Provide a statement in the Final EIS and in the Certificate that Sierrita is responsible for revegetation success, in accordance with project-specific performance criteria, throughout the project area***

The monitoring plan states 20 monitoring sites would be selected based on ecological parameters (page G-8). Examples given are vegetation type, soil type, land ownership, and washes. Land ownership is not an ecological parameter and should not be a factor in selecting monitoring sites, unless the land owner declines to allow Sierrita to establish any monitoring plots on their property.

It is unclear how the number of 20 monitoring sites was determined. Over the 60-mile pipeline length this appears to be an inadequate sample size. The monitoring sample size should be statistically significant, locations randomly selected, and methodology for thoroughly explained.

- ***Provide statistical justification for the monitoring plot sample size and more detailed description of plot location selection***

Any disturbed site will be difficult, if not impossible, to restore if disturbance is ongoing. Therefore, to ensure restoration success of this pipeline it is critical that vehicular access is prohibited and foot traffic kept to an absolute minimum. Sierrita has proposed a plan to restrict unauthorized use of the pipeline ROW, but has not yet explained how their staff and contractors would access the ROW for monitoring and maintenance. Access on foot or by horseback would be appropriate. Access by ATV could be problematic if observed by those not authorized to use the ROW. Tire tracks are often viewed as an invitation to subsequent vehicular traffic.

- ***Specify how Sierrita employees and contractors will access the ROW post-construction and what measures will be employed to obscure tire tracks if any type of vehicle will be used***

If Sierrita and the FERC are truly committed to restoring the ROW, all weed species within the ROW must be treated. The competitive advantage of weed species in disturbed areas poses a significant challenge to revegetation efforts. Keeping weed species at bay during revegetation within the ROW not only gives native species their best chance for establishment within the ROW, it also keeps weed species from rapidly expanding from one location in the project area to others, using the ROW as a ready avenue for colonization. Sierrita should be held to a minimum weed control standard, with landowners given the opportunity to request additional weed control measures on their property. Appendix D-2, Item 11 gives landowners the ability to approve the use of soils *not* free of noxious weeds and soil pests. Such flexibility in the weed management plans could thwart restoration efforts on either side of a landowner taking such action.

- ***Strike “unless otherwise approved by the landowner” from Appendix D, Section II B, item 11 (page D-2)***

The proposed piling of boulders at ROW/existing access road intersections could pose a serious challenge to weed control. If buffelgrass were to become established in such boulder piles, it would likely require periodic herbicide treatment over a number of years because the boulders would provide cover for seeds dropped by the plants.

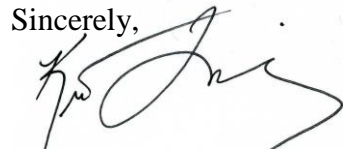
- ***Consider additional weed control measures for proposed boulder piles***

Once performance criteria for revegetation have been met, the Department recommends the continued treatment of weeds within the ROW when weed densities are at 10 percent or greater. Allowing weed densities to reach 25 percent cover provides weed species with an unacceptable advantage for population expansion. Page G-19 in Volume II of the DEIS states “Sierrita will target areas for control when the weed cover exceeds 25 percent of the ROW”. There is a significant difference between 25 percent cover of the ROW and 25 percent *relative* cover.

- ***Clarify the threshold of percent relative cover for weeds that would trigger treatment. The Department suggests this threshold should be 10 percent relative cover***

Throughout the NEPA process for the proposed pipeline, FERC staff and their contractors have provided exceptional guidance and thoughtful consideration of cooperating agency comments and recommendations. If the Arizona Game and Fish Department can be of further assistance to your agency, or clarification of any of the comments contained within this letter is needed, please contact me at 520-388-4447, or kterpening@azgfd.gov.

Sincerely,



Kristin K. Terpening
Habitat Specialist, Region V

cc: Steven L. Spangle, USFWS Field Supervisor
Laura Canaca, AGFD Project Evaluation Program Manager
Sally Gall, Buenos Aires National Wildlife Refuge Manager

References

- Abella, S.R. 2010. Disturbance and Plant Succession in the Mojave and Sonoran Deserts of the American Southwest. *International Journal of Environmental Research and Public Health*, 7:1248-1284.
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