BLYTHE ENERGY PROJECT PHASE 2
(02-AFC-01)
DATA REPONSES

Technical Area: Air Quality
Author: Brewster Birdsall

BACKGROUND
The AFC specifies that the proposed Best Available Control Technology (BACT) levels from the combustion turbines will be 2.5 parts per million (ppmvd) of NOx on a one-hour basis and under 8.4 ppmvd of CO on a three-hour average (AFC Table 7.7-20). This was the Air Quality District's requirement for the Blythe I project; however, current EPA recommendations have established more stringent standards. The U.S. EPA recently identified a federal Lowest Achievable Emission Rate (LAER) for this type of equipment to be 2 ppmvd for both NOx and CO on a 1-hour average. U.S. EPA contends on other cases that these levels are achieved in practice. Because the BEP 2 equipment is required to implement BACT for NOx, which would be the levels achieved in practice [MDAQMD Rule 1301(K)(1)(a)], the proposed NOx levels should match the levels specified by the U.S. EPA.

DATA REQUEST 103 **Please identify proposed BACT levels from the gas turbines that match the levels specified by the U.S. EPA, or provide an analysis that demonstrates such limitations are not achievable. As necessary, please update the emission calculations and dispersion modeling analyses that would be affected.**

RESPONSE TO DATA REQUEST 103 USEPA has not specified BACT levels for the Blythe Energy Project – Phase 2. Caithness Blythe II, LLC (CB II) is awaiting the draft PSD permit for the Project. USEPA had committed to provide a draft document prior to the end of 2002. USEPA did however comment on the Mohave Desert Air Quality Management District Preliminary Determination of Compliance suggesting BACT levels lower than proposed by CB II. CB II is preparing responses to USEPA's comments as well as CEC and CARB and will provide responses to the comments to the PDOC when they become available. Should lower levels be required, we will revise the emission calculations to reduce the emission reduction credit requirements. Regulatory protocol does not require the dispersion modeling analysis to be re-performed in cases such as this since the revised emission levels would be lower and the current air dispersion modeling analysis will have represented a worse case scenario.

BACKGROUND
The applicant proposes an ammonia slip emission level of 10 ppm (AFC p. 2-28). This is the standard used for the Blythe I project. However, ammonia under certain conditions is a precursor to PM_{10}. Guidance on emission levels from the Power Plant Guidance Document published by the Air Resources Board in 1999 recommends an ammonia limit of 5 ppm at 15% O_2. Staff agrees with the Air Resources Board recommendation. Other licensing cases currently before the commission are specifying ammonia slip limits of 5 ppm. Examples of projects proposing to achieve 5 ppm are Russell City (01-AFC-7) and Magnolia (01-AFC-6).

BLYTHE ENERGY PROJECT PHASE 2
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DATA RESPONSES

DATA REQUEST 104 **Please identify why this project, as opposed to other proposed and certified projects, cannot meet an ammonia slip level of 5 ppm at 15% O_2. In this discussion, please identify measures, including increasing catalyst surface area, that might allow the project to meet the guideline level for ammonia, and identify the associated costs of such measures.**

RESPONSE TO DATA REQUEST 104 The Mojave Desert Air Quality Management District (MDAQMD) issued the Preliminary Determination of Compliance in late 2002. Comments were received from CEC, CARB and USEPA on several topics. With respect to Ammonia Slip, **no** comments were received from the California Air Resources Board regarding Caithness Blythe II's (CB II's) proposed ammonia slip limits for the Blythe Energy Project – Phase 2.

The amount of ammonia slip experienced over the catalyst life will vary from levels around 1 to 2 ppm initially and gradually increase as the catalyst ages and deteriorates. A catalyst life of approximately five years can normally be expected depending on actual operating times for the plant.

CB II modeled the health effects of the ammonia emissions expected from the plant and found that no significant impacts on health would be expected. Another concern with ammonia emissions is secondary PM10 formation (primarily ammonium nitrate). Due to the ammonia rich nature of the Palo Verde Irrigation District that surrounds BEP 2, ammonia emissions from the plant will not automatically result in more PM 10 formation. The Palo Verde Irrigation district includes approximately 110,000 acres of farmed land. The ammonia distributors in the area have indicated that approximately 10,000 tons of ammonia are applied to the farm fields every year. At a 5 ppm lifetime average ammonia slip level, BEP 2 would emit less than 100 tons per year. The amount of ammonia currently used in the area demonstrates that there is currently sufficient ambient ammonia to react with emissions of the plant to form particulate.

We note however, the dry conditions in the vicinity of BEP 2 will tend to minimize the secondary PM 10 effects associated with ammonia emissions. For the Blythe Energy Project Final Staff Assessment, page 48 – Secondary Pollutant Impacts, Staff writes:

> *"Similarly, there is a known relationship between emissions of NOx and ammonia and the formation of ammonium nitrate PM10. Whether the NOx and ammonia impact are significant depends on the likelihood of ambient PM10 violations. However, the generally dry conditions in the Blythe area will slow the reaction of NOx and ammonia to ammonium nitrate PM10, and thus reduce the potential for such impact. Though staff is unable to numerically evaluate the project's contribution to secondary particulates due to a lack of acceptable data and techniques on which to base such an analysis, staff believes that such an impact is unlikely to be significant due to the meteorological conditions in the area."*

The CARB guidance document recommends that a 5 ppm lifetime average is appropriate which recognizes that the slip level will sometimes be below 5 ppm and other times will be above 5 ppm over the life of the catalyst.

CB II believes the 10 ppm ammonia slip limit proposed by Mojave Desert AQMD is appropriate given the ammonia rich nature of the surrounding area and the finding of no significant impact in the air modeling of the emissions for BEP 2.

BACKGROUND

The AFC specifies that BACT will be installed on the emergency fire pump (AFC p. 7.7-12). The diesel fire pump emissions are shown to be 4.61 pounds NOx per hour in Table 7.7-14 and Appendix 7.7-A and 7.45 pounds NOx per hour in Table 7.7-10 and on the MDAQMD form of Appendix 7.7-O. The BACT levels are not summarized in Table 7.7-20.

DATA REQUEST 105 **Please identify the emission levels presumed to achieve BACT for the diesel fire pump engine, identify the control technologies that would be used to achieve BACT, and verify that the emission rates are consistently presented in the AFC.**

RESPONSE TO CEC DATA REQUEST 105 The emission factors and emission rates presented in Table 7.7-14 of the AFC represent BACT for the diesel engine fire pump, as per MDAQMD. The engine will only be used during emergency situations and weekly testing. The engine will be tested for a maximum of one hour per week to ensure proper functioning. The likely emission controls for an engine of this size and type necessary to meet these BACT levels would be an electronic controlled engine with a turbocharger and an aftercooler. Note that the fire pump emissions presented in Tables 7.7-10 and 7.7-11 of the AFC were based on no add-on controls and are superceded by the revised tables presented below. The pounds per day emissions are the same as the pounds per hour emissions because the engine is only tested for up to one hour per day. There is no change to the SO_2 emission rate (0.10 lb/hr) because that is based on a mass-balance calculation assuming 0.05% sulfur in fuel (by weight), 100% conversion to SO_2, and a fuel consumption rate of 14.5 gal/hr. The fire pump annual emission rates presented in table 7.7-12 are correct.

TABLE 7.7-10 (Revised)
Maximum Hourly Emission Rates[1] (Pounds Per Hour)

Source	NO_X	CO	VOC	PM_{10}	SO_2
CT/HRSG #3	281	147	7.70	6.0	2.7
CT/HRSG #4	281	147	7.70	6.0	2.7
Fire Pump	~~7.45~~ 4.61	~~0.65~~ 5.68	~~0.64~~ 0.67	~~0.053~~ 0.25	0.10
Cooling Tower (8 cells)	-	-	-	0.67	-
~~Evaporative Condenser (7 – 12 cells)~~	~~-~~	~~-~~	~~-~~	~~0.11~~	~~-~~

Facility Total	569	295	16.0	12.7	5.5

[1] Assumes 1 hot start for NO_X, CO, and VOC, and normal operations for PM_{10}, and SO_2. Emissions from each CT is an average value of the calculated total emissions

TABLE 7.7-11 (Revised)
Maximum Daily Emission Rates[1] (Pounds Per Day)

Source	NO_X	CO	VOC	PM_{10}	SO_2
CT/HRSG #3	2,881	1,904	119.5	144	65
CT/HRSG #4	2,881	1,904	119.5	144	65
Fire Pump	~~7.45~~ 4.61	~~0.65~~ 5.68	~~0.64~~ 0.67	~~0.053~~ 0.25	0.10
Cooling Tower (8 cells)	-	-	-	16.1	-
~~Evaporative Condenser (7 - 12 cells)~~	~~-~~	~~-~~	~~-~~	~~2.54~~	~~-~~
Facility Total	5,769	3,809	240	304	130

[1] Assumes 5 hot starts and 1 cold start per day for NO_X, CO, and VOC, and normal operations for PM_{10}, and SO_2. Emissions from each CT is an average value of the calculated total emissions.

BACKGROUND
In Response to Data Request 8 and in AFC pp. 7.13-25 to 27, the applicant indicated that the Water Conservation Offset Program (WCOP) would reduce fugitive dust emissions below the existing conditions by optimizing the surface conditions on the affected lands. The applicability of MDAQMD rules to the WCOP activity remains unclear.

DATA REQUEST 106 **Please elaborate on the applicability of MDAQMD rules for fugitive dust control as they relate to the WCOP. For example, either describe whether an ongoing monitoring plan is necessary for the WCOP to demonstrate compliance with the 100 microgram per cubic meter upwind-downwind limit in MDAQMD Rule 403(c) or provide a citation or reference that demonstrates the MDAQMD rules do not apply.**

RESPONSE TO DATA REQUEST 106 MDAQMD Rule 403 does not apply to agricultural operations (see Rule 403 (f)). Dust control as it relates to the WCOP is a defined agricultural operation, i.e. rotational fallowing of agricultural land. MDAQMD concurs with this interpretation and has determined that best management practices proposed by BEP 2 are adequate. MDAQMD reviewed and commented on the proposed MWD fallowing program within PVID, which is consistent with the proposed BEP 2 WCOP fallowing program.

BACKGROUND
In Response to Data Request 8, the applicant indicated that the Water Conservation Offset Program (WCOP) would reduce fugitive dust emissions below the existing conditions by optimizing the surface conditions on the

affected lands. The AFC (p. 7.13-27) describes the measures that would be implemented on the WCOP lands to minimize wind erosion of soil. The strategies include providing residual "crop stubble" or "clod plowing" the non-irrigated fields. Because some of the fallow lands of the BEP 2 WCOP would be actively managed for dust control, staff needs to substantiate the assertion made in Response to Data Request 8 that fallowing would maintain wind erosion at levels similar to or lower than existing levels.

DATA REQUEST 107 **Please demonstrate that fugitive dust emissions from maintenance of WCOP lands would not exceed the asserted baseline conditions of 25 pounds PM10 per acre annually (AFC p. 7.13-25). For example, staff anticipates that clod plowing parcels containing a higher percentage of silt and sand material may result in a higher-emissions scenario, as it would be less likely to clod than clay materials. Please also summarize and consider any other agricultural/non-agricultural uses that could be allowed on the WCOP lands. With this information, staff will substantiate that year-to-year maintenance of WCOP lands indeed generates less dust emissions than baseline activity on irrigated lands.**

RESPONSE TO DATA REQUEST 107 Staff's background states that "*Because some of the fallow lands of the BEP 2 WCOP would be actively managed for dust control, staff needs to substantiate the assertion made in Response to Data Request 8 that fallowing would maintain wind erosion at levels similar to or lower than existing levels*." The original Data Request (#8) and it's supporting background asks for proof that WCOP would not produce erosion exceeding the threshold of 5 tons per acre per year. Now Data Request 107 disingenuously suggests a new threshold of 25 pounds per acre per year. As staff is well aware, we did not intent to "assert baseline conditions" but rather we explicitly cited a PVID estimate of the PM10 fraction of the total average annual fugitive dust emissions (25 pounds per acre per year) for a specific crop (cotton) that was selected by PVID since it requires fairly intensive management and soil disturbance. The PVID estimate was cited since it confirms that local estimates of wind erosion do not begin to approach the NRCS threshold for concern of 5 tons per acre per year. Further, only agricultural uses are planned for the WCOP lands. Crops that are rotationally fallowed will be typical of crops grown in the Palo Verde Valley. An agreement with each landowner that participates in the rotational fallowing program of the WCOP will contain a requirement that the erosion control practices be implemented at the onset of fallowing for specific acres and then left alone for up to 5 years. No fallowed lands would be actively managed for dust control and there is no year to year maintenance proposed. Finally, the WCOP already specifies that land may not be converted to non-agricultural uses during the rotational fallowing program. As noted in Response to Data Request 106 above, we reiterate that MDAQMD Rule 403 does not apply to agricultural operations (see Rule 403 (f)). Dust control as it relates to the WCOP is a defined agricultural operation, i.e. rotational fallowing of agricultural land. MDAQMD concurs with this interpretation and has determined that best management practices proposed by BEP 2 are adequate. MDAQMD reviewed and commented on the proposed MWD fallowing program within PVID, which is consistent with the proposed BEP 2 WCOP fallowing program.

Fugitive dust emissions from fallowed lands are clearly reduced from normal agricultural operations since soil disturbing activities of tilling, planting, fertilizing, and harvesting are eliminated or significantly reduced. CB II has proposed use of local practices recommended by the NRCS and approved by the Palo Verde Irrigation District (PVID) to reduce wind erosion of soils on fallowed lands. As referenced in the AFC (pg 7.13-27) the farming practices in the PVID have used crop stubble and clod plowing with good success for minimizing wind erosion. The National Resources Conservation Service (NRCS) Field Office Technical Guides - Conservation Practice Standard, Surface Roughening Code 609 contains the definition, purpose, and criteria for the provisions of ridge and clod farming. These provisions are consistent with the clod farming practices proposed to control fugitive dust emissions as part of the land fallowing program for the Water Conservation Offset Plan. The NRCS Standard references local knowledge to determine the effectiveness of clod forming tillage practices. CB II has conducted interviews with local farmers and representatives from the Palo Verde Irrigation District to verify the success of the program (1. Ed Smith, General Manager, PVID, September 23, 2002, pers. comm. w/ J. Harvey, Greystone. 2. Joey Deconinck (Chairman), and Bob Hull and Danny Robinson, Palo Verde Valley NRCS Advisory Board, January 21, 2003, pers. comm. w/ Bob Looper, Caithness), (see also Response to Data Response 171 below presenting quantitative wind erosion estimate using the RUSLE formula).

Wind erosion is also very limited in the Palo Verde Valley. Soils in the Valley are fairly uniform and are generally classified as, silty fine to medium grain sandy soils (SP-SM) with cohesion of 350-450 psf. Fine to medium sand, with a grain size varying from 0.074-2 mm is not readily transported by wind. Finer sand particles may only be transported short distances before re-deposition of the particles. The smaller percentage of the soil (10-20% passing the #200 sieve) may be subject to transport over longer distances. However, once the upper few millimeters of silts are lost, the remaining sandier soils become very stabilized and not subject to further erosion.

BACKGROUND

In Response to Data Request 2, the applicant indicated that ongoing meetings with the National Park Service (NPS) were in process to fully evaluate the impacts to the Joshua Tree National Park (NP). In their September 24, 2002 letter, NPS declared that the applicant's screening analysis for deposition and visibility had "fatal flaws" and that a refined analysis with 3 to 5 years of meteorology should be used to determine the extent of impacts to Joshua Tree NP. The cumulative contribution from other sources in the region (especially Blythe I) was not investigated in Response to Data Request 2. The progress of the applicant's response to the NPS letter is unknown.

DATA REQUESTS 108 Please provide an update of progress in response to the NPS September 24, 2002 letter. The status of the applicant's modeling versus the NPS's modeling should be reviewed, and any plans to conduct further modeling should be identified. A schedule for resolution should be proposed because the potential for this issue to delay the MDAQMD

determination of compliance with New Source Review requirements needs to be assessed.

RESPONSE TO DATA REQUEST 108 In September, 2002 Caithness Blythe II, LLC (CB II) received a letter from the National Park Service (NPS) providing comments on the Calpuff screening model results which had been prepared by Greystone Environmental for the Blythe Energy Project – Phase 2. The comments were surprising given that Greystone had followed the same modeling protocol as had been done for the Phase I project. In any event, CB II retained an independent consultant, Earth Tech to assist with preparation of a response to the September 24, 2002 letter from the NPS. Earth Tech has special expertise with the various versions of the Calpuff model.

In January 2003, Earth Tech completed a Calpuff screening protocol for the Blythe Energy Phase 2. This document was submitted to NPS for concurrence. Conference calls were held between the parties, and NPS concurred in early February with the modeling protocol that had been submitted. A copy of the modeling protocol was also submitted for information to the CEC Project Manager, Bill Pfanner.

Earth Tech is performing the additional modeling per the approved protocol and anticipates completion in March 2003. A report will be prepared documenting the results of the modeling and it will be submitted to NPS for concurrence. Provided there are no issues, CB II expects to receive a letter from NPS prior to the end of April 2003. A copy of the report will also be provided to the CEC.

DATA REQUEST 109 Please either include Blythe I in a cumulative analysis for deposition and visibility, using for example, merged stacks in the CALPUFF screening model, or provide documentation from the Federal Land Manager that the impacts from BEP 2 would not trigger any need for a cumulative analysis.

RESPONSE TO DATA REQUEST 109 As indicated in 108 above, CB II has submitted a modeling protocol to National Park Service. This modeling protocol was approved by NPS. Additional modeling is being performed in accordance with the approved protocol. Upon approval of the modeling results, CB II will obtain a letter from the NPS indicating the whether the impacts from BEP 2 trigger a need for a cumulative analysis.

BACKGROUND
In Response to Data Request 5, the applicant indicated that a more detailed description of Emission Reduction Credits (ERC) used to offset BEP 2 would be forthcoming. Although the MDAQMD indicated in their October 30, 2002 letter that the package is substantially complete, at the time of writing this request, the information has not yet been provided to the Energy Commission staff.

DATA REQUEST 110 **Please provide the detailed ERC strategy as promised in Data Response 5. Reiterating Data Request 5, the strategy should provide the ERC certification number and owner, a quantification of the emissions reduced, the source of reductions, and method of reduction.**

RESPONSE TO DATA REQUEST 110 The detailed ERC offset package will be submitted as a separate confidential filing.

BLYTHE ENERGY PROJECT PHASE 2
(02-AFC-01)
DATA RESPONSES

Technical Area: Biological Resources
Author: Natasha Nelson
Technical Senior: Jim Brownell

BACKGROUND
In the first round of data responses, the applicant stated they were still negotiating with the City of Blythe before finalizing project features such as fire protection, roads and landscaping (see Responses to Data Requests 10,11, and 14). The applicant must identify all impacts expected for their project prior to staff completing their analysis.

DATA REQUEST 111 **Provide a copy of the final agreement between the City of Blythe and Riverside County and the applicant for funding of project-specific impacts related to fire safety. The agreement shall specify all infrastructure improvements needed. If the infrastructure improvements would require additional habitat disturbance, the amount should be estimated and submitted to staff.**

RESPONSE TO DATA REQUEST 111 For the Blythe Energy Project, the Conditions of Certification (Worker Safety 4 & 5) required that the City of Blythe and the Project reach agreement regarding the funding of project specific impacts "Prior to the erection of structures" or "Prior to the delivery of ammonia or natural gas to the site". We believe it is premature and unrealistic to request copies of these agreements between the City of Blythe and the Project.

The City of Blythe and Caithness Blythe II, LLC have reached agreement however regarding Worker Safety 4 & 5, that there will be no offsite environmental impacts related to the construction of the Blythe Energy Project – Phase 2. The City of Blythe will provide a letter stating the incremental impacts if any, are related to personnel training and equipment only. We expect to receive this letter from the City of Blythe in the later part of March and will provide as a separate submittal.

DATA REQUEST 112 **Provide a copy of the final construction drawing for the Riverside Avenue secondary access road (as approved by the City of Blythe or Riverside County) and the easement width for this public right-of-way. The drawing shall indicate how sheet drainage from the areas north of the road will be routed to the proposed 42- inch drain pipe at the intersection of Riverside Avenue and Buck Boulevard. If the drainage structures would require additional habitat disturbance, the amount should be estimated and submitted to staff.**

RESPONSE TO DATA REQUEST 112 Construction drawings for Riverside Boulevard were provided as part of the response to Data Request 11, Attachment 11. These drawings reflect the "as-built" configuration of Riverside Boulevard. These drawings were provided to the CEC Project Manager, Bill Pfanner.

