Thank you for the opportunity to review and comment on this DEIS.

REFERENCE:

Linsley, RK, Kohler, MA, and Paulhus, JL, 1975, Hydrology for Engineers, McGraw-Hill, New York, 482 p.

Copy to: Office of Environmental Policy and Compliance

Document 0004

BORDER POWER PLANT WORKING GROUP

GRUPO DE TRABAJO DE TERMOELECTRICAS FRONTERIZAS

July 12, 2004

Mrs. Ellen Russell
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U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585-0350

Subject: Border Power Plant Working Group (BPPWG) Comments on Draft Environmental Impact Statement for Intergen's La Rosita Power Complex (LRPC) and Sempra's Termoeléctrica de Mexicali (TDM) Transmission Lines

Dear Ellen:

Thank you for this opportunity to comment on the Draft Environmental Impact Statement (DEIS) for the LRPC and TDM transmission lines. The Border Power Plant Working Group (BPPWG) comments on the DEIS are enclosed. BPPWG comments are provided in the order the issues being commented upon are presented in the DEIS. I will present a summary of these comments at the public hearing that the Department of Energy will convene in Calexico on July 14, 2004. Please contact me at (619) 295-2072 if you have any questions about the enclosed comments.

Sincerely,

Bill Powers, P.E.

Bill Powers, P.E.
Chair, Border Power Plant Working Group

cc: U.S. Senator Diane Feinstein
U.S. Senator Barbara Boxer
Congressman Bob Filner
State Senator Denise Ducheny
State Assemblyman Juan Vargas
Imperial County Supervisor Joe Maruca
Imperial County APCD Director Steve Birdsall
California Air Resources Board
California Environmental Protection Agency
Colorado River Basin Regional Water Quality Control
Salton Sea Authority
New River Wetlands Project
Environmental Defense
Sierra Club
American Lung Association
Border Ecology Project
Sky Island Alliance
Marshall Magruder

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Comment 1: DEIS Must Explicitly State That the New River Flows North Into the Salton Sea National Wildlife Refuge So Reader Understands Significance of New River Water Quality Issue

The DEIS first alludes to the fact that the New River flows northward in the middle of a paragraph on p. S-27, stating "*Since the New River gains in flow as it flows northward, . . .*". The north flow direction of the New River needs to be made clear much earlier in the Summary section of the EIS. Only the most diligent reader who was not already familiar with the flow direction of the New River would glean from the Summary section of the DEIS that the New River does in fact flow into the United States.

0004-1

Recommendation 1: Include on p. S-17 a paragraph that explains that the New River flows northward into the Salton Sea National Wildlife Refuge. That would put discussion about water resources in a clear context for the reader. There would be no U.S. impacts if the river flowed south. Include a sentence identifying how close Intergen's *La Rosita Power Complex* (LRPC) and Sempra Energy Resources *Termoeléctrica de Mexicali* (TDM) wastewater discharge point is to the U.S. border. Figure S-7 (p. S-18) implies the discharge point is as little as a few hundred feet from the border or less. Add a flow direction arrow to the New River in Figure S-7 so the reader has a visual clue to the flow direction of the river.

Comment 2: DEIS Cites Incorrect Interpretation of Executive Order 12114 as Basis for Determining that Project Impacts in Mexico Are Outside the Scope of the EIS

The DEIS cites (p. S-24) Executive Order (E.O.) 12114 as justification for not considering impacts in Mexico. Section 1 of E.O. 12114, titled "Environmental Effects Abroad of Major Federal Actions," explicitly states, ". . . *this Order furthers the purpose of the National Environmental Policy Act and the Marine Protection Research and Sanctuaries Act and the Deepwater Port Act consistent with the foreign policy and national security policy of the United States . . .*" Section 2-3 states: "*Agencies . . . shall establish procedures . . .take into consideration in making decisions concerning such actions, a document [EIS] for (b) major Federal actions significantly affecting the environment of a foreign nation not participating with the United States and not otherwise involved in the action.*" In what way has Mexico participated with the United States or otherwise been involved in this action? The TDM plant and LRPC's EBC turbine are not physically connected to Mexico's power grid. The LRPC and TDM plants are categorized as California power plants by the California Independent System Operator.[1] All power from these plants is sold in California. Mexican authorities were unaware that LRPC has committed to install selective catalytic reduction (SCR) NO_x control systems on the EAX export and EBC turbines as a condition of startup, as represented by DOE in the original Environmental Assessment prepared for the project. Judge Gonzalez has also stated an interest in understanding project impacts in Mexico.

0004-2

Section 2-4 (c) of E.O. 12114 is instructive: "*Nothing in this Order shall serve to invalidate any existing regulations of any agency which have been adopted pursuant to court order or pursuant to judicial settlement of any case or to prevent any agency from providing in its procedures for measures in addition to those provided for herein to further the purpose of the National Environmental Policy Act and other environmental laws, including the Marine Protection*

[1] June 2003 Simoes Supplemental Decl. ¶ 23.

Research and Sanctuaries Act and the Deepwater Port Act, consistent with the foreign and national security policies of the United States."

E.O. 11214 provides no justification for ignoring an assessment of project impacts in Mexico in the EIS and explicitly recognizes the authority of a Federal court to assess project impacts on foreign nations.

