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STATE OF CALIFORNIA

Energy Resources Conservation
And Development Commission

In the Matter of:	)	Docket No. 02-AFC-01
	)	
Application for Certification	)	
for the BLYTHE ENERGY PROJECT, PHASE II	)	
	)	
	)	

ENERGY COMMISSION STAFF'S OPENING BRIEF

I. INTRODUCTION

Staff reluctantly urges the Committee to reject the Blythe II application. The project's location near an airport creates a potential adverse airport safety impact and fails to comply with applicable laws, ordinances, regulations, and standards ("LORS"). Its prodigious use of potable groundwater for cooling creates significant direct and cumulative impacts to the aquifer and the Colorado River system, and is inconsistent with state water policy and the Commission's adopted siting directives.

The project's adverse impacts cannot be sufficiently mitigated at the proposed site location or with the proposed technology. Yet at least one feasibly nearby site exists that would avoid the airport safety impact and satisfy applicable LORS. Likewise, feasible technology is clearly available to entirely avoid the direct and cumulative impacts of cooling water use and to comply with state water policy and Commission siting policy. For these reasons, there is no evidence that can sustain findings to "override" the project's failure to comply with LORS and avoid significant adverse environmental impacts. Accordingly, the application should be rejected and its proponent encouraged to reapply with a more suitable project.

II. BEP II WOULD CREATE POTENTIAL ADVERSE IMPACTS TO AIRPORT SAFETY AND WOULD NOT COMPLY WITH APPLICABLE LORS.

BEP II is proposed to be located approximately one mile east of the Blythe Airport and in several of the airport's safety zones. (RT 8/2/05 p. 166.) BEP II's creation of thermal and visible plumes near the Blythe Airport would result in a

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direct and cumulative adverse impact to airport safety. In addition, BEP II would not comply with the *Comprehensive Land Use Plan for the Blythe Airport, Riverside County, California* ("CLUP"), which strictly prohibits the generation of water vapor in any of its safety zones. Nor would it comply with the Public Utilities Code which prohibits any land use which would restrict the "right to flight", including creating any hazard or restriction in an airport's approach zone. (Pub. Utilities Code, §§21402 and 21403(c).)

A. BEP II'S PROXIMITY TO THE BLYTHE AIRPORT WILL RESULT IN POTENTIAL ADVERSE IMPACTS TO AIRPORT SAFETY.

Staff relied on several agencies with expertise in the area of airport safety and several pertinent documents in analyzing BEP II's impact on airport safety. As a starting point, the California Environmental Quality Act ("CEQA") directs agencies to use the Airport Land Use Planning Handbook when analyzing airport-related safety hazards. (Pub. Resources Code, §21096.) This handbook identifies factors to be considered in determining whether a project would create a significant impact to airport safety, including whether it could be the cause of an accident. (FSA p. 4.10-20.) The handbook also identifies several categories of flight hazards that could contribute to an airplane accident including two that are pertinent here: 1) obstructions to the airspace required for flight to, from, and around an airport; and 2) other forms of interference with safe flight, navigation, or communication. (FSA p. 4.10-20.) Staff identified two potential obstructions that would be created by BEP II: visible and thermal plumes the extent and impact of which are discussed below.

Staff also relied on the expertise of the California Department of Transportation Division of Aeronautics ("Caltrans") and the Riverside County Airport Land Use Commission ("RALUC") for their expertise in this matter. Prior to evidentiary hearings, Caltrans expressed concern with adding another power plant near the Blythe Airport to and recommended disapproval of BEP II. (Department of Transportation Letter to Terrence O'Brien of the California Energy Commission from Robert A. Wiswell, Chief of the California Department of Transportation's Division of Aeronautics, dated March 11, 2005.) At the evidentiary hearings it appeared that Caltrans may have been satisfied by the applicant's proposal to condition the project on certain changes taking place at the airport and subject to Federal Aviation Administration ("FAA") approval. (RT 8/2/05 p. 136.) However, Mr. Wiswell, Chief of Caltrans' Division of Aeronautics, expressed his opinion that the safety concerns will not entirely go away and that the changes offered by the applicant are simply "as much as we can accomplish under the circumstances." (RT 8/2/05 p. 137.) The Energy Commission should not rely too greatly on Caltrans' apparent change in position. In the prior proceeding to license BEP I, Caltrans initially expressed concern for airport safety, but subsequently stated that its concerns had been resolved. It later became apparent that the issue had

not been resolved when staff began receiving complaints from pilots shortly after the project became operational.

As discussed above, staff also relied on the expertise of the RALUC, which is, inter alia, charged with ensuring that land uses in the vicinity of airports in Riverside County are compatible with the airports. (Pub. Resources Code, §21674.) It does this by establishing a comprehensive land use plan specifying what types of developments are allowed or restricted next to the County's airports. This plan contains safety compatibility criteria the purpose of which is to "minimize the risks associated with an off airport accident in the airport vicinity...." (FSA 4.10-22 [quoting from Policy Objective 4.2.1 of the Riverside County Airport Land Use Compatibility Plan].) Thus, one can infer that a project in compliance with the criteria, and the plan, would not cause any significant adverse impacts to airport safety. Here the LORS analysis and CEQA analysis are somewhat intertwined.

1. BEP II WILL PRODUCE SIGNIFICANT VISIBLE AND THERMAL PLUMES.

BEP II will generate visible plumes from both the HRSGs and the cooling tower. (RT 8/2/05 pp. 176-177.) These visible plumes meet the definition of water vapor, and while normally small, such plumes can become fairly large under calm wind conditions. (RT 8/2/05 pp. 176-177.) In terms of airport safety, visible plumes can be both beneficial and hazardous. They can be beneficial by acting as a warning deterring a pilot from flying over BEP II. They can be hazardous, however, if they become too large for a pilot to navigate around or obscure a pilot's view of the airport. (FSA p. 4.10-19.)

Of greater concern are the thermal plumes that BEP II will generate. Thermal plumes will mainly occur when wind speeds are less than 2 knots and when the ambient temperature is below 70 degrees Fahrenheit; the plumes worsen in severity as the ambient temperature decreases. (FSA pp. 4.10-18, 37; RT 8/2/05 p. 105; RT 8/2/05 pp. 184-185.) These conditions occur approximately 550 hours per year and would mainly be limited to the months of October through May in the late evening and early morning hours. (FSA p. 4.10-18.) When the temperature is below 45 degrees calm winds will occur approximately 16 percent of the time. (RT 8/2/05 p. 185.) Conditions necessary to create thermal plumes greater than 500 feet in height will occur between 50 and 150 hours per year. (FSA p. 4.10-37.) The generation of visible plumes will sometimes coincide with the formation of thermal plumes, but there will be occasions when the two plumes do not occur simultaneously. (RT 8/2/05 p. 184.)

Because there is no single model that could provide the critical plume information necessary to correctly characterize the thermal plumes that could be generated

by BEP II, staff used a multi-pronged analytic approach. (RT 8/2/05 p. 178.) Staff used the SCREEN3 model to determine the potential for plume height for both single and multiple stack configurations. Staff also performed jet velocity calculations and reviewed procedures used for modeling multiple source plumes in the Aviation Safety and Buoyant Plumes study. (RT 8/2/05 p. 178; FSA p. 4.10-17.) Using these various sources, staff was able to predict the size and velocity of BEP II's thermal plumes.

The thermal plumes created by the cooling tower will often exceed 500 feet in height and will have an average velocity greater than 4.3 m/s; at 250 feet the plume's velocity would be double this at 8.5 m/s. (FSA p. 4.10-18, 41.) The velocity of a plume is affected by several factors including initial plume momentum, thermal buoyancy, wind speed, and adjacent plumes. (FSA 4.10-38.)

The buoyancy of a thermal plume depends on several variables, not just the temperature differential as the applicant claims. (RT 8/2/05 p. 187.) Mass and temperature combine to create buoyancy and mass and velocity combine to create momentum. (RT 8/2/05 p. 187.) This is why the cooling tower is of greatest concern and not the heat recovery steam generators (HRSGs); the cooling tower has the mass necessary to generate the plume buoyancy and momentum of greatest risk to pilots. (RT 8/2/05 pp. 187-188.)

The applicant claims that thermal plumes that would be generated by BEP II would be no different than summer thermals commonly experienced in the area and, thus, would not pose any problem. These plumes are not akin to so-called summer thermals in several respects: time of occurrence, warning, and severity. (RT 8/2/05 p. 189; FSA pp. 4.10-19 to 20.) Summer thermals, as the name implies, occur during the summer; that is when pilots familiar with the area expect to encounter thermals and are prepared for them. BEP II will generate its thermal plumes during the cold months – when pilots are least expecting them. (FSA pp. 4.10-19 to 20, 37.) Summer thermals also build gradually with altitude, warning pilots as they begin to fly into them. BEP II's thermal plumes, on the other hand, occur suddenly and forcefully with no gradual increase in severity as the plane flies through them. (FSA pp. 4.10-19 to 20.) The plumes that would be generated by BEP II would be much stronger than any summer thermal; the heat generated from the cooling tower would be at the very least 50 times stronger than the summer heat generating a thermal. (RT 8/2/05 pp. 189-190.) Additionally, summer thermals get stronger with altitude, where they join together, and, thus, any impact to aircraft occurs at some distance from the ground, giving a pilot enough time to correct should anything happen. (FSA 4.10-40.) BEP II's thermal plumes, however, are stronger the lower they are (closer to the stack). Thus, they will be the strongest closer to the ground, giving the pilot less time to correct.

