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GOVERNMENT OF PUERTO RICO

*Puerto Rico Electric Power Authority*

**SAN JUAN, PUERTO RICO**

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January 28, 2011

Exemption (b)(6)
Antilles Regulatory Section
Jacksonville District Corps of Engineers
400 Fernández Juncos Avenue
San Juan, Puerto Rico 00901-3299

Dear Mr. Exemption (b)(6):

RE: SAJ 2010-02881 IP-EWG, Vía Verde Gas Pipeline

This correspondence responds to the letter you sent on December 22, 2010 with regard to Department of the Army permit application SAJ-2010-02881 (IP-EWG). The letter requested a comprehensive and detailed written response to issues of concern the U.S. Army Corps of Engineers (Corps) has and issues raised in letters and documents received during the public notice (PN) comment period. These comment letters and emails were included on a CD sent with your letter. This response consists of two documents. The first is a point by point response to the issues in your letter. The second is an attachment with additional information in response to the issues raised in some of the comment letters to the Corps PN.

The Puerto Rico Electric Power Authority (PREPA), the applicant, will continue to work closely with the Corps and all regulatory agencies, both federal and local. In this letter we will address the issues you raised and provide information in response to those issues. However, we must point out that it is difficult, if not impossible, to properly address issues of concern if the Corps does not clearly and specifically identify those substantive issues pertinent to its review responsibility. Advising PREPA the information previously provided does not "... fully address the public interest factors ..." and "... is largely deficient ..." does not help us provide the specific detailed response you may need on a particular issue.

You express a concern that project impacts have not been adequately quantified. We must profess some confusion on this point since Chapter VI in the Final Environmental Impact Statement (FEIS) approved on November 30, 2010 by the

Environmental Quality Board (EQB) is quite detailed in discussing impacts expected to occur from the project. As publicly announced, the FEIS can be found on the Vía Verde website at **http://www.aeepr.com/viaverde_DIAP2.asp**. The document has also been posted on the EQB webpage since November 29, 2010. PREPA submitted a copy of the Preliminary Environmental Impact Statement and of the said FEIS to the Corps, since parts of those documents have been incorporated by reference to the Joint Permit Application (JPA). With regard to impacts specific to the aquatic resource, additional information is provided further in this correspondence, Item d. Wetlands. After reviewing the information provided in Chapter 6 of the FEIS and the "Wetlands" section of this letter, if the Corps determines further, detailed information will be required, the applicant and its agents request a meeting be scheduled to discuss what additional, specific information is necessary.

We agree the use of National Wetlands inventory maps to ascertain the existence of jurisdictional areas for Puerto Rico, particularly along the north coast, is challenging. Recognizing that fact, Mr. Jorge Coll (Coll Rivera Environmental) determined the extent of waters of the U.S. (WoUS) for the project after completing a detailed field survey. The methodology employed for this site specific field study followed the 1987 Corps of Engineers Wetland Delineation Manual and the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Caribbean Islands Region (the Caribbean supplement). In areas where differences between the Manual and the Caribbean supplement occurred, the Caribbean supplement took precedence. The *Jurisdictional Wetlands and U.S. Waters Determination Study – Vía Verde Pipeline, August 2010* and *Vía Verde Wetland Data Determination Forms – Caribbean Islands* sections found in the Preliminary EIS, included with the original JPA submittal, detail the limits of the jurisdictional wetlands. There were areas where a determination was difficult, due to past or recent land use, or other reasons. In those cases, Mr. Coll based his determination on the best information available, interpreted in light of his professional experience and knowledge of the ecology of wetlands in the area, as stated in the Caribbean supplement. The applicant's wetland scientists acknowledge that minor discrepancies may exist and welcome the opportunity to field verify (ground-truth) any questionable wetland signatures during a jurisdictional determination site visit. Since this has been the procedure utilized by the Corp to address challenges, we would like to coordinate the field visits (ground-truth) at your earliest convenience so any concerns can be immediately addressed.

You state that the Alternative Analysis provided with the permit application packet is qualitative and lacks sufficient detail for review. After multiple public meetings were held to discuss the project and involve the public, PREPA published a Public Notice in local newspapers to advise the general public of the availability of the FEIS. The applicant also delivered a copy of this document to the 13 municipalities to benefit from the project and placed the FEIS on its website (**http://www.aeepr.com/viaverde_DIAP2.asp**). Concurrently, the EQB posted the

complete FEIS on its webpage to allow all interested parties to access the document under consideration. Chapter 6 of the FEIS discusses the "Study of Alternatives and Selection of Alignment" PREPA prepared. This Chapter also includes an Annex with Criteria Maps and a Selection Matrix for the pipeline routes that were evaluated. The applicant believes many of the comments directed at the alternatives analysis in the Preliminary EIS were addressed in the FEIS approved by the EQB (which has been available to the general public since November 29, 2010). However, in response to your request, PREPA is rearranging and modifying the Alternative Analysis so it will satisfy the Corps' expectations.

You referred to the U.S. Fish and Wildlife Service letter of December 15, 2010 and asked for clarification on how natural gas will be delivered to the pipeline. As mentioned in PREPA's letter dated December 17, 2010, the evaluation and comments presented by the USFWS were based on the Preliminary (Draft) EIS dated September 9, 2010. Two editions of the EIS (Preliminary and Final) were written, presented and finally approved by all local regulatory agencies. At this time PREPA intends to meet gas delivery requirements for the project using the existing EcoEléctrica Facility. There is no plan to construct a separate barge offload operation. It is the applicant's position that EcoEléctrica will be able to fully meet delivery needs. If the Corps disagrees with this position, a meeting is requested to further discuss these concerns.

Regarding the returned public notices and the list of addresses you provided, PREPA identified updated addresses and hand delivered the documents. The proof of delivery for all delivered letters is attached to this correspondence. We recognize the need for an additional 30-day comment period **exclusively** for these members of the public.

In regard to the concerns of the general public presented in the other letters provided and received by the Corps as part of the PN process, we would like to refer you to Chapter 8 of the FEIS. This Chapter provides a summary of responses related to the comments received from the general public. The Chapter also includes additional responses to comments received from the state regulatory agencies as well as from the Environmental Sub Committee designated by Commonwealth Law 76 of May 5, 2000.

In the following paragraphs we will address the issues you summarized from the comment letters received:

**National Marine Fisheries Service (NMFS)** – The applicant's agent, BCPeabody Consulting (BCP), is responding to the request for additional information in the NMFS letter dated December 19, 2010. As part of this process, BCP staff met with Mr. Miles M. Croom, NMFS Assistant Regional Administrator, on January 6, 2011. The project, as currently designed, will not result in any impacts to estuarine forested or

seagrass habitats and will likely not require an extended NMFS project review. Direct responses to the NMFS December 19, 2010 letter are included in the Attachment.

It is important to clarify one aspect of the NMFS comment letter that resulted from the public notice. A major concern of NMFS was perceived impact to estuarine forested habitats associated with the Vía Verde Pipeline alignment. There will be no impacts to estuarine forested habitat from construction of the pipeline. To avoid impacts and to protect the estuarine forested habitats, the Horizontal Directional Drilling (HDD) construction approach will be utilized. In addition, PREPA will undertake a detailed supplemental site evaluation at three areas along the alignment to validate that no threatened or endangered species are located in any estuarine forested area and to establish a baseline in these areas. Data collected as a result of this supplemental field work will be provided to the NMFS and the Corps once it becomes available.

**US Fish and Wildlife Service (USFWS)** – At the present time (with full knowledge of the Corps and the USFWS), the applicant has a team of regional scientific experts conducting site specific, appropriate surveys along the proposed route to determine presence/absence of listed plant and animal species within the project area and the amount of suitable habitat. The survey methodologies developed and the surveys conducted are being carried out by experienced and qualified personnel reviewed by the USFWS. Members of the USFWS staff have been actively involved in the development of the ESA species survey protocols and have participated in some of the field studies. The draft Biological Evaluation (BE) included with the Joint Permit Application will be appended to include the results of all supplemental surveys and will be the basis for future consultations with the Service. Direct responses to the concerns expressed in the USFWS December 15, 2010 letter, are included in the Attachment. Moreover, we must stress that comments presented in the USFWS December 15, 2010 letter appear to be drafted after their evaluation of the Preliminary (Draft) EIS presented back on September 9, 2010 before the EQB. These comments were not based on an evaluation of the FEIS approved on November 30, 2010. A copy of the FEIS was delivered to the USFWS on December 20, 2010.

**Federal Highways Administration (FHWA)** – CMA Architects & Engineers LLP is currently working to collect the detailed pipeline information related to construction within the local highways right-of-way (ROW) as part of the final alignment of the Vía Verde project. The applicant's goal is to have the Waiver Application presented before the local Highway Authority (HA) by January 21, 2011. Requisite coordination will be established with the HA so the Vía Verde waiver Application will be evaluated as soon as it is received, with an effort to have it approved at the local level by the end of January 2011. Simultaneously, a Draft of the Waiver Application will be delivered to the Federal Highway Administration (FHWA) so that any recommendation can be included in the final application to be filed for necessary approval.

Once local approval is secured for the Waiver Application, the final local endorsement and approval will be delivered to the FHWA for necessary approval. Preliminary information secured from the FHWA personnel indicates it will take approximately 30 days to secure the federal approval required.

**State Historic and Preservation Office (SHPO)** – As recommended by the SHPO, PREPA recently authorized the implementation of a 1B archaeological study aimed to further evaluate the areas and sites recommended in the completed 1A study, included in the Final Environmental Impact Statement approved on November 30, 2010 by the Environmental Quality Board. The results of this additional evaluation will be presented to the SHPO as soon as the 1B report is available.

Efforts related to the 1B Study will be completed by licensed archaeologists Marisol Rodriguez and Carlos Ayes. They are the professionals hired to undertake the efforts related with the recently completed 1A Study.

**Environmental Protection Agency (EPA)** – The EPA letter is fairly general in nature and is a direct result of the evaluation of the Preliminary EIS presented back on September 9, 2010 before the EQB. The agency's comments are not based on the FEIS (available since November 30, 2010). As previously mentioned, the applicant has iteratively worked to avoid high quality wetlands and other jurisdictional aquatic areas. Although there is some confusion as to what aquatic resources should be classified as "aquatic resources of national importance", the applicant feels the ROW selection process has essentially avoided such resources, by any definition.

The applicant continues to work with the USFWS and the NMFS to address outstanding issues regarding threatened and endangered species. As part of these consultations, both agencies have recommended that supplementary studies and field efforts be undertaken. It has been agreed that upon completion of these studies, a revised and updated BE will be provided to the Corps. This updated document will be sufficient to allow for the completion of the project review.

The concerns expressed by the EPA with respect to the use of Horizontal Directional Drilling (HHD) in karst environments have been addressed in Item e) Horizontal Directional Drilling which follows.

**Puerto Rico Engineers and Surveyors Association (CIAPR, in Spanish)** - the overall project purpose is to deliver an alternate fuel source to the three existing electric power generating facilities located on the north coast. Attempting to use the Costa Sur complex in combination with the Aguirre Power Plant would be inconsistent with the overall purpose of this project, and therefore is not a practicable alternative. The operational requirements of the Island's electric system preclude PREPA from generating all or most of its energy only on the south coast. It is our understanding the

scope for an alternatives analysis is driven by the Corps' definition of overall project purpose. On that basis, the applicant does not feel this alternative warrants further review.

With regard to other options to deliver alternative fuel sources to the three power plants on the north coast, we note that PREPA cannot reasonably consider the use of other fuels for electric generation, such as coal or nuclear fuels. The use of coal for PREPA's large generating units was not considered due to the limitations imposed by laws already enacted in Puerto Rico, like PR Law 82 of July 19, 2010, among others, and to EPA's new Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule, of November, 2010, which regulate carbon dioxide ($CO_2$) and other greenhouse gases emissions. Even using the newest clean technology for burning coal, the amount of $CO_2$ emissions is approximately 30% lower when natural gas is burned instead of coal. $CO_2$ sequestering technology for coal-burning power plants is far from fully developed.

Regarding nuclear fuels, it must be noted that harvesting energy from this type of fuel is expressly excluded by the Puerto Rico Energy Policy established by the Governor's Executive Order OE-1993-57. It must also be noted that the alternatives analysis does consider the use of renewable energy sources to meet PREPA's generating needs, as was requested during the public comment period, and that Puerto Rico's substantial plans to develop renewable generation is discussed in detail in Chapter 4 of the Final EIS, Section 4.4, which was not included in the Preliminary EIS. The Final Environmental Impact Statement developed by PREPA can be found on the Vía Verde website at **http://www.aeepr.com/viaverde_DIAP2.asp**, as well as on the EQB website since November 30, 2010.

Additional information on alternative methods of delivery, such as Gravity Based Structures and Floating Storage and Re-gasification Unit (FSRU), aka: boats and buoys system, is provided for the Corps' consideration in the Attachment. This information was also included in Chapter 4 of the approved FEIS.