This is particularly important in this case given the very high rates of pulmonary sickness in Mexicali. On pg. 4-98 of the DEIS it is noted in passing that asthma is of particular concern in Imperial County. No mention is made of the fact that the problem is at least as severe, and on a much greater scale, in Mexicali. BPPWG provided the DEIS preparation teamleader (Ed Pentacost, Argonne National Laboratory) with detailed information on the level of pulmonary sickness in Mexicali and Imperial County in February 2004 via U.S. Mail. The document is titled "*Understanding Air Pollution and Health in the Binational Airshed of the Imperial and Mexicali Valleys – Summer 2003*" and was funded by the Southwest Center for Environmental Research and Policy (San Diego). Table 3 of the document is titled "*Number of Hospitalizations for Asthma, Pneumonia, and Acute Respiratory Illness by Season of the Year, 1997 to 2000 – Mexicali Valley and Imperial Valley.*" This information must be included in the EIS to provide a complete picture of the public health situation in the immediate vicinity of the transmission lines and the connected actions. 0004-2 (cont.)

Recommendation 2: Delete the reference to E.O. 11214 as justification for ignoring an assessment of project impacts in Mexico in the EIS. Include information on rates of pulmonary sickness in Mexicali in the EIS.

Comment 3: DEIS Fails to Analyze the Preferred Parallel Wet-Dry Cooling System Alternative

The DEIS dismisses dry cooling (pg. 2-36) as a viable cooling alternative by noting that dry cooling imposes a 10 to 15 percent efficiency penalty on the steam cycle. This is a misleading statement. The annual average efficiency penalty imposed by dry cooling is estimated at 1.5 percent or less by the California Energy Commission (CEC) for the 520 MW Blythe II project located in a desert environment very similar to that of Mexicali.[2] The draft EIS identifies the efficiency penalty of one sub-system of a combined-cycle power plant, the steam cycle, during the hottest few hours of the year and implies that this is representative of the overall efficiency penalty imposed by dry cooling on a continuous basis. The average efficiency penalty imposed by dry cooling is 1/10th or less on the plant as a whole than the efficiency penalty identified in the DEIS for the steam cycle. 0004-3

The cooling alternative recommended by BPPWG in its December 1, 2003 EIS scoping comment letter to DOE was a parallel wet-dry cooling system that incorporates the wet cooling system currently in use at both LRPC and TDM. The dry component of the system would be designed to handle the entire cooling load up to an ambient temperature of 80 to 90 °F. Wet cooling would augment the dry system at temperatures above 80 to 90 °F. 100 percent wet cooling could be used on peak temperature days to ensure maximum power output from the

[2] CEC, *Preliminary Staff Assessment – Blythe Energy Project Phase II,* Soil & Water Resources, App. A – Water Supply & Cooling Options (p. 48), November 2003.

plants. However, by incorporating dry cooling as the primary cooling system, the parallel wet-dry cooling system water use would be reduced more than 90 percent relative to a wet-only system. The DEIS (pg. 2-37) provides no substantiation of the statement that a typical wet-dry cooling system would achieve a ratio of wet-to-dry cooling on the order of 50 percent. BPPWG provided DOE with a copy of 2003 Cooling Technologies Institute paper at the November 21, 2003 EIS scoping hearing in Calexico that describes in detail how to construct parallel wet-dry cooling systems to minimize water use and maximize system performance.[3] A highly effective parallel wet-dry cooling system, designed to reduce water use more than 90 percent relative to the current wet-only design, could readily be retrofitted to both the LRPC and TDM cooling systems.

In reality the wet-dry alternative recommended by the BPPWG would cost $30 million or less (per plant). The vendor equipment cost for a single air-cooled condenser (ACC) cell with a standard fan is approximately $500,000. Use of an ultra-low noise fan and fan motor noise attenuation housing would increase this cost to approximately $600,000 per cell. The installation cost for ACC in Mexico is well known in the industry due to the high number of ACC installations on Mexican combined-cycle power plants, a total of eight to date. Installation in Mexico adds approximately 20 percent to the basic equipment cost. Adding a 30-cell ACC to either LRPC and TDM would reduce annual cooling system water consumption by 90 percent or more. The greenfield installed cost of a 30-cell ACC in Mexico should be less than $20 million. Assuming a 30 percent premium for retrofit challenges, a typical retrofit premium for major power plant pollution control retrofits such as flue gas desulfurization, the total installed cost of a 30-cell ACC retrofit would be considerably less than $30 million. 0004-3 (cont.)

A number of parallel wet-dry cooling systems are in operation around the world on a variety of combustion systems, including combined-cycle power plants. The one conversion of a wet cooling system to a wet-dry system, at the 37 MW Streeter No. 7 pulverized coal-fired unit in Cedar Falls, Iowa in 1995, incurred minimal additional retrofit costs and has been operating successfully for nearly a decade.[4]

The DEIS identifies that the proposed action will consume 10,667 acre-ft/year of water (p. S-26). This is approximately 3.5 billion gallons of water per year. A parallel wet-dry cooling system designed and operated to reduce cooling water consumption by 90 percent or more would reduce water consumption to 350 million gallons per year (1,067 acre-ft/yr) or less. Conversely, the parallel wet-dry cooling system would free over 3 billion gallons per year of low salinity water for return to the New River.