If these plumes indeed resembled ordinary summer thermals, one would not expect to see any complaints from local pilots. As the record indicates, however, several pilots did complain about the thermals produced by BEP I, suggesting that the resulting turbulence was not ordinary. (FSA p. 4.10-36.)

The applicant has also questioned staff's use of the Aviation Safety and Buoyant Plumes study, claiming that it is not indicative of the plumes to be generated by BEP II. The applicant's witness, Dr. Kosky, however, did not understand how staff was using the study. (RT 8/2/05 p. 179.) Staff did not rely on the specific example provided in the paper which, as noted by Dr. Kosky, is not a facility similar to BEP II. (RT 8/2/05 p. 179.) Staff instead used the paper's discussion of the procedures and issues developed as guidance for how a proper analysis should be conducted. (RT 8/2/05 p. 179.) The paper discusses what happens to a plume when several stacks coalesce, how this affects velocity, and indicates how such a scenario should be analyzed. This information is critical to an analysis of BEP II because plumes from the eight cells in BEP II's cooling tower will not act entirely independently of one another. (RT 8/2/05 p. 179.) Thus, instead of ignoring the combined effect of BEP II's eight cooling tower cells, as applicant has done, staff used the little information on this subject available to quantify the likely characteristics of BEP II's thermal plumes.

2. CHANGES TO AIRPORT OPERATIONS PROPOSED BY THE APPLICANT FAIL TO MITIGATE THE SIGNIFICANT ADVERSE IMPACT.

All parties agree that with the current landing pattern in place at the Blythe Airport, planes will fly over BEP II when landing. (RT 8/2/05 p. 192; FSA 4.10-5.) Changing the landing pattern, as proposed by BEP II, would reduce the frequency of these overflights, but would not entirely prevent planes from overflying the plant. The Blythe Airport is an uncontrolled field meaning there is no control tower to direct traffic; pilots can even use the airport without any radio contact, and sometimes have to when no one at the airport is able to respond to radio contact. (RT 8/2/05 p. 191.) Because there is no control tower, pilots have no one to tell them if they are making any errors or approaching a safety hazard as they near the airport.

There are several situations that would lead to overflight of BEP II: two result from common, and not inappropriate, pilot activity and the other from a pilot mistake that is not uncommon. One likely, and purely appropriate, way a plane would overfly BEP II would be if it were on a straight in approach from the south, southeast, or east. (FSA 4.10-23.) Straight in approaches are used during an emergency when the pilot is trying to get to the airport as quickly as possible or are used to save time and fuel. (FSA p. 4.10-16; RT 8/2/05 pp. 192-193.) A straight in approach does not require a pilot to use the landing pattern and allows a pilot to approach within 30 degrees of runway heading; lining up a plane with a

runway is often imprecise and pilots can often be off by 30-45 degrees as they aim toward the runway using a straight in approach. . (FSA p. 4.10-16; RT 8/2/05 pp. 152, 192-193.) The flexibility allowed with such an approach could lead a plane to fly over BEP II. (RT 8/2/05 pp. 192-193.)

Another common pilot action is to overshoot the turn on final approach when landing. (RT 8/2/05 p. 194.) Such an overshoot at Blythe Airport could also bring a plane over BEP II. (Id.) In addition, a pilot may fail to notice that a landing pattern at an airport has changed; even if a pilot has correctly identified the landing pattern, he or she may still end up flying it backwards. (RT 8/2/05 p. 193.)

There is no way to ensure that planes will not fly over BEP II; as discussed above, several situations will bring planes over BEP II. While a recording on the ASOS warning pilots of direct overflight, as is contemplated to address issues concerning BEP I, would significantly help to reduce overflights, it would not prevent them entirely. (FSA pp. 4.10-23, 28.)

3. THERMAL PLUMES WILL BE A HAZARD TO STUDENT PILOTS.

Staff agrees that expert pilots who are aware of BEP II's generation of thermal plumes would be capable of handling any turbulence generated with little difficulty. Staff's safety concern lies mainly with student pilots, who do not have much experience reacting to unexpected situations, and those who are not aware of the thermal plumes. (FSA pp. 4.10-20, 23.)

As discussed briefly above, the thermal plumes generated by BEP II will exceed 4.3 m/s in velocity and will certainly create turbulence. The Civil Aviation Safety Authority of Australia ("CASA") identifies a vertical velocity as low as 4.3 meters per second (m/s) as capable upsetting an aircraft flying at low levels and a potentially significant hazard at 360 feet. (Advisory Circular; FSA 4.10-40.) The applicant's witness, Mr. Moss, acknowledges that whether turbulence is perceived as moderate or severe varies depending upon the pilot or person experiencing it. (RT 8/2/05 pp. 94-95.) The severity of turbulence also depends upon the weight of the aircraft – lighter planes will get bounced around more severely than heavier planes. Staff's expert experienced sudden moderate turbulence when flying over BEP I in a twin-engine plane but testified that it would have been severe had he been flying a lighter plane such as a Cessna. (FSA p. 4.10-17.)

On average, approximately 67 aircraft use the Blythe Airport every day. (FSA p. 4.10-5.) About half of these flights are reported as training flights. (RT 8/2/05 p. 191.) As discussed above, BEP II will be located near the runway and pilots are most likely to fly over it as they are on final approach and are preparing to land.

This is one of the most vulnerable times for pilots in general, and students in particular, as they have to concentrate on performing a number of tasks to prepare the plane to land. (FSA p. 4.10-19.) As noted by CASA, "the stability of an aircraft is especially critical during periods of high pilot workload" including "the approach to land...." (Civil Aviation Safety Authority of Australia, Advisory Circular AC 139-05(0), *Guidelines for Conducting Plume Rise Assessments*, June 2004.) The majority of aircraft accidents take place on or immediately adjacent to the airport runway for a number of reasons, including misjudgment of descent rate and low altitudes which limit recovery time. (FSA 4.10-20.)

A pilot with no notice of BEP II's thermal plumes would at the very least be startled upon encountering them. (RT 8/2/05 p. 93.) Unlike summer thermals, there would be no warning or gradual intensification associated with BEP II's thermal plumes. (FSA pp. 4.10-19 to 20.) This is particularly worrisome should it happen at night. A pilot, especially a novice, can experience vertigo after sudden aircraft altitude changes; a student or novice pilot would be more likely than a seasoned pilot to panic in such a situation. (RT 8/2/05 p. 4.10-17.)

Student pilots would likely be flying in a Cessna 150 or similar aircraft. (RT 8/2/05 p. 47; 207.) This type of plane is one-third the weight of the plane used during the applicant's overflight of BEP I. (RT 8/2/05 p. 207.) Additionally, its roll control (ability to turn about the longitudinal axis) is reduced compared to the Piper Aztec the applicant's witness flew in, resulting in a slower control response. (RT 8/2/05 p. 207.) Based on staff's test flights, a Cessna flying asymmetrically into BEP II's thermal plume could experience an excursion from 45 to 60 degrees and a dropping of the plane's nose. (RT 8/2/05 p. 200.) Thus, the type of plane a student is most likely to be flying is also the type of plane most susceptible to the hazards associated with thermal plumes.

A student pilot may not react quickly enough or might panic in response to this startling event. (FSA p. 4.10-20.) This would not be a significant problem if the plane were thousands of feet in the air with plenty of time for the pilot to gather his or her wits, but a plane approaching the airport for landing using the standard glide slope would fly over BEP II at approximately 330 feet above the ground. (RT 8/2/05 p. 200.) This would leave only a few seconds for the pilot to correct any excursion created by the plumes before hitting the ground. (RT 8/2/05 pp. 200-201.) With such a short distance to the ground, there would not be enough time for any natural stability inherent in the plane to take effect. (RT 8/2/05 p. 201.)

In contemplating what could happen if a plane flew over BEP II, staff concluded that the most hazardous situation would be where a plane first flies over BEP II's cooling towers, whose thermal plumes cause some excursion of the plane and pushes the plane into the thermals from BEP I's cooling towers, and those thermals cause further excursion of the plane, possibly past ninety degrees. (RT

8/2/05 pp. 201-202.) It is not known how often this scenario could happen, but such occurrence would test the skills of even a seasoned pilot.

The ultimate issue concerning BEP II's impacts on airport safety is one of risk calculation: How much risk is acceptable in this situation? It is already established that BEP I has been causing problems for some pilots. There is evidence that BEP II introduces further risk so a subset of these pilots, those most vulnerable and least capable of correctly responding to such a risk. The Energy Commission must determine whether it believes that, knowing the potential of BEP II to potentially increase the risk to airport safety, it is prudent to certify the project at the proposed location.

4. APPLICANT'S ANALYSIS OF AIRPORT SAFETY IS FLAWED.

The applicant analyzed BEP II's potential impact by calculating, using algorithms from the ISCST3 model, the potential for thermal plumes to be generated (based on non-representative data from BEP I) and by conducting one overflight of BEP I. There are several problems with the applicant's analysis.

First, it does not reflect BEP II's characteristics. It is based on data from BEP I's application that were changed as the project was being built; the analysis does not even reflect BEP I's characteristics accurately. (RT 8/2/05 pp. 185-186.) Nor are the input variables used representative of BEP II: the applicant did not base its calculations on full load to the HRSG, the initial velocity was 50% too low, and the temperature assumed was inexplicably 30 degrees lower than what was assumed for purposes of the air quality analysis. (RT 8/2/05 p. 186.)