PREPA wants to reiterate that, considering the modifications already approved by the Federal Regulatory Commission (FERC), the EcoEléctrica facility will be able to supply the Vía Verde natural gas needs; determined at full capacity, for the San Juan 5 & 6 and Cambalache Combined Cycled Units. Additional product will be available to fuel the Costa Sur 5 & 6 steam units based on PREPA's operating determination. Moreover, approved FERC modifications will allow PREPA to fully utilize available natural gas to fuel its entire north coast facilities based on the capacity established factor, which considers individual heat rates and predetermined fuel mixtures operating characteristics.

**Sierra Club** – The Sierra Club expressed several concerns that PREPA would like to address. Their first concern involves the number of wetlands and surface waters

allegedly being affected by construction of the pipeline. It is important to stress that all impacts to the wetlands and surface waters will be temporary in nature. Furthermore, some surface waters will not be impacted since they will be crossed using the HDD technology. Also, PREPA will use construction methodologies that will allow the process to advance with minimal impact, such as use of timber mats to gain access for the equipment and using float and pull technique for positioning the pipeline in wetlands. At all times PREPA´s concept for this project has included all measures to minimize wetland impacts. More specifically, for forested wetlands, PREPA opted to use HDD technology even when such technology required the investment of additional capital. After the construction and installation of each pipeline segment, wetlands and surface waters will be restored to their original pre-construction state and allowed to naturally recruit with native species. Maintenance and new access roads will not be necessary within wetlands or other areas after construction is completed. All inspections and light maintenance of the pipeline will be conducted using a remote controlled, robotic pipeline inspection gauge (PIG). PIG launchers and receivers will be located outside wetlands and other surface waters.

Additionally, the Sierra Club expressed concern regarding endangered species. PREPA and their consultants are working closely with USFWS to ensure that all necessary surveys for endangered species are conducted. This will ensure that all endangered and threatened species and their habitat are known and quantified within the pipeline corridor.

The Sierra Club form letters also requested the Corps hold public hearings. PREPA recognizes public hearings are held at the discretion of the District Engineer when a hearing provides additional information that is necessary for a thorough evaluation of pertinent issues not otherwise available. The applicant believes the public meetings already held, the detailed information posted on the Corps, EQB and PREPA websites, and the public notice issued by the Corps, as well as those published by the PREPA, Planning Board and EQB, fully address the Sierra Club's reason for a public hearing. No apparent further benefit would be derived from holding public hearings given their cost and logistics. This is validated by the fact that all comments received for the JPA had already been made at the EQB public process for the FEIS approval. No comments on new matters were received by the Corps.

**General public comments** – PREPA provided over 1,867 pages of information in the FEIS it prepared. This document is located on the applicant's website (**http://www.aeepr.com/viaverde_DIAP2.asp**) as well as on the EQB webpage. We believe the issues raised in the comments submitted are fully addressed in this document and in particular in Chapter 8. If the Corps has made a determination that a particular issue raised by a member of the public is not addressed, please identify what that specific issue is, and PREPA will work further with you to provide whatever detailed information may be necessary.

We recognize the Corps' responsibility to consider a range of practical alternatives that would meet the overall project purpose. We also recognize that 40 CFR Part 230.10(a) of the Guidelines for Specification of Disposal Sites for Dredged or Fill Material (Guidelines) states that the amount of information needed to make a determination and the level of scrutiny required by the Guidelines is commensurate with the severity of the environmental impact. The Vía Verde project has been designed to avoid any permanent discharge of fill material in the aquatic resource and PREPA is confident it can demonstrate that impacts from the proposed route will be no more than minimal. We remain committed to work closely with the Corps as it identifies specific unanswered issues of concern.

You have advised PREPA that the Corps "... agrees with the comments from the resource agencies and the general public, and reserves the option to request an EIS and hold a PH." We must take issue with such a broad, generic statement that implies every single comment sent in by the public has been determined by the Corps to constitute a pertinent, substantive issue that the applicant must rebut. Given the volume of information we have reviewed on the CD enclosed with your letter, we must ask if this statement (above) represents the Corps' official position for the administrative record. PREPA also recognizes the decision to hold a public hearing is at the discretion of the District Engineer when a hearing would provide additional information that is necessary for a thorough evaluation of pertinent issues. As was discussed above, when we addressed the comments the CIAPR submitted, multiple public meetings were held to present the project and solicit public input during the local established review process. PREPA is not sure what additional, pertinent issues have been identified by the Corps that dictates the need for a public hearing. However, we are prepared to assist the Corps in any way possible to provide whatever information may be necessary to address those issues once they are identified.

In the remaining part of this correspondence we will address the requests you made for information on the following topics:

a. **Alternatives Analysis:** The overall project purpose is to deliver an alternate fuel source to the three existing electric power generating facilities located on the north coast of Puerto Rico. Attempting to use the *Gasoducto del Sur* would be inconsistent with the overall purpose of the project, and therefore is not a practicable alternative. Unless the Corps officially disagrees with our understanding of the scope for an alternatives analysis, and officially notifies PREPA what additional review is required, *Gasoducto del Sur* will not be discussed further.

   Regarding other options to deliver an alternative fuel source to the three power plants, PREPA updated Chapter 4 after multiple public meetings were held and it believes many of the comments directed at the alternatives analysis in the Preliminary DIA have been addressed. The FEIS

can be found on the Vía Verde website at **http://www.aeepr.com/viaverde_DIAP2.asp,** as well as on the EQB webpage.

Additional information on alternative methods of delivery, such as Gravity Based Structures and Floating Storage and Re-gasification Unit (FSRU), aka: boats and buoys system, is provided for the Corps' consideration in the Attachment. Notwithstanding that, PREPA is working on restructuring and reformatting the Alternative Analysis, so that it can be presented in the forthcoming weeks to the Corps using the format that meets its expectations.

b. **Avoidance and Minimization:** The location of the pipeline corridor as proposed has been extensively driven by statutory compliance and/or consideration of the following concerns:

**Health, safety, and welfare concerns:** - avoidance of major population centers pursuant to a de facto public policy established by the Honorable Governor of Puerto Rico for the design of this project and regulations and constraints for co-locating a utility line within existing rights-of-way under the jurisdiction of the Federal Highway Administration (FHWA). This public policy will be implemented by maintaining a 150 foot clearance between the pipeline and any residential structure, even when not required by the applicable federal regulation for Natural Gas Pipelines (49 CFR).

**Use of environmentally sound, minimally invasive construction techniques and methodologies:** – the extensive use of horizontal directional drills and trench box cuts, limited sizing of rights-of-way (ROW), allowances for extensive natural vegetative recruitment within the permanent ROW;

**Avoidance of existing conservation lands:** – lands subject to oversight by the Conservation Trust of Puerto Rico (CTPR), the Department of Natural and Environmental Resources (DNER), and/or by the United States Fish and Wildlife Conservation Service (USFWS); and

**Avoidance of historic properties for the Puerto Rico State Historic Preservation Office (SHPO):** – realignment of proposed pipeline corridor to avoid impacts to archeological sites of significance and/or historic properties that are listed or potentially eligible for inclusion in the National Register of Historic Places, as required in Section 106 of the National Historic Preservation Act of 1966.

PREPA believes that Avoidance and Minimization standards for the project have been met through re-alignments and design changes; complying with

health, safety, welfare, and public ROW constraints; and adopting environmentally sound, minimally invasive construction techniques and methodologies (HDD, vertical trenches).

Reductions in the size of the proposed pipeline would not reduce and/or minimize impacts to waters of the United States and the aquatic environment. The minimum size equipment required to install smaller diameter pipelines (< 24-inch) is currently proposed and the trench width differential on the near vertical cuts proposed is negligible. The number and distance between valve and PIG locations and access points is regulated by the USDOT Pipeline and Hazardous Materials Safety Administration (PHMSA). The project's direct, indirect, and cumulative impacts have effectively been restricted to the limits of the established construction ROW, with future maintenance limited to within the 50-foot wide permanent utility easement except in wetlands where no maintenance to the utility easement will be done.

c. **Compensatory Mitigation:** From the very beginning of planning for this project, avoidance and minimization were central goals around which alternative routes for the pipeline were reviewed and then selected. Indeed, in the ongoing effort to avoid and minimize, the applicant continues to look at alignment changes in some areas to further this goal. Examples can be found in Chapter 4 of the FEIS PREPA prepared (**http://www.aeepr.com/viaverde_DIAP2.asp**), as well as on the EQB webpage.

Each crossing of Corps jurisdictional areas has also undergone a series of reviews to propose construction methods to absolutely minimize any temporary or permanent alterations. A primary method adopted was diagonal drilling from upland to upland, and placing the pipeline crossing outside all Corps jurisdiction. Where trenching was found to be the only practicable method of construction (in the Guidelines definition of the concept), PREPA will ensure the selected contractor takes special precautions regarding the construction area, width of trench, use of native refill material, and minimum requirements for ROW maintenance to be employed.

The 369 acre of temporary impact you identify in your letter is more accurately represented as approximately 152 acres. This is derived from multiplying the length of each expected jurisdictional crossing by the 50-foot width we will operate within when locating the pipeline in WoUS. In addition, it must be remembered that most of the jurisdictional crossings are lands declared wetlands, but historically manipulated for agricultural purposes. These practices will not be allowed in the ROW, allowing native vegetation to become reestablished within one or two growing seasons. The only

exception will be the periodic management of a 50-foot wide ROW in uplands to regulate vegetation with deeply penetrating root systems.

Many of the components of your proposed mitigation and monitoring plan request are already built into the proposed plan. It is on these bases, PREPA does not feel a comprehensive mitigation plan is warranted. However, the applicant is certainly willing to entertain any specific, concrete suggestions the Corps feels are necessary to provide additional measures to those already incorporated into the designs. PREPA has already started working on draft mitigation plans for the different impacts to essential habitats, trees and wetlands. These plans will be turned in for the Corps approval in the forthcoming weeks.

d. **Wetlands**: An assessment and listing of wetland impacts was previously provided in the documentation provided to the USACE. Please reference the Tables listed below:

Table 5- Temporary Impacts to Waters of the US (Page 44 to 46)
Table 6- Temporary Impacts to Wetlands (Page 46 to 50)

Discussions of avoidance and minimization, project design considerations, and best management practices (BMPs) to be used were also included with the original submittal. Additional turbidity and erosion control measures and BMPs to be implemented during the project construction, to avoid and/or minimize wetland impacts in and adjacent to the construction right-of-way, are discussed in Item I - Water Quality section of this document. All these measures will be implemented during the construction phase, since the operation phase carries no impacts. PREPA is currently working to develop a more specific assessment of all possible direct, indirect, and secondary impacts to the jurisdictional wetland areas related to Vía Verde, including both on and off the project impact site, which fall within 300 feet of the development footprint. This assessment will be presented to the Corps in the forthcoming weeks.

e. **Horizontal Directional Drilling (HDD)**: It is recognized due care must be taken to ensure contractors adhere to prudent practices to avoid the accidental release of bentonite mud. The North American Society for Trenchless Technology (NASTT) provides guidance for the analysis and design of tooling essential reduce the incidence of hydro fractures (frac-outs) in karst environments. Hydro fractures, or frac-outs, result when fluid pressures built up in the borehole exceed the overburden effect of the surrounding soil medium. Several drilling factors and procedures will be monitored to preclude the development of hydro fractures. Eight significant factors will be evaluated at each HDD. These include: annular space;

backream rate; borehole pressure; depth of cover; reamer type; reamer diameter; soil composition; and soil density.

To insure the Horizontal Directional Drilling (HDD) operations to be conducted with the Vía Verde Pipeline will comply with all regulatory permits and standards, proper pre-construction geotechnical investigations will be conducted on the *in situ* soil formations along the proposed installation route. Tooling used in HDD installations will then be matched to the soil medium to be encountered

The Frac-Out Plan and will be amended to stipulate lined pits, and all environmental details which depict the sedimentation ponds will be revised.

In summary, HDD operation to be utilized on the Vía Verde pipeline will include proper preconstruction geotechnical investigations, limit drill fluid application rates, utilize an appropriate type reamer to reduce the extent and magnitude of the drilling fluid dispersed, carefully monitor drilling mud pressure increases until the midpoint of the installation is attained, and insure proper containment, recycling, and/or reuse of drilling mud. All HDD operations for the Vía Verde Pipeline will be conducted in accordance with the guidelines and recommendations of the North American Society for Trenchless Technology (NASTT) for karst environments.

f. **Fish and Wildlife Values:** Direct responses to the comments provided by the USFWS (December 15, 2010 letter) and by the NMFS (December 19, 2010 letter) are included in the Attachment.

g. **Threatened and Endangered Species:** Direct responses to the concerns expressed in the USFWS December 15, 2010 letter and in the NMFS December 19, 2010 letter are included in the Attachment.

h. **Cultural resources:** As recommended by the State Historic and Preservation Office, PREPA recently authorized the implementation of a 1B archaeological study aimed to further evaluate the areas and sites recommended in the completed 1A study included in the Final Environmental Impact Statement approved on November 29, 2010 by the Environmental Quality Board. The results of this additional evaluation will be presented to the SHPO as soon as the 1B report is available.