Recommendation 3: Incorporate wet-dry cooling at LRPC and TDM. Limit total water consumption by LRPC and TDM to 1,067 acre-ft/yr, equal to a 90 percent reduction in the water consumption of the proposed action. Wet-dry cooling would nearly eliminate: 1) increases in TDS concentration in the New River caused by LRPC and TDM discharges, 2) the estimated 100 tpy of PM_{10} emissions from exposed Salton Sea shoreline caused by reduced flow in the New

[3] Attachment A: Debacker, L., Wurtz, W., *Why Every Air-Cooled Steam Condenser Needs a Cooling Tower*, Paper TP03-01, presented at Cooling Technology Institute Annual Conference, August 2003.
[4] Attachment B: Rusley, D., *Streeter Station Unit 7 Retrofit to Wet-Dry Cooling System*, presented at Dry Cooling Symposium, San Diego, May 2002.

River,[5] and 3) would allow utilization of the wet cooling capacity currently installed at LRPC and TDM to ensure that maximum power production is achieved during periods of peak revenue (hot summer days). 0004-3 (cont.)

Comment 4: PSD Increment Analysis Significant Impact Levels Are Not Applicable

Prevention of Significant Deterioration (PSD) increment analysis is not applicable to new sources located in a non-attainment area (Mexicali) that are impacting an adjacent non-attainment area (Imperial County). DOE assumes that Mexicali is a hypothetical attainment area in the DEIS. This is an incorrect assumption. It is not in dispute that Mexicali is non-attainment for PM_{10}, O_3, and CO. The 1-hour ambient ozone standard in Mexico is 0.11 ppm, slightly more health protective than the historic 1-hour U.S. standard of 0.12 ppm. The 24-hour PM_{10} standard of 150 $\mu g/m^3$ is the same in Mexico and the U.S.

The Mexicali ambient air quality monitoring station data summaries provided in Tables D-5 through D-8 of the draft EIS show that the peak 1-hour O_3 and CO levels and peak 24-hour PM_{10} levels exceed both Mexican and U.S. PM_{10}, O_3, and CO ambient air quality standards. In fact, Mexicali frequently exceeds the U.S. National Ambient Air Quality Standards (NAAQS) for PM_{10}, O_3, and CO.

As noted at the bottom of pg. 3-49: "*Areas that meet the NAAQS are said to be in attainment. The air quality in attainment areas is managed under the PSD program of the Clean Air Act (CAA). The goal of this program is to maintain a level of air quality that continues to meet the standards. Areas that do not meet one or more of the standards are designated as nonattainment areas. The CAA requires each state to produce and regularly update a State Implementation Plan (SIP) that includes a description of control strategies or measures to deal with pollution, for areas that fail to achieve NAAQS.*" 0004-4

The scientific, health-based reality is that Mexicali is a highly contaminated nonattainment area. Only attainment areas are managed under the PSD program. The application of PSD increment analysis, and the associated Significant Impact Levels (SIL), to sources located in a nonattainment area is simply wrong. The CAA is explicit in requiring emission offsets for new sources located in nonattainment areas. As stated in CAA Title I, Part D – Plan Requirements for Nonattainment Areas, Section 173(c): *Offsets – The owner or operator of a new or modified major stationary source may comply with any offset requirement in effect under this part for increased emissions of any air pollutant only by obtaining emission reductions of such air pollutant from the same source or other sources in the same nonattainment area, except that the State may allow the owner or operator of a source to obtain such emission reductions in another nonattainment area if (A) the other area has an equal or higher nonattainment classification than the area in which the source is located and (B) emissions from such other area contribute to a violation of the NAAQS in the nonattainment area in which the source is located.*

Current Mexico air quality regulations do not provide a mechanism for ultimately achieving compliance with ambient air quality standards, unlike U.S. regulations. There is a regulatory gap.

[5] DEIS, p. S-30: "*Under proposed action, reductions in annual inflow to the Salton Sea from the New River would expose an estimated 97 acres of shoreline that is currently under water. . . an estimated emission rate of 100 tpy of PM_{10} could result from a 97-acre reduction in Salton Sea area.*"

DOE is essentially encouraging the exploitation of this regulatory gap by misapplying PSD increment analysis in an attempt to demonstrate there is no health-based justification for offsetting 100s of tons per year of NO_x and PM_{10} emissions from LRPC and TDM. The BPPWG recognizes that Mexicali in not in the U.S. and therefore is not subject to non-attainment status designation under the Clean Air Act (CAA). However, given DOE has chosen to apply CAA requirements to evaluate the impacts from the Mexicali plants on Imperial County, the DOE must rigorously follow the requirements in the CAA and not simply pick-and-choose requirements to achieve a pre-determined end result – no significant impact.

Ambient data for Mexicali provided in the draft EIS (Appendix D, Tables D-5 through D-8) clearly show that Mexicali is non-attainment for U.S. 1-hour O_3 and 24-hour PM_{10} NAAQS. A complete summary of Mexicali O_3, PM_{10}, and CO exceedances (see Comment 6) would give a much more comprehensive understanding of the high rate of NAAQS exceedances in Mexicali. The NAAQS are health-based standards. Use of the international border as a shield to avoid implementing mitigation measures, specifically offsets, that would adequately protect U.S. and Mexican citizens being exposed to air emissions from the power plants is unethical and opposite the intent of E.O. 12114. The failure to offset these emissions will cause additional cases of asthma, as noted in the draft EIS (p. 4-98), in populations on both sides of the border that are already suffering from elevated incidence of pulmonary sickness. As noted in the July 3, 2003 Court Order (DEIS, p. A-70), "*. . . as a matter of common sense, it is clear that discharges of pollutants that actually, if not legally, cause violations of the NAAQS, or make existing violations worse, have the potential for adversely affecting health.*" This observation was in response to the fact that even a 3 $\mu g/m_3$ increase in the 24-hour PM_{10} concentration would have caused two particulate monitoring stations in Calexico to exceed the 150 PM_{10} NAAQS eight times between 1994 and 2002 (DEIS, p. A-69). 0004-4 (cont.)