Second, the analysis was not focused on the true issue of concern, the cooling towers, but reflects an analysis of both the HRSGs and the cooling towers, with an emphasis on the HRSGs. (RT 8/2/05 pp. 117-118.) The HRSGs will create turbulence but the impact would be less severe than the cooling towers because the overall size of the plume will be much smaller. (FSA p. 4.10-37.) Therefore, any useful analysis of BEP II's impacts to airport safety must focus on the cooling towers.

Third, the model from which the applicant derived its calculations was not designed to measure plume velocity; it is an air quality model designed to conservatively model ground level emission concentrations – a use that differs greatly from estimating plume velocity. (RT 8/2/05 p. 183.)

Fourth, the applicant used overly optimistic assumptions in calculating BEP II's generation of thermal plumes. Even though the applicant's witness, Dr. Kosky, agrees that cool temperatures produce the thermal plumes of greatest concern, his modeling was based on an 85 degrees Fahrenheit ambient temperature – far from what an ordinary person would consider cool and farther still from what

would produce the large plumes expected to occur: 45 degrees Fahrenheit or less. (RT 8/2/05 p. 116; RT 8/2/05 p. 185-187.) Nor does the model reflect calm wind conditions, another critical factor in determining the presence of thermal plumes. (RT 8/2/05 p. 119.)

Fifth, the analysis looks only at what one of the eight cooling tower cells would produce; it does not combine the buoyancy effect of adjacent cooling tower cells, nor was it adjusted to do so. (RT 8/2/05 p. 120, 122.) The sole independent scientific study on power plant plumes and airport safety in the record specifically discounts the type of model applicant used as "reasonable for single plumes *but inappropriate for multiple plumes."* (Katestone Environmental, *Aviation Safety and Buoyant Plumes*, Peter Best, et al. 2003; RT 8/2/05 p. 180.) This is important because adjacent plumes can merge and will have a greater force, and thus, vertical velocity, than a single uncombined plume. (FSA 4.10-38.) By not taking into consideration this potential merging effect, the applicant's analysis greatly underestimates the plumes' potential to impact overflying planes.

Sixth, the analysis was not adjusted for temperature gradients. (RT 8/2/05 p. 122.) Temperature gradients are key in determining whether a plume's velocity will increase after leaving the stack.

Nor does the applicant's experience with the single flight over BEP I negate the complaints received on BEP I. The applicant claims that its flight confirms the conclusions reached in its calculations – that BEP II will not produce thermal plumes that would result in a hazard to aircraft. The applicant's overflight, however, was not conducted with conditions that would indicate the full extent of BEP II's potential impact. (RT 8/2/05 p. 208.) The power plant itself was not operating at full load, nor was the cooling tower working at full load. (RT 8/2/05 p. 208.) Thus, all the overflight proves is that during some conditions the power plant will be capable of producing thermal plumes that will cause moderate turbulence to a Piper Aztec aircraft. It does not prove that reasonably foreseeable conditions will not result in severe turbulent plumes that are a hazard to light aircraft.

B. BECAUSE OF ITS LOCATION IN TWO SAFETY ZONES, BEP II DOES NOT COMPLY WITH THE COMPREHENSIVE LAND USE PLAN OR WITH THE PUBLIC UTILITIES CODE.

The Comprehensive Land Use Plan (CLUP) for the Blythe Airport was adopted by the Riverside County Airport Land Use Commission (RALUC) in August of 1992[1]. (FSA, 4.5-4.) The purpose of the CLUP is to protect and promote the safety and welfare of residents of the airport vicinity and users of the airport while ensuring the continued operation of the airport. (FSA 4.5-4.)

[1] An updated plan was recently adopted on June 28, 2005. The updated version has changed the names of the various safety zones, but the inconsistency of BEP II with the plan remains. (see Letter from Riverside County Airport Land Use Commission, April 15, 2004, attached to App's testimony.)

In order to accomplish this, the CLUP identifies five safety zones around the airport and places certain restrictions on what can be constructed in the various zones. (FSA 4.5-11; RT 8/2/05 p. 167.) BEP II is proposed to be located approximately 5,000 feet east of the airport and 800 feet south of the runway centerline. (City of Blythe Staff Report Supporting Resolution 04-897, dated July 13, 2004, p. 1, attached to Testimony of Robert Looper.) While there appears to be some disagreement over whether the project is within or just outside the Emergency Touchdown Zone and the Outer Safety Zone, it has not been contested that the project site is within the Extended Runway Centerline zone and the Traffic Pattern Zone and the project structures themselves are squarely within the Traffic Pattern Zone ("TPZ"). (City of Blythe Staff Report Supporting Resolution 04-897, dated July 13, 2004, p. 2, attached to Testimony of Robert Looper; FSA 4.5-11; 4.10-22; RT 8/2/05 p. 167.) The TPZ is the area surrounding the airport that is most frequently flown over by aircraft using the airport traffic pattern. (FSA 4.10-22.) Any use that generates water vapor is prohibited in any safety zone pursuant to the CLUP. (FSA 4.5-12; 4.10-22.) No exceptions are identified. The applicant concedes that BEP II will generate water vapor and that no mitigation for the generation of such water vapor has been proposed. (RT 8/2/05 pp. 56-57.) The CLUP further states that power plants inherently have attributes that would make them necessarily violate the safety standards identified for all safety zones. (FSA p. 4.5-12; p. 4.10-22.) Thus, it is undisputable that the CLUP intended to exclude power plants in general, and, therefore, BEP II in particular, from being located in any of Blythe Airport's safety zones. Therefore, BEP II is inconsistent with CLUP and such inconsistency cannot be cured without relocating the project to another site.

Additionally, any use of land that would interfere with the "right of flight" is prohibited by Public Utilities Code sections 21402 and 21403(c). The "right of flight" includes the right of safe access to public airports including the right to fly within the zone of approach of any public airport without restriction or hazard. (Drennen v. County of Ventura, 38 Cal. App. 3d 84 (1974).) BEP II is located within the zone of approach of the Blythe Airport and would create a hazard restricting flight within that zone. The conditions proposed by the applicant highlight this impact; the main proposal is to redirect air traffic, as much as possible, away from BEP II. This clearly shows that BEP II would restrict flight within the zone of approach of the Blythe Airport and would thus be inconsistent with the Public Utitlities Code.

1. THE CITY'S RESOLUTION REGARDING "OVERRULE" OF THE ALUC'S DECISION HAS NO LEGAL SIGNIFICANCE.

On March 21, 2002, the RALUC determined that BEP II was inconsistent with the CLUP. (RT 8/2/05 p. 171; City of Blythe Staff Report Supporting Resolution 04-897, dated July 13, 2004, p. 1, attached to Testimony of Robert

Looper.) On July 13, 2004 the City of Blythe passed Resolution 04-897 in support of overruling the inconsistency determination, pursuant to Public Utilities Code section 21676.5. (City of Blythe Resolution 04-897, attached to Testimony of Robert Looper) This statute allows a local agency to overrule an ALUC's determination that an action, regulation, or permit **of the local agency** is inconsistent with the CLUP. (Pub. Utilities Code, §21676.5, emphasis added.) As a result of the Energy Commission's jurisdiction over BEP II, the City of Blythe had no jurisdiction; thus, there was no action, regulation, or permit upon which the City could base an overrule. While devoid of legal authority, the City's action signals its support for the Energy Commission to override the inconsistency; nonetheless, only the Energy Commission can override a project's inconsistency with LORS.

In addition to its legal insignificance, the City's resolution contains a serious inconsistency. It proposes a condition requiring that "any use which would generate...water vapor or which...may otherwise effect (sic) safe air navigation within the area shall be prohibited." (City of Blythe Resolution 04-897, attached to Testimony of Robert Looper) As discussed above, it is an uncontested fact that this project, as proposed, will generate water vapor and no mitigation has been offered by the applicant to prevent it. Thus, the City's resolution in support of the project is internally inconsistent.

The RALUC responded to the City's resolution stating that the issues originally identified by the RALUC had not been resolved by the City's resolution. (RT 8/2/05 p. 174; Letter from Keith Downs to Les Nelson, dated April 15, 2004, attached to Testimony of Robert Looper ["Many of the same concerns are listed in the [new] zones."].) Caltrans also responded to the City's resolution and raised its concern over BEP II's inconsistency with the CLUP. (Letter from R. Austin Wiswell to Les Nelson, dated June 24, 2004, attached to Testimony of Robert Looper.) Caltrans cites the CLUP's prohibition of any use which would generate water vapor and specifically states that the City needs to include a finding explaining how the generation of water vapor will be mitigated. (Letter from R. Austin Wiswell to Les Nelson, dated June 24, 2004, attached to Testimony of Robert Looper.) The City never augmented the resolution to include such a finding nor responded to Caltrans directly. (RT 8/2/05 p. 146.)

2. THE ENERGY COMMISSION SHOULD NOT OVERRIDE THE LORS NONCOMPLIANCE.

When a project will not comply with applicable LORS, the presiding member's proposed decision (PMPD) must contain proposed findings and conclusions on whether the noncompliance can be corrected or eliminated and, if such noncompliance cannot be corrected, findings on whether the project is required for public convenience and necessity and whether there are no more

prudent and feasible means of achieving such public convenience and necessity. (Cal. Code Regs., tit. 20, §1752(k).)