Caithness Blythe 2, LLC is aware however that additional drainage measures are being installed at the request of the CBO on the north side of Riverside to manage sheet flow into the 42-inch culverts at the intersection of Riverside and Buck Blvd. These culverts have been installed by Blythe Energy in late 2001 as part of the Blythe Energy Project. This work is being performed by Blythe Energy and should be completed soon. **This work is not a Blythe Energy Project – Phase 2 responsibility.** We believe these details can be obtained from Steve Munro, Compliance Project Manager for BEP, once the work has been completed.

DATA REQUEST 113 **If the items requested above cannot be provided in a timely manner, then provide a schedule for providing all the final drawings and agreements made between the City of Blythe, Riverside County, and the applicant.**

RESPONSE TO DATA REQUEST 113 See responses to Data Request 111 & 112.

BACKGROUND
The applicant stated in Response to Data Request 10 that construction access will be via a gated access road at the northeastern corner of the BEP 2 site, accessed from Riverside Avenue. The AFC indicates that there are 4,310 truck deliveries projected during the 12 to 18 month construction period, and during the peak construction, there would be 660 daily trips by workers to and from the site (Section 7.4). While Hobsonway and Buck Boulevard have Interstate frontage, industrial facilities (BEP 1), and agricultural fields along their shoulders, Riverside Avenue has potential desert tortoise habitat along its entire northern shoulder. One of the harms often identified for desert tortoises is construction traffic, however the applicant has not given an analysis of the potential impact of construction traffic on desert tortoise for this project.

DATA REQUEST 114 **Provide an analysis of how the heavy use of the gated access road from Riverside Avenue could potentially impact desert tortoises. If an impact is identified, then propose actions that could reduce the impacts.**

RESPONSE TO DATA REQUEST 114 During the construction of BEP 2, access to the site is planned through a gate at Riverside Boulevard. This access point will be used for construction workers, vehicles and material/equipment deliveries. The potential for impact to desert tortoises is highly unlikely because:

(1) There is a low probability for tortoises in the areas surrounding the site, and
(2) There have been no signs of tortoises in the vicinity of the BEP or BEP 2 site in the past four years of surveys and monitoring tasks during the permitting and construction of BEP.

The gate for the entrance to BEP 2 will remain closed and tortoise-proof except during specific, daily, high traffic periods.

BACKGROUND
In the first round of data responses, the applicant stated they were still negotiating with the City of Blythe on the landscaping plan. If the adoption the City of Blythe-approved landscaping plan were conditioned upon installation of non-native landscaping plants, then the landscaping would be in violation of the amended Biological Opinion for the BEP 1 Amendment 1B which requires only native species be used in landscaping.

DATA REQUEST 115 Provide an analysis of how the approved Landscaping Plan is in compliance with the Biological Opinion (as amended) issued by the U.S. Fish and Wildlife Service.

RESPONSE TO DATA REQUEST 115 Based on the pending approval of the Blythe Energy Project Phase 2 Site Plan by the City of Blythe Planning Review Commission, Caithness Blythe II, LLC (CB II) does not plan to install any landscaping external to the project fencing. Should the project require any landscaping within the Project fencing, it will be using native vegetation. The Project is therefore, in compliance with the Biological Opinion.

DATA REQUEST 116 Provide a copy of the final agreement(s) between the City of Blythe and the applicant for Landscaping Plan. The agreement shall specify all improvements needed; including a list of species proposed for planting.

RESPONSE TO DATA REQUEST 116 Caithness Blythe II, LLC (CB II) as indicated in Response 115 above, plans no landscaping outside of the Project fence line. The pending approval of the Project Site Plan by the City of Blythe Planning Review Commission will not require CB II to install landscaping external to the Project perimeter fence line. Any landscaping which CB II installs internal to the Project perimeter fence will be at the discretion of CB II. A copy of the Planning Review Commission decision and conditions will be forwarded as soon as it becomes available. Additionally, the City of Blythe will provide a letter indicating there are no landscaping requirements external to the Project fence line for the Blythe Energy Project – Phase 2. A copy of this letter will be provided as soon as it becomes available (end of March 2003).

BACKGROUND
In several locations in the AFC, the Applicant refers to a new BN-BS transmission line being built by Imperial Irrigation District (pages 2-1 and 8-5). Staff has reviewed the administrative draft EIS/EIR for this proposed line and its alternatives. However, the applicant has indicated in their response to Data

Request 16 that the BN-BS transmission line is no longer being considered. Western Area Power Administration indicated to staff that two other lines in the area are being considered for upgrades (the Devers-Palo Verde line and the Buck Boulevard-Devers line) in the Blythe area. Staff assumes such construction will require documentation on the level of impact to biological resources. Staff would like to review any printed material related to transmission line installation which interconnects Blythe to another substation or transmission line for their analysis of cumulative impacts to biological resources.

DATA REQUEST 117 **Provide a copy of environmental documents or biological resources permits for any Imperial Irrigation District transmission line upgrades with an interconnection in Blythe. These documents should indicate the level of impact to biological resources and how these impacts would be mitigated.**

RESPONSE TO DATA REQUEST 117 On March 11, 2003, Caithness Blythe II, LLC mailed a copy of the Draft EIS/EIR for the Desert Southwest Transmission Project to Bill Pfanner.

DATA REQUEST 118 **Provide an analysis of the potential for cumulative impacts to biological resources which may result from the construction of an Imperial Irrigation District's transmission line with an interconnection in Blythe.**

RESPONSE TO DATA REQUEST 118 Cumulative impacts analysis from the Desert Southwest Transmission Project EIS/EIR is presented below to provide the request information. Note that this analysis pertains to the IID Transmission Project only; the BEP 2 site is fenced and has been fully mitigated for biological impacts including acquisition of offset lands and therefore does not contribute to cumulative impacts related to the IID Transmission Project. Cumulative impacts on vegetation resources would include increased disturbance of plant communities, loss of vegetative cover, and the potential for the introduction and dispersal of noxious weeds during construction, operations, and maintenance of the Proposed Project.

Temporary and permanent destruction of vegetation is unavoidable at tower pads, stringing and tensioning sites, and spur roads. Table 1 lists temporary and permanent disturbance for the Proposed Project. Additionally, natural revegetation processes may take up to 30 years to successfully restore those construction areas that were temporarily disturbed.

Table 1
Proposed Project Land Disturbance by Project Feature

Project Feature	Acres Disturbed During Construction	Acres to be Restored	Acres Permanently Disturbed
Structure Sites[a]	914 – 1,020	866 - 966	48 – 54
Access Roads[b]	26	6	20
Staging Areas	28	28	0
Pull Sites[c]	63	63	0
New Substation/Switching Stations (2)	50		50
Devers Substation (expansion)	5		5
Total Estimated	894 – 1,125	767 - 986	127 - 139

[a] Area at structure sites include short spur roads from the existing Devers-Palo Verde Transmission Line maintenance road.
[b] New access roads would be required and some existing roads would require upgrades to allow passage of heavy equipment to set structures and deliver concrete.
[c] Pull sites are areas at which equipment utilized for installation of transmission line wires would be temporarily located during construction.

Construction activities will result in permanent loss of food, shelter, and nesting/breeding areas on tower pads, spur roads, and stringing and tensioning sites. Secondary impacts will occur to all wildlife species, particularly the desert tortoise from the increase in human activities and displacement from the construction right-of-way. The reduction of desert tortoise habitat and potential for direct mortality is a significant cumulative impact. However, the impacted acreage will be compensated at a 5:1 ratio and will allow for the purchase of private land that can be effectively managed to implement desert tortoise recovery goals.

BACKGROUND

Western Area Power Administration submitted materials initiating consultation with the U.S. Fish and Wildlife Service (USFWS) for the installation of a power plant on the BEP 1 Amendment 1B area on July 3, 2002. Western shared with staff the letters they subsequently received from USFWS (dated August 6 and October 17, 2002) which requested additional information regarding project impacts. Western said they are awaiting the applicant's response. The applicant in their response to data request 15 states, "… information is being provided to the USFWS. " (page BIO-5), but no dates were given.

DATA REQUEST 119 Provide an update on the status of the federal consultation process and include copies of all correspondence.

RESPONSE TO DATA REQUEST 119 CB II has met with Chris Otahal of the USFWS to discuss and address questions he raised concerning "outside the fenceline" work at the BEP 2 site. Mr. Otahal and CB II agreed that after the City of Blythe Planning Review Commission (PRC) process was completed, CB II will transmit evidence that the PRC process does not require "outside the fenceline" work. As the PRC process has taken longer to complete than

expected, the evidence Mr. Otahal has requested has not yet been delivered. As discussed in Response to Data Request 116 above, the PRC process is expected to be completed near the end of March 2003. When completed, Mr. Otahal will be sent a letter and the PRC conditions as evidence that the City is not requiring "outside the fenceline" work. Copy of this correspondence will also be docketed with the CEC.

DATA REQUEST 120 **Provide a timeline for submittal of responses to any outstanding USFWS data requests.**

RESPONSE TO DATA REQUEST 120 See Response to Data Request 119 above.

BACKGROUND
Based on Table 7.7-40 of the AFC, when ambient and project impact levels are combined during the commissioning period, there could be a significant change in local levels of nitrogen and therefore nitrogen deposition. The applicant included a calculation of nitrogen deposition during commissioning activities in Data Response 25. When the equations provided are used to calculate background conditions, the local area is expected to receive nitrogen deposition of 77.7 kg/ha-yr. This level of nitrogen deposition is far beyond what many vegetative communities are known to respond to (see analysis presented in Data Response 25), and is over four times levels previous reviewed by Energy Commission staff (see Los Esteros Critical Energy Facility or Inland Empire Energy Center). There were several aspects of this calculation which were unclear to staff, and assumptions made by the analyst were undisclosed. Staff has additional data requests to clarify if the calculation is correct and is appropriately conservative.

DATA REQUEST 121 **Provide the source (citation) of the settling velocity used in the calculation of nitrogen deposition and a copy of the page where it is located. Describe if the source is a conservative estimate of settling velocity and what assumptions it makes about atmospheric conditions. For comparison purposes, provide the Maximum NO2 Annual Impact during operations of BEP 2 alone, the combined operational impact of BEP 1 and 2, and the nitrogen deposition impact from ambient conditions in the same table format used in Data Response 25.**

RESPONSE TO DATA REQUEST 121 Based on the concern regarding nitrogen (N) deposition, the assumptions used in calculating the maximum potential for N deposition during the commissioning period for CB II were reviewed by the applicant and concluded to be overly conservative. Hence, the analysis has been redone and is presented below. Furthermore, because multiple levels of conservatism were used in this calculation (and have been used in subsequent calculations presented below), it is likely that these estimates are at least an order of magnitude greater than the actual impacts that would occur. The original assumptions included:

- A deposition velocity of 0.05 meters per second (m/s).
- All ambient N is assumed to react with an unlimited pool of background reactive species, including ozone and ammonia to form any species of N.
- All ambient N at ground level is assumed to be deposited on the ground (i.e. no reflection).
- The maximum impact over the entire receptor grid is assumed to be representative of impacts at any location.

The conservatism created by these assumptions is also increased by the conservatism built into the ISCST3 dispersion model. Additional discussions on these assumptions are provided below.

The assumed deposition velocity of 0.05 meters per second (m/s) was obtained from a report prepared by the Inter-Agency Workgroup on Air Quality Modeling (USEPA 1993) and can be found in **Attachment 121-1**.

The over-conservatism of the 0.05 meters/second is confirmed by published deposition rates, and by comparing the CEC's background calculations to actual deposition data. For example, research on dry deposition in the South Coast Air Basin (Gertler 1989) found that for nitrogen oxides the deposition velocity was "very close to zero," and for nitric acid the deposition velocity was slightly negative (i.e., no deposition).

Revised Analysis:
As stated in the BACKGROUND section, the CEC reviewer's nitrogen deposition calculations using an NO_2 background concentration of 16.2 $\mu g/m^3$ and the deposition velocity of 0.05 m/s (as discussed in the Background section for this data request) results in a calculated N deposition rate of 77.7 kg/ha-yr. However, this value is unrealistic based on our research of available data. For example, deposition data for Joshua Tree National Park (USEPA 2003) from the years 1995 – 2000, was measured at an average N deposition rate of 3.7 kg/ha-yr from HNO_3, NO_3, and NH_4 deposition and 3.5 kg/ha-yr from just the HNO_3 and NO_3 deposition. Background annual NO_2 concentrations averaged out at 11.75 $\mu g/m^3$ at this location, resulting in a calculated deposition velocity of approximately 0.0031 m/sec for HNO_3 and NO_3 deposition. This further confirms that the use of a settling velocity of 0.05 m/s over predicts deposition rates (in this case, by a factor of 15). Furthermore, the 0.0031 m/sec settling velocity is consistent with the 0.005 m/sec recommended by (Zanneti 1990). A printout of these raw data and summaries are presented in **Attachment 121-2**.

To calculate the revised predicted N deposition near the CB II, we developed a ratio of N deposition at Joshua Tree to the ambient concentration of NO_2 at Joshua Tree to calculate an "NO_2 N Deposition Factor," equal to 0.296 (kg/ha-yr)/($\mu g/m^3$), which is assumed to be representative of the desert southwest area, and applied it to the Blythe area. We used this factor to reevaluate the predicted N deposition rates from BEP and CB II NOx and NH_3 emissions.

Background NO_2 ambient concentrations measured at Twentynine Palms during the years 1994 – 1997 were correlated with the Joshua Tree N deposition data from HNO_3 and NO_3 deposition. For N deposition resulting from ammonia emissions, background NH_4 ambient concentration

data that were measured concurrently with NH_4 deposition data were combined into an NH_4 deposition rate factor.

Using this methodology, **Attachment 121-3** presents the calculations and results for the revised CB II commissioning deposition impact and the maximum combined BEP and CB II deposition impact.

The maximum commissioning impact (NO_2 = 0.9 μg/m^3) assumed uncontrolled NOx emissions for the commissioning period, and normal-operation NOx emissions for the remainder of the 12-month period. Using this value, and the "NO_2 N Deposition Factor," the revised maximum N deposition is calculated to be 0.27 kg/ha-yr.

For evaluating deposition impacts for BEP, the NO_2 ambient impacts from the modeling analysis included with the BEP AFC application were used. The combined BEP and CB II deposition impact calculation assumes that BEP is in operations mode while CB II is in commissioning mode. The estimated N deposition with this scenario is 0.30 kg/ha-yr.

DATA REQUEST 122 **Provide details on whether the nitrogen is settling in solid or particle form in the Data Response 25 calculation. Describe if the deposition calculated in Data Response 25 represents a maximum deposition that could exist anywhere off-site, or if there are limitations to the distance each chemical could disperse. Include any assumptions on whether the chemical is a solid or a particle and its reactivity to other chemicals in the air.**

RESPONSE TO DATA REQUEST 122 The calculation for Data Response 25, as well as for the revised deposition estimates provided above, accounts for total N deposition from the commissioning period NO_2 emissions. However, note that in light of the revisions made in response 121, the previous response to data request 25 also represents a gross over-prediction and is no longer valid. Consistent with the 0.0031 m/sec deposition velocity derived in response 121, the predicted N deposition for an annual NO_2 concentration of 0.9 μg/m^3 is 0.27 kg/ha-yr, and is the value that should be considered to be the response to data request 25. All forms of nitrogen including gaseous, particulate, and water soluble are assumed to be included in this value and are represented as elemental nitrogen since this is the standard procedure for deposition impact analysis. This calculation also assumes that there are sufficient background concentrations of any reactive species that would generate any N deposition species.

The ambient NO_2 impact value (0.9 μg/m^3) represents the maximum impact over the entire modeling grid. Therefore it represents a single receptor where this impact was estimated to occur. As an extremely conservative measure, this value was assumed to be applicable to the entire impact analysis area.

DATA REQUEST 123 **Describe how the calculation accounts for ammonia, which is emitted as ammonia slip from the stacks as a result of SCR**

processes (if used during commissioning). If ammonia slip from SCR is a source of nitrogen, available for deposition, then include a table of deposition calculations similar to the one provided for NO2. For comparison purposes, please provide the nitrogen deposition during operations resulting from ammonia slip from SCR.

RESPONSE TO DATA REQUEST 123 The dispersion modeling for the commissioning emissions used uncontrolled NOx emissions for the commissioning period (i.e., SCR non-operational, no ammonia injection, and hence no ammonia slip), and normal operation NOx emissions for the remainder of the 12-month period. Therefore, the worst-case impacts from ammonia emissions would occur when the plant is in normal operations mode.

Ammonia emissions from both BEP and BEP 2 were modeled to assess annual ambient impacts. This modeling conservatively assumed a steady state ammonia emission rate of 10 ppmvd at 15% O_2 (equivalent to a mass emission rate of 32.3 lb/hr). Five years of meteorological data were modeled and the maximum annual ammonia ground level concentration over the receptor grid is estimated to be 0.75 $\mu g/m^3$. Using the same deposition calculation methodology that was used for NO_2 (see **Attachment 121-3** for details) results in a maximum N deposition rate of 0.35 kg/ha-yr.

DATA REQUEST 124 Describe how the model accounts for the ammonia reacting with sulfur oxides in the ambient air and from the power plant. Disclose if the power plant could create deposition in the form of ammonium sulfate and calculate how much it could amount to for both commissioning and operations. For clarity, describe in general terms how the inclusion of reactive chemicals in the ambient air as part of the calculations would change the amount of nitrogen deposition calculated.

RESPONSE TO DATA REQUEST 124 Because estimated annual SO_2 impacts from BEP and BEP 2 are estimated to be much less than the ambient background, it is assumed that the most significant impact would result from the ammonia emissions reacting with background SO_2. Specifically, background annual SO_2 concentrations are estimated to be 2.9 $\mu g/m^3$, and the maximum annual SO_2 impact from both BEP and BEP 2 are estimated to be 0.04 $\mu g/m^3$.

Assuming that ammonia is the limiting chemical relative to the availability of atmospheric sulfates, and that all the ammonia emitted reacts with the atmospheric sulfates, a rough estimate of sulfur (S) deposition can be made. Using a sulfur to nitrogen (S/N) ratio of 1.14 (i.e., the ratio of atomic weights in a molecule of ammonium sulfate $(NH_4)_2SO_4$), would result in an S deposition rate of 0.40 kg/ha-yr (calculated by 0.35 kg/ha-yr (estimated N deposition rate from ammonia emissions presented in data request 123) x 1.14).

DATA REQUEST 125 Provide details on which of the forms of nitrogen deposition from the power plant remain as dry particles on soil and leaves,

and which are water soluble. If a reference source was used, please provide the citation(s).

RESPONSE TO DATA REQUEST 125 As stated in Data Response 122, it is conservatively assumed that there is a potential for deposition of any N species, hence the entire deposition could occur either as dry particles, or as water-soluble.

DATA REQUEST 126 Provide a best estimate of the background nitrogen deposition (both wet and dry) in the region (within 50 miles), and include the sources used to make that estimate.

RESPONSE TO DATA REQUEST 126 Measured background deposition data are presented in Data Response 121. Because of Joshua Tree National Park's proximity to the South Coast Air Basin, it is assumed that this measured background N deposition value is higher than would be expected anywhere within a 50 mile radius of the BEP 2 facility.

References

Gertler, A.W. 1989	Profile Measurements Of Sulfur Dioxide, Nitrogen Oxides, And Nitric Acid Deposition Velocities In California's South Coast Air Basin, Desert Research Institute, Nevada March 1989
USEPA 2003	U.S. Environmental Protection Agency, Clean Air Status and Trends Network, http://www.epa.gov/castnet//data.html
USEPA 1993	Inter-Agency Workgroup On Air Quality Modeling (IWAQM): Interim Recommendation for Modeling Long Range Transport and Impacts on Regional Visibility, U.S. Environmental Protection Agency, Technical Support Division (MD-14), Research Triangle Park, North Carolina 27711, April 1993
Zanneti, P. 1990	Air Pollution Modeling Theories, Computational Methods and Available Software, Van Nostrand Reynolds, New York.

BLYTHE ENERGY PROJECT PHASE 2
(02-AFC-01)
DATA RESPONSES

Technical Area: Cultural Resources
Author: Gary Reinoehl

BACKGROUND
The data response to data request 28 states that CA-RIV-6725H is currently being evaluated for potential historical significance. The cultural resources section of the AFC (7.1.2.1, p. 7.1-13 and 7.1.2.3, p.7.1-15) states that CA-RIV-6725H does not qualify as eligible for nomination to the National Resister and will be destroyed during grading and construction.

DATA REQUEST 127 **Please provide an explanation for this inconsistency, give the present status of CA-RIV-6725H, and present the data that resulted in this conclusion.**

RESPONSE TO DATA REQUEST 127 The response to Data Request 28 should state "CB II is currently evaluating the potential historical significance of CA-RIV-6370H through historical research and evaluation of materials collected from this area during recent investigations." This corrects a minor inconsistency in the previous data response.