Efforts related to the 1B Study will be completed by licensed archaeologists Marisol Rodríguez and Carlos Ayes. They were the professionals hired to undertake the efforts related with the recently completed 1A Study.

i. **Infrastructure and Utilities:** PREPA will provide all water, water disposal, communications and electrical needs of the project with its own permanent or temporary infrastructure or equipment. There will be no need to coordinate with other agencies and companies, except for the Highway Authority (both federal and state) and the Port Authority, for the use of their infrastructure. Coordination of excavations as required by the Public Service Commission Regulation for Coordination of Excavations and Demolitions will also occur. All excavations will be coordinated through the "One Call Service", by calling 811 and complying with all requirements of the applicable regulation. Regarding the Highway and Ports Authorities, PREPA will comply with all requirements including a waiver from the Highway Authority (federal and state) for locating natural gas pipelines within a highway ROW and a Management of Traffic Plan when major highways and roads are to be impacted.

j. **Cumulative Impacts:** As indicated earlier, wetlands impacts during construction have been repeatedly evaluated to minimize direct aquatic resource impacts. Also, as mentioned, native vegetation should reestablish naturally after construction and site restoration. Many of the proposed temporary wetland impacts within the ROW are to agricultural fields or farmlands; which while designated as wetlands are routinely maintained, planted, harvested, and drained. The post construction ROW will have restrictions on the types of activities allowed during the active life of the project thereby improving wetland quality and functions in these areas. Temporal loss of wetland function during construction will be addressed and will be weighed against the net gains associated with restricted activities and elevated levels of protection afforded within the post construction ROW. Potential aquatic resource impacts at some distance in time, or reasonably certain to occur are difficult to imagine, much less predict. PREPA will evaluate cumulative impacts considering other major projects like PR-10 and PR-22, even when a preliminary assessment was made and it was determined that no cumulative impact will occur. This assessment will be presented to the Corps within the forthcoming weeks.

k. **Map depicting staging areas and access roads**: PREPA is working with the contractor, Gulf Interstate Engineering (GIE)/Ray Engineering, to procure the information the Corps requested regarding the proposed staging areas and the access roads. This information is incorporated in the Erosion and Sedimentation Control (CES) Plan. The data will be presented to the Corps as soon as it becomes available.

l. **Water quality**: A discussion of the measures to avoid accidental leaks of bentonite mud into aquatic environments associated with the HDDs has been included in Item e) above. Turbidity and erosion control measures are

addressed in the project Stormwater Pollution and Prevention Plan (SWPPP). BMPs for individual pipeline installation methods have been include in the FEIS and the JPA document. Additional construction notes have also been provided on the Environmental Detail Sheets.

The following additional measures turbidity and erosion control measures and BMPs may be implemented during the project construction to avoid and/or minimize sediment entering the water body from the construction right-of-way.

**Temporary Erosion and Sediment Control**: - The Contractor shall install sediment barriers across the entire construction right-of-way at all flowing waterbody crossings in accordance with an EQB approved CES Plan. The Contractor shall install sediment barriers immediately after initial disturbance of the waterbody or adjacent upland. Sediment barriers will be properly maintained throughout construction and reinstalled as necessary (such as after backfilling of the trench) until replaced by permanent erosion controls or restoration of adjacent upland areas is complete. Where waterbodies are adjacent to the construction right-of-way, the Contractor shall install sediment barriers along the edge of the construction right-of-way as necessary to contain spoil and sediment within the construction right-of-way.

The Contractor shall place all spoil from minor and intermediate waterbody crossings, and upland spoil from major waterbody crossings in the construction right-of-way at least 10 feet from the water's edge or in additional extra work areas. No trench spoil, including spoil from the portion of the trench across the stream channel, shall be stored within a waterbody unless the crossing cannot be reasonably completed without doing so.

The Contractor shall install and maintain sediment barriers around spoil piles to prevent the flow of spoil into the waterbody. Spoil removed during ditching shall be used to backfill the trench usually with a backhoe, clamshell or a dragline working from the waterbody bank. Sand, gravel, rockshield, or fill padding shall be placed around the pipe where rock is present in the channel bottom. As required, monthly inspections will be scheduled by an independent professional engineer to ensure the control measures and practices included in the approved CES Plan are followed and observed. A compliance Monthly Report will be prepared and provided to the EQB as required by the applicable regulation.

**Trenching** - The following requirements apply to all waterbody crossings except those being installed by non-flowing open cut crossing methods. All equipment and materials shall be on site before trenching in the active channel of all waterbodies. All activities shall proceed in an orderly manner without delays until the trench is backfilled and the stream banks stabilized.

The Contractor shall not begin in-stream activity until the in-stream pipe section is complete and ready to be installed in the waterbody. The Contractor shall use trench plugs at the end of the excavated trench to prevent the diversion of water into upland portions of the pipeline trench and to keep any accumulated upland trench water out of the waterbody. Trench plugs must be of sufficient size to withstand upslope water pressure.

The Contractor shall conduct as many in-stream activities as possible from the banks of the waterbodies. The Contractor shall limit the use of equipment operating in waterbodies to that needed to construct each crossing. This will be done in full compliance with the approved CES Plan for the Vía Verde Project. As indicated previously, monthly inspections will be scheduled by an independent professional engineer to ensure the control measures and practices included in the approved CES Plan area followed and observed. A compliance Monthly Report will be filed before the EQB as required by the applicable regulation.

**Trench Dewatering** - During the course of construction activities, the open pipeline trench will, on occasion, accumulate water, either from groundwater intrusion or precipitation. The trench may be periodically dewatered, as necessary to prevent sedimentation of perennial waterbodies or rivers and allow for proper construction. Generally, a pump will be placed alongside the trench with an intake hose suspended into the water-filled trench. In areas with a very high water table and soils prone to sloughing, a well point system may have to be installed. Water may be pumped from the trench into vegetated upland areas within the ROW to prevent sediment-laden water from flowing directly into any waterbody. All dewatering areas will include suitable temporary turbidity and erosion controls. If adequately vegetated areas are too far removed from the dewatering site, the water may be discharged into straw bale or sediment fence containment areas, or into sediment bags.

The Contractor shall preserve as much vegetation as possible along the waterbody banks while allowing for safe equipment operation. Clearing and grubbing for temporary vehicle access and equipment crossings shall be carefully controlled to minimize sediment entering the waterbody from the construction right-of-way. This will be done in accordance with the CES Plan approved for the Vía Verde Project. Clearing and grading shall be performed on both sides of the waterbody prior to initiating any trenching work. All trees shall be felled away from watercourses. Plant debris or soil inadvertently deposited within the high water mark of waterbodies shall be promptly removed in a manner that minimizes disturbance of the waterbody bed and bank. Excess floatable debris shall be removed above the high water mark from areas immediately above crossings. Vegetation adjacent to waterbodies

which are to be installed by horizontal directional drill or boring methods shall not be disturbed except by hand clearing as necessary for drilling operations.

**Grading** - The construction right-of-way adjacent to the waterbody shall be graded so that soil is pushed away from the waterbody rather than towards it when possible. To minimize disturbance to woody riparian vegetation within extra workspaces adjacent to the construction right-of-way at waterbody crossings, the Contractor shall minimize grading and grubbing of waterbody banks. Grubbing shall be limited to the ditchline plus an appropriate width to accommodate the safe installation of vehicle access and the crossing to the extent practicable and in accordance with the approved CES Plan approved for the Vía Verde Project.

**Pipe Installation** - The following requirements apply to all waterbody crossings except those being installed by the non-flowing open cut crossing method. A "free stress" pipe profile shall be used at all minor, intermediate, and major waterbodies with gradually sloping stream banks. The "box bend" pipe profile shall be used for intermittent and major waterbodies with steep stream banks. The trench shall be closely inspected to confirm that the specified cover and that adequate bottom support can be achieved, and shall require construction inspection and on-site approval prior to the pipe being installed. Such inspections shall be performed by visual inspection and/or measurement by PREPA and or by its designated construction manager. In rock trench, the ditch shall be adequately padded with clean granular material to provide continuous support for the pipe. The pipe shall be pulled into position or lowered into the trench and shall, where necessary, be held down by weights, as-built recorded and backfilled immediately to prevent the pipe from floating.

The Contractor shall provide sufficient approved lifting equipment to perform the pipe installation in a safe and efficient manner. As the coated pipe is lowered in, it shall be prevented from swinging or rubbing against the sides of the trench. Only properly manufactured slings, belts and cradles suitable for handling coated pipe shall be used. All pipes shall be inspected for coating flaws and/or damage as it is being lowered into the trench. Any damage to the pipe and/or coating shall be repaired.

**Backfilling** - The following requirements will apply to all waterbody crossings except those being installed by the non-flowing open cut crossing method. Trench spoil excavated from waterbodies shall be used to backfill the trench across waterbodies. After lowering-in of the pipeline has been completed, but before backfilling, the line shall be re-inspected to ensure that no skids, brush, stumps, trees, boulders or other debris is in the trench. If discovered, such materials or debris shall be removed from the trench prior to backfilling.

For each waterbody crossed, the Contractor shall install a trench breaker at the base of slopes near the waterbody and in full accordance with the CES Plan approved, unless otherwise directed by the Project Engineer based on site specific conditions. The base of slopes at intermittent waterbodies shall be assessed on-site and trench breakers installed only where necessary. Slurred muck or debris shall not be used for backfill. At locations where the excavated native material is not acceptable for backfill or must be supplemented, the Project Engineer shall review and approve any granular material to be used.

If specified in the Construction Drawings, the top of the backfill in the stream shall be armored with rock riprap or biostabilization materials as appropriate as described in the approved CES Plan by the EQB.

**Stabilization and Restoration of Stream Banks and Slopes**: - The stream bank contour shall be re-established. All debris shall be removed from the streambed and banks. Stream banks shall be stabilized and temporary sediment barriers shall be installed within 24 hours of completing the crossing if practicable and as required in the approved CES Plan. Approach slopes shall be graded to an acceptable slope for the particular soil type and surface run off controlled by installation of permanent slope breakers. Where considered necessary, the integrity of the slope breakers shall be ensured by lining with erosion control blankets. Immediately following reconstruction of the stream banks, the Contractor shall, at the discretion of the Project Engineer, install a native seed mix to aid in bank stabilization.

If the original stream bank is excessively steep and unstable and/or flow conditions are severe or if specified on the Construction Drawings, the banks shall be stabilized with rock riprap, gabions, stabilizing cribs or bio-stabilization measures to protect backfill prior to reestablishing vegetation. Stream bank riprap structures, if required, shall consist of a layer of stone underlain with approved filter fabric or a gravel filter blanket. Rip rap shall extend from the stabilized streambed to the top of the stream bank, where practicable, native rock shall be utilized. The Contractor shall remove equipment bridges as soon as possible after final clean up.

m. Water **Quality Certification (WQC) and Coastal Zone Management (CZM) Consistency Certificate:** These certificates were requested through submittal of the JPA. In regard to the CZM, the applicant was advised the Puerto Rico Planning Board is already working on the evaluation and final approval of the CZM Certification. In relation to the WQC, PREPA will present all necessary documentation before the EQB. We will keep you

informed as we work with the Environmental Quality Board and Planning Board, CZM office.

You also requested information pursuant to Section 176(c) of the Clean Air Act regarding emissions that may result from the project. Section 6.18.2 of the FEIS approved on November 30, 2010 by the Environmental Quality Board considered a summary of Air Impacts related with the proposed conversion of PREPA's power plants located in the northern part of Puerto Rico. The results achieved through the analysis represent a significant reduction in the criteria's pollutants covered under the federal and state regulations.

Emission estimates developed were based on the AP-42 Emission Factors and based on a 100% percent operating load. All emission factors considered in the analysis included in the FEIS will be validated once contracts related with the plants fire box modifications are issued. Emission factors will be specifically evaluated considering specific design considerations associated with the particular burners and fire box configuration selected.

In the event that, after detailed evaluation and fire box design considerations, it is determined any of the plant modifications are affected by the applicable Prevention of Significant Deterioration (PSD) regulations or by the New Source Performance Standards, necessary pollution control strategies will be considered by PREPA. These additional/new pollution controls, if required, and /or modifications related to the existing operating conditions if needed, will be part of the operation permits requested and part of Title V permit conditions for said facilities.

To assist in the evaluation of the analysis developed below please find three tables that summarize the changes (reduction / increases) related with the modifications of the Cambalache Combine Cycle plant as well as the Palo Seco and San Juan Steam Plants. These are the plants that will be connected to the Vía Verde Pipeline Project.