BEP II's compliance with LORS cannot be corrected. The only way for the project to comply with LORS is to move it to another location further away from the Blythe Airport. Because of the concern regarding potential impacts to airport safety, staff does not believe the Energy Commission should override this LORS noncompliance. A more prudent and feasible means of achieving BEP II's project objectives clearly exists -- relocating the facility to a feasible alternative site, well away from any of the airport safety zones. Staff has identified such a site. (FSA p. 6-27.)

III. BEP II'S GROUNDWATER USE DOES NOT COMPLY WITH WATER POLICY AND LORS AND WOULD CREATE SIGNIFICANT ADVERSE IMPACTS TO WATER RESOURCES.

BEP II would be a thirsty project in the middle of the desert. It is proposing to draw 3,300 acre feet of water per year (AFY) from the groundwater aquifer directly below the proposed site. (FSA Soil and Water Resources Summary 4.9-3.) In order for BEP II to use this water, the Energy Commission must find that the proposed use complies with Water Policy/LORS and the proposed use will not result in any unmitigated significant adverse impacts to the Colorado River system or to downstream users. This is true regardless of how the water is defined under water law. The amount used is not insignificant; it will accrue to approximately 100,000 acre-feet of water over the proposed 30-year lifetime of the project and could use even more if the project is operated beyond its anticipated lifetime. (FSA Technical Report 4.9-84.)

A. BEP II'S PROPOSED USE OF GROUNDWATER DOES NOT COMPLY WITH WATER POLICY AND LORS

Water policy and LORS applicable to this project stem from, among other things, article X, section 2 of the California Constitution, which declares that "the general welfare requires that the water resources of the State be put to beneficial use to the fullest extent of which they are capable, and that the waste or unreasonable use or unreasonable method of use of water be prevented..." In order to better define what "unreasonable use" means in terms of power plant cooling, the State Water Resources Control Board (SWRCB) issued Resolution 75-58, "Water Quality Control Policy on the Use and Disposal of Inland Waters Used for Powerplant Cooling" ("Resolution 75-58"). It sets forth, in priority order, a list of preferable water sources for powerplant cooling. Based, in part, on these two sources, the Energy Commission's Integrated Energy Policy Report, 2003 ("IEPR") specifies that "the Energy Commission will approve the use of fresh water for cooling purposes by power plants which it licenses only where

alternative water supply sources and alternative cooling technologies are shown to be 'environmentally undesirable' or 'economically unsound.'"

1. BEP II IS PROPOSING TO USE GROUNDWATER THAT IS "FRESH INLAND WATER."

The examination of alternative water supplies and technologies is triggered under the state's water policy when a power plant proposes to use "fresh water." (IEPR Water Policy 2003 p. 41.) The IEPR itself does not define what constitutes fresh water. Resolution 75-58, upon which the IEPR is based, defines fresh inland waters as "those inland waters which are suitable for use as a source of domestic, municipal, or agricultural water supply..." (State Water Resources Control Board Resolution 75-58, p. 3.) Thus, fresh water is not given a narrow definition but is broadly defined by how it is used, evincing an intent to be as inclusive as possible. There is ample evidence in the record showing that the groundwater in question is capable of being used for each of these identified purposes and is in fact currently being used for at least two. (RT 8/1/05 p. 241.) Approximately 844 acres on the mesa use groundwater for agricultural irrigation and residents on the mesa, including those residing in the location known as Mesa Verde, get their water for domestic uses from wells. (FSA Technical Report 4.9-20.) Thus, the groundwater proposed to be used by BEP II clearly meets the definition of fresh inland water under 75-58.

Additionally, this groundwater qualifies as drinking water under State Water Resources Control Board Resolution 88-63, "Adoption of Policy Entitled 'Sources of Drinking Water.'" The resolution states that "all surface and ground waters of the State are considered to be suitable, or potentially suitable, for municipal or domestic water supply" unless certain specified exceptions apply. The only exception remotely applicable is where the water has a total dissolved solids ("TDS") level of at least 3,000 mg/l and is not reasonably expected by the Regional Boards to supply a public water system. (Resolution 88-63; FSA Technical Report 4.9-72; RT 8/1/05 pp. 239-240.) The groundwater proposed to be used by BEP II has a TDS level of just over 1,000 mg/l TDS and supplies the Mesa Verde community, a public water system; therefore, it qualifies as suitable for domestic water supply. (RT 8/1/05 p. 240.) While the applicant has testified that at some point in the future the City of Blythe will extend its water supply to the Mesa Verde community, several members of that community stated that there will likely be many people who persist in using the groundwater for financial or philosophical reasons. Thus, the groundwater is still expected to supply a public water system and even if it could be argued otherwise, the water does not come close to meeting the second required prong of a TDS level equal to or greater than 3,000 mg/l.

Another indication of the suitability of this water as a domestic source is its compliance with the Drinking Water Standards found in Title 23 of the California Code of Regulations. The groundwater to be used by BEP II meets all but one of the Primary Drinking Water Standards (fluoride), ranges from slightly above to slightly below the Secondary Drinking Water Standard for Iron and turbidity (depending on when and where the sampling took place), and is equivalent to the secondary maximum contaminant level for TDS (and well below the short-term limit of 1500 mg/l). (FSA Technical Report pp. 4.9-16 and 17; Cal. Code Regs., tit. 23, §§64431,64449.) Secondary MCLs are aesthetics based and intended to protect odor, taste and appearance. Exceedance of these levels does not restrict the use of this water for drinking. (FSA Technical Report p. 4.9-71.)

Despite the applicant's contention, the groundwater does not meet the definition of brackish water. Resolution 75-58 defines brackish waters as "all waters with a salinity range of 1,000 to 30,000 mg/l ***and*** a chloride concentration range of 250 to 12,000 mg/l." (RT 8/1/05 p. 172; 75-58 p. 3 emphasis added.) Based on data from BEP I's wells, the groundwater proposed to be pumped by BEP II ranges from 920 to 1100 mg/l TDS and the most recent chloride levels range from 130-210 mg/l. (FSA Technical Report p. 4.9-17; RT 8/1/05 p. 171.) These low chloride levels do not cross the threshold required to deem the water brackish and the low TDS levels are at the very bottom of the TDS range. Thus, based on the most recent data available, the groundwater to be pumped by BEP II is not brackish water.

Although the groundwater is not by definition brackish, even if it were, nothing in Resolution 75-58 or elsewhere indicates that the definitions are mutually exclusive. On the contrary, under Resolution 88-63, water that would meet Resolution 75-58's definition of brackish is still deemed suitable for municipal and domestic supply, and is thus considered fresh water under Resolution 75-58's definition.

Resolution 75-58 is clearly intended to broadly protect beneficial uses of the State's water resources. In this vein SWRCB states that "in considering issuance of a permit or license to appropriate water for powerplant cooling, the Board will consider the reasonableness of the proposed water use when compared with other present and future needs for the water source and when viewed in the context of alternative water sources that could be used for the purpose." (Resolution 75-58 pp. 5-6.) Thus, the Energy Commission should consider not just whether the groundwater meets the strict definition of brackish, but the reasonableness of allowing BEP II to use groundwater when such water is needed and currently used for other purposes on the Mesa and elsewhere in Southern California. Moreover, other sources of degraded water are available, whether from Rannell's Drain, from wells located in its vicinity, or from other agricultural return flows in the area.

The applicant has offered testimony asserting that the Commission has allowed other projects to use lower TDS water for project cooling, implying that the use of groundwater for BEP II comports with what was allowed in these other projects. In each of those projects, however, the water used was not merely water of low TDS, but was specifically *wastewater* that happened to have low TDS. Wastewaters are specifically identified as a preferable alternative to freshwater in Resolution 75-58, but this preference would not extend to BEP II's use of groundwater because the groundwater at issue is not wastewater. (RT 8/1/05 p. 243.)

Nor does the decision in BEP I preclude the Energy Commission from finding that BEP II will be using fresh water. The Energy Commission did not make any findings with regard to whether the groundwater was fresh inland water under 75-58 and the only conclusion reached in that decision was that the water to be used by BEP I was "very poor as it is high" in TDS. (Blythe Energy Project Commission Decision, pp. 207, 209.) It does not appear that the decision even considered the other factor required in the definition of brackish, chloride concentration. Thus, nothing in the BEP I decision prevents the Energy Commission from fully evaluating whether the groundwater proposed to be used by BEP II is fresh inland water.

2. ALTERNATIVE WATER SUPPLIES AND ALTERNATIVE COOLING TECHNOLOGIES ARE FEASIBLE.

As discussed above, the Energy Commission may not approve the use of fresh water where alternative water supply sources or alternative cooling technologies are economically feasible and would not create a significant adverse impact. Staff has identified Rannell's Drain and dry cooling as two alternatives to the project's use of groundwater that are both economically feasible and would not create any significant adverse environmental impacts.

a. RANNELL'S DRAIN IS A FEASIBLE ALTERNATIVE WATER SUPPLY THAT IS ENVIRONMENTALLY DESIRABLE AND ECONOMICALLY SOUND.

Resolution 75-58 identifies some preferences for alternatives to the use of fresh water; irrigation return flows are ranked third in priority after ocean wastewater and ocean water. Staff eliminated consideration of the first two priority items due to the unavailability of ocean water sources and chose to focus attention on the next priority alternative, irrigation return flows. Staff has identified several irrigation return flows that could supply BEP II's water needs, but has focused on Rannell's Drain because it is the closest. The other drains identified by staff

have higher TDS levels than Rannell's Drain, as much as 3,500 mg/l, and would simply require a somewhat longer pipeline to access. (RT 8/1/05 p. 173.)

