

March 14, 2000

Mr. Richard Sommerville
Air Pollution Control Officer
San Diego County
Air Pollution Control District
9150 Chesapeake Drive
San Diego, California 92123-1096

RE: Mobile Emission Reduction Credits

Dear Mr. Sommerville:

I am pleased to provide a response to the January 26, 2000 letter from Ms. Sharon K. Segner regarding the creation of nitrogen oxides (“NOx”) mobile emission reduction credits (“MERCs”) for use by PG&E Generating (“PG&E”) to offset NOx emissions increases as required under §173 of the Clean Air Act at PG&E's proposed 510 MW Otay Mesa Power Plant (“Project”). To our knowledge, the Project will be the first major stationary source in the country to offset its NOx emission increases with MERCs.

In this case, PG&E has requested that we specify EPA's requirements for creating MERCs for this Project that are real, surplus, quantifiable, enforceable and permanent; including whether the federal offset requirements can be satisfied through the District's Rule 27 “Alternative Program” provisions, as set forth in the draft framework dated January 26, 2000. This letter sets forth EPA's position for this Project only. In other instances where sources wish to use MERCs to satisfy federal offset requirements, EPA will address such proposals on a case-by-case basis while we consider developing appropriate national policies. Our response to the PG&E points is included in Enclosure 1.

Standards for Mobile Emission Reduction Credits for Use in NSR

In general, EPA's position at this time is that mobile sources can provide emission reductions for use on a case-by-case basis as New Source Review (“NSR”) offsets provided they are real (actual) emission reductions that are quantifiable, federally enforceable, permanent, and are surplus of all Clean Air Act (“CAA”) requirements, and they meet all other offset

requirements of the CAA. These are the same standards we would apply to a traditional stationary source credit for use under NSR. However, because mobile sources are ubiquitous, transient, and unpermitted emission sources, additional requirements may be necessary to ensure the MERCs generated today satisfy the offset requirements of the CAA.

We have provided responses to each of the points identified in the PG&E letter in an effort to clarify for you, PG&E, the California Energy Commission, the California Air Resources Board (“CARB”), and the public, EPA's views concerning the MERC generation and use ideas that we have discussed thus far for this Project. At this time, based on the information provided to us, and the comments we have provided in this letter, we believe that the proposed MERCs for the Project will be viable credits and will meet the CAA §173 offset requirements. The specific details for the Project are discussed below.

Overview of the Project

Before providing a point-by-point response to your letter, I would like to discuss our understanding to date of some important facts about the MERC generation and use at the Project. The following features of the MERCs for this Project and the District's proposed framework provide a context for our responses and, from our perspective, are important considerations for this Project–

- At this time, to generate the MERCs, participating fleets plan to purchase and deploy:
 - ▶ new heavy-duty sanitation trucks powered by dedicated natural gas (or dual fueled natural gas/diesel) engines instead of purchasing and deploying new heavy-duty diesel powered trucks;
 - ▶ new medium-duty trucks powered by propane instead of purchasing and deploying new medium-duty diesel powered trucks; and/or
 - ▶ new diesel engines powering harbor excursion marine vessels instead of the marine vessels continuing to operate with existing, older diesel engines.
Additional credit is being considered if clean diesel fuel is used with these new marine engines instead of diesel fuel that is currently required.
- Only a portion (not yet determined) of the total offsets required by PG&E will be reductions from mobile sources; the remaining emission reductions will be provided by reductions at stationary sources. This split is due to the limited availability of stationary source offsets in San Diego County and not because of an EPA requirement.
- The expected life of the new, on-road vehicles ranges from 7 to 12 years. At the end of this time, if these engines or vehicles (“engine/vehicle”) are replaced, they must be replaced with an engine/vehicle that meets the NOx emission standard at that time, or the NOx standard (or certification) the newly purchased engines achieve today, whichever is lower.
- Credit will be generated for NOx reductions only.
- NOx MERCs will be used only as New Source Review offsets.
- The NOx emission reductions achieved today would not have occurred anyway (i.e.,

vehicles would not have been replaced with clean fuel alternatives), and are not otherwise required by the Clean Air Act.