Table # 1 Palo Seco Steam Plant PSD Emissions Evaluation

| Preliminary PSD Analysis for Palo Seco Units 3 & 4 Fuel S, % 1.5 | | | | | | |
|---|---|---|---|---|---|---|
| Pollutants | Existing Allowable Emissions (One Unit)* (ton/yr) | Existing Allowable Emissions Units 3 & 4 (ton/yr) | Projected NG Emissions (ton/yr)** | Increment Netting (ton/yr) | PSD Significant Emission Rate (ton/yr) | PSD, Yes or No |
| PM | 979.00 | 1,958.00 | 32 | -1,925.8 | 25 | No |
| PM10 | 118.00 | 236.00 | 129 | -107.3 | 15 | No |
| SO2 | 13,554.00 | 27,108.00 | 10 | -27,097.8 | 40 | No |
| H2SO4 | 602.80 | 1,205.60 | 16 | -1,190.0 | 7 | No |
| Nox | 2,417.00 | 4,834.00 | 4,740 | -94.3 | 40 | No |
| CO | 288.00 | 576.00 | 1,422 | 845.9 | 100 | Yes |
| VOC | 44.00 | 88.00 | 93 | 5.1 | 40 | No |
| Pb | 0.24 | 0.48 | 0 | -0.5 | 0.6 | No |
| Fluoride | 2.16 | 4.32 | - | - | 3 | - |

Table # 2 San Juan Steam Plant PSD Emissions Evaluation

| Preliminary PSD Analysis for San Juan Units 7, 8, 9, 10 & San Juan Combined Cycle Units 5 & 6 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Pollutants | SJ 7, 8, 9, & 10 | | SJCC5 & 6 | | *Total Emissions NG Conversion (ton/yr)* | PSD Significant Emission Rate (ton/yr) | *Existing Allowable Emissions*** | Increment Netting | PSD Applicability |
| | Natural Gas Emission Factors * (lb/106 scf) | Emissions NG Conversion (ton/yr) | Natural Gas Emission Factors (lb/106 scf) | Emissions NG Conversion (ton/yr) | | | | | |
| **PM** | 1.9 | 32.87 | 1.94 | 28.19 | *61.07* | 25 | *2,946.22* | -2,885.15 | No |
| **PM10** | 7.6 | 131.49 | 6.73 | 97.94 | *229.43* | 15 | *1,430.51* | -1,201.08 | No |
| **SO2 ** ** | 0.6 | 10.38 | 3.47 | 50.45 | *60.84* | 40 | *7,619.76* | -7,558.92 | No |
| **H2SO4** | 0.92 | 15.9 | 5.31 | 77.26 | *93.15* | 7 | *1,592.26* | -1,499.11 | No |
| **NOx** | 280 | 4,844.52 | 326.4 | 4,748.62 | *9,593.14* | 40 | *6,739.20* | 2,853.94 | Yes |
| **CO** | 84 | 1,453.36 | 83.64 | 1,216.83 | *2,670.19* | 100 | *1,654.73* | 1,015.46 | Yes |
| **VOC** | 5.5 | 95.16 | 2.14 | 31.16 | *126.32* | 40 | *190.7* | -64.38 | No |
| **Pb** | n/a | n/a | n/a | n/a | *n/a* | 0.6 | *3.54* | - | - |
| **Fluoride** | No info | No info | No info | No info | *No info* | 3 | - | - | - |

Table # 3 Cambalache Combine Cycle Plant PSD Emissions Evaluation

| Preliminary PSD Analysis Cambalache 1, 2 & 3 | | | | | | |
|---|---|---|---|---|---|---|
| Pollutants | Emission Factors (lb/106 scf)* | Emissions NG Conversion (ton/yr) | PSD Significant Emission Rate (ton/yr) | Baseline Actual Emissions (ton/yr) | Increment Netting | PSD Applicability |
| | Cambalache 1,2 & 3 | | | | | |
| PM | 1.94 | 21.15 | 25 | 113.9 | -92.76 | No |
| PM10 | 6.73 | 73.46 | 15 | 290.45 | -216.99 | No |
| SO2 | 3.47 | 37.84 | 40 | 780.23 | -742.39 | No |
| H2SO4 | 5.31 | 57.94 | 7 | 182.24 | -124.3 | No |
| NOx | 326.4 | 3561.47 | 40 | 120.28 | 3,441.18 | Yes |
| CO | 83.64 | 912.63 | 100 | 207.75 | 704.87 | Yes |
| VOC | 2.14 | 23.37 | 40 | 71.8 | -48.43 | No |
| Pb | n/a | n/a | 0.6 | 0.12 | | n/a |
| Fluoride | No info | No info | 3 | - | | No info |

The construction and maintenance activities associated with this project will use conventional construction equipment and procedures. We do not feel this activity will

contribute more than *de minimis* direct and indirect pollutant emissions above levels already existing due to regular private and commercial road transportation activities.

In summary, the applicant and its consultants remain most willing to do what we can to help the Corps review pertinent issues and information relevant to the Corps regulatory review under its' decision making criteria. If the information provided in this letter does not fully address your request for a comprehensive and detailed response, please do not hesitate to let us know. We remain committed to continuing to provide information as the review process moves forward to enable the Corps to expeditiously complete its evaluation process.

Cordially,

Francisco E. López García, Head
Environmental Protection and
Quality Assurance Division

USFWS. The surveys are being conducted by a team of biologists, led by Ms. Sondra Vega and Mr. Alberto Puente. The survey methodologies and protocols have been discussed and approved by the USFWS. The results of the final study, including all survey data, will be will be submitted to the USFWS in February 2011. This report will address all concerns and recommendations on this species.

**Puerto Rican night jar**

- USFWS recommended intensive surveys during the breeding season for the endangered Puerto Rican night jar to determine the amount of suitable habitat and the number of singing males or territories that the project may affect.

RESPONSE: Field surveys for Puerto Rican Nightjar were agreed to by the applicant. In light of this agreement, the applicant presented a detailed protocol and methodology to implement the field work agreed upon. This protocol was commented by the USFWS and applicant is incorporating those recommendations to the final protocol which will be filed in the near future. All field work will be conducted and completed during the month on February 2011. All field surveys will be conducted by a regional expert with prior approval of the USFWS. All field findings will be presented in a report to the USFWS for final review and approval.

The amount of dry forest to be cleared within the limits of the project ROW will be carefully calculated and these areas will be surveyed in their entirety. It is conceivable that no nightjar will be technically harmed by the PREPA Vía Verde pipeline. Existing published and USFWS accepted data available from the WindMar project together with the field data to be collected as part of the study to be carried out by PREPA will be used to develop an impact analysis for this species. It has been previously documented that nightjars at the WindMar site have already demonstrated that they can adapt positively to cleared roads. Unlike WindMar, the proposed PREPA ROW will remain vegetated, have leaf litter present, and should act as a viable foraging area for the nightjar.

Upon completion of the field surveys by the PREPA Team, the project site plan will be evaluated for its potential impact to the existing PR Nightjar territories identified, and facilitate the development of a mitigation plan.

**Puerto Rican boa**

- The applicant should delineate and quantify the amount of suitable boa habitat within the project area. The applicant should first consider alternatives to avoid these areas and develop conservation measures to minimize possible adverse effects where avoidance is not possible. Once possible effects are appropriately minimized, the Service would work with

the Applicant to develop a search and rescue protocol for relocating individual animals to suitable habitat outside of the project area prior to project construction.

RESPONSE: As requested, the PREPA Team has agreed to quantify the potential habitat for the boa. The project will not result in any habitat loss to the snake; although direct impacts to forested systems may result in changes to community structure. Mr. Alberto Puentes will review the pre- and post-project conditions for potential habitation by the boa. Since the boa is found in all habitats; a weighted number could be generated for individual habitat types (based upon existing species occurrence data). Habitat conversion (i.e. forested to herbaceous ROW) could then be addressed by taking the pre- and post-construction acreage for each habitat type times the habitat utilization value to ascertain net change. Any habitat compensation required could be similarly assessed should non-type for type offsets be proposed. Relocation of the pipeline within the proposed ROW will not result in any significant impact and further re-alignment of the ROW is not a viable option due to the need to avoid major population centers pursuant to the requirements of the USDOT Pipeline and Hazardous Materials Safety Administration (PHMSA) regulations and constraints for co-locating a utility line within existing rights-of-way under the jurisdiction of the Federal Highway Administration (FHA). The standard boa construction and preservation conditions provided with the original JPA submittal will address on-going construction once the permit is issued.

**5. Impacts to Landowner Incentive Programs**

- The present project goes throughout properties under the Service's Partners for Fish and Wildlife Program (PFWP). USFWS identified that at least three properties under a current Conservation Agreement with the Service that may be adversely affected by the proposed project: Hacienda Pellejas in Adjuntas, Hacienda Esperanza in Manati, and the US Navy Radio Station in Toa Baja. Current efforts at these highly ecologically valued properties include restoration of forest, riparian habitat and restoration of wetland areas. The Service has invested close to $180,000 of federal funds on these restoration activities, and we recommend modifying the project to avoid these areas. If avoidance is not practicable, the conservation investment in these properties must be compensated with comparable restoration efforts on other similar properties.

RESPONSE: As a result of both public comments and regulatory agency concerns, the pipeline was relocated to avoid impacts within the Hacienda Esperanza in Manati. In regard to Hacienda Pellejas and US Navy Radio

Station in Toa Baja, the selected pipeline route avoids the areas where Conservations Agreements have been developed.

**6. Wetland Impacts**

- USFWS recommended using a 150-foot construction corridor width to estimate temporary impacts.

  RESPONSE: PREPA does not agree that a 150-foot wide width should be used to calculate impacts. Best Management Practices (BMP) for construction techniques for the overall project have been provided. In addition, construction techniques and stabilization techniques for individual water crossing types and upland installations were included together with the JPA documentation. The Service has accepted these techniques for past and recent construction activities. If these are no longer acceptable, the Corps should define which specific elements of the BMP, SWPPP and or Frac-Out Plan are deficient and the applicant will gladly meet with the Corps to develop revised conditions based upon current industry standards.

  It has been repeatedly stated within multiple sections of the local Environmental Impact Statements approved back on November 30, 2010 and the Joint Permit Application that all disturbed areas within WoUS will be restored to natural (pre-construction) grades and the areas will be restored using the native topsoil. Native seed mixes will be used as necessary to ensure these areas are properly restored.

- The USFWS stated some of the wetlands the project may affect are within areas designated by the Commonwealth of Puerto Rico as Natural Reserves and Critical Wildlife Areas, including: the Cucharillas Marsh PCA, San Pedro Swamp PCA, Cano Tiburones Natural Reserve, and Hacienda la Esperanza Natural Reserve. These areas lie within the northern karst, an area known for its underground streams, springs and shallow aquifer.

  RESPONSE: The USFWS comment and concerns are noted. All work conducted in the northern karst area will use due care with respect to disturbance of underground streams, springs and the shallow aquifer. The trenches required to embed the pipeline are in most cases shallower than the surrounding agricultural ditches and canalized streams in the areas of concern. A large percentage of the wetland areas the project corridor crosses are previously disturbed wetlands used in the past for ranching, cattle grazing and/or farming activities.

- The Service is very concerned with the use of HDD in karst topography, where voids in the substrate are common and often connected to ground- and surface-water systems.

RESPONSE: It is recognized that due care must be taken to ensure that contractors adhere to prudent practices to avoid the accidental release of bentonite mud. The North American Society for Trenchless Technology (NASTT) provides guidance for the analysis and design of tooling essential in reducing the incidence of hydro fractures (frac-outs) in karst environments. Hydro fracture or frac outs result when the fluid pressures built up in the borehole exceed the overburden effect of the surround soil medium. Several drilling factors and procedures will be monitored to preclude the development of hydro fractures. Eight significant factors will be evaluated at each HDD. These include: annular space; backream rate; borehole pressure; depth of cover; reamer type; reamer diameter; soil composition; and soil density.

To ensure that the Horizontal Directional Drilling (HDD) operations to be conducted in association with the Via Verde Pipeline will comply with all regulatory permits and standards, proper pre-construction geotechnical investigations will be conducted on the insitu soil formations along the proposed installation route. Tooling used in HDD installations will then be matched to the soil medium to be encountered. The Frac-Out Plan and will be amended to stipulate lined pits and all environmental details which depict the sedimentation ponds will be revised.

In summary, the HDD operation to be utilized on the Via Verde pipeline will include proper pre-construction geotechnical investigations, limit drill fluid application rates, utilize an appropriate type reamer to reduce the extent and magnitude of the drilling fluid dispersed, carefully monitor drilling mud pressures increased until the midpoint of the installation is attained, and insure proper containment, recycling, and/or reuse of drilling muds. Strict adherence to the North American Society for Trenchless Technology (NASTT) guidelines for HDD operations in karst environments will be maintained.

- The pipeline route crosses multiple low-order streams in mountainous areas. These streams are the headwaters of larger rivers and support a marine-derived native stream fauna composed of several species of freshwater shrimp, crabs and gobies. Excessive erosion and sedimentation during construction or maintenance of the ROW could cause long-term or permanent impacts to these important wildlife areas.

  RESPONSE: The agency's concerns are noted. Due to the relatively small sizes of the low-order streams to be crossed, the extent and duration of the temporary impacts to these areas will be minimal. The applicant will utilize all applicable turbidity and erosion control measures to insure water quality parameters are in compliance with permit standards. Erosion and sedimentation during construction within the ROW is not expected to cause long-term or permanent impacts to these important

wildlife areas. If the contractor operates improperly the Corps as well as the EPA and the EQB has the authority to bring an appropriate enforcement action aimed to correct any deficiency or deviation into the approved Sedimentation and Erosion Plan noted.