Site CA-RIV-6725H, a small refuse deposit with limited subsurface deposits and limited potential for further research, was determined not to be of historical significance. Recording the components of site CA-RIV-6725H has recovered any potential research information the site contains. The content of CA-RIV-6725H has been reported in detail in previous cultural resource survey reports. In contrast, Site CA-RIV-6370H is the trash mound site that has been evaluated for potential historical significance.

BACKGROUND
The AFC states on page 7.1-2 that testing and significance evaluation of CA-RIV-6370H is ongoing. A great deal of information on the history of the site (from aerial photographs) was provided. Little information was provided that describes the testing, analysis, and evaluation of CA-RIV-6370H.

DATA REQUEST 128 **Please provide a summary of the testing that has been done on CA-RIV-6370H including the number of trenches and units, the length and depth of each trench, the number of artifacts recovered, the analysis that is being preformed, and the preliminary results provided in the *Preliminary Draft Archaeological Testing and Evaluation Report for the Blythe Energy Project, Riverside County, California*.**

RESPONSE TO DATA REQUEST 128 CB II has prepared and recently submitted a detailed "final" evaluation report for Site CA-RIV-6370H that describes the testing completed at the site, the artifacts removed, and the analysis performed on the artifacts. The testing, completed in late 2001 and early 2002, consisted of trenching to locate subsurface deposits, and 0.5 square meter test plots, sidewall profiles, and mapping. Using the recovered materials and

information, the site was researched through a number of means and found not to possess integrity or characteristics of significance. Please refer to "Archaeological Site CA-RIV-6370H: An Analysis of Eligibility for Nomination to the National Register of Historic Places" (Tierra Environmental Services with Dr. Tom King, 2003).

The data request references the "Preliminary Draft Archaeological Testing and Evaluation Report." This was submitted as an unofficial copy of a "work-in-progress." The preliminary results presented in this report are addressed in the final testing report described above (refer to Section IV, Historic Context/Research Questions, A. Previously Defined Contexts and Questions). The final report addresses the research questions contained in the preliminary report, with a clarification that these questions were adduced without historical references and without having completed the research that is presented in the final report. Because many of the statements contained in the preliminary report were erroneous and were presented only in the context of a "strawman" or as hypotheses for further research (that has now been completed and presented in the final report), the results of the preliminary report are superceded.

Although the final report makes certain conclusions regarding eligibility of CA-RIV-6370H, it is not the applicant's intent to take any further action at this time. The site will remain fenced off from the BEP 2 activities. CB II actions that may be contemplated in the future will be determined following completion of consultation with SHPO.

DATA REQUEST 129 **Please indicate any additional monitoring or other cultural resource activities that have taken place at CA-RIV-6370H, the reports that will be generated, and a timetable for the completion of those reports.**

RESPONSE TO DATA REQUEST 129 CB II has not completed further monitoring or testing and is not planning any further monitoring or testing at CA-RIV-6370H. CB II has prepared and submitted as a confidential filing a testing report titled "Archaeological Site CA-RIV-6370H: An Analysis of Eligibility for Nomination to the National Register of Historic Places" (Tierra Environmental Services with Dr. Tom King, 2003).

DATA REQUEST 130 **Please provide a timetable for the completion of the final testing and evaluation report.**

RESPONSE TO DATA REQUEST 130 CB II has recently submitted a confidential filing entitled "Archaeological Site CA-RIV-6370H: An Analysis of Eligibility for Nomination to the National Register of Historic Places" (Tierra Environmental Services with Dr. Tom King, 2003) to Western and the CEC.

BACKGROUND
The AFC on page 7.1-14 states that a Memorandum of Agreement (MOA) is being prepared to address the treatment of CA-RIV-6370H. In the preamble, it states

that the MOA applies to Western's permitting of the expansion of the Blythe I Power Plant site (Amendment 1-A and 1-B). The implementing regulations of Section 106 of the National Historic Preservation Act, 36 CFR 800, requires that, "The agency official shall determine whether the proposed Federal action is an undertaking as defined in Sec. 800.16(y) and, if so, whether it is a type of activity that has the potential to cause effects on historic properties."

DATA REQUEST 131 **Please indicate whether the MOA was finalized and the date it was finalized.**

RESPONSE TO DATA REQUEST 131 The MOA was finalized and signed by the parties as follows:

Western Area Power Administration	June 13, 2002
State Historic Preservation Organization:	June 14, 2002
Blythe Energy	July 8, 2002
Riverside County Power:	August 5, 2002

DATA REQUEST 132 **Please explain how the MOA on the expansion applies to a separate federal action that Western Area Power Administration would take to approve the connection to the Buck Boulevard Substation for the Blythe Energy Project Phase 2.**

RESPONSE TO DATA REQUEST 132 The MOA for the Blythe Energy Project was an agreement between Western Area Power Administration, Blythe Energy, Riverside County Power (now Caithness Blythe II, LLC) and the State Historic Preservation Officer to complete the Section 106 consultation for the Blythe Project. The MOA was developed when BEP requested an Amendment from the CEC and Western to expand the original Project site from 76 acres to add an additional 76 acres (total 152 acres). The proposed use of the expanded acreage was for disposal of excess soil from the Project excavation and was also the proposed site for the BEP 2 plant. The expanded site included an area that was used as a dump site for materials when structures from the WW II army base at the Blythe airport were razed (approx. 1960). The MOA addressed how this site was to be investigated and treated in Section 106 consultation. As a result of the MOA and subsequent analysis and studies, Blythe Energy has completely fenced and restricted all access to the referenced cultural site. This action was as directed and agreed to by the CEC, Western and the SHPO.

Section 106 consultation has been initiated and an MOA developed to cover the full 152 acres including the Buck Blvd substation. The connection of BEP 2 to the Western Buck Blvd Substation does not involve any new facilities "outside the fenceline" of what Western contemplated when the Section 106 MOA was signed with Blythe Energy. All of facilities contemplated by the interconnection of BEP 2 were included in the original sizing and layout of the substation. In addition, the MOA called for additional Native American consultation, which was completed by Western for the BEP and BEP 2 combined projects during the resolution of

the BEP 1B Amendment. BEP 2 has completed mitigation identified by Western for the MOA through funding of an ethnographic study currently being finalized.

BACKGROUND
The response to data request 30 lists a number of survey reports. Some of these reports were provided to the Energy Commission as part of the Blythe Energy Project and some were provided as part of the AFC for Blythe Energy Project 2.

DATA REQUEST 133 **Please provide a copy of the report titled "Additional Cultural Resource Testing to Assess Effects of Fence Placement on Site CA-RIV-6370H and Additional Data Collection at CA-RIV-6725H for the Blythe Energy Project." If this report contains information considered confidential under the Commission's regulations, please provide the reports under confidential cover.**

RESPONSE TO DATA REQUEST 133 This report was submitted to the CEC after comments were provided by the CEC during June 2002. Because it contains a site form update for CA-RIV-6370H, this report addendum is being submitted under confidential cover as well with the final report entitled "Archaeological Site CA-RIV-6370H: An Analysis of Eligibility for Nomination to the National Register of Historic Places" (Tierra Environmental Services with Dr. Tom King, 2003).

BACKGROUND
In the response to data requests 30 and 31, Blythe Energy Project 2 states that they will undertake and provide a survey of the affected area if the City of Blythe requires Riverside Avenue to be paved to a 40 foot width and any areas where landscaping is required within the boundaries of CA-RIV-6370H. The response to data request 11 indicates that the City of Blythe Planning Review Commission will make a decision within 30 days regarding the surfacing of Riverside Avenue along the northern boundary of the Blythe Energy Project 2. The AFC contains statements on page 7.1-24, -25, and 26 stating that no significant cultural resources were identified.

DATA REQUEST 134 **Please explain the conclusion that no significant resources were identified when CA-RIV-6370H is within the project area and is being treated as an historical resource in accordance with the conclusions of the *Preliminary Draft Archaeological Testing and Evaluation Report for the Blythe Energy Project, Riverside County, California.***

RESPONSE TO DATA REQUEST 134 BEP 2 does not impact any resources that have been determined to be historically significant. CA-RIV-6370H has been fenced off and BEP 2 construction activities will take place outside of the area fenced around the cultural resource.

The AFC describes CA-RIV-6370H and states on page 7.1.14 that under the MOA, this resource will be treated as eligible until the evaluation process is completed. The minor inconsistency that appears in Table 7.1.13 should be interpreted to mean that no significant resources would be impacted directly by the construction of BEP 2. CA-RIV-6370H is being treated as significant until its status is determined in accordance with the MOA, not the "Preliminary Draft Archaeological Testing and Evaluation Report. This report was submitted as an unofficial copy of a "work-in-progress." Because many of the statements contained in the preliminary report were erroneous and were presented only in the context of a "strawman" or as hypotheses for further research (that has now been completed and presented in the final report), the results of the preliminary report are hereby withdrawn. The final report has been submitted to the CEC.

DATA REQUEST 135 **Please provide specific mitigation measures that would be implemented if the City of Blythe determines that landscaping, grading, widening of Riverside Avenue, or other required ground disturbing activities would be required within CA-RIV-6370H.**

RESPONSE TO DATA REQUEST 135 No work outside the BEP 2 fence line involving landscaping, grading, widening of Riverside Avenue, or other work requiring ground disturbing activities is planned by Caithness Blythe II, LLC during the construction of the BEP 2 facility. The City of Blythe is in the final stages of reviewing the site plans for the BEP 2 facility. Upon completion, the City of Blythe will provide a letter stating these activities will not be required for the project. See Response to Data Requests 116 and 119 above.

BACKGROUND
The Phase I Environmental Site Assessment indicates that on May 25, 2001 "grab soil samples were taken and analyzed at four locations in the dumpsite." The sampling did not define the horizontal and vertical limits of the lead contamination identified at one sample location.

DATA REQUEST 136 **Please provide a map delineating the locations where the "grab soil samples" were taken, noting the sample identification numbers on the map.**

RESPONSE TO DATA REQUEST 136 Figure 136-1, which is being submitted under confidential cover, depicts the locations of the grab soil samples that were collected for the Phase I assessment. Samples with identification numbers A-1, B-1, C-1, and D-1 were collected within several of the mound areas.

DATA REQUEST 137 **Please indicate if any artifacts were recovered in the "grab soil samples" and the disposition of any artifacts that were recovered in the samples.**

RESPONSE TO DATA REQUEST 137 No artifacts were recovered during soil sampling. Most of the material uncovered during the soil sampling was earth and sand, and only soil material was collected for analysis. However, a few objects were observed, including melted glass fragments, broken pieces of ceramic, and unidentifiable broken, rusted metal objects. Similar objects were observed at the soil surface. None of the objects had recognizable markings or were unique compared to the objects already noted on the surface of the mounds. All of the objects and excess earth and sand uncovered during auguring were returned to the core hole after sampling.

DATA REQUEST 138 Please indicate the depth of the artifact deposits for each sample location and changes in strata that were noted during the sampling.

RESPONSE TO DATA REQUEST 138 The few objects that were found were randomly distributed throughout the depth of sampling. There was no specific layer or layers in which the objects were found in any of the four core locations.

As noted in the Phase I report, sample C-1 was collected in an area that had been historically eroded by storm water activities (note photograph in Appendix C of the Phase I report). At this location, it was possible to observe a general change in strata between the dumped material and the soil underneath. This general change was noted at the other sample locations with the transition occurring from approximately 1 to 2½ feet below the ground surface.

The maximum depth of artifacts found for each core sample location is given as follows:

- Sample Location A-1: approximately 2½ feet
- Sample Location B-1: approximately 2½ feet
- Sample Location C-1: approximately 1 foot
- Sample Location D-1: approximately 2½ feet

DATA REQUEST 139 Please indicate if additional sampling to identify toxic materials would be conducted within the boundaries of CA-RIV-6370H, the quantity of samples, the location, the depth, and proposed mitigation measures for the impacts to the site.

RESPONSE TO DATA REQUEST 139 No additional sampling is planned for CA-RIV-6370H and the proposed site plan for BEP 2 does not impact this area. Although lead was elevated in one sample, this is not an unexpected result given the nature of the refuse materials found at the site. The site has been fenced. Any future use of the site would be commercial or industrial. If CA-RIV-6370H is determined not to be historically significant and this area is identified for development, further sampling would be conducted to determine an appropriate

disposal method for the materials. Please see the Response to Data Request No. 101 for a more detailed discussion.

BLYTHE ENERGY PROJECT PHASE 2
(02-AFC-01)
DATA RESPONSES

Technical Area: Land Use
Author: Ken Peterson

BACKGROUND
According to City staff, project structures with a height between 76 and 105 feet require a conditional use permit, and project structures over 105 feet require a conditional use permit in conjunction with either a major or minor variance. Pursuant to the Warren Alquist Act, Commission certification of this project would be in lieu of City approvals (e.g. variances or use permits). The Commission typically requests local jurisdictions to submit the findings they would have made if they had the authority to issue a permit. The Applicant intends to submit to the City a site plan review application, which the City will act on in an advisory capacity to the Commission.

DATA REQUEST 140a. Please provide a schedule for submittal and City review of the conditional use permit, height variance, and site plan review applications.

RESPONSE TO DATA REQUEST 140a. The City is currently reviewing the site plan for the BEP 2 project during its Planning Review Commission (PRC) process. As described in Response to Data Request 116, CB II anticipates that process to be completed near the end of March 2003. Once the PRC process is completed, the City has informed us that it will be able to issue a letter responsive to this request. We will docket this letter with the CEC upon receipt.

DATA REQUEST 140b. Please submit a City resolution or letter of findings in response to the conditional use permit, height variance, and site plan review applications.

RESPONSE TO DATA REQUEST 140b. See Response to Data Request 140a above.

BACKGROUND
In order to assess compliance with the Comprehensive Land Use Plan (CLUP) for the Blythe Project, it is necessary to know the square footage of the plant facilities footprint.

DATA REQUEST 141 The square footage of the plant facilities' footprint.

RESPONSE TO DATA REQUEST 141 The square footage of the plant facilities' footprint is tabulated below. Items 1 through 8 were provided previously. Typically, these are buildings or enclosures that could be occupied.

Items 9-21 are new additions. These additions include facilities that are not occupied or capable of being occupied.

Also, as noted on the Attachment 141, there are approximately 455,000 square feet within the facility footprint, excluding the evaporation ponds.

Item	Structure	Area (square feet)
1	Gas/Steam Turbine Building*	33,389
2	Administration Building*	5960
3	Warehouse 1st Floor*	8892
4	Warehouse 2nd Floor*	2850
5	Water Treatment Facility Electrical Bldg*	480
6	Fire Pump Building*	1276
7	Boiler Feed Pump Building*	2708
8	Chiller Building*	5280
9	Raw Water Storage Tank Foundation	2290
10	Demineralized Water Storage Tank Foundation	2290
11	Cooling Tower	29,781
12	Inlet Chilling System Cooling Tower	7390
13	Main Step Up Transformer Foundations (3)	7088
14	Power Control Centers (Foundations)*	4537
15	Water Treatment Plant* (Outdoor Equipment)	10,500
16	HRSG Foundations	16,010
17	Aqueous Ammonia Storage Area	2200
18	Evaporation Ponds	330,000
19	Medium voltage Switchgear Foundations*	1896
20	SCR Skid Foundations	551
21	Miscellaneous Small Foundations (Estimate)	10,000

* Denotes a building or enclosure in which people could congregate although none of the project building will be used for the purpose of congregating people.

BLYTHE ENERGY PROJECT PHASE 2
(02-AFC-01)
DATA RESPONSES

Technical Area: Soil and Water Resources
Authors: Linda Bond
Joe Crea
Rich Sapudar
Jim Schoonmaker
Ken Schwarz

BACKGROUND
California's current overuse of Colorado River water has become a significant issue for consideration in staff's evaluation of any project intending to use Colorado River water. The California Colorado River Water Use Plan will reduce California's water use through a combination of conservation and intra-state exchanges. The Department of the Interior's Colorado River Interim Surplus Guidelines provide a 15-year period for California to reduce the State's water use from over 5 million acre-feet to it's 4.4 million acre-feet annual apportionment of Colorado River water. This reduction in use will be quantified through a Quantification Settlement Agreement among California's Colorado River water users. The plan will result in California reducing its reliance on Colorado River water to its 4.4 million acre-feet apportionment in by 2016.

Any additional use of Colorado River water must be considered with regard to impacts to the State of California and California's Colorado River water rights holders. This issue will be evaluated by CEC staff based on the ability of BEP 2 to demonstrate the effectiveness of the proposed BEP 2 Water Conservation Offset Program (WCOP2).
Data Request 50 and 53 (round one) requested a discussion of any necessary changes to the proposed WCOP based on the USBR letter dated June 14, 2002 to Terry O'Brien of the Energy Commission from Robert Johnson of the USBR (AFC Appendix 7.13). The Data Request asked for a revised WCOP that was fully consistent with the USBR criteria contained in the June 14 letter. The Data Request also requested a detailed discussion on how this plan would be implemented, managed, verified, and reported.

A WCOP for BEP 2 (WCOP2) was attached to the USBR's letter of June 14, 2002 as the "Final Voluntary Water Conservation Offset Program for the Blythe Energy Project, Phase 2, Caithness Blythe II, LLC" dated June 3, 2002. This document has not been submitted to the CEC as a project revision or change to the BEP 2 AFC by the applicant, Caithness.

If this WCOP2 is to be considered as part of the BEP 2 project, Caithness must formally submit the WCOP2 as a revision to the AFC, and indicate that it replaces the WCOP currently on file submitted as an attachment to the letter from Scott A. Galati representing Caithness Blythe II LLC to Steve Larson of the CEC dated March 11, 2001 (sic) with a subject consisting of "Request for Confidential Designation - Confidential Water Conservation Offset Program Information Blythe Energy Project Phase 2, 02-AFC-1".

California's overuse of Colorado River water has reached a critical state over the past several years, and any additional use by BEP 2 must be fully evaluated with regard to cumulative impacts. In order to mitigate for any potentially significant adverse impacts, the project must fully offset its use of Colorado River water. Staff requires further elaboration and detail of the WCOP2 proposed by the applicant to ensure the project will fully mitigate its use of Colorado River Water. The WCOP2 submitted via the USBR letter is deficient with regard to implementation, monitoring, accounting, verification, reporting, and adverse impact mitigation procedures necessary for an actual functional water conservation plan.

DATA REQUEST 142 **Submit a complete WCOP2 that meets the following minimum specifications to satisfy requirements for an effective WCOP identified at this time:**

a. The lands included in the WCOP must have a recent irrigated agricultural crop production use defined as having been used for irrigated agriculture for any 2 of the last 5 years. The WCOP must contain the criteria for selection of the lands to be fallowed, it must specifically identify the lands considered for inclusion in the program, and it must demonstrate that these lands meet the criteria for inclusion in the WCOP.

Typically, such plans, the Palo Verde Test Land Fallowing Program (MWDSC 1995) being a good example of a plan suitable for the Blythe area, contain a requirement for the lands to have a demonstrated recent cropping and irrigation history

The lands included in the program are one of the most critical and important components in a fallowing program for water conservation purposes. Lands that do not meet the 2 out of the last 5 year use requirement must not be included in the WCOP2. Such lands must be excluded since this would result in inadequate conservation that would cause an additional and/or unauthorized use of Colorado River water.

b. PVID "Water Toll" acres must be used to calculate acreage included in the program, and to verify that the acreage included in the WCOP meets the requirements for recent irrigated agricultural production within any 2 of the last 5 years. The crop production history and PVID water toll data for all acreage included in the program must be included for the most recent 5 year period at the time the acreage is included in the WCOP.

c. The WCOP must ensure that additional lands would not be put into production by the same landowner participating in the WCOP by fallowing land. When lands are taken out of current production the

landowner is generally left with an excess capacity to grow additional crops, i.e., labor, expensive equipment, or other infrastructure that is now idle and available for use. The WCOP should address through the fallowing agreement, that a participating landowner not put additional acreage into production, either his own or leased acreage, to utilize any existing excess capacity.

d. A water conservation figure of 4.2 acre-feet per acre of fallowed land will be used for calculating WCOP fallowing requirements. This figure was revised from the 4.6 acre-feet per acre used in the Metropolitan Water District of Southern California fallowing program conducted in 1992-94 within the PVID, and at this time generally seems reasonable for this region. This value appears to be an average of the amount of water applied to the lands within the PVID, which at this time appears to be sufficient when combined with reasonable criteria for the selection and management of lands to be included in the WCOP.

e. The WCOP must include a provision excluding lands from participation in the WCOP that are being scheduled for fallowing as part of the agricultural production cycle to ensure actual water conservation. Fallowing of agricultural lands is generally an expected and recurring part of crop production. Should Tier 1 lands be included in a rotational fallowing scheme rather than the permanent fallowing of Tier 3 lands, a provision addressing this issue would be particularly important, and should be included in both the WCOP and in the fallowing agreement with participating landowners.

f. The WCOP must preclude lands participating in the fallowing program from being developed or put to other uses that may consume water. The WCOP must address the need for fallowing additional lands should activities involving consumptive uses of water occur on lands included in the fallowing program. While this may not be a concern at the time the lands are included in the fallowing program, the expected productive life of the power plant may be as long as 50 years. This is a sufficiently long enough period of time for unexpected growth and water use to occur on WCOP lands.

g. An agricultural soil conservation plan must be developed and included in the WCOP to ensure that the fallowing program has no adverse impacts on the agricultural capacity of the soil, and that wind, stormwater, or other erosion related adverse impacts do not occur. A soil conservation plan consistent with National Resource Conservation Service guidelines and recommendations specific to the Blythe area and Palo Verde Irrigation District must be included as an integral part of the WCOP. See Soil and Water Data Requests 73 through 80 (round one) for additional information.

h. A contract and/or agreement with participating landowners must be developed as part of the WCOP to insure that lands included in the WCOP meet required specifications, and that participating landowners meet performance requirements. The contract or agreement with participating landowners is critically important to ensure that the responsibilities of the landowner are made clear and that there is sufficient accountability to ensure that the goal of water conservation is actually achieved.

i. The WCOP must include a monitoring, verification, and reporting component that ensures that the requirements of the WCOP are properly implemented, monitored, verified, and reported. Independent monitoring, verification, and reporting must be included as an integral part of the WCOP implementation.