Rannell's Drain is one of many irrigation supply and return (drainage) ditches operated by the Palo Verde Irrigation District (PVID) to provide Colorado River water to lands in its jurisdiction and to ensure any unused water gets returned back to the Colorado River. (FSA Technical Report p. 4.9-A-8.) All that would be necessary to tap into this water source would be to construct a pipeline approximately 1.5 miles long from a turnout on Rannell's Drain to BEP II. (FSA Technical Report p. 4.9.A-9.) Staff has identified at least two alternative routes that the pipeline could take, neither of which would produce any significant adverse impacts. (FSA Technical Report p. 4.9.A-9.)

The amount of water in Rannell's Drain ranges from 2 cubic feet per second (cfs) during the annual 2 week outage period in January to 15 cfs. (FSA Technical Report p. 4.9.a-8.) BEP II would on average require water at 3.5 cfs and 6.2 cfs during peak power generation. (FSA Technical Report p. 4.9.A-8.) For the two weeks during which water from Rannell's Drain would not be sufficient to supply BEP II's water needs, PVID has indicated that it could either impound drain water or provide canal water in amounts sufficient to satisfy BEP II's water needs. (FSA Technical Report p. 4.9.A-8; RT 8/1/05 pp. 259-261.) The two-week outage period would not coincide with peak power generation. Staff estimated the cost for pursuing this option at only $8,000 more than the applicant's current proposal. (FSA Technical Report p. 4.9.A-17.) The applicant has offered no evidence or argument that this minor increase in cost is economically unsound.

Another feasible alternative in addition to directly tapping into Rannell's Drain, or one of the other irrigation return flows, is to establish a shallow well for the collection of irrigation return water near the drain. (RT 8/1/05 p. 175.) The water underlying that area is unequivocally high in TDS and the water would not be diluted by operational spills, thus ensuring the project would use the most degrade water available. (RT 8/1/05 p. 256.) Additionally, the wells could operate year round and there would be no outage period to contend with. (RT 8/1/05 p. 260.) Any of these options would, when coupled with an effective Water Conservation Offset Program ("WCOP"), ensure that significant adverse impacts resulting from BEP II's use of water are sufficiently mitigated.

The applicant has not argued that this alternative is infeasible, environmentally undesirable, or even economically unsound, nor can they. The only arguments the applicant tries to make with regard to this proposed alternative is that Rannell's Drain water is lower in TDS than the proposed groundwater and contains water other than irrigation return flow. (RT 8/1/05 p.131.) The former assertion lacks data in support and the latter one is of no consequence. As discussed above, data from BEP I's wells show that the groundwater to be used by BEP II will range from 920-1,000 mg/l TDS. (FSA Technical Report p.4.9-17.) All the water sampled from Rannell's Drain by PVID had a TDS level higher than

that of the groundwater - from1,510-1,920 mg/l for the past 30 years. (FSA Technical Report pp. 4.9.A-8, 14; RT 8/1/05 pp. 173-174, 261-262.) Dr. Harvey offered no data to support his contention that Rannell's Drain water was of higher quality than the groundwater proposed to be used by BEP II. (RT 8/1/05 pp. 138-139.) And, there is no evidence that this data does not already account for the dilution effect of operational spills or surface water runoff and the applicant failed to provide any data to refute these numbers. (RT 8/1/05 p. 262.) In addition to being untrue, this assertion is irrelevant to the required analysis. Resolution 75-58 simply requires that the alternative be irrigation return flow; no specific TDS level is identified or required. However, if the Energy Commission would like to ensure that BEP II use drain water with the highest TDS, it would be a simple matter to extend pipeline alternative A, as identified in Soil and Water Resources Appendix Figure 1 (put together with the help of PVID), slightly north so that it taps directly into Rannell's Drain.

As mentioned above, the applicant next tries to argue that Rannell's Drain contains water other than irrigation return flow, implying, perhaps, that the preference identified in Resolution 75-58 is only for "pure" irrigation return flow. The term irrigation return flow, as described by Dr. Harvey's own testimony, however, appears to encompass various sources of water stemming from agricultural use. (RT 8/1/05 p. 133.) While Dr. Harvey tries to parse out the types of water that feed into the drain (agricultural drain water, operational spill, surface runoff) he ultimately acknowledges that it is all "measured ultimately as irrigation return flow because all the water together goes out the drain, back into the river." (RT 8/1/05 p. 133.) It is unlikely that Resolution 75-58 assumed any differently. There is no evidence that PVID's irrigation return flows are different from those in other districts within California; all are intended to return all unused water, regardless of reasons for its disuse, back to the source. Thus, Rannell's Drain is an irrigation return flow within the meaning of Resolution 75-58 and is a suitable alternative to the applicant's proposed use of fresh water.

In BEP I, the Commission did not pursue the use of irrigation return flow as a viable alternative to the project's proposed use of groundwater because it identified such water as Colorado River water and concluded that its use would create a significant adverse impact. Staff does not disagree with this conclusion but now also believes that there is substantial evidence that this impact could be fully mitigated with the use of a verifiable Water Conservation Offset Program.

b. DRY COOLING IS A FEASIBLE ALTERNATIVE COOLING TECHNOLOGY THAT IS ENVIRONMENTALLY DESIRABLE AND ECONOMICALLY SOUND.

In addition to alternative water supplies, state water policy requires the investigation of alternative cooling technologies. Dry cooling is one such

technology that has been used in several power plants in California and elsewhere, and would reduce the project's annual water use to approximately 100-150 acre-feet per year. (FSA Technical Report p. 4.9-89.) The economic soundness and technical feasibility of dry cooling has been demonstrated several times with the construction of facilities using just such technology including Sutter, Crocket, and Otay Mesa. (FSA Technical Report p. 4.9.A-30.) Dry cooling has been characterized by the applicant as an option which has an efficiency penalty in very hot weather; however, several dry cooling facilities have been operating or are currently under construction in Nevada, where air temperatures are similar to those experienced in Blythe. (FSA Technical Report p. 4.9.A-71; RT 8/1/05 pp. 392, 421.) A 480 megawatt (MW) facility is currently operating in Boulder City and two facilities, a 1,200 MW and a 575 MW facility, are currently being constructed outside of Las Vegas. (FSA Technical Report p. 4.9.A-71.)

The use of dry cooling, even in Blythe, is economically sound. There are three aspects to a project to take into consideration when performing an economic analysis; the initial capital costs of constructing the facility and the ongoing operation and maintenance costs, and any change in the cost of production. From a capital investment standpoint a dry cooling facility is reasonably comparable to the cost of a wet cooling facility. (FSA Technical Report p. 4.9-64.) The increase in capital costs are estimated to be approximately 12 million dollars. (FSA Technical Report p. 4.9.A-27, 31.) This, however, would be mostly offset by the reduction in operating and maintenance costs, estimated at around $800,000 annually, resulting from not having to pump and treat groundwater and not having to finance a fallowing program. (FSA Technical Report p. 4.9.A-28 and 31.)

After submitting its analysis that it would cost approximately $32 million to build a dry-cooled facility, the applicant revised its figures upward an additional $20 million. The applicant's only justification for such a large revision to its initial estimate is that "time has evolved" and "prices have also evolved" and "labor is very expensive here in Blythe." (RT 8/1/05 p. 359, 360.)

The only remaining difference involves the cost of electricity generation. Use of dry cooling would result in the loss of some power, due to a slight decrease in efficiency, that could otherwise be sold. It is difficult to specify the exact cost of production due to dry cooling because many variables are involved in determining a particular plant's cost of production, including the uniqueness of each plant and what future market rates are likely to be. (RT 8/1/05 p. 400; FSA Technical Section p. 4.9.A-29.) Using a range of variables, staff estimated that if BEP II were to use dry cooling, the cost of operation would increase approximately .5 to 3.5 percent compared to wet cooling. (FSA Technical Report pp. 4.9-64, 4.9.A-29.) At the most this would result in an increase in cost of $.001 per kilowatt hour produced. (FSA Technical Report p. 4.5.A-60.) Even if the cost of production increased 4.5 percent, as the applicant claims, the project

would still be competitive. (RT 8/1/05 p. 399.) While the applicant argues that dry cooling would be more expensive than wet cooling, it provided no testimony that dry cooling would be economically infeasible. (RT 8/1/05 p. 384.)

The Energy Commission should not take into consideration whatever extra costs are incurred to retrofit BEP II's pre-purchased equipment to accept dry cooling. The applicant purchased the equipment before even applying to the Energy Commission for project approval. The applicant concedes that this was a calculated business risk that was done without any assurances as to whether the project as proposed would be certified. (RT 8/1/05 p. 23.)

The applicant has offered various arguments as to how dry cooling would impinge on their ability to respond to market needs or operate flexibly in order to respond to the conditions required in the Southern California Edison ("SCE") RFO. Staff agrees that there is some reduction in operational capability, but believes that this reduction is minimal and does not make dry cooling economically unsound. (RT 8/1/05 pp. 398-400.) An example of one of these assertions is applicant's claim that it would not be possible to quickly restart BEP II with dry cooling if the facility is tripped offline on a hot day. The applicant claims that it is subject to penalties for every minute that the facility is unexpectedly offline, which could quickly rise to millions of dollars. There is no indication, however, that this would be a frequent problem or a continual financial impact. (RT 8/1/05 p. 407.) The applicant did not give any indication of how many trips would be expected, except to say that it would be similar to a wet-cooling facility. (RT 8/1/05 pp. 369-370.) Staff testified that even two or three trips would be unusual for a baseload facility. (RT 8/1/05 p. 407.) In any event, it is unlikely that the project would have even several trips during a year. (RT 8/1/05 p. 407.)