The total of cost of NO_x and PM_{10} offsets for the LRPC export turbines and the TDM plant are estimated to be in the range of $20 to $30 million on a one-time basis[6]. The combined capital cost of the LRPC export turbines and the TDM plant is on the order of $750 million. The <u>annual</u> gross revenue stream of these two plants is on the order of $3 to $4 billion. The cost of effectively mitigating NO_x and PM_{10} emissions from the LRPC export turbines and the TDM plant is de minimus relative to the plant capital cost and annual revenue streams.

<u>Recommendation 4</u>: EIS must follow the correct application of CAA requirements and identify NO_x and PM_{10} emission offsets as necessary mitigation for the LRPC and TDM projects.

Comment 5: DEIS Must Include Summary of Mexican Ambient Air Quality Standards

U.S. NAAQS are provided in Table 3.3-2 on p. 3-51 of the DEIS. A summary of ambient air quality monitoring results is provided in Appendix D of the DEIS, yet nowhere is a summary of Mexican ambient air quality standards provided that would put the Mexican monitoring data into perspective. 0004-5

<u>Recommendation 5</u>: Provide a table summarizing Mexican ambient air quality standards.

[6] December 1, 2003 BPPWG EIS scoping period comment letter to DOE.

Comment 6: DEIS Must Include Summary Tables Showing Number of Exceedance Days at Each Imperial County and Mexicali Ambient Air Quality Monitoring Station

The DEIS text from p. 3-56 through p. 3-60 includes a series of figures and bar graphs showing "average annual arithmetic mean" concentrations of CO, NO_x, O_3, SO_2, and PM_{10} for the three Imperial County and four Mexicali monitoring stations. The primary air quality issue in both Imperial County and Mexicali is high short-term peak concentrations of PM_{10}, O_3, and CO, not annual average concentrations. 0004-6

Recommendation 6: The EIS must include tables showing the number of days per year the short-term peak concentrations of PM_{10}, O_3, and CO have been exceeded at the Imperial County and Mexicali monitoring stations, for the most recent 5-year period of validated monitoring data.

Comment 7: DEIS Provides No Verifiable Information on What Processes at the LRPC and TDM Wastewater Treatment (WWT) Plants Are Removing TDS

The DEIS asserts (p. 4-19) that approximately 9 million pounds per year (lb/yr) of TDS will be removed due to LRPC and TDM WWT operations. The purported reduction in TDS, along with projected reductions in pathogens, nutrients, and total suspended solids, was a principal reason the court chose not to enjoin operation of LRPC and TDM during the EIS preparation phase. In June 2003 the Regional Water Quality Control Board's water treatment expert pointed-out that none of the processes identified by LRPC or TDM as TDS removal processes are typically considered to be TDS removal process.[7] The DEIS provides no information on any process specifically designed to removed TDS at the WWT plants.

Both LRPC and TDM wastewater treatment experts identify the incoming untreated raw water TDS concentration as 1,200 mg/l.[8] The TDM expert also makes clear that this raw water will continue to be treated and discharged to the New River even when the power plant is offline, stating, "*Expected maximum operations have the plant running at full capacity 75 percent of the time and operating in bypass mode the remaining 25 percent of the time on an annual basis. During bypass mode of operation, because the water is treated but not used to cool the plant, . . . the treated water is simply discharged into the drainage channels without the effects of evaporation.*"[9] Yet the TDM project manager identifies the treated water TDS concentration as "*approximately 1,180 mg/l*," essentially no different than the incoming untreated water TDS concentration of 1,200 mg/l. Specifically the TDM project manager states, "*During bypass operation (approximately 25% of the time), when the plant is not producing power, the discharge has an approximate TDS concentration of 1,180 mg/l.*"[10] 0004-7

Recommendation 7: The EIS must be modified to indicate there will be no reduction in TDS loading on the New River as a result of power plant operations. There is no apparent reduction in TDS across the LRPC and TDM WWT plants, according to the influent and effluent TDS concentration data provided by the LRPC and TDM wastewater treatment experts and the TDM project manager. 0004-7 (cont.)

[7] June 2003 Angel Decl. ¶¶ 13-18.
[8] June 2003 Hromadka Decl. ¶ 29, Kasper Decl. ¶ 6.
[9] June 2003 Hromadka Decl. ¶ 29.
[10] June 2003 Simoes Supplemental Decl. ¶ 9.