RESPONSE TO DATA REQUEST 142 The background on which question 142 is based relies entirely upon the false premise that BEP 2 proposes to use Colorado River water. As the California Energy Commission (CEC) Soil and Water staff are well aware, and as has been repeatedly stated in writing and in every meeting regarding soil and water resources, the project proposes to use groundwater pumped from an on-site well (or wells), and will not utilize Colorado River water. The project has no relation to the ongoing development of a Quantification Settlement Agreement, or any other element of the California Water Plan.

It is difficult to ascertain in this second round of soil and water data requests whether CEC staff is really struggling to understand, or whether this entire line of questioning is intended to delay and harass the BEP 2 project. We note in this regard that at our first meeting with Soil and Water staff regarding BEP 2 in early 2002, Rich Sapudar made the statement to the applicant's representative (and in the presence of several senior CEC staff members) that, based upon his feelings about the Blythe I project approval (in which the Commission determined there were no impacts to surface water resources) the Blythe 2 project representatives "came in the door wearing a target on their shirts and a bulls-eye on their backs". Question number 142, and subsequent questions including numbers 174 through 178 appear to reflect that hostile attitude.

At that time, Mr. Sapudar also demanded that the applicant obtain a letter from the Bureau of Reclamation (Reclamation) confirming that a voluntary Water Conservation Offset Program (WCOP) would resolve their concerns about water use in the region. That letter was obtained and sent to the CEC on June 14, 2002. Staff has repeatedly ignored and/or misconstrued that letter in an effort to assert CEC jurisdiction where none exists. They have also contrived impacts relative to soil erosion, saltation, and cumulative effects in an effort to justify water resources jurisdiction.

Four key points to be discussed in detail below include:

(1) Just as the original Blythe project approved by the Commission, the Blythe 2 project will use groundwater, and will not utilize any surface water supplies.

(2) A *voluntary* WCOP was developed as an assurance in the event that the Bureau of Reclamation develops a policy in the future governing regional groundwater use. No other wells in the Palo Verde Valley or Palo Verde Mesa are currently regulated by the Bureau or by the Palo Verde Irrigation District (PVID), and the WCOP is not needed to address any environmental impacts, or to conform to any law, ordinance, regulation, or standard (LORS).

(3) Reclamation is the federal Water Master for the Lower Colorado River. The Bureau has been consulted, and has provided a letter to the CEC asserting that the proposed *voluntary* WCOP addresses its concerns that would be subject to a possible future policy, and precludes impacts to the Colorado River or surface water users. (June 14, 2002)

(4) Standard conservation tillage practices prescribed by the Natural Resource Conservation Service (NRCS) have been incorporated in the WCOP to provide erosion control consistent with PVID policies and local practices. Fallowing or retirement of seven-tenths of one percent of the farmed land in the Palo Verde Valley and Mesa does not pose individual or cumulative erosion impacts in this desert region.

1. The Blythe 2 project will use groundwater, and will not utilize any surface water supplies.

BEP 2 will utilize groundwater, not Colorado River water, as has been consistently reported and confirmed. Mesa groundwater use is not regulated by any State, Federal or local agency at present, and the Project's use of groundwater derived from wells does not present any LORS issues.

BEP 2 proposes to utilize groundwater extracted from an on-site well (or wells) approximately 550 to 600 feet deep, and 10 miles west of the Colorado River. Under California water law, a landowner may pump groundwater from beneath their own lands as needed for use on their property. No other water supply LORS apply to this project.

The issue of water supply and use of groundwater in Blythe was thoroughly reviewed by the CEC for the original Blythe Energy Project, and was the subject of substantial testimony by staff and the applicant. Staff's data requests do not reflect the results of the Commission's deliberative decision-making process in that previous case. The Commission's Decision (March 22, 2001, pages 200 through 208) summarizes the key issues, and concludes that: "*The need for a Water Conservation Offset Program is not driven by a finding of adverse environmental impact, or need to mitigate under existing LORS. Therefore, the WCOP, in this case, is sufficient to satisfy the Commission's concerns.*" (page 208, emphasis added).

2. A voluntary Water Conservation Offset Program (WCOP) was developed as an assurance in the event that Reclamation develops a policy in the future governing regional groundwater use. No other wells in the Palo Verde Valley or Palo Verde Mesa are currently regulated by the Bureau or by the Palo Verde Irrigation District, and the WCOP is not required to address environmental impacts, or to conform to any LORS.

The WCOP has been developed as a voluntary response to the possibility that the Bureau may, at an unknown time in the future, implement a formal policy to regulate all well users in the region. As for the original Blythe Energy Project, the applicant recognizes that Reclamation has discussed for many years the possibility of developing a policy to regulate groundwater users who extract water from a modeled "accounting surface". At this time, no such policy exists, nor is such policy pending for the foreseeable future. No groundwater use in the Palo Verde Valley or Mesa is regulated by Reclamation or PVID, nor is any Mesa groundwater accounted for in PVID's Colorado River surface water entitlement. If such policy is ever implemented, it must apply equally to all well water users, and cannot apply arbitrarily or capriciously to selected wells.

Reclamation does not currently account for wells on the Mesa or anywhere in the Palo Verde Valley under its proposed Accounting Surface policy, or for any other groundwater activity in the Palo Verde region for any use, but has indicated that it expects to regulate well users in the future, and is developing policy in coming years to that end. In addition, PVID has no policy to govern groundwater use, and at present does not regulate any groundwater user, or actively account for groundwater use as a part of its surface entitlements. PVID has consistently asserted that it does not now, and does not intend in the future, to govern groundwater use.

In recognition of the issues regarding water use in general, *and in the absence of governing LORS*, the Blythe Phase 2 project has proposed a **voluntary** Water Conservation Offset Program more stringent than that adopted by the Blythe Energy Project and accepted by the Commission in its March 2001 decision to approve the original Blythe Energy Project.

The target acreage for the WCOP includes a total of 786 acres, to be acquired and confirmed prior to commercial operation, selected from any of the eligible acreage on the Palo Verde Valley floor (104,500 total acres) or the Palo Verde Mesa (total of about 4,000 acres of 16,000 total within PVID). This approach has been taken intentionally to provide flexibility and maintain economic neutrality for this market-based transaction.

Criteria for eligible lands have been more narrowly defined to include retirement or rotational fallowing of irrigated lands (within the past five years) for the life of the power plant; and a consumptive water use volume of 4.2 acre-feet per acre will be used as an accounting basis for retired or fallowed lands.

Staff's assertion that the WCOP criterion be changed to "irrigation in <u>two</u> of the last five years" has no basis in LORS, and is not consistent with the Bureau's affirmation of the WCOP. As voluntarily agreed with the Bureau, the WCOP will be implemented concurrent with commercial operation of the power plant.

Adoption of a voluntary WCOP is not required in response to any finding of environmental impact, or any requirement under existing LORS. With regards to the voluntary WCOP, CB II notes that no other groundwater user in the region has taken such extraordinary measures to provide long term offset as has been done voluntarily and at considerable expense for this project.

If the rotational fallowing option is employed, no farmlands will be permanently retired or converted from agricultural use, and no adverse impacts to farmlands will occur. The WCOP does include a criterion that retired lands may not be converted to any use that relies upon Colorado River water during the life of the project. However, if lands are permanently retired, the program will have potential impacts associated with loss of productive farmlands.

The applicant has committed to accept a condition of certification to mitigate this potential impact. One of several mitigation strategies may be used, including:

(1) Obtaining permanent conservation easements of Transfer of Development Rights (TDRs) for an equal number of irrigated farmland acreage within the Palo Verde Valley or Mesa.

(2) Payment of endowment funds to a special fund to be managed by the City of Blythe, or alternatively, to a recognized farmland trust organization such as the American Farmland Trust.

(3) Equivalent participation in an established County farmland conservation program.

Such mitigation, imposed in a binding Condition of Certification, would adequately mitigate potential farmland impacts associated with permanent retirement of irrigated lands for the WCOP.

3. Reclamation is the federal Water Master for the Lower Colorado River. The Bureau has been consulted, and has provided a letter to the Commission asserting that the proposed voluntary WCOP addresses its concerns that would be subject to a possible future policy, and precludes impacts to the Colorado River or surface water users. (June 14, 2002)

Reclamation is the Supreme Court appointed Water Master for allocation of surface water from the Colorado River. A complex set of laws and regulations, collectively known as the Law of the River, govern surface water entitlements to Colorado River waters, and full discussion of the Law of the River has been added to the Application for Certification (AFC) text and LORS tables, as requested during data adequacy review. BEP 2 project will rely upon groundwater, and does not propose to use any surface water.

CB II has consulted with Reclamation over the past three years regarding these issues. As was clearly established in the original Blythe Energy case, no LORS apply to the use of groundwater on the Palo Verde Mesa, and neither Reclamation nor PVID currently exerts jurisdiction over any existing well users in the Palo Verde Valley or Mesa. However, Reclamation has indicated that it believes it can extend its regulatory authority under the Law of the River to all Mesa well users, and that it is likely to do so in future years.

Towards that end, the Bureau, in conjunction with the US Geological Survey (USGS), has developed a model, referred to as the "Accounting Surface", in an attempt to determine the relationship of regional groundwater to surface water in the Colorado River. This model is the basis of Reclamation's contemplated policy, and has been a source of contention with PVID, Mesa groundwater users, and other water users on the river for more than a decade now.

Reclamation has no firm timetable for actually developing a policy whereby it would regulate groundwater users relative to the PVID surface water entitlement.

Since groundwater pumping for the Blythe Energy Project will encounter the Accounting Surface as defined by Reclamation, Reclamation has suggested that this use of water, and all other Mesa groundwater users, may be accounted for at some undefined time in the future as a part of PVID's Priority 3 surface water entitlement. For that reason, and to ensure that the power plant project does not impact PVID, the Blythe Energy Project, and now BEP 2, each voluntarily agreed to implement WCOPs.

CEC staff directed BEP 2 to obtain a letter from the Bureau of Reclamation explaining the jurisdictional question, and confirming suitability of the Water Conservation Offset Program (WCOP) voluntarily developed by BEP 2 for the project. That letter, from Regional Director Robert Johnson, with a full copy of the Final Voluntary WCOP attached, has been docketed and made a formal part of the record. The letter confirms Reclamation's positions that:

- For over 10 years, Reclamation has been developing a database of wells along the Colorado River from Lake Mead to Mexico. In addition, Reclamation and USGS have developed an approach that identifies an accounting surface along the Lower Colorado River. This approach is designed to enable Reclamation to determine whether water is mainstream Colorado River water in order to assert jurisdiction over the use of this water.
- The WCOP voluntarily developed as part of BEP 2 addresses Reclamation's objectives for selection and management of lands to account for water use, and prevent increased Colorado River water demands in the Lower Basin.
- With voluntary implementation of the Final WCOP (developed in close consultation with the Bureau and the Metropolitan Water District, as attached to Reclamation's June 14, 2002 letter to Terry O'Brien), the Bureau concludes that the project will have no impacts under its proposed accounting surface policy on the Colorado River system or junior water rights holders within that system.

It is important to reiterate that Reclamation does not currently account for other wells on the Mesa or anywhere in the Palo Verde Valley in this fashion, or any other groundwater activity for any use, but has indicated that it intends to regulate in the future, and is developing policy in coming years to that end. In addition, PVID has no policy to govern groundwater use, and at present does not regulate any groundwater user, or actively account for groundwater use as a part of its surface entitlements.

Adoption of a voluntary WCOP is not required in response to any finding of environmental impact, or any requirement under existing LORS. Finally, with regards to the voluntary WCOP, CB II notes that no other groundwater user in the region has taken such extraordinary measures to provide long term offset as has been done voluntarily and at considerable expense for this project.

The Bureau's letter to the CEC (June 14, 2002) makes clear and unambiguous findings regarding legal jurisdiction and findings of no impacts:

Reclamation considers all wells in the lower Colorado River floodplain and wells within which the static water level is equal to or less than the accounting surface to be utilizing Colorado River water for accounting purposes, and we are in the process of developing a comprehensive regulatory program to account for these wells and their pumping. However, notwithstanding the Secretary's responsibilities under the Decree, we know of no laws, ordinances, regulations or standards currently being exercised to control or regulate groundwater pumping or other well users upon the Palo Verde Mesa.

The Water Conservation Offset Program voluntarily developed by BEP 2 addresses Reclamation's objectives for selection and management of lands to account for water use, and prevents increased Colorado River water demands in the Lower Basin.
(underline emphasis added)

In response to items a. through i. identified by CEC staff for the WCOP, CB II responds that the voluntary WCOP developed in consultation with Reclamation does provide that:

(1) BEP 2 will construct at least one well on-site, to develop the required pumping capacity and redundant systems needed for the project. The wells will pump groundwater from beneath the project site, and will be equipped with continuously recording meters to maintain accurate and complete records of the volume of water pumped.

(2) A consumptive water use volume of 4.2 acre-feet per acre will be used as the accounting basis for this intra-basin and intra-district accounting offset.[1]

(3) BEP 2 will acquire, through purchase or lease, lands on the Mesa or the Palo Verde Valley floor that are within the PVID and are actively irrigated (within the past five years). These lands will be rotationally fallowed or retired from all uses that depend upon Colorado River water.

(4) BEP 2 will report their groundwater pumping and document the acreage of land retired from irrigation to the Bureau of Reclamation and PVID annually. Reports for a given year must be sent to the Bureau of Reclamation and PVID by January 31st of the following year.

(5) The WCOP shall be implemented concurrent with commercial operation of the power plant, and will remain in effect for the life of the power plant.

(6) Retired lands may not be converted to any use that relies upon Colorado River water during the life of the project.

The water balance for this project is completely intra-district and intra-basin; no lands or water outside of the existing PVID boundaries are involved, and no water will be

[1] Actual consumptive water use is considered by PVID to be higher. Factors contributing to the consumptive use rates are multi-cropping in a year-around growing season, high evapotrasnpiration rates corresponding to desert climate, minimal rainfall to offset irrigation demand, and water intensive crops (citrus trees or alfalfa as dominant crops). (Source: Ed Smith, General Manager, and Roger Henning, Senior Engineer, PVID, pers. comm. to Jeff Harvey Greystone, 04/11/02).

physically moved from its present use at one site to a new use at another site. Further, the WCOP includes full offset for all water used by the power plant. The WCOP contains criteria for selection of land for fallowing, and broadly identifies lands to be included in the program, with the distinct intention to provide flexibility in the selection process. The conservation program includes a reliable method of verification for both groundwater use by the project, and for retired irrigable lands. No change in local or regional water quality will result, and the project will not pose any water quality impacts or benefits.

As cited above, the Bureau's letter clearly affirms that the applicant's proposed WCOP was fully consistent with all of its objectives, and *no changes* to the WCOP are necessary.

4. Standard conservation tillage practices recommended by the NRCS have been incorporated in the WCOP to provide erosion control consistent with PVID policies and local practices.

The target acreage for the WCOP includes a total of 786 acres to offset 3,300 acre-feet of groundwater use (at a conservatively low rate of 4.2 acre-feet per acre consumptive water use). The lands are to be acquired and confirmed prior to commercial operation, selected from any of the eligible acreage on the Palo Verde Valley floor (104,500 total acres) or the Palo Verde Mesa (total of about 4,000 acres of 16,000 total within PVID). This approach has been taken intentionally to provide flexibility and maintain economic neutrality for this market-based transaction.

Specific lands for the WCOP have not been identified, but will either include retirement of 786 acres of crops on the Mesa, or retirement or rotational fallowing of lands within the total 104,000 irrigated acres on the Palo Verde Valley floor. Fallowing will most likely involve lands farmed for alfalfa, a dominant crop in year around production in this frost-free region, and a lower value crop relative to other vegetable and fruit crops.

NRCS standard practices will be employed for soil stabilization, and retirement and/or fallowing of eligible land does not have potential to cause significant erosion. PVID's lands are encompassed within a system of delivery canals; return flows from irrigated lands are captured in an equally encompassing system of drainage canals and channels. Average annual rainfall is less than three inches, and the valley floor is essentially level. For these reasons, erosion potential is very low.

The applicant has agreed to implement clod tillage and stubble maintenance on fallowed lands, identified by PVID and NRCS as standard practices employed throughout the region for soil stabilization. (1. Ed Smith, General Manager, PVID, September 23, 2002, pers. comm. w/ J. Harvey, Greystone. 2. Joey Deconinck (Chairman), and Bob Hull and Danny Robinson, Palo Verde Valley NRCS Advisory Board, January 21, 2003, pers. comm. w/ Bob Looper, Caithness)

Under the fallowing option, 786 acres of irrigated farmlands would not be actively farmed at any one time during the life of the power plant, and PM_{10} emissions associated with tilling, planting and harvesting those farmlands, and transporting produce would be eliminated. In its analysis of the wind and dust issue for a separate water program involving a substantial inter-basin water transfer, PVID concludes that fallowing would maintain wind erosion at levels similar to or

lower than existing levels, and, *although the potential impact was concluded to be less than significant, PVID identified management measures to reduce the wind erosion potential.* Measures include 1) maintenance of stubble residue for fields previously planted in alfalfa, wheat, barley or similar crops; and 2) clod tilling for non-irrigated fields without stubble residue or sod cover (see also Responses to Data Request 107, 171 and 172 regarding quantitative assessment of erosion potential).

PVID reports that:

> "*The use of crop stubble residues is one of the methods recommended by the EPA as a "key erosion control practice" (EPA 2000:4C-92) and is recognized by several USDA agencies as an effective means of minimizing erosion. For example, the NRCS states that:*
>
> > *Erosion can be significantly reduced by this practice in locations where seedbed preparation allows residue to be left on the soil surface during critical periods for protection from wind and water erosion (NRCS 1996).*
>
> *Local agencies also have acknowledged the erosion-controlling benefits of vegetative cover. Harvesting alfalfa while leaving its stubble residue in place is essentially equivalent to "mowing" the alfalfa fields, a process that MDAQMD estimates results in up to 80 percent less wind erosion than clearing (MDAQMD 1995:29).*" (*source: PVID, ibid., page 4-30, and Section 3.4.3*.)

The PVID analysis identifies "clod plowing" as a preferred method for non-irrigated fields without stubble residue or sod cover (such as fields planted with cotton, vegetables or melons prior to a period of non-irrigation). It reports that:

> "*...plowing soil when it is sufficiently wet creates a rough, cloddy surface, and "erosion will not be a problem until sufficient rain is received to break down the surface clods leaving a layer of loose sand grains on the surface" (Fryrear 1984:445)*". (*source: PVID, ibid., page 4-31*)

In this dry climate region with less than three-inches of average annual rainfall, clod plowing is considered an effective erosion control method for a two to three-year period. Therefore, BEP 2 proposes to include the following land management measures to control wind erosion as a condition of any lease agreement for fallowing farmlands as part of the proposed WCOP.

(1) For crops that leave adequate stubble residue (alfalfa, wheat, barley and similar crops) pre-fallowing harvesting methods will include retention of crop stubble to leave the non-irrigated fields with a root system to help hold soil in place and minimize wind erosion.

(2) For crops that would not leave an adequate stubble residue (such as many vegetable or melon crops), clod plowing would be implemented. The term 'clod plowing' refers to the practice of tilling a field when it is wet so that large, damp clumps of soil are produced. These wet clumps break down into clods of soil that have a low susceptibility to wind erosion. For soil types classified as Highly Erodible Land (HEL) soils by the

NRCS, mulch or similar material would be integrated into the clods to further strengthen their resistance to wind erosion.