B. BEP II'S GROUNDWATER USE WILL CAUSE SIGNIFICANT ADVERSE IMPACTS TO THE GROUNDWATER AQUIFER, TO THE COLORADO RIVER SYSTEM, AND TO DOWNSTREAM USERS OF THE COLORADO RIVER.

The project's use of groundwater would lead to two significant adverse impacts to the water resources: unmitigable degradation of the aquifer from which it draws water and ultimate diminution of Colorado River water and impacts to downstream users caused by the loss of this water.

1. BEP II'S PUMPING OF GROUNDWATER WOULD CAUSE UNMITIGABLE DEGRADATION TO THE GROUNDWATER AQUIFER

Beneath the project site lie two distinct water strata – the Older Alluvium which contains fresh water and reaches 500-600 feet below the surface, and the Bouse

formation, which contains brackish water and lies directly beneath the Older Alluvium at about 600-700 feet below the land surface. (FSA Technical Report pp. 4.9-13, 38.) The water in the Bouse formation contains a TDS of at least 4,000 mg/l. (RT 8/1/05 p. 211.) BEP II's wells will sit approximately 150 feet above the Bouse formation.

The USGS concluded that increases in groundwater pumping on the mesa would likely cause upwelling or transport of lower quality water into the freshwater aquifer and it noted that such increase was already occurring. (FSA Technical Report pp. 4.9-38 & 39.) Deep, high-capacity production wells, like the ones proposed for BEP II, are the most likely to contribute to the upwelling. (FSA Technical Report p. 4.9-38.) BEP II's wells, when combined with those from BEP I, will be pumping at least as much water as all the other pumping currently taking place on the mesa. (RT 8/1/05 p. 208.) The wells will not be drawing in water in one fluid motion, continuously throughout the life of the project, but will be operating on and off as the project responds to peak demands, creating in effect a surging motion.

The applicant claims that if any of the Bouse formation water is affected by the wells, it would merely be taken up into the wells and used by BEP II. While some of the saline water would be used by BEP II, the wells will not function like straws. (RT 8/1/05 p. 210.) The perforations used to draw in water are placed on the sides of the wells, not the bottom. Thus, as aquifer water is pulled in from the sides, saline water from the Bouse formation will move up from the bottom until encountering the wells, resulting in a degraded area spanning from the Bouse formation to the bottom of the wells – approximately 150 feet deep and 2,000 feet wide. (RT 8/1/05 pp. 209-210.) While some of the saline water will enter the wells through the side perforations, more water will be left in the area between the wells and the Bouse formation.

Additionally, some saline water would likely migrate between the BEP I and II wells at the height where they are perforated. Once the project's wells are turned off, this and all other degraded areas of water will remain. (RT 8/1/05 p. 212.) Such degradation is irreversible and could further migrate when new wells are located nearby. (FSA Technical Report p. 4.9-38.) It is foreseeable that new wells would be located in the vicinity of BEP II in the future as farming is still popular on the mesa.

As evident in Resolutions 75-58 and 88-36 and in many other SWRCB publications, California's supply of fresh inland water is limited and should be protected to the fullest extent possible. Any significant degradation of such waters is a significant adverse impact, whether or not current users have been identified or are themselves impacted. Such scarce water needs to be protected for future generations. As discussed above, BEP II's proposed use of groundwater would degrade the groundwater aquifer resulting in a significant adverse impact and should not be approved.

The decision in BEP I does not preclude the Energy Commission from finding that BEP II will create a significant adverse impact to the groundwater aquifer, for three reasons. First, that decision did not analyze the cumulative impacts of BEP II, in conjunction with BEP I. Second, the BEP I decision is not designated a "precedent decision" pursuant to the provisions of the Administrative Procedure Act. (See Gov't Code, §11425.60 ["A decision may not be expressly relied on as a precedent unless it is designated as a precedent decision by the agency."].) Third, and most important, the BEP I decision preceded the 2003 IEPR statement of Commission policy regarding the protection of inland waters in the siting of new power plants.

2. BEP II'S PUMPING OF GROUNDWATER WOULD REDUCE FLOWS IN THE COLORADO RIVER, THEREBY CAUSING IMPACTS TO THE STATE'S COLORADO RIVER WATER SUPPLY AND DOWNSTREAM USERS.

California uses significantly more water from the Colorado River than its legal allotment of 4.4 million acre feet per year. (FSA Technical Report p. 4.9-50.) Pursuant to a recently enacted agreement, California will have to reduce its use by approximately 1 million afy by 2016. (FSA Technical Report p. 4.9-50; RT 8/1/05 p. 150.) Both the Metropolitan Water District ("MWD") and the San Diego County Water Agency (SDCWA) will be forced to cut back their water supply to San Diego and Los Angeles metropolitan areas. (RT 8/1/05 pp. 177-178.)

The 2003 draft Update to the California Water Plan projects that the state's population will increase by 600,000 people per year resulting in a 50% increase by 2030. (FSA Technical Report p. 4.9.A-65.) In order to meet the need of this burgeoning population, an additional 3-5 million acre feet of water per year will be needed. (FSA Technical Report p. 4.9.A-66.)

As even the applicant acknowledges, the groundwater BEP II is proposing to use was originally Colorado River water and, once pumped, will be replaced mainly by Colorado River water, either directly from Rannell's Drain or from groundwater underlying the Valley. (RT 8/1/05 p.111.) This hydrologic relationship between the Colorado River and the groundwater aquifer is set forth by the USGS, and is acknowledged by several other agencies including the United States Bureau of Reclamation (USBR) and the Colorado River Board ("CRB"). This is undisputed by the applicant. (FSA Technical Report p. 4.9-9; Attachment C USGS Water Fact Sheet "Determining the Source of Water Pumped From Wells Along the Lower Colorado River" ["most of the water in the aquifer beneath the flood plain and in many places beneath the alluvial slopes originated from the river."]; Testimony of Jeff Harvey and Ed Smith, p. 4.) In order to use its allotment of Colorado River water, PVID has constructed a series of canals to divert the water throughout its territory and a system of drains to funnel the unused portion of that

water back into the river. (FSA Technical Report p. 4.9-20; RT 8/1/05 pp.89-90.) Shortly after pumping begins at BEP II, groundwater underlying the Valley and/or water from Rannell's Drain, instead of flowing back into the Colorado River as intended, would be pulled toward BEP II to replace the water that had been pumped by the project. (FSA Technical Report p. 4.9-10; RT 8/1/05 p. 153.) In this manner return flows to the Colorado River would be reduced by an amount roughly equal to what is being pumped by BEP II, thus ultimately reducing flows in the Colorado River. (FSA Technical Report p. 4.9-10.) It does not matter that the BEP II wells would not be pumping the recharged water directly. They would still be triggering the recharge from Rannell's drain, thereby reducing the amount of water that would otherwise return to the Colorado River.

Further evidence that BEP II will be affecting Colorado River water is USBR's identification of BEP II's wells as within their accounting surface. (USGS Fact Sheet, FSA Technical Report p. 4.9.C-4 ["wells that tap the river aquifer outside the flood plain with a static (nonpumping) water level at or below the accounting surface are presumed to yield water that originated from or will be replaced by water from the river."].)

The MWD/PVID water transfer program also provides additional support for the identification of groundwater as Colorado River water. One of the main requirements for farmers fallowing their fields under this program is that they not in any way use groundwater on the fallowed fields. (RT 8/1/05 p. 341.) The program would have no reason to institute this requirement except for the position that the groundwater is in fact linked to Colorado River water and a program to conserve the latter would also have to prohibit the use of the former. (RT 8/1/05 p. 342.) One reason MWD may not include groundwater-irrigated land within their conservation program may be due to the difficulty in monitoring compliance with such a program. It is a simple matter where surface waters are concerned – MWD would simply need to confirm with PVID that it has not supplied water to lands participating in the fallowing program. Some independent confirmation of this could also take place, as necessary, but would not be critical. It would be a far more difficult undertaking were groundwater users to participate. There would no longer be one single entity to consult with regard to water use; instead, since it is likely that each user has his/her own well, MWD would have to consult with each participant to confirm that they have not pumped groundwater from his/her well to irrigate. In addition, independent verification would be required. Considering the vast amounts of land proposed to be fallowed pursuant to the MWD/PVID agreement, such a program would be at best arduous to manage. Additionally, given the amount of time it takes for water to move into the aquifer, such a program may not offer the simultaneous reduction in Colorado River water use necessary for MWD to ensure no net increase. (RT 8/1/05 p. 346.)