Comment 8: Brine Discharges from the Power Plants Exceed the 4,000 mg/l TDS Limit Prescribed for the Colorado River Basin and These Brine Discharges Must be Mitigated

The DEIS correctly notes that an upper-bound salinity[11] value of 4,000 mg/l has been established as a water quality objective for the Colorado River Basin (p. 3-22). The TDS concentration in the in the discharge water from the power plants is expected to be 4,800 mg/l for LRPC and 4,430 mg/l for TDM. Total discharge of this high TDS wastewater to the New River from LRPC and TDM will be on the order of 600 million gallons per year. The wastewater volume increases to close to 1 billion gallons per year of discharge to the New River if the two domestic EAX turbines at LRPC are also included.[12] The DEIS indicates (p. 3-14) that the TDS concentration in the New River at the border varies between 1,500 and 3,500 mg/l, with a 6-year average between 1997 and 2003 of 2,620 mg/l. The water quality expert hired by LRPC stated that the "*salinity in the New River ranges from 3,500 mg/l at the border to approximately 4,000 to 5,000 mg/l at the outlet into the Salton Sea.*"[13]

In contrast, the water being diverted from the New River to LRPC and TDM has a typical TDS concentration of 1,200 mg/l (p. 4-19). This source water, at a TDS of 1,200 mg/l, has a very beneficial effect on the New River as a diluent that contributes to compliance with the 4,000 mg/l TDS water quality objective. The direct discharge of untreated high salinity wastewater from LRPC and TDM, with TDS concentrations ranging from 4,430 to 4,800 mg/l, has the opposite effect. The New River was not meeting the 4,000 mg/l water quality objective near its terminus with the Salton Sea even before LRPC and TDM began operation, based on testimony by LRPC's water quality expert. Discharging untreated high TDS wastewater from LRPC and TDM into the New River will exacerbate the degree of non-compliance with the 4,000 mg/l Colorado River Basin water quality objective. 0004-8

There are no numerical or narrative standards in Mexico that require removal of TDS from wastewater discharge streams. The high TDS wastewater discharge from LRPC and TDM enters the New River literally on the border, as shown in the DEIS (p. 2-32). The Colorado River Basin Regional Water Quality Control Board (Regional Board) would consider that the high TDS wastewater discharges from LRPC and TDM violate the Regional Board's standards for the New River.[14]

Multi-million dollar investments in adequate wastewater treatment and/or discharge elimination systems are mandatory for power projects located on the U.S. side of the border just north of the LRPC and TDM projects. The only large power plants that have been permitted recently in the Colorado River Basin region, or that are currently undergoing permitting, are the 520 MW Blythe I project, the 185 MW Salton Sea No. 6 geothermal project, the 520 MW Blythe Phase II project (in permitting). Blythe I uses evaporation ponds to prevent high salinity wastewater

[11] Salinity and TDS are interchangeable terms.
[12] June 2003 Hromadka Decl. ¶ 32. Combined wastewater discharge is 2,720 acre-ft/yr (~900 million gallon/year).
[13] June 2003 Kasper Supplemental Decl. ¶ 17.
[14] June 2003 Angel Decl. ¶ 20.

discharges into surface waters. Salton Sea No. 6 will reinject process wastewater back into the geothermal aquifer. Blythe II is currently recommended as a dry-cooled project by CEC staff. These power projects, equipped with adequate wastewater treatment and/or elimination systems, are competing in the same California power market as LRPC and TDM. By building in Mexico and discharging into the New River a few feet south of the U.S. border, both LRPC and TDM gain a significant competitive advantage by avoiding stricter U.S. wastewater discharge control requirements.

Mitigation equivalent to what would be required if the LRPC and TDM plants were located in the Colorado River Basin region on the U.S. side of the border is necessary. Evaporation ponds or an equivalent "zero liquid discharge (ZLD)" system would address the problem of high TDS wastewater discharges to the New River. However, retrofitting dry cooling to the existing wet cooling systems at LRPC and TDM would reduce both brine discharges and flow reduction caused by the proposed action to a fraction of current levels. This would to a large extent mitigate the dual problems of (1) high TDS wastewater discharges, and (2) the estimated 100 tpy of PM_{10} emissions associated with the increased exposed shoreline around the Salton Sea resulting from reduced flow in the New River. Addition of a small ZLD system would address wastewater discharges remaining after installation of the dry component of the parallel wet-dry cooling system. It is important to note that if mitigation is unacceptable to LRPC and TDM, both companies could ". . . *choose to sell their power to the Mexican market or transmit their power via an alternate route* . .".[15] 0004-8 (cont.)

Recommendation 8: Mitigate wastewater discharges by retrofitting the LRPC and TDM wet cooling systems to parallel wet-dry cooling systems. Mitigate the remaining wastewater discharges by adding ZLD systems.

Comment 9: Conformity Analysis Must Include Emissions from Power Plants and Indirect PM_{10} Emissions from Reduced Flow in New River

As noted on p. 4-38 of the DEIS, Section 176(c) of the CAA requires that Federal actions conform to the appropriate State Implementation Plan in a non-attainment area, with the expressed purpose of *eliminating or reducing the severity and number of violations of the NAAQS and achieving expeditious attainment of such standards.* Imperial County is a Federal non-attainment area for PM_{10} and O_3. The threshold for triggering conformity review in this case is 100 tons per year both PM_{10} and NO_x (O_3 precursor). Combined PM_{10} emissions from the two LRPC export turbines and TDM, the associated cooling towers, and indirect emissions from exposure of Salton Sea shoreline, total 833 tpy (p. G-3). Combined NO_x emissions are projected at approximately 400 tpy. 0004-9

The DEIS ignores power plant emissions and the indirect PM_{10} emissions caused by reduced flow in the New River in reaching the conclusion that the proposed action is exempt from review of conformity. This is inconsistent with Judge Gonzalez' determination in the May 3, 2003 Court Order that (p. 36): "*Here, the scope of the action relates only to the transmission lines, but the nature of the action includes the full scope of the analysis, including the effects of the action. The nature of the action therefore includes the importation of power generated in Mexico. Indeed, to leave out the secondary impacts would be at odds with the purpose of the alternatives*

[15] May 3, 2003 Court Order, p. 37 (also p. A-41 of DEIS).

analysis, which is to provide a way for an agency to calculate and compare the various predicted effects of alternative courses of action. The analysis would be arbitrary in itself if it did not take into account all effects of a proposed action." 0004-9 (cont.)