- It is not clear whether the 50-foot permanent ROW in forested wetlands could be used to access the pipeline in the future. If so, then this should be considered a permanent wetland impact. Because of the muck soils associated with some of these wetland types, additional staging areas will be needed for the drill rig, pipe, etc. There is no mention of how drilling mud will be managed, since there will be a need for sumps and other ground disturbances at the drill site to store drill muds.

  RESPONSE: Drilling mud management will be accomplished through lined ponds located in upland areas whenever possible. Access to the pipeline through the ROW for surface based maintenance will not occur since the project has been designed so that all inspections and light maintenance of the pipeline can be conducted using a remote controlled, robotic pipeline inspection gauge (PIG). PIG launchers and receivers will be located outside wetlands and other surface waters. After the construction and installation of each pipeline segment, wetlands and surface waters will be restored to their original pre-construction state and allowed to naturally recruit with native species. No permanent fill, net loss of wetlands, or significant changes to community types will occur as a result of the construction of the pipeline.

  Construction considerations - Where wetland or special constraints exist, the drilling contractor has the option to use closed containerized vessels for drill mud storage and segregation. Any required staging areas for tanks etc. will be located in upland areas.

**7. Mitigation**

- The Applicant proposes a .01-to-l compensatory mitigation ratio. This would amount to 4 acres of compensatory mitigation for an estimated 369 acres of "temporary" wetland impacts, which is inappropriate and unacceptable to the Service. A much higher ratio is necessary to compensate for the: 1) temporary loss of wetlands functions and values; 2) likely permanent loss of functions and values due to contractor errors; and 3) permanent habitat alteration by species such as cattails that rapidly invade disturbed wetland areas and compete with more beneficial wetland plants.

  RESPONSES:
  1) As indicated in the JPA information and materials provided, wetland disturbance during construction has been repeatedly evaluated to minimize direct aquatic resource impacts. After construction and site

restoration, native vegetation should reestablish naturally. Many of the proposed temporary wetland impacts within the ROW will occur in agricultural fields or farmlands; which while designated as wetlands are routinely maintained, planted, harvested, and drained. The post construction ROW will have restrictions on the types of activities allowed during the active life of the project thereby improving the wetland quality and functions in these areas. Temporal loss of wetland function during construction will be addressed and will be weighed against the net gains associated with restricted activities and elevated levels of protection afforded within the post construction ROW. Potential aquatic resource impacts at some distance in time, or reasonably certain to occur are difficult to imagine, much less predict. The applicant disagrees with USFWS' general statement that a higher ratio of mitigation is required. Notwithstanding, PREPA has agreed to develop a plan requested by the DNER. This is established in the FEIS, at a 3:1 mitigation ratio, for any permanent impact to be done in wetland areas.

2) Losses due to contractor errors will be unacceptable to the applicant and constitute an enforceable violation to the regulatory agencies. As required by law, the applicant will notify all appropriate regulatory agencies with its Notice of Intent to commence construction and will make all contractors working on the project aware of the limitations and constraints contained in all permits issued for the project.

3) The applicant recognizes that cattails can rapidly invade disturbed wetland areas and compete with more beneficial wetland plants. The applicant will be amenable to any reasonable restrictions that the Corps may require regarding maintenance and minimum acceptable standards for percent cover by non-native and/or nuisance wetland species.

- The project area includes the mitigation area for the *Gasoducto del Sur* project, despite our repeated requests during the technical assistance process to avoid this area. This area was selected as a mitigation area to preserve its large amount of undisturbed, quality habitat. The Corps needs to assure compliance with previous permit conditions as part of considering this new permit action.

  RESPONSE:
  The Via Verde project WIL NOT impact the mitigation area selected for the *Gasoducto del Sur.* At this time PREPA is requesting the DNER to complete the purchase of the identified property, according to the survey completed may house an additional parcel of land that could be utilized as a mitigation site for the Via Verde project as well. PREPA has complied with all actions required on its part by the mitigation plans for the *Gasoducto del Sur.*

**Attachment B**

| PARCEL # | Registered Owner | COMMENTS |
|---|---|---|
| 007-00 | **COMMONWEALTH OIL REFINING COMPANY, INC., REP. ROBERTO GRATACOS** 600 CPARR, PEÑUELAS, PR 00624 | Document Received and Public Notice Acknowledgement Signed by Gloria M Alicea repr.Commonwealth Oil Refining Co. |
| 016-00 | **JUAN R. SANCHEZ SORDEVILLA - WILLIAM FELICIANO RUIZ / LOT 15** PO BOX 1144, PEÑUELAS, PR 00624-1144 / PO BOX 33-111, PONCE, PR 00733 (787) 844-8880 FAX (787) 844-8880 | Register Owner received and signed Public Notice Acknowledgement document on 1/13/2011 |
| 014-00 | **JOSE SANTIAGO RAMOS / LOT 17** PO BOX 1144, PEÑUELAS, PR 00624-1144 (787) 836-0426, 745-7081 | Register Owner received and signed Public Notice Acknowledgement document on 1/13/2011 |
| 017-01 | **JUAN R. SANCHEZ SORDEVILLA - WILLIAM FELICIANO RUIZ / LOT 15** PO BOX 1144, PEÑUELAS, PR 00624-1144 / PO BOX 33-111, PONCE, PR 00733 (787) 844-8880 FAX (787) 844-8880 | Register Owner received and signed Public Notice Acknowledgement document on 1/13/2011 |
| 018-01 | **JUAN R. SANCHEZ SORDEVILLA / JOSUE GARCIA MENDEZ, LOT 13** PO BOX 1144, PEÑUELAS, PR 00624-1144 / BO. EL TUQUE NUEVA VIDA, D-134, CALLE 8A, PONCE, PR 00728 (787) 612-1441, (787) 259-1394 | Register Owner received and signed Public Notice Acknowledgement document on 1/13/2011 |
| 019-01 | **JUAN R. SANCHEZ SORDEVILLA / NELSON PEREZ ASENCIO, LOT 12** PO BOX 1144, PEÑUELAS, PR 00624-1144 / URB. JARDENES DEL CARIBE MM-5, 44 STREET, PONCE, PR 00728 (787) 612-1441, 402-3416, 844-5264, 259-7857 | Register Owner received and signed Public Notice Acknowledgement document on 1/13/2011 |
| 037-00 | **ISIDRO A. COLON COLON / SEFERINO TORRES, ENCARGADO** CARR. 391 N-5, TALLABOA LA MOCA, PEÑUELAS, PR 00624 (787) 452-9384 | Vacant Lot. Adjacent owners are not aware of the aforesaid lot owner or any related family. Due to the above, and after several efforts to locate the lot owner, PREPA was not able to deliver CoE Public Notice as intended. |
| 039-00 | **ESTEBAN TORRES RODRIGUEZ** 130 BO RUCIO, PEÑUELAS, PR 00624 | Vacant Lot. Adjacent owners are not aware of the aforesaid lot owner or any related family. Due to the above, and after several efforts to locate the lot owner, PREPA was not able to deliver CoE Public Notice as intended. |
| 040-00 | **RENE PONS RODRIGUEZ** CR 00680, BUZON 199 A P, PONCE, PR 00731 | Register Owner received and signed Public Notice Acknowledgement document on 1/13/2011 |
| 052-01 | **HAYDEE TORRES BATISTA / GILBERTO VERA** PASEO 4 583, VILLA OLIMPICA, SAN JUAN, PR 00913 (787) 367-5017, 452-5031 | Register Owner received and signed Public Notice Acknowledgement document on 1/13/2011 |
| 063-00 | **CHARLES H. MORGAN** 1341 W MOCKINGBIRD LN SUITE 902 E, DALLAS, TX 75247 | Due to a realigment of the Route as described in the Final EIS this lot will be out of the properties affected by the Via Verde Project. Due to the above the Public Notice was not delivered. |
| 120-00 | SUCN. JUAN A. AVILA RIVERA ANA D. GONZALEZ | Mrs. Avila, wife of the register owner received the Public Notice, but refused to sign the Acknowledgement documentation, since allegedly they are opposed to the project. |
| 115-00 | SAMUEL C/O JUAN REYES RIVERA PO BOX 2315, | Register owner received the actual Public Notice, but refused to sign the Acknowledgement documentation. Document delivered on 1/13/2011. |
| 139-00 | **AIDA N. MARTINEZ RODRIGUEZ** HC 2 BOX 7013, UTUADO, PR 00641 | Register Owner received and signed Public Notice Acknowledgement document on 1/13/2011 |
| 443-00 | **JOSE MUÑIZ VELEZ** BZN 41 SALTO ARRIBA, UTUADU, PR 00641 | Register owner received the Public Notice, but refused to sign the Acknowledgement documentation. Document delivered on 1/13/2011. |
| 456-00 | **JOSE A. MARTINEZ HERNANDEZ** CALLE RODULFO GONZALEZ # 41, ADJUNTAS, PR 00601 | Register Owner received and signed Public Notice Acknowledgement document on 1/13/2011 |
| 462-00 | HERMINIO PLAZA GONZALEZ | Vacant Lot. Adjacent owners are not aware of the aforesaid lot owner or any related family. Due to the above, and after several efforts to locate the lot owner, PREPA was not able to deliver CoE Public Notice as intended. |

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| 466-00 | OLGA N. LUGO BAEZ E6 URB. LOS CERROS 1, ADJUNTAS, PR 00601 | Register Owner received and signed Public Notice Acknowledgement document on 1/13/2011 |
| 468-00 | **ROSA ESCANDON / RAFAEL DOSAL MARTIN** CORCHADO 57, PONCE, PR 00731 | Vacant Lot. Adjacent owners are not aware of the aforesaid lot owner or any related family. Due to the above, and after several efforts to locate the lot owner, PREPA was not able to deliver CoE Public Notice as intended. |
| 148-00 | **JULIO ALBERTO ORAMA MONROIG** 500 CARR. 10, BO. SALTO, ARRIBA, UTUADO, PR 00641 | Register owner received the Public Notice, but refused to sign the Acknowledgement documentation. Document delivered on 1/13/2011. |
| 152-00 | **ALEX NOEL NATAL SANTIAGO** HC 1 BOX 4814, UTUADO, PR 00641 | Register Owner received and Public Notice Acknowledgement document signed on 1/13/2011 |
| 153-00 | **ANDRES TORRES MONTERO** PO BOX 1175, UTUADO, PR 00641-1175 | Register owner received the Public Notice, but refused to sign the Acknowledgement documentation. Document delivered on 1/13/2011. |
| 163-00 | EDUARDO CASALDUC TORRES | Register Owner received and Public Notice Acknowledgement document signed on 1/13/2011 |
| 164-00 | **GLORIA E. MALDONADO VAZQUEZ** R F D 1 BZN 16, SALTO ABAJO, UTUADO, PR 00641 | Register Owner received and signed Public Notice Acknowledgement document on 1/13/2011 |
| 170-00 | **ROSENDO OCASIO DE JESUS** BUZON 63, BO. RIO ABAJO, UTUADO, PR 00641 | Register Owner received and signed Public Notice Acknowledgement document on 1/13/2011 |
| 201-00 | **PROTEINAS ALVARADO, INC.** HC-02 BOX 13502, ARECIBO, PR 00612 | Register Owner received and signed Public Notice Acknowledgement document on 1/13/2011 |
| 205-00 | **JUSTO ROSADO VELEZ** PO BOX 2997, ARECIBO, PR 00613 | Register Owner received and signed Public Notice Acknowledgement document on 1/13/2011 |
| 213-00 | **ANACLETO ROMAN COLON** HC 5, BOX 94403, ARECIBO, RP 00612-9642 | Register Owner died some time back. Adjacent owners are not aware of any owner related family. Due to the above, PREPA was not able to deliver CoE Public Notice as intended. |
| 220-00 | **Jose Gonzalez Navarro/Rosa Alvarez Torres-HC-4 BOX 82350,Arecibo P.R 00612** | Register Owner received and signed Public Notice Acknowledgement document on 1/13/2011 |
| 225-01 | ADOLFO RODRIGUEZ PAGAN HC-02, PO BOX 14362, ARECIBO, PR 00612 | Vacant Lot. Adjacent owners are not aware of the aforesaid lot owner or any related family. Due to the above, and after several efforts to locate the lot owner, PREPA was not able to deliver CoE Public Notice as intended. |
| 229-01 | **JOSE A. LOPEZ CACERES** PO BOX 3110, BAYAMON, PR 00960-3110 | Mr. Erick Reyes Esq. in representation of the Registered Owner received and signed the Public Notice Acknowledgement signed on 1/13/2011 |
| 234-01 | JUAN A. ALVARADO | Register Owner received and signed Public Notice Acknowledgement document on 1/13/2011 |
| 236-01-02 | AGROEMPRESAS ALVARADO / ALBERTO ALVARADO | Register Owner received and signed Public Notice Acknowledgement document on 1/13/2011 |
| 236-02 | AGROEMPRESAS ALVARADO / ALBERTO ALVARADO | Register Owner received and signed Public Notice Acknowledgement document on 1/13/2011 |
| 242-01 | **AGROEMPRESAS ALVARADO / ALBERTO ALVARADO ALVARADO** HC-02 BOX 13502, ARECIBO, PR 00612 | Register Owner received and signed Public Notice Acknowledgement document on 1/13/2011 |
| 258-00 | **VIRGILIO CRUZ MUÑIZ / CANDY CRUZ CRUZ, REPRESENTANTE** JIMENEZ TORO CARMEN, PO BOX 3046, BOCA RATON, FL 33431-0946 | Register owner signed the acknowledgement Public Notice document, but refused to receive the Public Notice document alleging that the document was in English and Not in Spanish. Site Visit conducted on 1/13/2011. |
| 263-00 | FRANCISCO MARTINEZ | Vacant Lot. Adjacent owners are not aware of the aforesaid lot owner or any related family. Due to the above, and after several efforts to locate the lot owner, PREPA was not able to deliver CoE Public Notice as intended. |
| 261-00 | EFRAIN CRUZ RODRIGUEZ | Register Owner received and signed Public Notice Acknowledgement document on 1/13/2011 |
| 275-01 | GUILLERMO CAMERON MELENDEZ C/O ARTURO MARQUEZ PO BOX 307, | Register Owner received and signed Public Notice Acknowledgement document on 1/13/2011 |
| 278-01 | SUCN. ALTAGRACIA CAMERON MELENDEZ PO BOX 135, | Register Owner received and signed Public Notice Acknowledgement document on 1/13/2011 |
| 302-00 | **MODESTO ESPINOSA RIVERA / JOSE A. LOPEZ CACERES** PO BOX 429, GARROCHALES, PR 00652 / HC 07 BOX 31891, HATILLO, PR 00659 | Mr. Erick Reyes Esq. in representation of the Register Owner received and signed the Public Notice Acknowledgement document on 1/13/2011. |
| 309-00 | MODESTO ESPINOSA RIVERA / JOSE A. LOPEZ | Mr. Erick Reyes Esq. in representation of the Register Owner received and signed the Public Notice Acknowledgement document on 1/13/2011 |