Applicant urges that the water used by BEP II is small compared to all the water flowing down the river and used by others. Courts have explicitly rejected this

"ratio theory" approach to cumulative impacts. "[T]he relevant issue to be addressed...is not the relative amount of impact resulting from a proposed project when compared to existing environmental problems caused by past projects, but rather *whether the additional impact associated with the project should be considered significant in light of the serious nature of existing problems.*" (*Guide to the California Environmental Quality Act*, Remy and Thomas, p.471; *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 718-721, emphasis added.) While the amount of Colorado River water used by others is vast, BEP II's proposed use, totaling approximately 100,000 acre-feet over its life, and 200,000 acre-feet when BEP I is included, is no small amount. The whole purpose of the cumulative impact analysis is to ensure that a project's impacts are not overlooked simply because there is a surfeit of others also creating the same impacts. Indeed, "the more severe existing problems are, the lower the threshold should be for treating a project's contribution to cumulative impacts as significant." (*Id.* at pp. 718-721) There is no question that Colorado River water is being oversubscribed and that California will have to significantly curtail its use of this water. What remains in contention, however, is how exactly downstream users of this water, such as MWD and SWDCA, who supply needed water to some of the State's large metropolitan areas, will make up for this reduction.

The Commission's decision in BEP I does not preclude the Energy Commission from finding that BEP II will create a significant adverse impact to the Colorado River system and downstream users. When BEP I was certified, California had full access to any surplus water in the Colorado River above its allotment of 4.4 million acre feet per year. On January 1, 2003, California was immediately cut off from all surplus water, approximately 1 million acre feet. (FSA Technical Report p. 4.9-87.) Subsequent to this, various water agencies affected by the cutoff entered into a Quantification Settlement Agreement which allowed California to regain some use of surplus water with the agreement that it would gradually reduce its use by approximately 800,000 to 1 million acre-feet per year by 2016.(FSA Technical Report p. 4.9-87.) Thus, the availability of Colorado River water is drastically different today than it was four years ago. Additionally, BEP I's analysis did not analyze the cumulative impacts of BEP I and BEP II's water use on the Colorado River. (FSA Technical Report p. 4.9-88.)

3. THE APPLICANT'S PROPOSED WCOP WOULD NOT MITIGATE FOR THIS IMPACT AND COULD CAUSE FURTHER ENVIRONMENTAL IMPACTS

The applicant has proposed a water conservation offset program ("WCOP") to comply with United States Bureau of Reclamation requirements. The applicant has provided a rough outline of what the WCOP would entail, but this outline contains few specifics as to how the project will ensure that the water it uses will be offset. (RT 8/1/05 pp. 179-180.) One concern in particular is the double-counting of fallowed lands. Because there are several fallowing programs

currently in existence in the area, it is critical that the project ensure that lands participating in its fallowing program are not also participating in another program. The outline does not include any provisions for how the WCOP will be implemented, how participation will be verified, how the lands will be qualified as eligible to participate, or how the program will be monitored to ensure that it is working and not double-counting land fallowed for other programs. (RT 8/1/05 p. 184.) The Colorado River Board has also expressed concerns regarding the lack of detail in the WCOP and has suggested that the project provide a detailed plan for review before certification. (RT 8/1/05 p. 180.) The applicant has not responded to the CRB's comments except to say that it is not the water master and has no jurisdiction over the issue. While true in the narrowest sense, the CRB represents both various users of Colorado River water within the State and the State of California itself in interstate matters; it has a vested interest in ensuring that BEP II's water use is in fact fully offset. Additionally, as a sister agency with expertise in the area, it provides valuable advice to the Energy Commission.

In addition to the scarcity of specificity as to how the WCOP would be implemented, it did not, as originally proposed, include any soil conservation measures to ensure that erosion due to land fallowing was minimized. Given the magnitude of the land expected to be fallowed, approximately 786 acres, it is critical that erosion control measures are sufficiently undertaken in order to avoid any significant adverse impacts. In response to concerns raised by staff, the applicant subsequently offered to include three minor provisions: 1) that stubble residue be maintained for fields previously planted in alfalfa, wheat, barley, or similar crops; 2) that clod tilling be used for those fields without stubble residue; and 3) that fallowed lands be rotated on a two to three year cycle. (FSA Technical Report p. 4.9-5; Data Responses 198, 225.) While these measures are a good starting point, they are not enough to ensure that significant adverse impacts from soil erosion do not take place and remedial measures would be necessary if these initial provisions fail. (RT 8/1/05 p. 204.)

The Natural Resource Conservation Service ("NRCS"), an agency with particular expertise in minimizing soil erosion, has reviewed the proposed measures and noted that additional measures would likely be necessary to ensure that significant adverse impacts do not result. (FSA Technical Report 4.9-27.) They noted that clod plowing would likely not be effective on the sandy soils predominant in the area and that planting a cover crop would be more effective in reducing soil erosion. (FSA Technical Report p. 4.9-27; RT 8/1/05 p.202.)

The applicant claims to be following the soil erosion measures set forth in the PVID/MWD transfer, but the applicant's proposal falls far short of this. In addition to the provisions identified by BEP II, the PVID/MWD plan has several measures to determine when the clod plowing or the maintenance of stubble residue are not working, including periodic inspections of the fallowed lands, and has

alternatives in place for when the initial provisions do not work. (RT 8/1/05 p. 204.) The WCOP has no such fallback measures.

CEQA requires that all mitigation measures, without exception, include a monitoring plan to ensure that the specified mitigation is working and, if not, to rectify the problem to ensure that all significant adverse impacts are mitigated. Staff has proposed condition of certification Soil and Water 7 to comply with CEQA's requirements and to ensure that the WCOP would in fact offset the project's use of water and would not result in any significant adverse impacts due to soil erosion.

C. CONDITIONS OF CERTIFICATION SOIL AND WATER 11 AND 12 ARE NECESSARY TO ENSURE THAT SIGNIFICANT ADVERSE IMPACTS ARE MITIGATED.

The applicant has objected to certain changes proposed by staff to conditions of certification Soil and Water 11 and 12. The applicant desires the old versions adopted in BEP I, but does not explain exactly why, except to state without any confirming evidence that the projects will be run by the same company. While sympathetic to the desire for continuity, there are important reasons justifying each of the changes to these two conditions.

1. IF THE COMMISSION APPROVES THE PROJECT'S USE OF GROUNDWATER, IT IS APPROPRIATE AND NECESSARY TO UPDATE SOIL AND WATER-11 FROM WHAT WAS ADOPTED IN BEP I

The purpose of condition of certification Soil and Water-11 is to mitigate for any damage to other wells caused by BEP II's draw-down of water and is only necessary if the Commission approves the project's use of groundwater. In BEP I the condition required the project to calculate the aquifer parameters, test the aquifer, and to calculate post-project well interference. (RT 8/1/06 p. 266.) Since these parameters have not changed, this data can be relied on by BEP II; therefore, the requirement to conduct these tests and calculations has been removed. Through implementation of the condition in BEP II it was also determined that several clarifications were necessary to address issues that arose during compliance. The first change ensures that if someone refuses to have work done on his or her wells to mitigate for potential damage, the project owner is absolved from having to do anything further on that well. (RT 8/1/05 p. 267.) Without this change the condition could be read as requiring the project owner to fix an impacted well regardless of whether the well owner wanted it fixed. The second change specifies the depth for lowering pumping intake to ensure that the mitigation is in keeping with current standards. The third change requires that all nearby well owners are notified prior to BEP II's wells being installed. This ensures that all well owners are aware of the potential for an impact before it occurs and can notify the project owner if necessary

modifications to their wells have not been made. The fourth change streamlines the reporting requirement by matching it with the annual compliance report. (RT 8/1/05 p. 268.)

2. IF THE COMMISSION APPROVES THE PROJECT'S USE OF GROUNDWATER, IT IS APPROPRIATE AND NECESSARY TO UPDATE SOIL AND WATER-12 FROM WHAT WAS ADOPTED IN BEP I

Condition of certification Soil and Water-12 ensures that the project owner monitors for hazardous chemicals in the groundwater. (RT 8/1/05 p. 268.) In implementing the condition in BEP I staff discovered three problems with the condition that needed to be addressed if a similar requirement were imposed on BEP II: 1) the condition did not identify which chemicals were to be tested but required the reader to look up a data response that contained the list of chemicals; 2) while the condition required further action if a "significant increase in the concentration of groundwater contaminants" was discovered, it did not define what constituted a significant increase; and 3) there was no specification as to what the further action would consist of if a significant increase were found.

The changes to this condition are intended to remedy these deficiencies. First, staff has specified which chemicals need to be tested for. The chemicals themselves have not changed – they are simply specified in the condition as opposed to referring the reader to another document.

Second, staff identified environmental screening levels, originally developed by the San Francisco Regional Water Quality Control Board, as the levels at which a significant increase will be deemed to have occurred. (RT 8/1/05 p. 269.) And third, staff identified several alternative steps that could take place to address a significant increase in a contaminant. (RT 8/1/05 p. 269.) These changes are necessary to ensure that the condition contains sufficient specificity as to what the mitigation actually requires.

IV. THE TRANSMISSION SYSTEM ENGINEERING CONDITIONS OF CERTIFICATION ARE NECESSARY.

The applicant has argued that none of the TSE conditions of certification should apply to any changes to the Buck Boulevard Substation required as a result of BEP II's interconnection. At the evidentiary hearings applicant's attorney stated that it does not believe such changes are within the Energy Commission's jurisdiction. This claim, however, is inconsistent with applicant's own testimony which states that it is asking the Energy Commission to license "certain changes within the substation needed to accommodate the interconnection" of BEP II. (Testimony of Bob Looper p. 9) If the applicant is asking the Energy Commission to license these changes, then surely the changes are within the Energy Commission's jurisdiction.

It is unclear whether applicant is now arguing lack of jurisdiction because it believes the changes are beyond the first point of interconnection, or because it believes the Energy Commission cannot condition a facility owned by a Federal agency.