Recommendation 9: Include the LRPC and TDM power plant emissions in the air emissions assessment used to determine whether the proposed action is exempt from review of conformity.

Comment 10: DEIS Underestimates Secondary PM_{10} Impacts Relative to Secondary PM_{10} Impacts Described in June 16, 2003 Supplemental Declaration of Dr. Heisler

The DEIS concludes that secondary PM_{10} emissions are de minimus (p. 4-47). The DEIS also summarizes Dr. Heisler's June 2003 Declaration (p. C-13) as stating "*Heisler further concludes that because the region is ammonia rich, plant emissions would not lead to significant formation of NH_4NO_3 (secondary PM_{10} particulate)*" apparently to support the de minimus conclusion. However, the EIS fails to acknowledge or summarize Dr. Heisler's Supplementary Declaration, where he explicitly calculates a secondary PM_{10} 24-hour increment of 1.8 $\mu g/m^3$. The Court determined in its July 3, 2003 Order that the modeled 24-hour PM_{10} increment was 4.8 $\mu g/m^3$, just below the 5.0 $\mu g/m^3$ trigger level for mitigation. As noted in the Order, 3.0 $\mu g/m^3$ of this total is primary PM_{10}, and 1.8 $\mu g/m^3$ is secondary PM_{10} in the form of ammonium nitrate emissions (p. 24). The 1.8 $\mu g/m^3$ 24-hour secondary PM_{10} increment was taken directly from Dr. Heisler's Supplemental Declaration. The Order also notes that the 4.8 $\mu g/m^3$ 24-hour increment is not necessarily a conservative estimate, stating *"Indeed, the contribution to particulate formation from ammonia may even be higher since it appears from Heisler's declaration that he has used estimates of actual ammonia emissions, rather than the more conservative "potential to emit" estimates normally required when reviewing new emissions sources. (See Supp. Stockwell Decl. at ¶ 3)."* 0004-10

The SCR ammonia slip level limit for the LRPC export turbines and the TDM turbines is identified as 10 ppm on p. G-3 and G-4 of the DEIS. Dr. Heisler estimated actual annual ammonia emissions would be 93 tons per year (tpy), assuming an ammonia slip level of 5 ppm as well as reduced operating hours, in calculating the 1.8 $\mu g/m^3$ increment in secondary 24-hour PM_{10} ammonium nitrate emissions. However, use of the emission limit and maximum potential hours of operation is required in CAA regulations for modeling air quality impacts [see 40 CFR §51.166(m)(*a*)]. The maximum potential ammonia slip emissions from the EBC and EAX export turbines are 222 tpy (p. G-4). The maximum potential ammonia slip emissions from the TDM turbines is 276 tpy (p. G-4). The total potential ammonia emissions from the LRPC and TDM export turbines is 498 tpy, over five times the ammonia emission rate assumed by Dr. Heisler when he calculated a 1.8 $\mu g/m^3$ 24-hour secondary PM_{10} increment. Increasing the ammonia emission rate by a factor of 5 should have a linear effect on the modeled secondary PM_{10} increment, increasing it from 1.8 $\mu g/m^3$ to 9 $\mu g/m^3$.

The draft EIS uses a different air dispersion model to analyze pollutant increments, AERMOD, relative to the ISCST3 model used to calculate increments in the EA (p. 4-29). However, the results for the primary PM_{10} increment drop only slightly using AERMOD, from 3.0 $\mu g/m^3$ using ISCST3 to 2.45 $\mu g/m^3$ using AERMOD. However, there is a dramatic difference in the expected 24-hour secondary PM_{10} increment extrapolated from Dr. Heisler's Supplemental Declaration,

approximately 9 $\mu g/m^3$, and the AERMOD results for 24-hour secondary PM_{10} presented in the DEIS (p. 4-45) of "*on the order of 1 $\mu g/m^3$*".

The DEIS goes on to state (p. 4-47) "*In conclusion, the body of the above analysis indicates that secondary formation of NH_4NO_3 as a result of NO_x (and any NH_3) emissions from the TDM and LRPC power plants is de minimus, and thus little associated impact can be ascribed.*" This statement is in conflict with the secondary PM_{10} 24-hour increment results provided in Dr. Heisler's June 2003 Supplemental Declaration. 0004-10 (cont.)

Recommendation 10: DOE must explicitly describe the assumptions regarding: 1) ammonia emissions from the turbine stacks, 2) the quantity of ammonia converted to ammonium nitrate, and 3) any peculiarities of the AERMOD model that result in a modeled ammonium nitrate 24-hour increment that is nearly 1/10th what would be expected based on Dr. Heisler's June 16, 2003 Supplemental Declaration.