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| 411-00 | ADMINISTRACION TERRENOS PR (ARAUCA INC.) 171 AVE. CARLOS CHARDON, SUITE 101, SAN JUAN, PR 00936-3767 | Register Owner received and signed Public Notice Acknowledgement document on 1/13/2011 |
| 404-01 | ARAUCA INC | Mr. Gilberto Valentin in representation of the Register Owner received and signed the Public Notice Acknowledgement document on 1/18/2011 |
| 406-01 | ARAUCA INC. | Mr. Gilberto Valentín in representation of the Register Owner received and signed the Public Notice Acknowledgement document on 1/18/2011 |

**Total amount of letters returned: 45**

**Total amount of letters hand delivered by PREPA: 36 (80%)**

**Letters not delivered due to lack of information about registered owner: 7 (15.6%)**

**Letter not delivered due to property being excluded from the alignment because of conservation easement: 1 (2.2%)**

**Letter not delivered due to owners refusal to receive PN because of english language, but aknowledgement was signedt: 1 (2.2%)**

# ATTACHMENT - Public Notice Comment letters

Sierra Club Form Letter/Email:

Issue - there appeared to be two versions of a form letter. For the purpose of this response we place both in this category. The first, a Spanish version, was comprised of four principle issues:

a. Request denial of a permit because impacts outweigh benefits.
b. Request a public hearing for the single reason that the project is extensive and the public must have the opportunity to learn about impacts and express an opinion
c. Request an Environmental Impact Statement be prepared because 32 Threatened and Endangered Species may be impacted
d. Expressed concern that the local review process was "rushed"

PUERTO RICO ELECTRIC POWER AUTHORITY (PREPA) response –

a. With respect, the statement that impacts outweigh benefits is vague and does not provide a specific substantive concern we can respond to. The FEIS posted on the Via Verde webpage provides a detailed analysis of the project and presents information on the steps PREPA will take to minimize impacts. In aquatic areas the pipe will be placed with no permanent impact, and we expect the environment to fully grow back within one or two seasons. In the upland sections, only a 50-foot wide corridor will be maintained to regulate the growth of large, deep rooted vegetation. The initial 100-foot wide construction and maintenance corridors required to safely install and maintain the pipeline will be allowed to revegetate and will be utilized in the reforestation / mitigation areas for the project. Further details of the construction steps, and benefits the pipeline will provide, can be found in the FEIS.
b. The reason(s) for holding a public hearing as requested in the form letter have already been met and addressed. First, the public notice and the information posted on both PREPA's and the US Army Corps of Engineers' (Corps) website provide detailed information to the public about the project. Multiple public meetings were also held by PREPA across the island as part of the local review process (as evidenced by several of the comments submitted by people who participated in those meetings). The public notice issued by the Corps clearly has provided the public the opportunity to express opinions, as did the multiple public meetings PREPA participated in.
c. PREPA is working closely with the US Fish and Wildlife Service (USFWS) and the Corps to address possible effects the project may have on listed Threatened and Endangered Species and/or critical habitat. The list of 32 species initially identified by the USFWS was never meant to be a final determination of those species presence. Instead, it was a guidance list that was used by the biologist contracted by PREPA to undertake a Flora and Fauna Study. The study and its findings were included in the FEIS. Also, the list has been used as PREPA works collaboratively with both

agencies in a supplementary effort to identify what species may actually be found within four specifically identified sections of the project corridor and what the true potential for effect may be. PREPA believes the Corps, through its review authority and consultation with USFWS, will fully supplement the Biological Assessment included in the FEIS, approved by the EQB, and will also consider it adequate, allowing the completion of the evaluation under the JPA.

d. PREPA disagrees with the opinion that the local process was rushed. It questions what direct knowledge many of the individuals who submitted the form letter/email actually have regarding the process conducted by the Commonwealth agencies regarding the project. As we are all aware, the public comment process completed by the EQB, as well as the Planning Board, provided ample opportunity to all interested parties to participate in said process and provide any comments prior to the final approval of the EIS drafted and approved on November 30, 2010. The commenting period of thirty days allowed for the EIS by the EQB, as requested by PREPA, was equal to the period required by the EQB regulations.

Puerto Rico Engineers and Surveyors Association (CIAPR, in Spanish)

Issues – the CIAPR sent in two letters (Nov and Dec) and a 22 page evaluation of the Preliminary Environmental Impact Statement (DIA-P). Points raised by CIAPR that appear to be pertinent to this project include:

a. Concurrence that with today's technology it is possible to build and install a safe pipeline, provided that appropriate measures are taken during the design, manufacture of pipe and components, construction and operation.
b. The possibility of using buoys and / or transfer platforms, particularly in the areas of San Juan, Aguirre and Arecibo should be reassessed.
c. A request that the three alternative land routes considered in the Alternatives Analysis be depicted on maps.
d. Converting the South Coast complex (Costa del Sur) by modifying permits, converting the boilers, possibly constructing a second tank, and increasing frequency supplied. Parallel with this project, converting the Port of "Las Mareas" (formerly Phillips Petroleum Corporation (PPC)) to receive gas (LNG) by modifying connection points, additional piping, constructing a storage tank and dredging the west side of the bay. To supply Aguirre from this port, it would take only one route (approximately 5 km.), primarily using abandoned cane fields and an old train route. With these two changes CIAPR estimates 73% of the production capacity of electric power to gas Puerto Rico could be achieved.

PREPA response –

a. PREPA appreciates CIAPR's acknowledgement that a pipeline can be installed safely if appropriate measures are taken during construction and installation. We want to emphasize that the pipeline will adhere to all

safety standards set by the Pipeline and Hazardous Materials Safety Administration (PHMSA) and/or 49 CFR 192 regulations.

b. PREPA has conducted a thorough analysis of the alternative of using buoys and/or transfer platforms and this analysis is in Chapter 4 of the FEIS. Additional information for consideration is:

**Gravity-Based Structure**

GBS technology is potentially useable in water depths from about 60 to 85 feet, in areas with appropriate seafloor topography and substrates for placement of the structure. In addition, GBS facilities must be located in areas with no substantial shipping activities. Use of this technology involves the transfer of LNG to the terminal from a carrier located directly alongside the terminal. GBS terminals involve LNG storage in tanks within the GBS structure and, thus, allow continuous gas transportation out of the terminal, even when LNG carriers are not offloading at the terminal. A critical requirement of GBS terminals is the unloading of LNG from the carrier to the terminal using articulated loading arms under a range of wind and wave conditions. These arms have movement limits that can be exceeded by high winds and large waves.

Availability is also limited by the wind and wave forces reacting against the ship and the fixed GBS structure. GBS structures are typically constructed using steel or concrete. Use of this technology requires construction of the GBS structure at a graving dock at a coastal location. Following construction, the GBS structure is towed to the location of the terminal and placed on the sea bottom. The topside facilities, including vaporization facilities, unloading facilities and other terminal components, are then installed on the top of the GBS structure. The conditions suitable for a GBS have not been identified in the region, and if such a site were available, the environmental impacts are not likely to be lower than the proposed PREPA project. Also, as considered in the FEIS for Vía Verde, the receiving and regasifying system could be installed offshore and a holding tank of CNG could be installed on land. This alternative also has significant environmental impacts and thus, was not the selected alternative.

Issues of concern for a GBS option:

- Increased security risks, i.e. terrorism
- Interruption to delivery and operation due to inclement weather
- High construction costs due to requirement for more than one structure (to serve three separate power plants)
- Does not address principal public concern over safety of pipeline since pipeline still needed to deliver gas to onshore facility and/or to other facilities from point of delivery

- Significant environmental impacts to sensitive marine environment including coral reefs
- Additional impacts to T&E species (marine and anadromous) and/or critical habitat
- Risks to, or conflict with, commercial sea traffic,
- Time required to complete the construction and permit process will be 5 to 7 times longer that the Construction and Permit process associated with Via Verde.

**Floating Storage and Re-gasification Unit**

The FSRU technology involves the use of specialized ships as LNG terminals. Use of this technology involves the transfer of LNG to the ship from a carrier located directly alongside the FSRU. This technology involves the use of mooring facilities using anchor leg systems and swiveling connections to allow the movement of the ship in response to changing wind and current conditions. They generally need to be located in areas with water depths of at least 160 feet to allow for a flexible gas pipeline connection between the FSRU and the subsea sendout pipeline. The specialized ships include all required terminal facilities, including vaporization units, offloading facilities, gas storage, and other components. FSRU systems have some significant operational limitations based on wind and wave conditions and potential adverse effects on the use of the loading arms and mooring systems under poor conditions. Although FSRU's have been proposed, no FSRU has been constructed and operated in North America. The conditions suitable for a FSRU have not been identified in the region, and if such a site were available, the environmental impacts are not likely to be lower than the proposed PREPA project.

In some locations, an offshore receiving terminal may provide a better alternative due to the use of existing offshore facilities and pipelines, easier access for LNG tankers, and more flexibility to adapt to regulated exclusion zones. None of these apply at any of the three power facility sites. There are also some possible drawbacks or hurdles such as limited or distant access to natural gas distribution pipelines, lack of onshore services and in most instances, higher initial investments. One key issue is that offshore facilities are "new". Crude oil has been produced, stored and transported from offshore fields for many decades. Advances in technology, marine operations know how, safety and environmental protection, and onshore support for construction and maintenance are among the many aspects of accumulated experience that can be and are being borrowed from the crude oil industry in support of offshore LNG development. However, the newness of offshore LNG introduces new complexities, costs, and questions about feasibility.

A number of distinct challenges affect offshore LNG operations. Marine operations for offshore LNG facilities present new and different hazards and design specifications that must be dealt with and accommodated. This can increase the cost associated with LNG import operations. If subsea pipeline connections must be developed, additional design and cost considerations are introduced. Offshore LNG operations also face a different jurisdictional environment under the Deepwater Port Act (DWPA).

Issues: building two or more offshore facilities would not remove the safety concerns expressed by the public since interior pipelines would still be required to transport compressed natural gas between power plants. Costs of constructing multiple facilities would far exceed cost of a single pipeline for delivery to multiple locations. Increased risk associated with exposed facilities, i.e. terrorism, vs. buried pipeline. US Coast Guard (USCG) requires a 500m safety zone surrounding an offshore LNG terminal and the facility must be located away from shipping fairways and other areas of activity on the Outer Continental Shelf (OCS) to avoid interference.