The WCOP also includes a criterion that retired lands may not be converted to any use that relies upon Colorado River water during the life of the project. However, if lands are permanently retired, the program will have potential impacts associated with loss of productive farmlands. As described above, the applicant has committed to accept a condition of certification to mitigate this potential impact through use of permanent conservation easements, or payment of endowment funds to a special fund to be managed by the City of Blythe, or alternatively, to a recognized farmland trust organization such as the American Farmland Trust.

BACKGROUND

Response to Data Request-56 described factors that can influence water consumption for individual plants; identified other Siemens combined cycle reference sites; and offered estimated water consumption comparisons for the Big Sandy and BEP 2 plants. Of the indicated reference plants, the Big Sandy project is most similar to BEP 2. However, the Big Sandy plant is still in planning phases and is not constructed or operational, however, the Choteau, OK plant should have actual water use data. As such, the response was incomplete in that it did not provide actual water consumption information from a plant that is operational which will enable staff to better understand the potential for impacts under various operating conditions.

DATA REQUEST 143 **Please provide water use data collected from the Choteau plant which is a similar reference plant that is fully operational. The Choteau plant in Choteau, OK should have actual data on water use during various meteorological conditions. It is acknowledged that Choteau and BEP 2 will have different environmental conditions and operational systems. Please describe how the differences in environmental and operational conditions between the Choteau plant and the planned BEP 2 plant would result in differences between observed water use data for Choteau and estimated water use data for BEP 2.**

RESPONSE TO DATA REQUEST 143. CB II has been unable to acquire information from the Choteau, OK Plant as the information is not readily available and is controlled by a third party who is not before the CEC in this proceeding. We explained at the last data response workshop, we believe that this information is not required by the CEC Staff to perform its analysis. The Commission was able to license the Blythe Energy Project without confirmation of the actual operating parameters of another plant operating in another environment. CB II has estimate its water consumption and has provided water balances to explain its assumptions. Additionally, CB II has given information about other plants to the CEC Staff in response to Data Request 56 that it was able to obtain. If the CEC Staff has specific questions about how CB II estimated its proposed water consumption, CB II will strive to answer those questions.

BLYTHE ENERGY PROJECT PHASE 2
(02-AFC-01)
DATA RESPONSES

BACKGROUND
In Data Request 58, staff requested the applicant to clarify the maximum rate of water use for the plant, as well as average rates, in order to evaluate potential significant adverse impacts to water resources that would occur during the life of the project.

The response to Data Request-58 states that water use of 3,017 gpm is not the maximum rate of water use that the BEP 2 plant would require during the life of the project. BEP 2 stated the maximum rate of water use for the plant as follows: for any single hottest week, the plant would use water at a maximum rate of 3,344,300 gallons/day (2320 gpm); and for any single (hottest) month, the plant would use water at a maximum rate of 3,230,300 gallons/day (2240 gpm).

The maximum rates identified by BEP 2 will be used to calculate the worst-case drawdown that would occur for the indicated time period for each rate identified, following a prolonged period of pumping at the average water-use rate identified. For example, to calculate the drawdown that would occur during the single hottest month, staff (1) would calculate drawdown that would occur in response to an extended period (~39 years) of water use at the average rate, and (2) would calculate the additional drawdown that would occur if pumping was then increased to the maximum single-month rate of 3,230,300 gallons/day for one month.

The BEP 2 project drawdown and well interference will be evaluated and conditioned at the rates identified by BEP 2. Accordingly, BEP 2 will be limited to these rates for the life of the project.

DATA REQUEST 144 **Please verify that BEP 2 is applying for certification for use of a total maximum limit of 3,344,300 gallons/day (2320 gpm) of groundwater for any single week and a total maximum limit of 3,230,300 gallons/day (2240 gpm) of groundwater for any single month, for the life of the project.**

RESPONSE TO DATA REQUEST 144 Caithness Blythe II, LLC (CB II) is not applying for specific water usage limits based on either maximum weekly, monthly or any other period based water usage rates. CB II will offset water usage on a voluntary basis through the water conservation offset program based on actual water usage. Refer to Data Response 142.

BEP 2 may use a mechanical refrigeration system for inlet air cooling instead of an evaporative cooling system. The project will use slightly more water with a mechanical refrigeration system. The maximum average weekly and monthly and water usage rates are tabulated below.

These revised usage rates are provided for information. As stated above, BEP 2 is not applying for certification for water usage for a single week or single month.

Blythe Energy Project Water Consumption
With Inlet Chilling System

Water Consumption at Maximum Weekly Rate **Base Load, 97.4ºF Dry Bulb, 69.4°F Wet Bulb**	
Main Cooling Tower Evaporation	3,538,000 gallons/day
Inlet Air Chilling System	327,000 gallons/day
Potable Water	1,440 gallons/day
Brine to Evaporation Pond	28,800 gallons/day
Miscellaneous Losses	14,400 gallons/day
Total Daily Consumption	3,909,640 gallons/day
Total Weekly Consumption (seven days)	27,367,500 gallons/week

Consumption at Maximum Monthly Rate **Base Load, 94.5°F Dry Bulb, 69.8ºF Wet Bulb**	
Main Cooling Tower Evaporation	3,432,000 gallons/day
Inlet Air Chilling System	317,500 gallons/day
Potable Water	1440 gallons/day
Brine to Evaporation Pond	28,800 gallons/day
Miscellaneous Losses	14,400 gallons/day
Total Daily Consumption	3,794,140 gallons/day
Total Monthly Consumption (31 days)	117,618,000 gallons/month

DATA REQUEST 145 **If these rates do not represent the maximum rates of groundwater use for the life of the project for which BEP 2 is applying, please provide adequate information that characterizes the maximum water requirements for the project.**

RESPONSE TO DATA REQUEST 145 Please see the response to Data Request 144 for estimated maximum weekly and monthly usage rates with the combustion turbine inlet air cooled by an inlet chilling system. The values noted in the *Background* above are appropriate for a plant with the combustion turbine inlet air cooled by an evaporative cooling system.

DATA REQUEST 146 **In addition, please provide the maximum projected usage rate for a 4-month period that the plant would require during the life of the project.**

RESPONSE TO DATA REQUEST 146 The projected water usage rate for the June – September period is tabulated below. Hourly wet bulb and dry bulb temperatures for the Blythe

airport for the years 1988 – 1993 were used to determine an average dry bulb and average wet bulb temperature for the four month period. An average rate of cooling tower evaporation and average rate of evaporative condenser evaporation were calculated based on the average wet and dry bulb temperatures. Usage rates for potable water, brine to the evaporation pond, and miscellaneous losses are the same as provided in the response to Data Request 58.

Water Consumption for Four Month Period of Maximum Usage Base Load, 91ºF Dry Bulb, 67°F Wet Bulb	
Main Cooling Tower Evaporation	3,490,600 gallons/day
Inlet Air Evaporative Condenser	321,100 gallons/day
Potable Water	1,440 gallons/day
Brine to Evaporation Pond	28,800 gallons/day
Miscellaneous Losses	14,400 gallons/day
Total Daily Consumption	3,856,300 gallons/day
Total Period Consumption (122 days)	470,467,000 gallons

BACKGROUND

The response to Data Request-59 described that the BEP 2 evaporation pond will consist of one pond divided into two cells (3.24 acres each) with a maximum depth of 15' (13' usable depth for storage, and 2' for freeboard). BEP 2 differs from BEP 1 in that the BEP 2 pond requires solids to be removed at 7-10 year intervals, while BEP 1 was designed for the life of the project. The response provides the assumptions for the pond sizing calculations according to 7 steps. Follow-up data requests and questions are presented below for the calculation steps.

DATA REQUEST 147 Step 1 (Assumptions): The pond is designed to handle average brine flow (16.3 gpm), flush volume (1.16 gpm), and to be cleaned of solids every 7-10 years, given a net average evaporation rate of 6-8 ft/year.

Is this net average evaporation rate a measure of potential evaporation (PE) or actual observed evaporation (AE) and does it account for the average annual precipitation rate?

RESPONSE TO DATA REQUEST 147 The net evaporation rate is a measure of potential evaporation. Evaporation rates do not account for the average annual precipitation rate.

An annual average precipitation rate of 6"/yr was used in step 7. Note that this is 50% more than the mean precipitation for Blythe, 3.98"/yr, as documented by the NCDC for the years 1971-2000. The precipitation is accounted for separately from the evaporation in step 7 of the pond sizing calculation.

Also, the table provided with the response to Data Request 150 presents the annual input to Pond No. 2, including precipitation, and the annual evaporation for a variety of Pond No. 2 elevations. This provides an example of how pond influent, including precipitation, and effluent are accounted for.

DATA REQUEST 148 Step 4 (Evaporation surge capacity): The evaporation surge capacity calculation indicates the pond has the capacity to take excess cooling tower blowdown design flow of 416 gpm for 6 days.

Is the calculation based on operating the pond at the maximum level year round? If so, does this provide adequate storage capacity in the pond for extreme precipitation events? If not, please adjust calculations to adjust for an operational pond stage that can accommodate an extreme precipitation event.

RESPONSE TO DATA REQUEST 148 No, the calculation is not based on operating the pond at the maximum storage level year round.

The extreme precipitation event is 3.8 inches of rain in a 24-hour period. The evaporation ponds will collect the precipitation that falls within the ponds' footprint of 7.2 acres. (Consider the footprint to be that area enveloped by the centerline of the berm that forms the ponds. This area will be larger than the combined surface area of the ponds). The volume of precipitation collected in the extreme precipitation event is:

3.8/12 feet x (7.2 acres * 43,560 ft^2/acre) x (7.48 gallons/ft^3) = 742,890 gallons (2.28 acre-ft).

Attachment 148-1 indicates the combined ponds' capacity to accommodate an extreme precipitation event.

The table indicates the volume available for excess cooling tower blowdown and extreme precipitation at stages from -10' to -2'. At -2' the pond is considered full and there is no volume to accommodate either excess blowdown or an extreme precipitation event. Were the extreme precipitation event to be concurrent with maximum cooling tower blowdown to the evaporation ponds starting with a pond level of -3', the maximum operating level would be reached in two days.

Attachment 148-2 shows the relationship for Pond No. 2 only. The concurrent extreme precipitation event and maximum blowdown would cause the maximum pond level to be reached in one day with a starting level of -3'.

DATA REQUEST 149 Step 6 (Depth required for solids storage): Based on top and bottom pond areas, calculation concludes that 6.6 feet of pond depth is

required to store solids over 10 years. However, this calculation is based on the average area of the pond (5.1 acres). Since solid accumulation will occur from the bottom of the pond upwards, using the average pond area (5.1 acres) leads to an over-estimation of available storage volume at lower pond elevations.

Please verify the solids storage depth requirement by developing a stage-area-volume relationship for the pond and using this relationship to calculate depth for solids accumulation.

RESPONSE TO DATA REQUEST 149 The stage-area-volume relationships for the two evaporation ponds are presented in Attachment 149.

Step 6 of the original calculation indicated that the annual volume of salts deposited in the ponds is 146,799 ft^3. Ten years of storage is 1,467,990 ft^3.

From the stage-storage table for the combined ponds it can be seen that the storage volume from the bottom of the combined ponds to a level 7 feet above the bottom of the ponds is 1,288,163 ft^3. The storage volume at 8 feet above the bottom of the combined ponds is 1,504,244 ft^3.

A distance of approximately 7.8 feet above the bottom of the ponds provides enough volume for 10 years of solids storage.

The value of 6.6 feet of pond depth for 10 years of solids storage as presented in Step 6 of the original calculation should be replaced by the value of 7.8 feet as noted above and presented on the combined stage-area-storage table.

DATA REQUEST 150 Step 7 (Flow to one cell only): This calculation concludes that the plant can operate on one cell for 1 full year. This calculation assumes that the single cell begins half-full at a depth of 6.5 feet. (Note: This assumption of initial depth of 6.5 ft. seems to be inconsistent with some of the assumptions of the other steps.) For the pond area calculation (Step 3) and the evaporation surge capacity calculation (Step 4), the initial assumption was for an operating depth of 13 feet. Additionally, a revised depth required for solids storage calculation (following comments above for Step 6) will likely be even higher than the initial depth of 6.5 ft used for Step 7.

Please re-evaluate the process used to size of the evaporation pond and consider using consistent assumptions for water depth conditions throughout the 7 steps. Also, to summarize above comments, the design of the evaporation pond should consider precipitation, storage required for extreme precipitation events, the required storage volume for solids, and the stage-area-volume relationship for the intended ponds. The Applicant must utilize consistent assumptions throughout all the computations to

ensure that sufficient storage and evaporation capacity are provided so that the plant can operate on a single cell. Provide revised calculations using consistent assumptions.

RESPONSE: TO DATA REQUEST 150 The evaporation ponds are adequately sized to accommodate BEP 2 operating waste flows, average annual precipitation, and an extreme precipitation event; including the case where one pond is temporarily out of service for maintenance or solids removal.

The ponds also have substantial capacity to receive cooling tower blowdown that is not treated by the brine concentrator.

The brine concentrator is a highly reliable system designed for continuous operation. (The duration of scheduled maintenance for the brine concentrator (BC) is approximately four days per year. The scheduled maintenance for the BC will be concurrent with scheduled maintenance for the combustion turbines; there will not be waste flow to the BC with the combustion turbines out of service.) Therefore, flow of cooling tower blowdown directly to the evaporation ponds is an unlikely event.

Average annual precipitation of 6"/yr has been used for pond sizing and storage calculations. Please note that this is a conservative figure; the NCDC provides a mean annual precipitation for Blythe at 3.98" annually for the period 1971 – 2000.

The extreme precipitation event is 3.8" in a 24-hour period. The area that will collect precipitation and direct it to the ponds is the area within the centerline of the road that encircles the ponds, approximately 7.2 acres. This area is only slightly larger than the combined surface area of the ponds at the 13 elevation, 6.07 acres and about twice the combined area at the bottom of the ponds, 3.61 acres. Therefore, an extreme precipitation event would increase pond level by 4.51", (3.8*(7.21/6.07)), at an operating level of 13' and by 7.94", (3.8*(7.2/3.61)), if the ponds were empty.

The blowdown rate of 416 gpm that is used for pond sizing is a high condition blowdown rate. This blowdown rate occurs at the plant's high ambient temperature design condition. These conditions are expected to occur approximately 1% of the year. The annual average blowdown rate is approximately 70% of the maximum rate (approximately 290 gpm).

Attachment 150 shows the relationship of stage elevation, evaporation, and pond influent for Pond No. 2. It can be seen from this table that at operating levels below 8.76' (that is, 8.76' above the bottom of the pond), Pond No. 2 can accommodate the wastewater flow and average precipitation for one year. (Pond No. 2 was selected to demonstrate blowdown flow accommodation capacity as it is the smaller of the evaporation ponds.)

Further, from the response to Data Request 149, a distance of 7.8 feet above the bottom of the pond provides enough storage for 10 years of solids accumulation at base load operation of the plant.

After 10 years of normal operation pond solids storage would be at a level, 7.8 feet, below the maximum level at which Pond No. 2 could accommodate one year's influent, maximum of 8.76 feet.

These example pond operating levels are not design or normal operating levels. They are provided to demonstrate pond operations at a typical point in the operating life of the ponds. Pond level will increase and decrease through the life of the plant based on operating history and solids removal.

The same is true for the pond life selected to demonstrate solids storage capacity. It is a sample point selected to demonstrate solids accumulation at one point in the life of the project. This in not meant to imply a maximum solids storage level or the point which solids would be removed.

Values of water and solids input are consistent with the values used in the response to Data Request 59. The pond stage-storage values are taken from the response to Data Request #149.

BACKGROUND

The response to Data Request-60 described discharge conditions to the evaporation ponds and supplied water balance information for operation during summer months.

Input discharge to the ponds was given as 20 gpm (equivalent to 15.24" of input). Does this 20 gpm rate include the Flush Volume of 1.16 gpm that was described in Step 1 of the Response to Data Request-59? Under the observed highest precipitation recorded for the summer months (6.5" total) in the one-pond scenario (11.88"), adding this flush volume (if it is not already accounted for) could lead to a flow volume that exceeds design pond capacity.

DATA REQUEST 151 **Please confirm the accounting (or non accounting) of Flush Volume (consistent with the Response to Data Request-59) for sizing considerations of the evaporation ponds under summer environmental conditions and also considering potential high magnitude precipitation events (as observed). Please confirm that the evaporation ponds are adequately sized under these conditions.**

RESPONSE TO DATA REQUEST 151 Pond levels at which the evaporation ponds can accommodate brine and flush water and high magnitude precipitation events during summer operation are provided below.

Pond influent rates used below are consistent with those used in the response to Data Request #150. As Data Request #150 used maximum brine and solids input rates for all operating hours, one quarter of the annual rates will be used for the three month summer period.

Water from brine input is 0.25*(28.17) = 7.04 acre-ft. (This includes the flush volume as noted in Step 2 of the original calculation and is the rate used in the response to DR 150.)

Solids input for the three month summer period is 0.25*(3.37) = 0.84 acre-ft. (This is the same rate used in the response to Data Request #150.)

The input from the waste treatment system for the three-month summer period is 7.04 + 0.84 = 7.88 acre-ft.

A value of 4 inches will be used for "potential high magnitude precipitation events". "High magnitude precipitation events" is not a documented precipitation term or value. The mean average precipitation for the months of July – September is 1.31" (NCDC data for 1971 – 2000). Mean annual precipitation is 3.98" (pond sizing evaluations have used 4.00"). The 24-hour precipitation event is 3.78". The sum of the highest recorded monthly precipitations for July – September is 6.15" (1.09" + 2.28" + 2.78"). As it is not credible to assume consecutive monthly highest precipitation events, a value of 4" is appropriate for the three-month period and will be used for the following calculations.

For Pond No. 2 Only In Service:

Precipitation for Pond No. 2 is collected in an area of 3.57 acres (as noted in the response to Data Request #150). The high magnitude precipitation for the three-month period is 4.0". The accumulated volume for the three month summer period is 3.57*(4.0/12) = 1.19 acre-feet.

The total input is for the three-month 7.88 + 1.19 = 9.07 acre-feet.

Total evaporation for the three month summer period is 25.19" (2.10') as defined is the response to Data Request #60.

If an operating level of 12', one foot below the maximum operating level exists at the beginning of three month period, the evaporation will be approximately 2.91 acres * 2.10 feet = 6.11 acre-ft. (The response to Data Request #149 provides a stage area of 2.91 acres for Pond No. 2 at a stage elevation of 3 feet below the maximum operating level.)

The difference between the total input and evaporation is 9.07 – 6.11 = 2.96 acre – ft.

Using a surface area of 2.91 acres (the area at -3 feet) and 2.96 acre-ft of accumulation, Pond No. 2 level will increase 2.96 acre-ft / 2.91 acre = 1.02'.

The pond level will increase 1.02' or 12.2". The final pond elevation would be approximately 13.02'. This includes the 0.84 acre-ft of solids accumulation (0.84 acre –ft is approximately 0.29', 3.48" at this stage).

For Both Ponds In Service:

If both ponds are in operation, the waste input remains the same and the input precipitation is based on a collecting area of 7.2 acres; the collected precipitation is therefore 7.2 *(4/12) = 2.40 acre-ft.

The total input is 7.88 +2.4 = 10.28 acre – ft.

With an operating level of 12' at the start of the summer period, the stage area for the combined ponds is 5.87 acres. With 2.10' of evaporation, a volume of 5.87 acres * 2.10 feet = 12.33 acre-feet will be evaporated.

Because the 12.33 acre–ft of evaporation exceeds the 10.28 feet of input, the pond level will decrease for the three month period. The level of decrease will be approximately (12.33 – 10.28) acre –ft / 5.87 acres = 0.20 ft. (Solids accumulation will be 0.84 acre – ft / 5.87 acres = 0.14' or 1.72".)

The pond levels used for the beginning of the summer period in the evaluations above were selected to demonstrate the ponds' ability to accommodate waste input, high magnitude precipitation, and a high starting pond level. The pond levels used in the calculation are not the normal operating level for the ponds; they were selected only to demonstrate the ponds' capacity in an **unusual** concurrence of operating conditions.

BACKGROUND

The response to Data Request-62 describes that the project wells <u>may be</u> connected to the BEP 1 wells to provide long-term reliability. During the Data Response Workshop on November 6, 2002 in Blythe, the legal counsel for BEP 2 requested that staff evaluate impacts with and without well field interconnection and condition the project based on the worst-case scenario.

Unless an interconnected well field is specifically identified in the project description, the staff must assume that the BEP 2 wells <u>will not</u> be interconnected with the BEP 1 wells. Accordingly, the BEP 2 project would be evaluated, conditioned and limited to use of the 2 project-supply wells that have been identified by BEP 2 and that will be located on the BEP 2 project site.

DATA REQUEST 152 Confirm that BEP 2 is requesting to be certified to interconnect the proposed project wells to the existing BEP 1 wells.