Comment 11: DEIS Must Define Offsets as Necessary Mitigation for PM_{10} and NO_x Emissions and Describe the Specific Offsets That Will Be Obtained

The DEIS fails to identify PM_{10} and NO_x offsets as necessary mitigation due to a flawed application of U.S. air quality regulatory requirements as noted in Comment 4. Emission offsets are absolutely necessary for any increase in emissions above de minimus levels when the plant(s) is located in a non-attainment area. Mexicali is unquestionably in non-attainment of PM_{10}, ozone, and CO NAAQS and Mexican ambient air quality standards. One verifiable and permanent source of emission offsets for the LRPC and TDM projects is road paving. The draft EIS appropriately identifies 23 miles of road paving that could be carried out in Imperial County to offset approximately 650 tons of PM_{10} emissions (p. 4-59). This is somewhat less than the combined estimated PM_{10} emissions from the LRPC export and TDM projects of 733 tpy (p. G-3). Approximately 400 tpy of NO_x will be emitted by the LRPC export and TDM turbines. A simple solution to identifying "*verifiable and permanent*" NO_x offsets in this case would be to allow cross pollutant offsetting of NO_x emissions at a one-to-one ratio as PM_{10} reductions. The draft EIS (p. S-31) also correctly notes that "*[NO_x and PM_{10}] Mitigation opportunities in Mexico could also prove to be beneficial and cost-effective. These might include road paving, replacing older automobiles and buses, and converting fuel used in brick kilns to natural gas.*" NO_x could readily be offset by carrying out sufficient road paving in Mexicali to offset all NO_x emissions (as PM_{10} reductions) from the plants as well as additional PM_{10} offsets necessary after 23 miles of roadway are paved in Imperial County. 0004-11

It is important to note that power projects on the California side of the border, serving the same market as the LRPC and TDM turbines, must purchase emission offsets for project emissions. Otay Mesa is located approximately 2 miles north of the U.S.-Mexico border and about 15 miles southeast of San Diego. Construction of the project is about to commence. Otay Mesa will pay $30 million to offset PM_{10} and NO_x emission levels that are significantly lower than the projected PM_{10} and NO_x emission levels from either LRPC and TDM.

Recommendation 11: The EIS must explicitly require the mitigation of a total of 733 tpy of PM_{10} and 400 tpy of NO_x from the LRPC and TDM projects and describe in detail how the mitigation will be achieved.

Comment 12: DOE Must Include Impacts from Power Plants Supplying the Second Circuits on the LRPC and the TDM Transmission Lines in Cumulative Impacts Analysis

Both the LRPC and TDM transmission lines are double-circuit designs capable of carrying the full power output from two 600 MW plants each. DOE relies solely on information provided by Sempra (p. 5-11), in which the company states it has conducted preliminary studies related to a second 600 MW plant, to conclude a second plant at either the LRPC and TDM site is not likely in the foreseeable future. Clearly Sempra has a strong financial interest in understating the potential for a second power plant in Mexicali, as inclusion of this plant in the air modeling analysis would contribute to further NO_x and PM_{10} impacts and underscore even further the needs for emission offsets. As a result, the modeled air and water quality impacts in the draft EIS assume only one 600 MW plant per transmission line. Assuming only one of two circuits on each transmission line will be used for the foreseeable future is incorrect given the strong evidence that second plants will be built at both the LRPC and TDM sites within the next 10 years.

The export component of the LRPC plant has a capacity of 560 MW, while the TDM plant has a capacity of 600 MW. Each circuit of the double circuit transmission lines has a capacity of approximately 600 to 700 MW. The total capacity of each double circuit transmission line is 1,200 to 1,400 MW, as stated by LRPC and TDM in their respective applications for Presidential Permits. The original Environmental Assessment analyzed the environmental impact of 1,160 MW of power generation capacity while the Permits authorize LRPC and TDM a total of up to 2,800 MW of power transmission capacity. Why would a second circuit have been included in the design of each transmission line if LRPC and TDM did not intend to use the second circuit in the foreseeable future? The cumulative impacts analysis must address a level of power plant environmental impact that is representative of the double circuit transmission capacity the DOE is authorizing under the Presidential Permits. 0004-12

The Council on Environmental Quality is explicit that a National Environmental Policy Act cumulative impacts analysis must include cumulative effects caused by reasonably foreseeable future actions.[16] The DEIS defines this on pg. S-24 as actions that will take place in the next 10 years. The draft EIS cites only three power projects, all in the U.S., as the only power projects that could foreseeably impact the area. These are the 520 MW Blythe Phase II project, CalEnergy's 185 MW Salton Sea No. 6 geothermal project, and the 620 MW Wellton-Mohawk power plant east of Yuma, Arizona. According to the CEC, both Blythe II and the Salton Sea No. 6 geothermal project are scheduled to be on-line by 2006.[17] The Wellton-Mohawk project was approved by the Arizona Corporation Commission in May 2003 and is expected to be operational in 2006 or 2007.[18] The DEIS limits the cumulative impacts assessment to U.S. regional power projects that are permitted (or about to be permitted) and expected to be constructed in 2 to 3 years while ignoring overwhelming evidence that: 1) a much greater level of power plant construction is planned over the next 10 years on the Baja California side of the border, and 2) one of those projects will be constructed by Sempra Energy to export power to the

[16] Council on Environmental Quality, Executive Office of the President, *Considering Cumulative Effects Under the National Environmental Policy Act*, January 1997, p. 8.
[17] http://www.energy.ca.gov/sitingcases/all_projects.html#review
[18] http://www.cc.state.az.us/news/pr08-15-03.htm

U.S. and utilize the second circuit of the 1,200 MW export transmission line built by TDM to serve the U.S. market.