Issues of concern for a FSRU option:

- Increased security risks, i.e. terrorism
- Interruption to delivery and operation due to inclement weather
- High construction costs due to requirement for more than one structure (to serve three separate power plants)
- Does not address principal public concern over safety of pipeline since pipeline still needed to deliver gas to onshore facility and/or to other facilities from point of delivery
- Significant environmental impacts to sensitive marine environment including coral reefs
- Additional impacts to T&E species (marine and anadromous) and/or critical habitat
- Risks to, or conflict with, commercial sea traffic,
- Time required to complete the construction and permit process will be 5 to 7 times longer that the Construction and Permit process associated with Via Verde.

c. The Attachments (Anejos) in Chapter 4, FEIS includes in section 4.1 "Mapas de Criterios" which depict the land routes considered for the project.

d. The overall project purpose is to deliver an alternate fuel source to the three existing electric power generating facilities located on the north coast. Attempting to use the Costa Sur complex in combination with the Aguirre Power Plant would be inconsistent with the overall purpose of the project, and therefore is not a practicable alternative. It is not practicable because generating most of the energy the island needs on the south coast would create a situation which destabilizes the electrical system and

could cause frequent collapses of the electric network. This, in turn, would adversely affect Puerto Rico´s economy. Unless the Corps officially disagrees with this understanding of the Via Verde scope for an alternatives analysis, as approved in the FEIS back on November 30, 2010 by the EQB, and officially notifies PREPA that additional review is required, *Gasoducto del Sur* will not be discussed further.

Finally, PREPA would submit the following as additional information regarding the "No-Action Alternative" since there was some critique of this option's write-up.

**No-Action Alternative**

The No-Action Alternative would result in not constructing the project. The No-Action Alternative would eliminate the short- and long-term project environmental impacts identified in the resource reports. However, selection of the No-Action Alternative would mean that the energy supply benefits of the project would either go unrealized or would have to be accomplished through other means with potentially greater environmental impacts elsewhere. A no-action alternative although required under the state EIS regulations, is not germane to the alternatives analysis under the Clean Water Act 404 (b) (1) guidelines because it is, by definition, inconsistent with the overall purpose of the project, and therefore not a practicable alternative.

The No-Action Alternative does not achieve the stated overall purpose of the project, which is to deliver an alternate fuel source to three existing electric power generating facilities located in Arecibo, Toa Baja and San Juan Steam plant operated by PREPA. If adequate supplies of natural gas are not available, PREPA would have forced to maintain the existing dependency on the use of petroleum derived fuels resulting in potentially more costly and environmentally damaging fuels options, with their deleterious local economic consequences. Alternative approaches to finding and delivering sources of energy to supply the growing demand for electricity in the Puerto Rico present very real adverse environmental impacts and are neither superior nor preferable to the proposed project. Moreover the Via Verde project is consistent with the Energy Diversification Policy developed for Puerto Rico by the Administration of Energy Affairs.

National Marine Fisheries Service (NMFS):

The following is information developed in response to the NMFS request for additional information.

Issues –

*1) Please clarify what is meant by "ALL wetland impacts will be temporary". The proposed ROW of 150 feet seems to imply that impacts to wetlands are not temporary.*

RESPONSE: As the statement implies, all impacts associated with the construction of the pipeline will be temporary in nature within wetlands and other surface waters. After the construction and installation of each pipeline segment, all wetlands and surface waters will be restored to their original pre-construction state and will be allowed to naturally recruit with native species.

The proposed right-of-way (ROW) is necessary only for the purposed of entitlement. PREPA will have entitlement rights for the entire ROW. Maintenance and new access roads will not be necessary within wetlands or other surface after completion of construction. All maintenance in wetlands and other surface waters will be conducted using a computerized robotic system identified as PIG. PIG launchers and receivers will be located outside wetlands and other surface waters. It will allow the data gathering efforts as well as the identification of any area where additional preventive or regular maintenance efforts are required.

*2) Based on the answer to #1, please provide the total square footage of resource impacts (seagrass, other submerged vegetation, mangroves and other benthic resources). The public notice indicates a total of 28.5 acres of EFH will be impacted but does not indicate the acreage for each habitat type.*

RESPONSE: The following is a breakdown of proposed temporary impacts to wetlands and other surface waters:

- Canals 0.67 acre
- Canals with Mangrove shorelines 0.00 acre
- Estuarine Forested- Mangroves 0.00 acre
- Estuarine- Supratidal Saltflat 0.56 acre
- Rivers, Creeks, Tributaries 1.39 acres
- Unnamed Creeks (in Karst Region) 0.90 acre
- Ditches (within herbaceous wetlands) 0.08 acre

Our calculated total temporary impact to EFH is approximately 3.8 acres. Forested estuarine habitat will not be impacted because Horizontal Directional Drilling (HDD) will be utilized in those systems.

*3) Please provide additional explanation that can help us determine if HDD will be utilized with encountering "Estuarine Forested Wetland" and the other types of EFH habitats, such as seagrasses and submerged vegetation. This would help NMFS evaluate alternatives to the proposed action.*

RESPONSE: Table 7 of the JPA Report, which was submitted with the Joint Application, has been modified. The table includes only those temporary impacts

associated with potential EFH impacts. The crossing methods, including HDD, are identified for each habitat type. Type 1= HDD, Type 2= Open Cut Waterbody Crossing, Type 3= Open Cut Waterbody Crossing (Minor Waterbody), and Wetland= Open/Box Cut Crossing.

*4) Please provide results of an actual survey of the organisms in the estuarine areas that the proposed project impacts.*

RESPONSE: Results from the Flora and Fauna study conducted by Coll Environmental were included in the Joint Application Package. Additionally, surveys are currently being conducted at the request of USFWS. Any further survey results that involve estuarine organisms will be provided promptly upon completion.

U.S. Fish and Wildlife Service (USFWS):

Before addressing USFWS specific comments included in the December 15, 2010 letter, it is important to point out that comments presented were based on the Draft of the EIS (Sept. 9, 2010) and not on the FEIS approved by the EQB on November 30, 2010. However in an effort to address them out we are presenting the following comments, clarifications and responses aimed to address pertinent issues pulled from the aforementioned USFWS letter.

Issues –

**1. Purpose of the Project, Single and Complete Project, Federal Involvement and compliance with the National Environmental Policy Act (NEPA)**

- The PN fails to discuss necessary changes to EcoElectrica's currently authorized facilities and operations to supply natural gas to PREP A's three facilities in the north. Because the Via Verde pipeline would require additional storage and modifications to the EcoElectrica terminal, these projects are interrelated and should be viewed as one single and complete project. Should EcoElectrica fail to obtain FERC authorization for the physical and / or operational modifications that might be necessary to serve the pipeline, the Corps would be permitting a fragment of a project that could not fulfill the stated purpose and need and would have irreversible resource impacts.

  RESPONSE: Additional modifications to the EcoElectrica terminal which may be required to provide natural gas to the Via Verde project have previously been reviewed and permitted by Federal Energy Regulatory Commission (FERC) during 2009 as parts of past projects. These modifications to be completed during the last quarter of 2011 can be constructed independent of the existence of the Via Verde project. The overall project purpose is to deliver an alternate fuel source, which already

exists at the EcoElectrica terminal, to the three existing electric power generating facilities located on the north coast of Puerto Rico. This will allow PREPA to select based on power demand and heat rates characteristics the most efficient unit to be utilized to meet the daily power generation demands to be serviced by PREPA.

- This project should be evaluated as a major construction activity since it would affect about 1,672 acres of land, including about 369 acres of wetlands, several Commonwealth Forests or Reserves, forested mountain and karst areas, and known habitat for more than 30 federally listed threatened or endangered species.

  RESPONSE: The proposed project will result in only temporary impacts to approximately 152 acres of waters of the U.S. (WoUS) with no permanent fill or net loss. This is derived from multiplying the length of each expected jurisdictional crossing by the 50-foot width the contractor will operate within when locating the pipeline in WoUS. The limits of the project area (1,672 acres of land) reflect the limits of an enlarged utility right-of way (ROW) to be established for safety purposes. The ROW is required to ensure that no future encroachment occurs adjacent to the gas transmission line and should not be construed as cleared ROW corridor such as that required for a transportation project. All but 50 feet of this ROW will be allowed to naturally revegetate to preconstruction conditions and at the same time areas located in up lands will be utilized to plant trees as part of the Mitigation efforts required by the Department of Natural & Environmental Resources (DNER). Within the remaining 50-foot zone, only deep rooted vegetation, i.e. large trees, will be restricted. As such, the applicant questions how the Service has determined the project constitutes a "major construction activity or the criteria's utilized to reach such conclusion."

  Surveys for federally Threatened and Endangered species **that may be present** in the project area, have been carefully refined to address species of concern and key habitat areas through several meetings with the Service. Presently, field surveys (including the participation of USF&WS personnel) are being performed (utilizing regional experts and protocols approved by the USFWS) within the project ROW. These surveys have been and continue to be closely coordinated with the USFWS to ensure that all species of concern (flora and fauna) are assessed. To date, no threatened and endangered plant species have been identified and only six faunal species of concern have been identified; two of which (PR Nightjar and PR boa) have been positively identified as occurring within the ROW. Surveys for the following six species remain on-going; Puerto Rican (PR) broadwinged hawk, PR sharp-shinned hawk, PR crested toad, PR Nightjar, PR Boa, and the Coqui Illanero.

## 2. Alternatives Analysis

- The applicant's alternative analysis does not include PREPA's original plan to build a new natural gas combined cycle power plant close to the existing Costa Sur facility, and to retro fit both Costa Sur and Aguirre power plants to use natural gas. This was the applicant's preferred alternative in the past and now is not mentioned in the applicant's alternatives analysis.

  RESPONSE: The overall project purpose is to deliver an alternate fuel source to the three existing electric power generating facilities located on the north coast of Puerto Rico. Attempting to use the *Gasoducto del Sur* would be inconsistent with the overall purpose of the project, and therefore is not a practicable alternative. It is not practicable because generating most of the energy the island needs on the south coast would create a situation which destabilizes the electrical system and could cause frequent collapses of the electric network. This, in turn, would adversely affect Puerto Rico´s economy. Also, at the time the *Gasoducto del Sur* was considered, natural gas prices were similar to those of Bunker C. This meant the conversion of the South Coast Plant units would not be practicable. Therefore, converting the Aguirre's Combined Cycle was selected because natural gas would replace the more expensive and polluting Diesel Fuel. With natural gas prices plunging, even lower than Bunker C prices, it is preferable today to convert the Bunker C fired units which have a greater generating capacity. Today, with the South Coast completely converted to natural gas, and the geographical limitations imposed by our electric system, Aguirre´s conversion is not a priority for PREPA, and is therefore not considered as part of Vía Verde. Unless the Corps officially disagrees with this understanding of the Via Verde scope for an alternatives analysis, as approved in the FEIS back on November 30, 2010 by the EQB, and officially notifies PREPA that additional review is required, *Gasoducto del Sur* will not be discussed further.

  The alternatives analysis provided reflects and supports the project purpose and scope provided in the current Joint Permit Application presently under review by the USACE (SAJ 2010-02881 (IP-EWG), Via Verde Pipeline Project. PREPA's previous plan to build a new natural gas combined cycle power plant close to the existing Costa Sur facility, and to retrofit both Costa Sur and Aguirre power plants to use natural gas are not part of this project and is not being considered. Moreover the construction of a combine cycle plant close to the existing Costa Sur facility is a project that will be developed by a private entity to be selected under an independent bid process being developed by the Private Public Alliance Office outside the PREPA.

## 3. Habitat Impacts

- The construction right of way (ROW) width ranges from 100 to 150 feet, and more if needed, with a final permanent ROW of 50 feet. The "Declaracion de Impacto Ambiental Preliminar"(DIA-P) states that all vegetation within the construction ROW will be cut and that the permanent 50 foot ROW will be maintained as a no-root zone with no woody vegetation. The DIA-P does not propose mitigation for impacts to previously undisturbed forested areas in this long corridor that will create an avenue for invasive and noxious species to enter previously isolated areas of wildlife habitat. The DIA-P also does not describe methods for maintaining a 92-mile, 50-foot-wide no-root zone corridor through karst and mountainous topography.

  RESPONSE: The no-root zone was incorrectly described in the DIA-P and has subsequently been revised in the FEIS approved on November 30, 2010 by the EQB. The original right-of way (ROW) design allowed for only shallow rooted herbaceous and/or shrub vegetation within the permanent right-of-way. PREPA as clearly indicated in the FEIS will be utilizing the ROW to implement the Mitigation Plan requested by the DNER. This concept has since been modified to allow for the natural recruitment of all native vegetation (herbs, shrubs, and trees) within the ROW corridor. Only within the 50-foot zone immediately above the pipeline will vegetation be regulated to restrict the growth of deep rooted trees.

  All inspections and light maintenance of the pipeline will be conducted internally, using a remote controlled robotic pipeline inspection gauge (PIG). PIG launchers and receivers will be located outside wetlands and other surface waters, typically in disturbed upland areas within the project ROW. If surface supported maintenance is required for any section of the pipeline, only vegetation clearing in that limited area will occur. The area would then be allowed to naturally recruit or be reforested as part of the Mitigation Plan developed.

- The Service is concerned that the clearing of all vegetation in the 150 foot ROW as stated in the DIA-P, in areas of highly erodible or unstable lands would cause excessive erosion that could impair water quality and channel stability in streams and rivers along the route. Trenching is likely not feasible in many steep areas within the corridor, yet DIA-P includes no discussion of how these areas will be traversed.