RESPONSE TO DATA REQUEST 152 BEP 2 is requesting to be certified to interconnect the proposed BEP 2 Project with the BEP ground water wells. As indicated in the Application for Certification, BEP indicated that it planned to install one or two ground water wells. Caithness Blythe II, LLC confirms two (2) groundwater wells will be installed during construction. Each well will have sufficient capacity to serve the water requirements for the plant under all operating scenarios. The details of the proposed interconnection are overviewed in the response to Data Request #153 below.

Please keep in mind, the interconnection is **only** to be used in an "emergency" event where both wells fail or are out of service at either of the Projects. As soon as service was re-established, water would be again supplied by the facility's equipment.

DATA REQUEST 153 If BEP 2 is requesting certification with the BEP 1 and BEP 2 wells interconnected, provide a description and specification of the interconnection of the BEP 2 project wells to the existing BEP 1 wells.

RESPONSE TO DATA REQUEST 153 The well pump discharge headers would be connected by a line with isolation valves at the interface points and metering to monitor the volume of water that is pumped from BEP to BEP 2 or from BEP 2 to BEP. The isolation valves would normally be "locked closed" to prevent inadvertent transfer of water from BEP 2 to BEP or vice versa. A sketch illustrating this concept is provided in Attachment 153.

The connecting line would be sized to accommodate the flow from any well pump. It is anticipated that BEP 2's well pumps will be the same size as BEP's.

The connection at the BEP interface would likely be near BEP well pump #2; this is at the southwest corner of the BEP plant (not the BEP property). The connection at the BEP 2 interface would at a location on the BEP 2 property convenient to plant operators.

BACKGROUND
The Response to Data Request-63 did not provide the maps or well interference calculations that were requested. The Response to Data Request-63 refers to a Figure 63-1, but this figure was not included in the submittal. The applicant explained at the Data Response Workshop on November 6, 2002 in Blythe that Figure 64-1 replaced Figure 63-1.

DATA REQUEST 154 Please update Figure 64-1 to display all residential and commercial land uses within 2 miles of the proposed project, specifically all of the wells located at 16275 Hobsonway West, including at the Thermo King shop.

RESPONSE TO DATA REQUEST 154 The Thermal King shop and the Thermal King shop well have been added to Figure 64-1. (See Attachment 154)

DATA REQUEST 155 Provide the following well interference calculations for the well at the Thermo King shop. (1) Calculate the potential drawdown for the average rate of pumping for a 40-year period. (2) Calculate the additional potential drawdown that would occur at the end of 4 months of

pumping at the maximum projected usage rate following 39 years of pumping at the average rate of pumping.

RESPONSE TO DATA REQUEST 155 The drawdown value for the Thermo King Shop well after 40 years of pumping at the average rate of pumping (2,040 gpm) for BEP 2 is 2.8 feet. The draw down value for the Thermo King Shop well after 39 years of pumping at the average rate followed by 4 months of pumping at the maximum 4-month average usage rate is 3.0 feet. The requested well interference calculations will be submitted under separate cover.

BACKGROUND
The following questions represent additional required information following the Response to Data Request-65.

DATA REQUEST 156 Identify the lettered and numbered sites shown on the figure entitled "Overview Map – 846494.1s – Greystone Env. Consultants," which was included in Attachment 65-1 of the response submittal.

RESPONSE TO DATA REQUEST 156 These sites shown on the Overview Map (846494.1s) were identified in the tables of the "Executive Summary" in the Environmental Data Resources Report. However, labels have been added to the figure to facilitate review (See Attachment 159 – Revised Overview Map – 846494.1s).

DATA REQUEST 157 Provide the map location of the 8 sites that were discussed in detail in the response to Data Request 65; these 8 sites were identified as being "up-gradient from or sufficiently near the BEP sites." Identify these sites on the figure entitled "Overview Map – 846494.1s – Greystone Env. Consultants" (Attachment 65-1).

RESPONSE TO DATA REQUEST 157 The requested locations are the same locations requested in Data Request 156. Labels have been added to the Overview Map – 846494.1s for these sites (See Attachment 159 below).

DATA REQUEST 158 Provide the definition of the criteria "sufficiently near" that was used to identify the sites that were described in more detail in this data response.

RESPONSE TO DATA REQUEST 158 The term means that the site was sufficiently near the BEP 2 property to warrant evaluation in the Phase I report.

DATA REQUEST 159 **Show the following areas and sites on the figure entitled "Overview Map – 846494.1s – Greystone Env. Consultants" (Attachment 65-1):**

- **the projected cone of depression (area of influence) for long-term project pumping for BEP 2;**
- **the boundaries of the Blythe Airport Dump Site;**
- **the old mobile home site along Hobsonway; and**
- **the residences and commercial buildings, including the residence at 16275 Hobsonway, that are within 1 mile of the BEP 2 project.**

RESPONSE TO DATA REQUEST 159 Attachment 159 (Overview Map 846494.1s) shows the boundaries of the Blythe Airport Dump Site, residences and commercial buildings near the BEP 2 project, and the projected cone of depression or area of influence for long-term project pumping for BEP 2. Please note the buildings around Thermal King are depicted on the USGS maps used to create the graphics used throughout the AFC and the data responses; however, they are very small and may have been obscured by the symbols used to depict well locations. The locations of residences and other buildings near the BEP 2 site is discussed and depicted throughout the AFC. Please refer to the following locations for descriptions of the project area:

- AFC Figure 2.0-3 Vicinity of Proposed Blythe Energy Project,
- AFC Section 7.2.1.2 Existing Land Uses Adjacent to and in the Vicinity of the Project Site,
- AFC Figure 7.2-3 which is a close-up aerial photograph of the project site and nearby buildings,
- AFC Section 7.3 Noise which contains an assessment of potential noise impacts at nearby sensitive receptors,
- AFC Figure 7.3-2, Sensitive Noise Receptors.

The old mobile home site along Hobsonway no longer exists and has not been depicted. It was located on the BEP site but has since been removed during construction of the storm water retention basin and evaporation pond. Please refer to the BEP licensee for further information on the old mobile home site.

Attachment 159 (Overview Map 846494.1s) also depicts a cone of depression around the site as defined by the limits of 5 feet of drawdown.

DATA REQUEST 160 **Show the projected cone of depression (area of influence) for combined long-term project pumping for BEP 1 and BEP 2 on the figure entitled "Overview Map – 846494.1s – Greystone Env. Consultants" (Attachment 65-1).**

RESPONSE TO DATA REQUEST 160 Caithness Blythe II, has not provided the predicted drawdown for the combined pumping of BEP and BEP 2 wells at this time. We understand Blythe Energy and the CEC staff have not reached conclusion of the discussion/evaluations associated with the BEP wells regarding the potential for impact to the surrounding wells, if any. At such time, when Blythe Energy and CEC staff have concluded the evaluations, and the methodology and results are published, CB II will evaluate and provide the requested information. If Staff is able to provide guidance regarding the methodology and assumptions that should be made regarding BEP and BEP 2, we would be happy to evaluate.

BACKGROUND

The response to Data Request-66 described the process used to design the stormwater retention basin. Assumptions included a percolation rate of 6.3 cfs based on pump tests. A ratio approach was used that compared storage volume to runoff volume.

DATA REQUEST 161 Please provide a topographic map indicating the contributing watersheds that drain to the retention basin.

RESPONSE TO DATA REQUEST 161 See Attachment 161.

DATA REQUEST 162 Please evaluate (or confirm) that the measured percolation rate of 6.3 cfs from pump tests is an accurate measure of infiltration conditions for surface soils and shallow subsurface soils. If the pumping tests are measuring deeper percolation rates, then using values for deeper aquifer conditions to estimate surface runoff may not be appropriate.

RESPONSE TO DATA REQUEST 162 The aquifer test that was performed in October 2002 resulted in the placement of approximately 1.32 million cubic feet of water in the partially completed BEP retention basin over an approximate 55 hour period, which equates to a percolation rate of 6.68 CFS. This data correlates very well with the results of the November 2001 aquifer test.

Analysis of the soil borings that were completed for the document entitled "Geotechnical Engineering Evaluation – Blythe Energy Project Power Plant-Blythe, California" prepared by Ninyo and Moore Geotechnical and Environmental Sciences Consultants dated February 13, 2001 indicates the deeper percolation rates should be consistent with the surface soil percolation rates.

DATA REQUEST 163 Please provide a stage-storage-volume relationship for the retention basin.

RESPONSE TO DATA REQUEST 163 Attachment 163 provides the stage storage relationship for the Blythe Energy stormwater retention basin.

Note that while the top of the retention basin's berm is at elevation 335', the required storage volume is attained at a high water level of 327' with the bottom of the basin at 317'.

DATA REQUEST 164 Please confirm that the retention basin is adequately sized for 100-year storms of varying durations (12-hr, 24-hr, 72-hr). This evaluation can be based on a flood routing analysis using the stage-storage-volume relationship requested above.

RESPONSE TO DATA REQUEST 164 The Drainage Analysis and resulting Drainage Plan completed for the Blythe Energy Project included a complete analysis of the offsite and onsite drainage for the BEP 2 site. The retention basin that was constructed for BEP is designed to contain runoff from the calculated 10 yr - 24 hr and 100 yr - 24 hr storm for the entire off-site and on-site drainage area. This drainage plan is in compliance with the storm water drainage criteria established by the City of Blythe and submitted and approved by the CEC in July of 2002.

The development of BEP 2 facilities on the BEP 2 site will create no significant change in the storm water runoff volume or required size of the existing retention basin. The total drainage area upstream from the retention basin is approximately 1200 acres. The surface area impacted by BEP 2 facilities is approximately 10.4 acres. BEP 2 buildings and circulatory roads will increase runoff characteristics from a pervious surface to an impervious surface. This impact will change the assumption used for the runoff curve number (RCN) from an RCN of 63 to an RCN of 81 for the BEP 2 contributing drainage area. The updated calculation shown in Attachment 164 revises the original BEP Storm Drainage Calculation assumptions with BEP 2 information. This revised calculation shows no change to the average RCN of 65 used in the analysis and thus no change to the runoff volumes. In addition, BEP 2 will also be constructing a new evaporation pond that will remove 7.2 acres from the contributing drainage area. The impact of the evaporation pond will reduce total runoff volumes by approximately 0.5%. The final calculations for BEP 2 will be contained in the Stormwater Drainage Calculations and Drainage and Grading Plan submittals to the CEC.

DATA REQUEST 165 Staff has been informed that the retention basin would also serve as a sediment basin during earthmoving activities. Please demonstrate that the basin has sufficient capacity to store both stormwater runoff and sediment.

RESPONSE TO DATA REQUEST 165 As noted previously in the response to Data Request 107, soil types on the Project site are generally classified as fine-medium grain silty sands. These soils are exceptionally permeable and do not exhibit characteristics typically attributed to sedimentation from rainfall events. Also, rainfall in the Palo Verde Valley is typically concentrated over a few storms and accumulates less than 4 inches of average rainfall annually.

During the two year construction period (April 2001 – Feb 2003) for the Blythe Energy Project, no material erosion of onsite soils during rainfall events was observed (Tele Contact - Resident Engineer). During 2001, when a substantial portion of the earth moving activities were completed, the rainfall totals in Blythe were 4.78" (NOAA Blythe Station) for the year.

Any sedimentation that does accumulate such that the effective storage volume of the retention basin is impacted, will be removed.

BACKGROUND

The response to Data Request-67 described that the design of the stormwater retention basin included accounting for the aging of the basin and reductions in infiltration/percolation over time.

DATA REQUEST 166 **Similar to the comments above for the Response to Data Request-66, please provide clarification regarding the percolation rates calculated from the pump tests. Are the soil strata at the surface similar to the water bearing strata for which the pump test measures hydraulic conductivity? The geologic cross section (Figure 7.13-5 of the AFC) indicates that there may be clay lenses and cemented deposits between the surface and the water table. What effect will these clay lenses and cemented deposits have on the assumed percolation rate?**

RESPONSE TO DATA REQUEST 166 The percolation rate was not "assumed" but confirmed by in-situ field testing. The percolation rate was determined based on pumping water directly into the retention basin and monitoring the dropping water levels over time. The calculation that sized the retention basin assumed a safety factor further reducing the percolation rate by a factor of 2x. No clay lenses or cemented soils were encountered in the excavation of the retention basin.

DATA REQUEST 167 **Please provide monitoring and maintenance protocol related to sediment storage and removal for times when the basin will serve as a sediment basin. Please also indicate how the basin will maintain adequate infiltration/percolation rates.**

RESPONSE TO DATA REQUEST 167 The Blythe Energy Facilities Management Plan will require the monitoring and removal of sediment buildup in the Retention Basin that could result from extreme rainfall events. The bottom of the basin will be disked by Blythe Energy on an as needed basis to avoid surface sealing that could reduce the assumed percolate rate.

BACKGROUND
As discussed at the 11/06/02 workshop, the applicant agreed they would provide staff with Attachment #70 and the hydrologic and hydraulic calculations submitted as part of Amendment 1B.

DATA REQUEST 168 **Please provide staff with the hydrology and hydraulic data for the Amendment 1B.**

RESPONSE TO DATA REQUEST 168 We have provided the requested information in Attachment 168. Caithness Blythe II, LLC does not have access to all files associated with the design and construction of the Blythe Energy Project since we are not an Owner of the project. We would suggest the CBO, Tony C'dBaca be contacted (760-922-5978) in the future if additional information is required since his office has a complete set of the "plan-checked" submittals for the project.

BACKGROUND
As discussed in the Response to Data Request-72, the applicant will submit an operational SWPPP for the BEP 1 site and this plan would serve as an example of the same type of SWPPP to be utilized for the BEP 2 project.

DATA REQUEST 169 **Provide the Operational SWPPP from BEP 1 and indicate that the BEP 2 SWPPP will be essentially the same. Discuss in detail any changes that will be made to the BEP 1 SWPPP for use by BEP 2, and provide an amended draft plan for review.**

RESPONSE TO DATA REQUEST 169 Caithness Blythe II, LLC confirms that the Operational SWPP for the Blythe Energy Project Phase 2 will be essentially the same as the BEP Operational SWPP. BEP Operational SWPP addresses the drainage systems associated with the 152-acre site. BEP 2 will be located on the same 152-acre site addressed by the BEP Operational SWPP. The BEP 2 Operational SWPP will be amended to include the permanent plant drainage systems which result from the design & construction of BEP 2.

Since different Owners are involved in the two projects, we would request that CEC staff obtain a copy of the BEP Operational SWPP from the CEC Compliance Project Manager, Steve Munro. Submittal of this document is required per CEC Condition of Certification, Soil & Water 3. At this time, the BEP Operational SWPP has not been completed.

BACKGROUND
Response to Data Request-73 indicates that the requested information is available in Section 7.14 of the BEP 2 AFC. Section 7.14 describes four (4) soil types that are only indicative of the power plant area. However, soil attributes for lands considered in the WCOP fallowing program are not identified.

DATA REQUEST 170 **Please identify and describe detailed soil information (similar to the information provided for the power plant site) for all lands considered for inclusion in fallowing for the WCOP program. Please also include information regarding the potential soil erosion hazard due to wind on these lands.**

RESPONSE TO DATA REQUEST 170 Only land actively irrigated within the past 5 years may be included in fallowing for the WCOP program. This encompasses any of approximately 104,500 acres in the Palo Verde Valley. Detailed soil information for the Palo Verde Valley is presented below. Potential soil erosion hazard due to wind is low in this area and fallowing is not a regulated activity by the MDAQMD.

MDAQMD Rule 403 does not apply to agricultural operations (see Rule 403 (f)). Dust control as it relates to the WCOP is a defined agricultural operation, i.e. rotational fallowing of agricultural land. MDAQMD concurs with this interpretation and has determined that best management practices proposed by BEP 2 are adequate. MDAQMD reviewed and commented on the proposed MWD fallowing program within PVID, which is consistent with the proposed BEP 2 WCOP fallowing program.

Wind erosion is also very limited in the Palo Verde Valley. Soils in the Valley are fairly uniform and are generally classified as, silty fine to medium grain sandy soils (SP-SM) with cohesion of 350-450 psf. Fine to medium sand, with a grain size varying from 0.074-2 mm is not readily transported by wind. Finer sand particles may only be transported short distances before re-deposition of the particles. The smaller percentage of the soil (10-20% passing the #200 sieve) may be subject to transport over longer distances. However, once the upper few millimeters of silts are lost, the remaining sandier soils become very stabilized and not subject to further erosion.

The 1000 acres of irrigated land has very flat gradients of less than .001 ft/ft. Soils are primarily silty very fine sand and fine sand with particle sizes .07 to .2 mm. Proposed tillage practice is a five year rotation with 20% of the area in alfalfa or similar crop, and 80% fallow. Due to the very shallow groundwater table, the alfalfa is expected to partially survive and maintain significant cover and residue during the fallow years.

Furthermore, air quality impacts due to wind erosion occur primarily during dust storms and very high wind gusts, both events likely to affect fallowed lands and crop land alike, as well as the millions of acres of unused desert land surrounding the Blythe region. Any differential in PM10 emissions between the 786 acres, whether fallowed or actively farmed would be infinitesimally small in proportion to the impact from all the other lands during these high wind events.

Soil Attributes for Lands Considered in the WCOP Fallowing Program
Soils in the Palo Verde Area Soil Survey are classified by the Capability Grouping system. The Capability class is the broadest group, and are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use, defined as follows:

Class I soils have few limitations that restrict their use. (None in Palo Verde Area.)

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class III soils have severe limitations that reduce the choice of plants, that require special conservation practices, or both.

Class IV soils have very sever limitations that reduce the choice of plants, that require very careful management, or both.

Class V soils are not likely to erode but have other limitations, impractical to remove, that limit their use largely to pasture, range, woodland, or wildlife habitat. (None in Palo Verde Area.)

Class VI soils have severe limitations that make them generally unsuited to cultivation and that limit their use largely to pasture or range, woodland, or wildlife habitat. (None in Palo Verde Area.)

Class VII soils have very severe limitations that make them unsuited to cultivation and that limit their use largely to pasture or range, woodland, or wildlife habitat. (None in Palo Verde Area.)

Class VIII soils and landforms have limitations that preclude their use for commercial plants and that restrict their use to recreation, wildlife habitat, water supply, or esthetic purposes.

Capability subclasses are soil groups within one class; they are designated by adding a small letter, *e, w, s,* or *c*, to the class numeral, for example, II*s*. The letter *e* shows that the main limitation is risk of erosion unless close growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is saline, droughty, or stony; and *c*, used in only some parts of the United States and not in Palo Verde Area, shows that the chief limitation is climate that is too cold or too dry.

Capability units are soil groups within the subclasses. The soils in one capability unit are enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity and other responses to management. Thus, the capability unit is a convenient grouping for making many statements about management of soils. Capability units are generally designated by adding an Arabic numeral to the subclass symbol, for example, II*s*-5.

In California, each unit number in classes I though IV indicates a particular kind of problem or limitation, as follows:

0. A coarse sandy or very gravelly substratum, which limits root penetration and retention of moisture.
1. A potential or actual hazard of soil blowing or water erosion.
2. Poor drainage or a flood hazard.

3. Slow or very slow permeability in the subsoil or substratum.
4. Coarse texture or excessive gravel.
5. Fine or very fine texture.
6. Salts or alkali sufficient to constitute a continuing hazard.
7. Stones, cobblestones, or rock outcrops sufficient to interfere with tillage.
8. Hardpan or unweathered hard bedrock within the root zone.
9. Low inherent fertility, associated with strong acidity, with a too low or too high calcium-magnesium ratio, or with excess calcium, boron, or molybdenum.

Soils with a Capability unit of 1 are considered to have a high hazard of soil blowing or water erosion. The types of soils in the Palo Verde Area with this Capability unit are the Badland (BaG), Chuckawalla very gravelly silt loam (Ch), Rock land (RdG) and the Dune land (DuD). These soils classifications types are either located on the Palo Verde Mesa or outside of the irrigated areas of the Palo Verde Valley. None of the soils found in the actual Palo Verde Valley have a Capability unit of 1.

Although none of the soil types in the Palo Verde Valley have a high risk of soil blowing or water erosion, some of the types do have a slight to moderate risk. Capability Groups IIs-4 and IIIs-4 soils have a soil blowing hazard in some localities, especially during leveling or tillage. Gilman fine sandy loam (Gb), and Gilman silty clay loam (Gc) are both Capability group IIs-4 soils found in the Palo Verde Valley. Rositas fine sand, 0 to 2 percent slopes (RoA), Rositas fine sand, 2 to 9 percent slopes (RoB), and Rositas silty clay loam, 0 – 2 percent slopes (RtA) are all Capability group IIIs-4 soils found in the Palo Verde Valley.

The soil types found in the Palo Verde Valley are listed below. The drainage, soil profile, permeability, runoff potential and erosion hazard is described for each soil type. The Capability Grouping number is located after the name of the soil type.