Baja California is projecting an electrical energy demand growth rate of 6 percent per year. Mexico's Secretary of Energy has recently stated that an additional 2,055 MW of gas-fired power generation is planned for Baja California by 2013.[19] This represents a doubling of Baja California's gas-fired power generation capability in 10 years. Sempra Energy is predicting that the natural gas demand in Baja California will increase from approximately 150 to 200 million cubic feet per day (mmcfd) in 2003 to 500 mmcfd in 2008 and reach 1,000 mmcfd by 2015.[20] Virtually all natural gas used in Baja California is used in gas-fired power plants. A Baja California gas demand of 500 mmcfd in 2008 represents nearly a three-fold increase in power plant gas consumption over current levels. Given the spectacular projected increased in gas-fired power generation in Baja California over the next 10 years it is hard to imagine a scenario where LRPC and TDM, having requested and received authorization to build double circuit transmission lines capable of transmitting 1,200 MW to 1,400 MW each, would not at some point in the next 10 years utilize most or all of the authorized transmission line capacity. The Comisión Federal de Electricidad (CFE), the Mexican national utility monopoly, shows a second 600 MW TDM export power plant coming on-line in Mexicali in June 2005.[21] The June 2005 estimated start-up date will not be met. However, this plant will almost certainly be built during the cumulative impact analysis time period defined as 10 years in the DEIS. 0004-12 (cont.)

Recommendation 12 – The cumulative impact analysis must assume a second 600 MW plant at the LRPC site and a second 600 MW plant at the TDM site.

Comment 13: DEIS Should Include a Description of Seven Environmental Permit Conditions for Inclusion in the LRPC and TDM Presidential Permits to Ensure Compliance with Environmental Mitigation Commitments

The failure of Intergen to install SCR on the EAX export turbine in a timely manner is an example of why explicit conditions must be included in the Presidential Permits to ensure compliance with the mitigation measures identified in the EIS. It was the Court's clear understanding in May 2003 that the EAX export turbine would be equipped with SCR to achieve an emission limit of 4 ppm by the date of commercial start-up.[27] It is likely that several 100s of tons of additional NO_x were emitted from this turbine between June 2003 and January 2004 as a result of LRPC's failure to install the SCR. LRPC ultimately shut down the EAX export turbine in January 2004.[28] LRPC restarted the turbine in March 2004 claiming that the SCR was installed and operational. However, BPPWG is unaware of any data provided by LRPC or DOE 0004-13

[19] Attachment C: Calderon, F., *Opportunities for LNG Terminals in Mexico*, U.S. DOE LNG Ministerial Summit presentation, December 17-18, 2003.
[20] Attachment D: Sempra response letter to Greenpeace dated May 21, 2004.
[21] Attachment E: Aboytes, F., *CFE Generation and Transmission Expansion Plan Baja California System: 2003-2007*, Southwest Transmission Expansion Plan meeting, March 2003.
[27] May 3, 2003 Court Order, p. 3 (also DEIS p. A-7)
[28] Attachment F: *Intergen Gives In, Unplugs Turbine*, San Diego Union Tribune, January 17, 2004.

that demonstrates that the SCR is in fact operational and achieving the 4 ppm NO_x emission limit identified in the original Environmental Assessment or the 2.5 ppm NO_x limit identified for EAX export turbine on p. G-3 of the DEIS.

Explicit Presidential Permit monitoring, reporting, and enforcement conditions are clearly necessary. As noted by the Court in the May 3, 2003 Order, "*Although defendants argue that "international sensitivities" preclude conditioning the permits from being a reasonable and feasible alternative, such a discussion belongs in the EA's alternative analysis rather than a litigation brief. Furthermore, the Court is unconvinced that the federal government's jurisdiction to ameliorate negative environmental effects within the United States necessarily offends international principles of law. The condition would not be a direct regulation of Mexican power plants; those plants could still choose to sell their power to the Mexican market or transmit their power via an alternate route rather than meet the condition.*"

Recommendation 13: Seven environmental permit conditions should be added to the Presidential Permits that state – 0004-13 (cont.)

1. All PM_{10} and NO_x emissions must be completely offset within two years of the issuance of an approved Presidential Permit;
2. The DOE will enjoin use of the transmission line(s) at any time the plants are in violation of the air emission limits specified on p. G-3 and p. G-4 of the DEIS;
3. Air monitoring data will routinely/continuously be provided to Imperial County APCD authorities by LRPC and TDM;
4. Averaging time for all air pollutants is 3 hours;
5. Consumptive water use is limited to 717 acre-ft/yr at LRPC and 350 acre-ft/yr at TDM;
6. Data from an approved flow monitor must be routinely provided to the Regional Board to verify water consumption;
7. Discharge of wastewater to the New River that has not been treated for salinity removal is prohibited.

Attachments

Attachment A: Debacker, L., Wurtz, W., *Why Every Air-Cooled Steam Condenser Needs a Cooling Tower*, Paper TP03-01, Cooling Technology Institute Annual Conference, August 2003

Attachment B: Rusley, D., *Streeter Station Unit 7 Retrofit to Wet-Dry Cooling System*, presented at Dry Cooling Symposium, San Diego, May 2002

Attachment C: Calderon, F., *Opportunities for LNG Terminals in Mexico*, U.S. Department of Energy LNG Ministerial Summit, December 17-18, 2003

Attachment D: Sempra response letter to Greenpeace dated May 21, 2004

Attachment E: Aboytes, F., *CFE Generation and Transmission Expansion Plan Baja California System: 2003-2007*, Southwest Transmission Expansion Plan meeting, March 2003

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