  RESPONSE: We must advise that all comments included in the USFWS were based on the evaluation of the first Draft of the EIS and not on the evaluation of the FEIS approved by the EQB on November 30, 2010. Sediment and Erosion control methods will be utilized throughout the construction of the pipeline to prevent excessive erosion that could impair

water quality and channel stability in streams and rivers along the route. Specific information related with the sediment control options is included in section 6.4.2 of the FEIS. We must alert the USF&WS that the sediment control options were developed utilizing criteria's that had being approved by the EQB and the EPA in the past for similar projects and that had met and address all the USF&WS concerns in this particular area.

- Generalized drawings as seen on sheet 2 of the PN do not clearly represent what is written in the DIA-P. The proposed permanent 50 foot ROW and its associated no root zone will require either mechanical or chemical maintenance, which implies construction of a permanent maintenance road with associated stream crossings along most of, if not the entire, ROW length. This is not addressed anywhere in the documents. Utilizing the full estimate of ROW impacts should also help account for staging areas along the project route.

  RESPONSE: **As previously stated, the proposed pipeline does not require a no-root zone**. At no point was it implied that permanent maintenance roads will be required for any water body crossing; stream, wetland, river, or otherwise. A permanent maintenance road has never been considered as part of the project and there is no plan, intent or need for such a road. After the pipeline is built, PREPA will use alternative methods, such as helicopters, to reach remote or isolated sections of the project. The idea of a "maintenance highway" is far from what PREPA envisions, and has never been part of the project.

- The Service is concerned about the possible impacts of directional drilling in the karst portions of the pipeline corridor. Voids in the rock matrix may lead directly to the aquifer, and a "frac-out" of drilling muds in this type of terrain and geology could contaminate underground waters and adversely affect human health, unique subterranean fauna, and commerce.

  RESPONSE: It is recognized that due care must to taken to ensure that contractors adhere to prudent practices to avoid the accidental release of bentonite mud. The North American Society for Trenchless Technology (NASTT) provides guidance for the analysis and design of tooling essential in reducing the incidence of hydro fractures (frac-outs) in karst environments. Hydro fracture or "frac outs" result when the fluid pressures built up in the borehole exceed the overburden effect of the surround soil medium. Several drilling factors and procedures will be monitored to preclude the development of hydro fractures. Eight significant factors will be evaluated at each HDD. These include: annular space; backream rate; borehole pressure; depth of cover; reamer type; reamer diameter; soil composition; and soil density.

  To ensure the Horizontal Directional Drilling (HDD) operations to be conducted in association with the Via Verde Pipeline will comply with all

regulatory permits and standards, proper pre-construction geotechnical investigations will be conducted on the insitu soil formations along the proposed installation route. Tooling used in HDD installations will be matched to the soil medium to be encountered. The Frac-Out Plan (Draft included in the FEIS approved on November 30, 2010) will be enhanced to stipulate lined pits and all environmental details depicted for the sedimentation ponds.

In summary, the HDD operation to be utilized on the Via Verde pipeline will include proper pre-construction geotechnical investigations, limit drill fluid application rates, utilize an appropriate type reamer to reduce the extent and magnitude of the drilling fluid dispersed, carefully monitor drilling mud pressures increased until the midpoint of the installation is attained, and insure proper containment, recycling, and/or reuse of drilling muds. All HDD operations for the Via Verde Pipeline will be conducted in accordance with the guidelines and recommendations of the North American Society for Trenchless Technology (NASTT) for karst environments. Regardless, PREPA is willing to include any specific recommendations provided by the USCOE to improve the Frac-Out Plan included in the FEIS.

**4. Endangered Species**

- The Service also continues to recommend surveys of the coqui llanero *(Eleutherodactylus juanariveroi)* where the project crosses wetlands in Toa Baja.

  RESPONSE: The applicant has met and/or engaged in teleconferences with the Service on six occasions to date. Surveys for federally listed Threatened and Endangered species, utilizing regional experts approved by the USFWS, have been and continue to be performed by PREPA within the project ROW. These site specific field surveys have been coordinated with the USFWS as to protocols and individual species to be assessed. To date, no threatened and endangered plant species have been identified and the list of faunal species of concern have been narrowed to six species, two of which have been positively documented as occurring within the ROW. Surveys for the six species previously identified remain on-going.

- The Corps needs to make an effect determination with regards to the endangered Antillean manatee (Trichechus manatus). The Corps' biological assessment (BA) should include an analysis of any necessary changes to current facilities and/or operation of the EcoElectrica LNG terminal needed for the Via Verde project.

RESPONSE: A response to the USFWS position regarding the EcoElectrica facility was provided above and PREPA sees no valid reason why a BA would include this analysis. Since no construction that has the potential to harm or disturb the manatee is proposed as part of this project, the applicant believes a "no effect" determination by the Corps is appropriate for the endangered Antillean manatee *(Trichechus manatus).* Moreover this concern was to be considered and evaluated at the time EcoElectrica requested a Plant Modification Permit that was granted in 2009 with the endorsement of the Service.

- USFWS recommended the development of a Biological Assessment, since it considered the project a major construction activity under NEPA.

RESPONSE: On October 18, 2010, the Service provided technical assistance to the Corps regarding information included in the draft Biological Evaluation for the project. It was concluded that additional biological evaluations to be provided by the applicant must rely upon survey methodologies that maximized detection probabilities for federally-listed species and must include site-specific habitat characterization. On November 10, December 2, and December 8, 2010, the Service provided additional technical assistance to the project applicant regarding appropriate survey methods for listed species along the proposed route.

The proposed project will result in only temporary impacts to approximately 152 acres of wetlands and no permanent fill or net loss to Waters of the United States (WoUS) will occur. After completing the environmental assessment and developing a plan to address the temporal loss of wetland functions (if required) the applicant believes the project will not result in any substantial effects on the aquatic environment and therefore a Finding of No Significant Impact (FONSI) is appropriate.

At the present time, with full knowledge and approval of the Service, the applicant has a team of regional scientific experts conducting site specific, appropriate surveys along the proposed route to determine presence/absence of listed species within the project area and the amount of suitable habitat. The survey methodologies developed and the surveys being conducted are being carried out by experienced and qualified personnel, and in close coordination with the Service. The draft Biological Assessment (Evaluation) will be appended to include the results of such surveys and will be the basis for all future consultations with the Service.

In addition to the above, the DNER requested that, to further ensure no federally-listed species is affected as a result of this project, a regional Biologist be assigned to each of the segments of Via Verde to be constructed. He, as well as an interdisciplinary group of professionals (Soil experts, Geologist and Hydrologist), will inspect the construction areas to ensure federally-listed species are fully protected.

- USFWS would like to provide technical assistance for the planning and implementation of the surveys to inform the Biological Assessment.

  RESPONSE: The applicant wishes to thank the USFWS for the technical assistance provided to date and includes the information (below) as an update to on-going surveys and project research. The applicant recognizes that some of the information included has previously been provided to the Service and/or the USACE.

**Habitat characterization for the Puerto Rican sharp-shinned hawk and Puerto Rican broad-winged hawk**

- USFWS wanted to meet with the species experts and discuss, during a working meeting, the areas to be included in the analysis to ensure that all available information is considered for the effects determination. USFWS also wanted to have the opportunity to visit the areas with contracted personnel. The agency did not concur with the applicant that it is possible to avoid impacts to breeding habitat and breeding behavior without first identifying the breeding territory. Under the assumption that suitable habitat is occupied for breeding, possible take as defined by the ESA would be anticipated.

  RESPONSE: PREPA committed to complete the requested raptor studies using Mr. Derek Hengstenberg, an acknowledged expert acceptable to the USFWS. As requested, Mr. Hengstenberg and the PREPA Team participated in working meetings (December 2010 to date) with the USFWS and agreed to field survey protocols, site locations, survey locations and times. Prior to the December USFWS meeting and teleconference, Mr. Hengstenberg prepared a GIS map with proposed raptor observation locations for review and approval by USFWS. In addition, Mr. Hengstenberg has agreed to share any and all available relevant raptor data with USFWS in dbf/xls file format. Mr. Hengstenberg commenced field surveys the week of January 10, 2011. The surveys were completed on January 27. The results of the surveys will be provided to the USFWS on or about February 11, 2011. Upon receipt of the surveys, the applicant will meet with the USFWS to evaluate the number of breeding territories that could be affected by the project construction (if any).

**Potential presence of endangered plants**

- USFWS did not agree with the Applicant's proposal of surveying at intervals of 100 m within suitable habitat. It recommends that personnel trained to recognize the listed species systematically search all areas of suitable habitat within the project footprint. It proposed a working meeting

between its staff and the applicant's contracted personnel to share information and delineate together the survey areas.

RESPONSE: The field review protocols to be utilized by Dr. Frank Axelrod and a team of qualified professionals were revised, with prior concurrence of the USFWS, to maximize the likelihood of locating special status plant species or special status natural communities that may be present. The protocols include intensive, systematic surveys targeted to detect the rare plant species in areas that harbor suitable habitat in the regions identified by USFWS. The target species will include those species identified in the USFWS letter to the applicant dated June 30, 2010. The level of effort required per given area and habitat will be dependent upon the vegetation and its overall diversity and structural complexity, which will determine the distance at which plants can be identified. Biologists will walk parallel transects spaced 5 to 10 meters (16 to 33 feet) apart throughout the entire site (in areas where suitable habitat exists) thereby entirely and systematically screening the area. Transects will be stratified by topography or plant community for convenience. All field survey crews will include at least one member who has the ability to identify sterile specimens of listed plant species and who has seen the target species growing in its natural habitat. Other team members may be trained using photographs and/or herbarium specimens but all must be accompanied in the field by the aforementioned experienced crew member during all surveys. Prior to conducting the field surveys, a working meeting will be held between the PREPA team and the USFWS. The purpose of this meeting will be to share information and to clearly identify the limits of those areas to receive intensive, systematic surveys.

Survey reports to be prepared will document the locations that were visited, the date of the visit, and the observability and phenology of the target species at that time, plus the date of the survey, the abundance and distribution of all rare species in the survey area. The current status and abundance of any known populations visited as well as any new populations discovered will also be reported. The surveys performed in accordance with the agreed upon species-specific guidelines to be developed by Dr. Axelrod will suffice to provide reasonable evidence that the specified plant taxa do or do not occur in the project area. Surveys that employ methods or timing other than those agreed upon or recommended herein may be used as evidence of the presence (but not absence) of rare plant species.

Final determination as to whether voucher specimens are to be collected will be the responsibility of Dr. Axelrod. All voucher specimens collected will be shared amongst the PREPA Team and the USFWS.

To date, Dr. Axelrod and his team have not found any federally listed species of concern within the limits of, or adjacent to, the Via Verde

Pipeline right-of-way. Dr. Axelrod's fieldwork is currently being completed and a final copy of the team's findings will be presented to the Service in February, 2011.

**Potential presence of coqui llanero in Toa Baja**

- USFWS wanted the opportunity to visit the proposed project ROW within other wetland areas in northern Puerto Rico to identify whether habitat suitable for the coqui llanero is present in other areas of the route.

  RESPONSE: The locations for the surveys for this species have been coordinated with the Service will be limited to that segment of the project located at the Rio Cocal flood plain in the Toa Baja Municipality at this time. Ms. Vega and Mr. Puente will conduct the field surveys after having conferred with Dr. Rafael Jogular, Dr. Neftali Rios, and the Department of Natural & Environmental Resources of Puerto Rico as to the likelihood that this species exists within other sections of the northern ROW. Based upon the guidance of these leading experts; other areas of the ROW may be examined. A written report will be submitted to the USFWS in February 2011. This report will address all concerns and recommendations on this species. This species is presently listed as Critically Endangered by The Department of Natural & Environmental Resources of Puerto Rico and its critical habitat has been identified, PREPA will comply with all State requirements for this species until such time as its review status under the Endangered Species Act has been finalized (Reference: DEPARTMENT OF THE INTERIOR, Fish and Wildlife Service, 50 CFR Part 17, [FWS-R4-ES-2009-0022; 92210-1117-000-B4], Federal Register: July 8, 2009 (Volume 74, Number 129)). The concerns and recommendations generated in the final report will be incorporated into the project design, construction plans, and final permits issued for the project. We must consider that in this particular regard, the DNER evaluated and approved the assessment presented for this particular specie included in the FEIS approved on November 30, 2010.

**Potential presence of the Puerto Rican crested toad**

- USFWS agreed with PREPA's approach to search for the Puerto Rican crested toad in both the southern and northern limestone forest areas. It recommended that before surveys are initiated, survey areas are discussed and delineated between its staff and contracted species experts. The agency wanted the opportunity to visit the areas with contracted personnel.

  RESPONSE: Specific field evaluations for the Puerto Rican Crested Toad (PRCT) - Sapo Concho de Puerto Rico (Peltophryne lemur) have been initiated within the municipalities of Vega Baja (Rio Indio), Manatí (karst area south of town), and Peñuelas dry karst as recommended by the