The changes to the substation clearly fall within the definition of first point of interconnection. BEP II will connect to the Buck Boulevard substation with a 500-kv line. (RT 8/1/05 p.46.) The substation does not currently contain the necessary facilities to accommodate this line and these will have to be added. (RT 8/1/05 p.46.) The applicant seems to argue that because the substation is part of the existing grid any changes required within it are also part of the existing grid; in other words, once one enters the physical threshold of the substation, everything is automatically deemed part of the existing grid, including those elements required to be added to connect a new project. (RT 8/1/05 p. 39.) However, the Energy Commission's jurisdiction over a project's electric transmission line extends to "a point of junction with any interconnected transmission system." (Pub. Resources Code, §25107.) Jurisdiction does not stop at the threshold of the interconnected system, but proceeds up to the very point of junction between the new line and the established system. The Energy Commission has always interpreted its statute to apply to necessary substation infrastructure at the point of interconnection. The applicant has not offered any justification for a different interpretation.

In addition, the fact that Buck Boulevard substation is owned by a Federal agency makes no difference. The Energy Commission's conditions of certification apply only to the applicant. The conditions proposed in the FSA go no further than this – they simply require the applicant to ensure that the project is interconnected as proposed and described in the application, that it complies with LORS, and that certain information is provided to the Energy Commission for review and sometimes approval.

The Energy Commission faced a similar situation in approval of the East Altamont Energy Center. Western owns the substation at which the project would interconnect. In that case Western agreed to cooperate with implementation of the conditions so long as language was included in the FSA making it clear that by agreeing to cooperate Western was not "ceding any jurisdictional authority over Federal facilities to the State of California." (See East Altamont Energy Center Final Staff Assessment, p. 6.5-15.) Based on discussions with Western after the evidentiary hearing, it is staff's understanding that Western will shortly propose the same caveat in the language of the license.

The applicant's concern about the conditions seems to have arisen in BEP I where they claim they had difficulty in getting Western to cooperate in satisfying the conditions. (RT 8/1/05 p. 40.) Despite this difficulty, however, no enforcement action was brought against them for failure to satisfy any TSE

condition. In fact, the applicant even testified that when the concern was raised to the Compliance Project Manager, a procedure was worked out. (RT 8/1/05 pp. 53-54.) Western even stated that they would be more than willing to cooperate and share "any of the design work and any of the drawings" they had with the Energy Commission. (RT 8/1/05 p. 56.) It is quite common for a third-party to be responsible for ultimately interconnecting the project to the grid. (RT 8/1/05 p .47.) If issues later arise with the proposed interconnection, staff has been able to resolve them post-certification to everyone's satisfaction. (RT 8/1/05 p. 47.)

V. WITHOUT CONDITION OF CERTIFICATION SOCIO-2, OR AN EQUIVALENT, BEP II WILL HAVE A DISPROPORTIONATE IMPACT ON A MINORITY AND LOW-INCOME COMMUNITY.

The applicant is proposing to fallow approximately 786 acres of farmland as part of its WCOP. The applicant has not identified which lands will be fallowed and has not limited the type of land to be considered. The fallowing of farmlands will necessarily result in some loss of farm jobs, which are generally held by members of a minority or low-income community. The jobs available to farmworkers in the Valley have steadily decreased over the last decade due to a number of factors including the fallowing of farmlands. (RT 8/2/05 pp. 314, 348-349, 354-355.) Hundreds have had to leave the Blythe area to look for jobs elsewhere. (RT 8/2/05 pp. 318-320.)

In analyzing this potential impact, Staff relied on the analysis contained in the EIR for the MWD/PVID fallowing program and the supporting M Cubed study which analyzed the employment impacts resulting from the proposed fallowing program. That study found that job loss due to the fallowing of land containing highly mechanized crops was capable of being estimated. Using the calculation identified in this study, staff estimated that 6.33 jobs would be lost if only highly-mechanized croplands were fallowed. (RT 8/2/05 p. 258.) The applicant has not disputed this figure and has not provided its own analysis on this issue. Staff concluded that job loss due to the fallowing of land containing labor-intensive crops, such as citrus, melons and other vegetable crops, however, was not estimable. (RT 8/2/05 p. 258.)

Because water is becoming more scarce many Southern California metropolitan areas are entering into fallowing agreements with PVID and other local irrigation districts in order to transfer water to the cities. MWD and SDCWA are two such agencies entering into these programs. MWD's program will fallow 26,000 acres of farmland in PVID's territory. It was originally going to gradually phase-in that number over several years, but it now appears that the entire acreage will be fallowed from the onset of its program. (RT 8/2/05 p. 281.) MWD anticipates that anywhere from 43 to 90 jobs will be lost as a result.

Because several of these programs will be going into effect in the next few years and the job loss associated with fallowing certain lands was unknown, and apparently unknowable, staff could not conclude that the fallowing of such land by BEP II would not have a disproportionate impact on a minority or low-income population. Therefore, staff has proposed a condition of certification to ensure that the WCOP will fallow only those lands where the impact on job loss is known.

There will be plenty of land from which the applicant can implement its WCOP even with this additional restriction. Of the approximately 132,000 acres of farmland in PVID's territory, staff's condition would exclude only 11,000 acres of cropland. (RT 8/2/05 pp. 259-260.) This includes lands currently containing orchards, which applicant had already agreed to exclude under condition of certification Land-6. The applicant identified 26,000 acres would not be available due to MWD's fallowing program and an additional 8,400 acres included in a Multi-Species Habitat Conservation Program must be removed from consideration. So far, this would leave 86,600 acres available. The applicant contends that all lands under Williamson Act contract (approximately 24,300 acres in PVID) must also be excluded from consideration. However, nothing in the WCOP or condition of certification Land-6 prevents the applicant from using any lands under Williamson Act Contract. The condition only prohibits the applicant from permanently retiring lands in a Williamson Act contract. (See Energy Commission Staff's List of Exhibits and Additional Conditions of Certification, Exhibit B, Land-6.) The applicant has not determined whether they will use rotational fallowing or permanent retirement in the WCOP. (RT 8/2/05 p. 232.) Thus, any of the 24,300 acres currently under Williamson Act contract could be available for rotational fallowing under the WCOP. Even if one accepts the exclusion of these lands and applicant's extremely low estimate, at least 46,000 acres of land would still be available, more than fifty-eight times the land needed for the WCOP.

The applicant may argue that no such condition was imposed upon MWD for their fallowing program. While this is true, MWD chose to address the issue by establishing a six million dollar fund to mitigate for job losses resulting from the fallowing program. (RT 8/2/05 p. 349.) Additionally, the program entails a revisiting of the issue five years after initial implementation to ensure that the impacts have been adequately mitigated. (RT 8/2/05 pp. 361-362.)

The applicant claims that staff has ignored the fact that BEP II will lead to the creation of other jobs, arguing that the loss of farm jobs is thus offset. While staff acknowledges that BEP II will lead to at least a short-term increase in employment in other sectors, there is no evidence that the minority community impacted by the loss of farmland employment would benefit from the availability of these other jobs. As the applicant concedes, most of the labor force used to construct BEP II will likely come from outside the Blythe area, probably from the Los Angeles basin. (RT 8/1/05 p. 361; RT 8/2/05 p. 260.) And most of the

employees operating BEP I came from outside the area. (RT 8/2/05 p. 290.) The applicant provided no evidence that even one farmworker was hired on at BEP I. The applicant also claims that secondary job gains would mitigate for the loss of farm jobs. There is no evidence, however, that the minority and low-income population affected by the loss of farmland would benefit from these either. (RT 8/2/05 p. 274.) The applicant has focused their testimony on the benefit of this project to the community as a whole and fails to acknowledge the real issue: this project will have a disproportionate impact on a minority and low-income community as a result of the potential farm job losses resulting from the WCOP. (RT 8/2/05 p. 228.) Thus, any mitigation or offsetting factors must look at benefits to this impacted group in particular and not to the community as a whole.

The applicant has also claimed that the Community College training program implemented in BEP I, and apparently proposed for BEP II, would mitigate for any impact to farm laborers. In order to take advantage of such a program, however, one would at least need to be literate and most likely need a high-school degree or equivalent. (RT 8/2/05 p. 289.) It is unknown how many farm laborers could meet this requirement; and for those who could, it is unknown whether any of them could go without a paycheck for whatever duration the training program would entail.

VI. Conclusion

Because BEP II will not comply with LORS and will result in significant adverse impacts in the areas of Airport Safety and Water Resources, staff does not recommend that the project be approved at the proposed location.

DATED: August 29, 2005

Respectfully submitted,

LISA M. DECARLO
Staff Counsel

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA

IN THE MATTER OF: APPLICATION FOR CERTIFICATION FOR THE BLYTHE II ENERGY PROJECT	DOCKET NO. 02-AFC-1 **PROOF OF SERVICE LIST** **[REVISED 8/1/05]**

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*Also send a printed **or** electronic copy of all documents to each of the following:*

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I Scott McDonald declare that on 8/29/05, I deposited copies of the attached ENERGY COMMISSION STAFFS OPENING BRIEF in the United States mail at Sacramento, CA with first class postage thereon fully prepaid and addressed to those identified on the Proof of Service list above. Transmission via electronic mail was consistent with the requirements of California Code of Regulations, title 20, sections 1209, 1209.5, and 1210.

I declare under penalty of perjury that the foregoing is true and correct.

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