Co- Cibola fine sandy loam, less than one percent: (IIs-6)

This well-drained soil derives from alluvium on the Palo Verde Valley floor. The representative profile of these soils is approximately five feet in depth. Permeability is slow in the upper part of the profile and rapid in the lower part. Runoff is very slight, if any. The hazard of erosion is nonexistent.

Cs- Cibola silty clay loam, less than one percent: (IIs-6)

This well-drained soil derives from alluvium on the Palo Verde Valley floor. The representative profile of these soils is approximately five feet in depth. Permeability is slow in the upper part of the profile and rapid in the lower part. Runoff is very slight, if any. The hazard of erosion is nonexistent.

Gb- Gilman fine sandy loam, less than one percent: (IIs-4)

This well-drained soil derives from alluvium on the Palo Verde Valley floor. The representative profile of these soils is approximately five feet in depth. Permeability

is moderately rapid in the upper part of the profile and rapid in the lower part. Runoff is slow or does not occur in irrigated fields. The hazard of erosion is none to slight.

Gc- Gilman silty clay loam, less than one percent: (IIs-4)

This well-drained soil derives from alluvium on the Palo Verde Valley floor. The representative profile of these soils is approximately five feet in depth. Permeability is moderately rapid in the upper part of the profile and rapid in the lower part. Runoff is slow or not present in irrigated fields. The hazard of erosion is none to slight.

Ge- Glenbar silty clay loam, less than one percent: (IIs-6)

This well-drained soil derives from alluvium deposited on the Palo Verde Valley floor by the Colorado River. The representative profile of these soils is greater than five feet deep. Permeability is slow. Runoff is slow or not present in fields that have irrigation borders. Erosion is not a hazard.

Hb- Holtville fine sandy loam, less than one percent: (IIs-6)

This well-drained soil derives from alluvium deposited on the Palo Verde Valley floor by the Colorado River. The representative profile of these soils is approximately five feet in depth. Permeability is slow in the upper part of the profile and rapid in the lower part. Runoff is very slow. The hazard of erosion is none or slight.

Hc- Holtville silty clay, less than one percent: (IIs-5)

This well-drained soil derives from alluvium deposited on the Palo Verde Valley floor by the Colorado River. The representative profile of these soils is approximately five feet in depth. Permeability is slow in the upper part of the profile and rapid in the lower part. Runoff is very slow. The hazard of erosion is none or slight.

Ic – Imperial silty clay, less than one percent slope: (IIIs-5)

This moderately well drained soil derives from alluvium deposited by the Colorado River. The representative profile is approximately five feet deep. Permeability is generally very slow and irrigation does not typically replace moisture to a depth of more than 2 to 3 feet. Runoff and erosion are not hazards.

Ib – Imperial fine sandy loam, less than one percent slope: (IIIs-5)

This moderately well drained soil derives from alluvium deposited by the Colorado River. The representative profile is approximately five feet deep. Permeability is generally very slow and irrigation does not typically replace moisture to a depth of more than 2 to 3 feet. Some improvement in prolonged ponding of irrigation water is present. Runoff and erosion are not hazards.

Id – Indio very fine sandy loam, less than one percent slope: (IIs-6)

This well drained soil derives from alluvium deposited by the Colorado River. The representative profile is approximately five feet deep. The permeability is moderate. Runoff and erosion are not hazards.

Ie – Indio silty clay loam, less than one percent slope: (IIs-6)

This well drained soil derives from alluvium deposited by the Colorado River. The representative profile of these soils is approximately five feet deep. The permeability is moderate. Runoff and erosion are not hazards.

Md – Meloland fine sandy loam, less than one percent slope: (IIIw-3)

Meloland soils are typically well drained, but perched water tables are present in irrigated areas. This soil derives from alluvium deposited by the Colorado River. The representative profile of these soils is approximately five feet deep. The permeability is moderately rapid in the upper part of the profile and slower in the lower part. Runoff is slow and does not typically occur in irrigated fields. Erosion is not a hazard.

Me – Meloland silty clay loam, less than one percent slope: (IIIw-3)

Meloland soils are typically well drained, but perched water tables are present in irrigated areas. This soil derives from alluvium deposited by the Colorado River. The representative profile of these soils is approximately five feet deep. The permeability of meloland silty clay loam is slow. Runnoff is very slow and does not occur in fields with irrigated borders. Erosion is not a hazard.

RoA- Rositas fine sand, 0 to 2 percent slopes: (IIIs-4)

This somewhat excessively drained soil derives from alluvium deposited in the Palo Verde Valley and on the Palo Verde Mesa by the Colorado River. The representative profile of these soils is greater than five feet deep. Permeability is rapid. Runoff is either very slow or does not occur. The hazard of wind erosion is slight to moderate.

RoB- Rositas fine sand, 2 to 9 percent slopes: (IIIs-4)

This somewhat excessively drained soil derives from alluvium deposited in the Palo Verde Valley and on the Palo Verde Mesa by the Colorado River. The representative profile of these soils is greater than five feet deep. Permeability is rapid. Runoff is slow. The hazard of erosion is slight.

RrA – Rositas fine sand, wet, zero to two percent slopes: (IIIw-3)

This somewhat excessively drained soil derives from alluvium deposited in the Palo Verde Valley and on the Palo Verde Mesa by the Colorado River. The representative

profile of these soils is six feet deep. The permeability of this soil is rapid in the upper part of the profile and slow in the lower part. Runoff is slow or not present. When irrigated, a perched water table forms above the clay substratum and the soil is difficult to drain. The wind erosion hazard is slight to moderate.

RtA – Rositas silty clay loam, 0 – 2 percent slopes (IIIs-4):

The profile of this soil is like that of Rositas fine sand, except for the texture and thickness of the surface layer. The surface layers ranges from heavy clay loam to clay and is commonly silty clay loam to approximately 10 inches in depth. Where the soil is bare, the hazard of erosion is none to slight and runoff is slight to medium.

RuA – Rositas silty clay loam, 0 – 2 percent slopes (IIIw-3):

The profile of this soil is also like that of Rositas fine sand. The surface layer ranges from fine sandy clay loam to clay but most commonly is silty clay loam to approximately 40 inches in depth. The soil below this depth is typically ranges from heavy clay loam to clay. Where the soil is bare, the hazard of erosion is none to slight, and runoff is slow to moderate.

BACKGROUND

A philosophical discussion on the accuracy or inaccuracy of the RUSLE and Wind Erosion Equation is not an adequate data response since it does not provide the quantitative information necessary for staff to complete the analysis of this issue. Technical resources such as the USDA, Agricultural Research Service, Agricultural Handbook Number 703, 1997 and USDA-NRCS Field Office Technical Guide, Section I-C are nationally recognized and used by field personnel in both the public and private sectors. Staff requires these technical resources to assess ambient versus proposed impacts related to annual average soil loss, stemming from water and wind (mechanical) erosion. Please note that staff is not only concerned about the PM 10 impacts, but also the saltation process that may impact surrounding lands.

DATA REQUESTS 171 Please provide quantitative analyses using the RUSLE and Wind Erosion Equation for the proposed WCOP lands during current ambient conditions and proposed WCOP conditions.

RESPONSE TO DATA REQUEST 171 Approximately 1000 acres of irrigated agricultural land in the Palo Verde Irrigation District will be used to offset water use by the proposed generating station. Since 80% of this land will be fallowed in a five year cycle, the California Energy Commission has requested analyses of soil erosion and wind erosion for the offset area.

Description of Conservation Offset Area

The 1000 acres of irrigated land has very flat gradients of less than .001 ft/ft. Soils are primarily silty very fine sand and fine sand with particle sizes .07 to .2 mm. Proposed tillage practice is a five year rotation with 20% of the area in alfalfa or similar crop, and 80% fallow. Due to the very shallow groundwater table, the alfalfa is expected to partially survive and maintain significant cover and residue during the fallow years. Precipitation and wind statistics were obtained from Blythe Airport, located a few miles west of the conservation offset area.

Revised Universal Soil Loss Equation (RUSLE)

RUSLE is an updated version of the Universal Soil Loss Equation (USLE). The original USLE has been retained in RUSLE; however it has been put in a computer program to facilitate calculations, and the technology for factor evaluation has been modified and new data introduced to evaluate each factor under more specific conditions.

RUSLE uses the original USLE formula:

A=R*K*LS*C*P where:
A= Predicted Average Annual Soil Loss (Tons/Acre/Year)
R=Rainfall Runoff Erosivity Factor
K=Soil Erodibility Factor
LS=Length-Slope Factor
C=Cover-Management Factor
P=Support Practice Factor.

Each of these terms were evaluated for the site. The Rainfall Runoff Erosivity factor was based on the method of Goldman, which calculated R for a Type II storm (characteristic of southern California and Arizona), using the 6-hour duration, 2-year recurrence depth (0.62 inches at Blythe Airport).

R=27*P^2.17 = 27*.62^2.17=9.6 (very low as expected for desert precipitation)

The soil erodibility factor was estimated from NRCS soil data for silty very fine sand and fine sand to be between .15 and .36, or approximately 0.21.
K=0.21

The length-slope factor was determined for a slope of .001 ft/ft and a distance of 6600 ft to be no greater than 0.10 (values lower than this cannot be read from the NRCS graph).
LS=0.10

The cover management factor was based on a five year average of crop residue and stubble left after alfalfa harvesting. A continuous crop cover of alfalfa would produce a C factor approaching zero. Typical annual harvesting, disking and tillage of other types of crops would produce C factors of 1.0. Since 20% of the area will be replanted every five years, a conservatively high estimate would be:
C=0.2

The support practice factor is not applicable for gently sloping areas
P=1.0

Conclusion

A=9.6*.21*.10*.2*1. = .04 tons/ac/year or 40 tons per year for 1000 acres

Actually, the equation greatly over predicts soil erosion for this very flat area. No surface erosion occurs at all for overland flow velocities less than 1 ft/sec (25 cm/sec). Using the Manning equation for shallow overland flow for the extreme condition of 1 ft of depth flowing over stubble:

V=1.5/n*(d^.667)*s^.5; V (ft/sec)=1.5/.08*1^.667)*.001^.5=0.6 ft/sec = 15 cm/sec

No erosion would be expected since expected flow velocities would not suspend or move fine sand.

Wind Erosion Equation (WEQ)

Using wind tunnels and field studies, NRCS workers in the mid 1950s developed the first wind erosion prediction equation. The equation expressed in function form is:

E= f(I,K,C,L,V) where
E= Potential Average Annual Soil Loss (tons/acre/year)
I= Soil Erodibility Index
K=Soil Ridge Roughness Factor
C=Climate Factor
L=Unsheltered Distance Across a Field
V=Equivalent Vegetative Cover

WEQ is presently undergoing evaluation and testing as a Windows spreadsheet. The spreadsheet program allows evaluation of complicated monthly, seasonal and annual planting dates, irrigation scheduling, crop rotation, disking and tillage practices. It was assumed that alfalfa would be replanted over 20% of the area each year and kept irrigated and harvested at appropriate intervals. 80% of the area would lie fallow for four years with surviving alfalfa, stubble and residue left undisturbed. The following parameters were evaluated in the NRCS spreadsheet:

Soil Erodibility, Index (I). For fine sand with alfalfa stubble a high index would be appropriate.
I=134

Soil Ridge/Stubble Roughness combined with *Random Roughness* (cloddiness) would be at least 6 inches. The lowest index factor allowed is 0.5
K=0.5

Climate Factor was obtained from the C-Factor map of NRCS. (southeastern California desert)

C=300

Unsheltered Distance Across the Field was determined from the prevailing winds. The predominate wind directions of southwest (30% of the time and strongest) and northeast (15%) had approximately equal fetch for a north-south oriented square field.
L=6600

Equivalent Vegetative Cover was an average of alfalfa and stubble/crop residue.
V=2000 lbs/acre

Conclusion

The spreadsheet procedure provided an estimate of 0.4 tons/ac/year wind erosion for the conservation offset area. In contrast, normal crop cultivation and harvesting practices for this type of soil and climate could produce 10 tons/acre/year.

DATA REQUEST 172 Please ensure that the analyses demonstrate how the final products are achieved quantitatively and via discussion on the selection of the C, P (RUSLE) and V (Wind Erosion Equation) factors.

RESPONSE TO DATA REQUEST 172 See response to Data Request 171.

BACKGROUND
In the Response to Data Request-75, the applicant has indicated that a new confidential filing will be submitted to the Energy Commission, as the original filing is considered out of date.

DATA REQUEST 173 Please provide Staff with this map filing.

RESPONSE TO DATA REQUEST 173 CB II has re-filed the confidential filing to clarify that the BEP 2 will not retire the airport lands currently owned by the City of Blythe. The map was revised and has been submitted under confidential cover.

BACKGROUND
In Data Requests 76 through 80, staff requested detailed information about the specific fallowing and retirement programs affiliated with the WCOP. Staff also questioned the effectiveness of clodding on sandy soils. Staff requested the applicant to coordinate with the Natural Resources Conservation Service (NRCS) to develop a Conservation Plan to ensure that the average annual soil loss is less than five (5) tons/acre/year. Staff also requested information regarding the

erodibility and other agricultural attributes of specific lands to be fallowed as part of the WCOP. These lands are a component of the BEP 2 application and, therefore, must be analyzed by Staff. The impacts related to erosion for the fallowing process must be evaluated as part of the WCOP. Therefore, staff is relying on the Conservation Standards set forth by the USDA as they are applicable to that local area. The applicant also cross-references the EIR for the Proposed Palo Verde Irrigation District Land Management, Crop Rotation, and Water Supply Program related to PVID as the basis for the WCOP. This EIR discusses land conservation practices and stresses coordination with the NRCS (formerly SCS) and the Palo Verde Resource Conservation District.

DATA REQUEST 174 **Because the NRCS specializes in technical conservation services and the development of conservation plans, staff is requesting the applicant to coordinate with the local NRCS offices (Blythe and/or Indio) and the Palo Verde Resource Conservation District to develop a conservation plan for the fallowing process as part of the WCOP. Provide a conservation plan as a component of the WCOP2 that has been developed in consultation with the NRCS.**

RESPONSE TO DATA REQUEST 174 As reported in response 142 above, NRCS standard practices will be employed for soil stabilization, and retirement and/or fallowing of eligible land does not have potential to cause significant erosion. PVID's lands are encompassed within a system of delivery canals; return flows from irrigated lands are captured in an equally encompassing system of drainage canals and channels. Average annual rainfall is less than three inches, and the valley floor is essentially level. For these reasons, erosion potential is very low.

The two farming practices that produce the greatest windblown material - pre-planting plowing, and harvest, will be avoided on fallowed (and retired) lands. Under the fallowing option, 786 acres of irrigated farmlands would not be actively farmed at any one time during the life of the power plant, and PM_{10} emissions associated with tilling, planting and harvesting those farmlands, and transporting produce would be eliminated.

The applicant has agreed to implement clod tillage and stubble maintenance on fallowed lands, identified in consultation with PVID and NRCS as standard practices employed throughout the region for soil stabilization. (1. Ed Smith, General Manager, PVID, September 23, 2002, pers. comm. w/ J. Harvey, Greystone. 2. Joey Deconinck (Chairman), and Bob Hull and Danny Robinson, Palo Verde Valley NRCS Advisory Board, January 21, 2003, pers. comm. w/ Bob Looper, Caithness)

In its analysis of a proposed interbasin water transfer involving fallowing of more than 22,000 acres annually, PVID concluded that fallowing would maintain wind erosion at levels similar to or lower than existing levels, and, *although the potential impact was concluded to be less than significant,* PVID identified management measures to reduce the wind erosion potential. (Source: PVID, *Draft EIR for the Proposed Palo Verde Irrigation District Land management, Crop Rotation, and Water Supply Program*, May 2002) Measures included 1) maintenance of stubble residue for fields previously planted in alfalfa, wheat, barley or similar crops; and 2) clod tilling for non-irrigated fields without stubble residue or sod cover.

BEP 2 proposes to include the following land management measures to control wind erosion as a condition of any lease agreement for fallowing farmlands as part of the proposed WCOP.

(1) For crops that leave adequate stubble residue (alfalfa, wheat, barley and similar crops) pre-fallowing harvesting methods will include retention of crop stubble to leave the non-irrigated fields with a root system to help hold soil in place and minimize wind erosion.

(2) For crops that would not leave an adequate stubble residue (such as many vegetable or melon crops), clod plowing would be implemented. The term 'clod plowing' refers to the practice of tilling a field when it is wet so that large, damp clumps of soil are produced. These wet clumps break down into clods of soil that have a low susceptibility to wind erosion. For soil types classified as Highly Erodible Land (HEL) soils by the NRCS, mulch or similar material would be integrated into the clods to further strengthen their resistance to wind erosion.

Additional Data Requests (not previously submitted in Data Request round 1)
BACKGROUND
The Cumulative Impacts discussions in Sections 7.13 and 7.14 of the AFC provide a vague and non-detailed analysis of the BEP 2 power plant site. As previously discussed, the WCOP is also part of the BEP 2 project. The applicant has mentioned an EIR for the Proposed Palo Verde Irrigation District Land Management, Crop Rotation, and Water Supply Program.

DATA REQUEST 175 Please provide a detailed and specific cumulative impacts discussion related to the WCOP that includes the aforementioned PVID project and any other <u>current</u> or <u>future</u> projects related to water and soil resources. This discussion should consider the following: groundwater supply and the relationship of impacts to local and regional groundwater resources and the Colorado River; soil erosion, and other cumulative hydrologic impacts.

RESPONSE TO DATA REQUEST 175 PVID has recently approved a water transfer program with MWD that will ultimately involve fallowing of more than 22,000 acres annually, and interbasin transfer of more than 100,000 acre-feet of surface water from the Colorado River to the coastal plain cities served by MWD. In its analysis of the water transfer, PVID concluded that fallowing would maintain wind erosion at levels similar to or lower than existing levels, and, <u>*although the potential impact was concluded to be less than significant,*</u> PVID identified management measures to reduce the wind erosion potential. (Source: PVID, *Draft EIR for the Proposed Palo Verde Irrigation District Land management, Crop Rotation, and Water Supply Program*, May 2002) Those measures, including maintenance of stubble residue and clod tilling have also been incorporated in the BEP 2 proposal.

The Blythe 2 fallowing program involves a total of 786 acres, less than 0.7 percent of the total farmed acreage, and about 3 percent of the land to be fallowed for the interbasin water transfer

with MWD. In strict contrast to the MWD transfer project, the water balance for this project is completely intra-district and intra-basin; no lands or water outside of the existing PVID boundaries are involved, and no water will be physically moved from its present use at one site to a new use at another site.

The majority of water use in the Palo Verde Valley is surface water diverted from the Colorado River by PVID for irrigation of up to 104,500 acres of farmland. Surface water is also pumped up to the Palo Verde Mesa for irrigation use. Uses of groundwater from the aquifer include the City of Blythe's municipal wells, and multiple uses on the Mesa including irrigated agriculture, a well that supports the City's industrial and domestic uses at the airport, a residential well, and other wells more than two miles north of the project area and across the McCoy Wash to supply water to a golf course, the recently built Community College, and several residential communities. All of these uses are accounted for in the environmental baseline for BEP 2.

No other projects, currently proposed or reasonably foreseeable, are identified that have potential to add cumulatively to effects on groundwater, the Colorado River, soil erosion, or other hydrologic effects. As noted in the AFC, in previous data request responses, and in response to data requests herein, BEP 2 will not have significant effects on groundwater, will not impact the Colorado River, and has incorporated measures to prevent soil erosion and related hydrologic impacts.

BACKGROUND

Additional information is necessary to further evaluate the alternative water supplies available to the project discussed in AFC Section 7.13.1.6.

DATA REQUEST 176 **Quantify the amount and availability of wastewater produced by the City of Blythe, how this water is accounted for as Colorado River flow, and how it is related to the PVID and/or other Colorado River water right.**

RESPONSE TO DATA REQUEST 176 The City of Blythe produces about one million gallons per day of wastewater, which is discharged to PVID's drainage canal, and ultimately combines with irrigation return flows to the Colorado River.

Reclamation is responsible for delivery of California's allocation of Colorado River surface flows, divided in seven priority levels. The Palo Verde Irrigation District holds the Priority 1 rights, and a shared portion of the Priority 3 rights, and they have an unquantified right to water. Accounting for PVID's water use is done by a simple formula of diversion volume, less return volume. Priority 1 water is used on up to 104,500 acres on the valley floor; up to an additional 16,000 acres on the Mesa may be served by Priority 3 water.

PVID diverts water at the Palo Verde Dam at the north end of the Palo Verde Valley. Agricultural drainage and the City's treated wastewater flow back to the river as return flows at the south end of the Valley. Therefore, the City's discharge is part of return flow, and in discussions with the City about use of wastewater treatment plant discharge flows for the Blythe

Energy Project, PVID expressed strong objections to reuse of that water since reduction of the City's discharge would then be accounted for as part of PVID's surface water use.

DATA REQUEST 177 **Discuss the option of obtaining water directly from the PVID or some other existing California Colorado River water rights holder, and how the accounting as Colorado River water of the quantity of water delivered would be performed under the PVID or other USBR water delivery contract, entitlement and/or allotment.**

RESPONSE TO DATA REQUEST 177 Given the "Background" CEC staff prepared to data request 142 citing California's water plan, the Quantification Settlement (QSA), Interim Surplus Criteria (ISC), and related surface water entitlement issues pertaining to the Colorado River, CB II assumes that this question is asked with "tongue-in-cheek." The surface water rights to Colorado River water are over-allocated, and encumbered in a strict priority system that precludes obtaining new surface water entitlements. BEP 2 has never proposed to use Colorado River surface water sources to serve project water needs. As was approved by the Commission for the original Blythe Energy Project, BEP 2 proposes to utilize groundwater pumped from an on-site well (or wells) approximately 550 to 600 feet deep and located about ten miles west of the Colorado River.

DATA REQUEST 178 **Discuss the TDS or other water quality limitations of water obtained from offsite wells located in the Chuckwalla Valley, and discuss how it was determined that wells in this area do not encounter the USBR accounting surface. Discuss the water quantity and water quality issues of water obtained from irrigation return flows, and discuss how these flows are currently considered and/or accounted for with regard to the Colorado River.**

RESPONSE TO DATA REQUEST 178 Chuckwalla Valley water quality was characterized based upon published information developed in the 1990s for the Eagle Mountain Pumped Storage Hydroelectric Project. The USGS/Reclamation map of the proposed accounting surface was used to determine that the Chuckwalla basin lies outside of the accounting surface boundaries. Irrigation return flows are part of the PVID entitlement to Colorado River surface water, and similar to City of Blythe wastewater return flows, use of these waters would also be accounted for as a part of PVID's surface water entitlement.

BLYTHE ENERGY PROJECT PHASE 2
(02-AFC-01)
DATA RESPONSES

Technical Area: Transmission Systems Engineering
Author: Al McCuen

BACKGROUND
Imperial Irrigation District, (IID), Southern California Edison (SCE), and Western Area Power Administration (Western) recently issued a draft Blythe Area Regional Transmission (BART) power flow study dated November 2, 2002. The purpose of the study is to analyze the Blythe area regional transmission system including the feasibility of selected transmission options to support the reliable interconnection of the 520 MW Blythe Energy Project Phase 2 (BEP 2). Studies described in the draft Blythe Area Regional Transmission power flow study included four transmission options (Transmission option1, 2, 3 and 4) and assorted system upgrades.
Subsequently, one line diagrams for additional interconnection options and dispatch options were provided on November 15. For the latter, no power flow analysis has been presented. The following transmission interconnection options and dispatch options were presented in the attached one-line diagrams (dated 11/13/2002 and 11/19/2002):

SC1	**Path 42 at 600MW, 900MW of additional generation at IV**
SC1--Opt3	**added Option 3 and scheduled all output to SCE from BEP 2**
SC2	**Remove Valley-Rainbow Project)**
SC3	
SC3a	**Option 3 with 230kV Interconnection at Buck**
SC3b	**Option 3 under N-1 condition with split bus at Buck (separating 1 CT to the Blythe 161KV system, 865MW to Devers)**
SC4	
SC4a	**Option 4 with 230kV Interconnection at Buck**
SC4b	**Option 4 under N-1 with split bus at Buck (865MW to Devers)**
SC4c	**Coachella Valley 500/230kV transformer in service**
SC5	**Spring Sensitivity Case (SCE is developing this sensitivity case)**

Many of these options, scenarios and interconnection configurations are significantly different from the project contained in the AFC filed in July, 2002. For staff to progress any further in its analysis of the project, please submit a supplement to the AFC selecting the interconnection configuration you are seeking to license. Please describe the project interconnection configuration for

which you are seeking approval, and select the mitigation measures for all reliability criteria violations. Once the project interconnection configuration and mitigation measures are known, provide an analysis of the environmental setting, environmental effects and public health and safety impacts and mitigation measures for the power plant, its switchyard, Buck Boulevard Substation, and modifications thereto, and all new lines emanating from any existing, proposed, or modified bus.

DATA REQUEST 179 Please provide an AFC supplement for all transmission interconnection configurations proposed by the applicant (or others such as IID) for which certification by the Commission is sought including, but not limited to, the following:

a. A power flow analysis per Data Request #91(first round) evaluating conformance with system reliability criteria and the identification of mitigation measures, one line detailed engineering diagrams of the power plant switchyard, Buck Boulevard 230 kV and 161 kV bus system and connections to transmission lines and substations. Provide a narrative description of existing and proposed facilities, and a plan and profile sketch of those facilities. Provide the rationale for selecting the proposed facilities.

RESPONSE TO DATA REQUEST 179a CB II has completed the power flow studies including the identification of mitigation measures, one line detailed engineering diagrams of the power plant switchyard, Buck Boulevard 230 kV and 161 kV bus system and connections to transmission lines and substations. This information is contained in the Blythe Area Regional Transmission Study (BART) attached to this response, Attachment 179.

BART was initiated at the request of the CEC to bring together the transmission stakeholders in the Desert Southwest that may be impacted by Blythe Energy Project Phase 2. The purpose of this Study was to analyze the Blythe area regional transmission system including feasibility of selected transmission options to support the interconnection of the 520 MW Blythe Energy Project Phase 2 (BEP 2). The regional analysis included the review of: Western Area Power Administration (Western); Imperial Irrigation District (IID); Metropolitan Water District of Southern California (MWD); and Southern California Edison (SCE) transmission systems. The Executive Summary of the BART includes a narrative description of the existing and proposed interconnecting facilities, electrical one line diagrams, plan view of the facilities, overhead photo of existing facilities, and facility layouts of the proposed facilities. Physical options for interconnection at 230 kV and 500 kV are included as well as supporting load flow studies.

b. For the interconnection configuration proposal, provide an analysis of the environmental setting, environmental effects and public health and safety impacts, and mitigation measures for the power plant, its switchyard, the Buck Boulevard Substation and modifications thereto, and all new lines emanating from any existing, proposed, or modified

bus. Please note that information provided in the (Draft IID 230 kV Transmission Line Project Environment Impact Statement/Environmental Impact Report (EIS/EIR) should be considered as partly responding to this request. Staff will advise the applicant what additional information is required once the proposed configuration is determined and the Draft IID EIS/EIR has been received.

RESPONSE TO DATA REQUEST 179b The Buck Boulevard Substation was originally designed and configured by Western to accommodate the following:

Interconnection of the Blythe Energy Powerplant with the Blythe Substation at 161 kV.

Moving all five of the existing 161 kV lines which terminate at the Blythe substation to terminate at the Buck Blvd Substation.

Conversion of all or a portion of Buck Blvd from 161 kV to 230 kV.

Interconnection of two new lines from IID, previously referred to as the "BN-BS" double circuit 230 kV transmission line, and now referred to as the Desert Southwest Transmission Line Project.

Interconnection of the BEP 2 powerplant.

All of the interconnection options proposed for BEP 2 with Buck Blvd Substation fall within the existing fenceline of the Buck Blvd Substation. The interconnecting transmission lines from BEP 2 to Buck Blvd also fall within the fenceline of the Project site. A complete description of the interconnection at Buck Blvd and interconnecting transmission lines is contained in the Executive Summary to the BART Study.

A copy of the Draft EIS/EIR for the Imperial Irrigation District Desert Southwest Transmission Project has been provided to the CEC. This document is also available to the public through the State Clearinghouse or directly from the US Bureau of Land Management – Palm Springs Field Office or from Imperial Irrigation District offices in El Centro.

c. For proposed modifications to existing transmission facilities which are downstream of the point where the outlet line joins with the existing interconnected system provide the information in attachment A (see page 31). These facilities may include but not be limited to upgrades to Path 42 (adding a second conductor to several existing lines).

RESPONSE TO DATA REQUEST 179c The primary mitigation for interconnection of BEP 2 to the grid is listed in Summary Tables in the BART Executive Summary. There are no off-site transmission improvements or system upgrades required to connect BEP 2 to the system grid.

BLYTHE ENERGY PROJECT PHASE 2
(02-AFC-01)
DATA RESPONSES

Technical Area: Visual Resources
Authors: Michael Clayton

BACKGROUND
The AFC (p. 7.5-1) states the Blythe Energy Project (BEP) facilities may be expanded to serve BEP 2 and include the wastewater treatment systems, fire protection facilities, and site access roads.

DATA REQUEST 180 Please describe in more detail the nature of the potential expansion of BEP facilities including the visual change that would occur with any such expansion and the extent to which any expansion of BEP would be visible from KOPs 1 through 6.

RESPONSE TO DATA REQUEST 180 BEP and BEP 2 are in close proximity to each other and both projects are located within a 152 acre parcel. The phraseology used in the AFC could have been better stated with respect to the expansion of BEP facilities. The following explanation is provided for further background:

Due to the close proximity of the BEP and BEP 2 facilities, BEP and BEP 2 may enter into agreements to provide back up "emergency" services to each other for certain plant systems. These include raw water supply, fire water supply, and waste water treatment. The back up services would be supplied by interconnecting each plant's system, raw water supply for example through the addition of below ground piping. Fire water systems would be interconnected also via underground piping. Waste water processing systems could also be connected by underground piping. New structures or buildings are not required, therefore it would have been better to have described it in the AFC as an "interconnection" of facilities.

The only additional structure that might be constructed is a combined control room facility centrally located between BEP and BEP 2. It would then be possible for the operating staff of BEP (with the addition of 3 – 5 additional personnel) to operate both facilities from this common location. The common control room would be a single story structure having approximate dimensions of 100 feet by 40 feet. The external building cladding would have the same color tones as the rest of the plant. This structure would not present a significant "visual" feature on the 152-acre site from any of the KOPs.

BACKGROUND
Section 7.5.1.2 of the AFC (p. 7.5-4) states that "a few residences located near the project site and up-slope toward the airport have a high level of viewer exposure to the site."

DATA REQUEST 181 Please identify the number and location of the residences that have a high level of viewer exposure to the site.

RESPONSE TO DATA REQUEST 181 As stated on page 7.5-12 of the AFC, there are three residences that have a higher level of viewer exposure to the site. These residences are located

on Hobsonway to the southwest of the project site as Hobsonway goes up the hill near the airport. Please refer to the responses to Data Requests 184, 185, and 186 for additional information.

BACKGROUND
Section 7.5.2.2.3 of the AFC (p.7.5-15) states that "Due to its distance and topographic position, lighting of taller features is not required by Federal Aviation Administration (FAA) guidelines." However, the same section on page 7.5-16 states, "BEP 2 will have FAA approved lighting installed at the tops of the HRSG exhaust stacks."

DATA REQUEST 182 Please clarify why FAA lighting is being proposed for the HRSGs if it is not required by the FAA.

RESPONSE TO DATA REQUEST 182 Caithness, Blythe II, LLC received approval from the FAA for the HRSG stacks to be located in the vicinity of the Blythe Airport. This same approval was received for the BEP during its permitting. Although, per FAA regulations stack lighting is not required to be installed on the HRSG stacks, Blythe Energy and Caithness Blythe II have made the decision to install the lighting as if it were required. Both Owner's believed it was prudent to install the lighting for aircraft safety, given the close proximity of the projects to the Blythe Airport. The Blythe Airport serves many small private aircraft who utilize a visual approach for landing vs. ILS.

The stack lighting does not present a significant visual issue. It is important to note that for drivers on highway 10 traveling from the east or west direction, the viewer has extended views of the series of communication towers with blinking red lighting that are perched on a small hill near the highway.

BACKGROUND
Section 7.5.2.2.3 of the AFC (p.7.5-16) states that "Access lighting for stairways and platforms must be designed, first and foremost, to address safety of the workers who require access, therefore this lighting will not be designed with switch or motion sensors."

DATA REQUEST 183 Please explain how the use of light switches and/or motion sensors on stairways and platforms would compromise worker safety.

RESPONSE TO DATA REQUEST 183 First and foremost, there should be no compromise regarding worker safety. The Blythe Energy Project is now constructed and in the final stages of commissioning. The lighting design has been installed and re-worked several times to meet the requirements of the CEC, CBO and City of Blythe. All lighting which has been installed on HRSG platforms and ladders has been downshaded to minimize the impact to the surrounding

areas. A significant effort has been taken to "neutralize" the plant lighting to the extent practical. It is expected that BEP 2 will be a copy of the final lighting design for BEP.

During operations, operators are continually roaming the plant checking status for local instrumentation and controls. During startup activities, which could be daily in the current market conditions, operators will be making the plant ready for starting in the early morning hours prior to sunrise and shutting the plant down late at night. Several trips are made to the top of the HRSG to adjust valves and check instrumentation during startups and shutdowns. Lighting which is controlled by motion detectors or switches could result in situations where lighting is inadvertently shut off or turns off automatically if the operator remains motionless for a period of time. It would seem there would be more visual impact from lighting going on and off to the passing vehicles on Hobsonway, I-10 or to the residents having distant views from the golf course or mesa.

BACKGROUND

Section 7.5.2.3 of the AFC (p. 7.5-18) states that there are 31 residences within the viewshed of the plant site but that "None of the residential viewers will experience views of any other industrial facility, so there will be no cumulative visual impact for local residents."

DATA REQUEST 184 Please identify the location (either in narrative or map form) of the 31 residences within the viewshed of the plant site.

RESPONSE TO DATA REQUEST 184 As discussed in the AFC, there are an estimated 31 residences within the viewshed of the plant site. Several residences have direct views of the site. Many have very distant views. The majority of residences within the viewshed of the plant site are located in Mesa Verde (KOP 3) which is approximately 2.5 miles from the site, and near KOP 5 at the Blythe Municipal Golf Course, more than 5 miles away. Two residences are located along Hobsonway to the west of the site.

DATA REQUEST 185 Please clarify how many of the 31 residences would have a view of the existing BEP power plant.

RESPONSE TO DATA REQUEST 185 As discussed in the AFC, approximately 31 residences will have views of the project site. All of these residences would, to some degree, have views of the existing BEP. For most residences, views of the facilities would be obscured due to distance and topography, partial blocking of views due to trees and shrubs, and the raised elevation of I-5. In addition, as with BEP, the facilities will be painted to blend in with the surrounding environment. The most visible project component will be the HRSG stacks. Because of the distance from most of the homes to the site and the mountainous backdrop, the BEP and BEP 2 facilities will be small in scale in contrast to the surrounding setting.

DATA REQUEST 186 **For those residential viewers who would have views of both the BEP and BEP 2 projects, please discuss the cumulative visual impacts that would be experienced.**

RESPONSE TO DATA REQUEST 186 For most residences in the viewshed, such as those at Mesa Verde, the City of Blythe, and the Blythe Municipal Golf Course, views of the plant are distant and the addition of BEP 2 is not expected to have a substantial visual impact (see Figures 7.5-4b for KOP 3 [Mesa Verde], 7.5-5b for KOP 4 [City of Blythe], and 7.5-6b for KOP 5 [Golf Course]). The two (2) residences at Hobsonway to the southwest of the site will have views of both BEP and BEP 2; however, this impact will be reduced by overlapping of the profiles of the facilities as shown in Figure 7.5-2b of the AFC where BEP 2 is closer to the residences but also partially blocks views of BEP. Cumulative impacts are further reduced because there are no other industrial facilities in the area.

BLYTHE ENERGY PROJECT PHASE 2
(02-AFC-01)
DATA RESPONSES

Technical Area: Worker Safety/Fire Protection
Author: Alvin Greenberg, Ph.D.
Technical Senior: Rick Tyler

BACKGROUND
The AFC page 2-17 states that BEP 2 will be connected to the existing BEP fire protection system and water storage tank, and that on-site wells would be capable of restoring the raw water supply at an estimated maximum rate of 6,000 gpm with two wells pumping. Given the controversy over water rights, specific information on the source and amount available of firewater is necessary in order to determine the adequacy of fire-fighting capability.

DATA REQUEST 187 **Please provide a more compete discussion on the availability of water to be used for fire-fighting purposes and how on-site storage tanks will be filled and the volume maintained from groundwater resources. Please also describe the total supply amount of firewater to both BEP 1 and 2, the size of the tank(s) used for storage of firewater, and a specific narrative and schematic description of the fire water system explaining how the two systems will be connected and how they will function, including showing pipes, valves, and pumps at both facilities.**

RESPONSE TO DATA REQUEST 187 BEP 2 will be provided with a fire protection similar to BEP's. BEP 2's system will satisfy all code requirements independently of the BEP system.

BEP 2's fire protection system will be supplied with water from the raw water storage tank and raw water system. The raw/fire water storage tank maintains a minimum of 300,000 gallons for fire suppression purposes. Raw/fire water storage tank capacity is nominally 600,000 gallons. Make-up water to the BEP 2 storage tank is provided by the BEP 2 well pumps.

Two fire water pumps are provided for BEP 2. The primary pump is driven by an electric motor and the emergency backup is driven by a diesel engine. In addition to the two fire water pumps, a jockey pump is provided to maintain fire main (loop) header pressure.

The discharge of the fire water pumps is directed to the plant's fire main loop. The fire main loop provides water to the facility fire hydrants, monitors, and automatic suppression (sprinkler/deluge) systems.

The flow rate of one well pump, approximately 3000 gpm, exceeds the capacity of the fire water pumps, which are rated at not more than 2500 gpm. The well pumps are driven by electric motors.

Two methods of transferring water from BEP to BEP 2 for fire protection purposes may be constructed.

As described in the response to Data Request 153, the raw water systems would be connected at the well pump headers; see Attachment 187 for a schematic of the connected raw/fire water systems.

Isolation valves would be provided at BEP 2 and BEP to prevent inadvertent supply of raw water from one plant to the other. Both isolation valves will be "locked closed". In the event that one plant requires water to be supplied to the other, both isolation valves would have to be opened.

A metering system will be provided in the connecting line between the plants to monitor the quantity of well water pumped from one plant to the other.

This interconnect between the raw/fire water systems makes it possible to provide raw water (from the supporting plant) to the supported plant and its emergency diesel fire water pump in the event that electric power is lost to that plant's well water pumps and the water in that plant's storage tank has been used.

Additionally, an interconnect between the fire water loops for BEP and BEP 2 may be constructed. As the attached sketch indicates, water for fire suppression purposes would be pumped by the supporting plant's fire water pumps to the yard fire loop of the supported plant. Isolation valves would be provided at each plant's connection to prevent inadvertent supply of fire suppression water from one plant to the other. It is recommended that these valves be locked closed. This arrangement allows the supported plant's fire suppression loop to be provided with water in the event that both of its fire water pumps are not operable.

BLYTHE ENERGY PROJECT PHASE 2
(02-AFC-01)
DATA RESPONSES

Technical Area: Hazardous Materials
Author: Alvin Greenberg, Ph.D.
Technical Senior: Rick Tyler

BACKGROUND

Specific information on the chemicals stored and/or used on site is needed in order to assess the impacts of this facility from a hazardous materials perspective.

DATA REQUEST 188 **Please provide the final decision on whether or not anhydrous ammonia will be used at the facility as a refrigerant. If yes, please provide the amounts stored and used on site, the location and design of the refrigeration unit, the size of the storage tank (if any), and the number of truck deliveries expected per year after initial charge.**

RESPONSE TO DATA REQUEST 188 Caithness Blythe II, LLC has reviewed the project design basis and economics. Given the current state of affairs with energy and gas pricing, we have revised our plans associated with inlet cooling technology for BEP 2 in order to optimize the output and heat rate for the plant. CB II requests that the BEP 2 project be permitted with the option to add either an inlet chilling system or an evaporative cooling system. (The current application includes only an evaporative cooling system) We have modified the chilling system design basis from the BEP facility. BEP 2 plans to utilize either R-717 (anhydrous ammonia) or Refrigerant 123 (CFC).

Both systems will utilize chilled water-glycol solution to circulate through the gas turbine inlet filter house. The refrigerant is located in the primary loop. This design is different than the BEP project. BEP has a quantity of approximately 55,000 pounds of anhydrous ammonia. BEP 2 would have a total volume of approximately 15,000 lbs. Routine deliveries of anhydrous ammonia will not be required, since the refrigerant is in a closed loop and not exposed to atmospheric conditions. Small quantities will be required from time to time to keep the system charged.

The inlet chilling system will be located east of the BEP 2 power island on essentially the same footprint as BEP. The system will include an enclosed building containing the compressors, storage vessels, controls/switchgear, and fire protection equipment. A condenser will be provided to cool the refrigerant. The condenser uses water as the cooling media.

CB II is preparing a separate submittal to which includes a description of the inlet chilling facility, the hazardous materials analysis, and worker safety requirements and proposed conditions of certification. We expect to submit this information in early April 2003.