- The useful life of the heavy- and medium-duty replacements (e.g., 7 to 12 years) is significantly longer than the expected time it will take the San Diego Air District to reach attainment.
- Only marine vessels operating in, or in close proximity to, the San Diego Harbor will be considered. Further, EPA considers the repowering of the marine vessels for this Project a permanent emission reduction.
- On-road mobile sources currently being considered include heavy-duty sanitation trucks and medium or heavy-duty delivery trucks that operate solely within San Diego County (i.e., they are “captive fleets”).
- At this time, it is our understanding that PG&E plans to secure additional mobile reductions for purposes of satisfying the CARB offset requirements. Although these additional reductions go beyond what is required for federal offset purposes, the reductions will provide a level of safety if the future fleet activity levels fall below required levels.

Again, EPA supports this Project and believes the NOx mobile emission reductions being considered for this project can provide viable emission reductions for use as NSR offsets. We look forward to working with you and your staff to develop the draft framework further to ensure it provides clear, reproducible, actual emission reductions that are consistent with all federal requirements. If you have any questions, please contact either Matt Haber, Chief of the Permits Office at (415) 744-1254, or Allan Zabel, Associate Regional Counsel at (415) 744-1329.

Sincerely,

David P. Howekamp
Director, Air Division

Enclosure

cc: Michael P. Kenny, CARB
Ray Menebroker, CARB
Sharon Segner, PG&E Generating
Eileen Allen, California Energy Commission
David Solomon, OAQPS
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Enclosure 1

EPA's Point-by-Point Response

The following is our response to each of the points you ask us to address. These responses collectively describe EPA's requirements for creating MERCs for use as offsets in connection with the Otay Mesa Power Plant Project ("Project"). We have provided responses to all of your points; however, in cases where the California Air Resources Board ("CARB") has been the lead agency for establishing mobile source quantification criteria, we have described our understanding of the issue, the current solution, and whether we agree with the solution.

1. *PG&E Generating*: Confirm that EPA's requirements can be implemented through the District's Rule 27 "Alternative Program" provisions, as set forth in the attached draft framework dated January 26, 2000. Verify that MERCs created in accordance with such requirements are fully fungible.

EPA Response: In general we find the draft framework will provide the District the necessary means by which to generate NOx MERCs for use as NSR offsets (with CARB concurrence as required in rule 27(c)(vi)). Further, as we have discussed, a portion of the draft framework must be submitted to EPA for State Implementation Plan ("SIP") approval to ensure the vehicle operator provides accurate, truthful records to the MERC user (i.e., to ensure the credits generated are federally enforceable) and to ensure that if a vehicle/engine is replaced, it is replaced with an engine that is as low emitting as what it replaces, with respect to NOx. We are still working with PG&E, your staff, and CARB to define what specific documents should be submitted for SIP approval.

We have the following comments on the draft framework and which federal requirements can be implemented through this framework:

- a. **Quantifiable actual emission reductions** -- Full value credit calculation procedures in the draft framework are clear. In general, for the on-road heavy- and medium-duty trucks, credit will be granted based on the difference between the emissions standards that would have applied had the vehicle owner installed a medium- or heavy-duty diesel engine today, and the actual emission standards (or certification values) that do apply with the cleaner engine (vehicle), multiplied by the historical activity level of the vehicle¹. We agree with this quantification protocol in connection with this Project and we will work with you, PG&E, and

¹This protocol is designed specifically for the diesel replacement and repowering ideas being considered for this project and at this time should not be transferred to other MERC proposals. For example, it may be problematic to establish accurate protocols to ensure surplus, permanent, actual emission reductions from automobile early retirement programs (e.g., vehicle scrappage).

CARB to develop the necessary activity level metrics to ensure on-going credit calculations (especially activity levels) are accurate, verifiable, and reproducible. Ultimately, it is the responsibility of the credit user to assure the total tonnage of NOx offsets has been obtained (see CAA §173(c)(1)).

- b. **Permanent:** A “no backsliding provision” is included and would ensure the initial credit achieved will be permanent. However, the provision needs to be clarified. We will work with all parties to make the necessary changes.

- c. **Enforceability:** The framework contains two sections that will create the necessary federally enforceable requirements. First, for the credit generator, a portion of this framework (presently identified as the “Credit Certificate Terms and Conditions”) will be revised and submitted to us for SIP approval to ensure the credit generator will provide accurate records and ensure no backsliding occurs. This section should be revised to: 1) include a clear, narrow applicability section; 2) define certain terms used in the framework; 3) eliminate the MERC issue and expiration dates, and the MERC value line items (MERC certificates can include these elements); and 4) clarify language overall. We will work with all parties to develop this section further to assure it is approvable. After we agree on the necessary requirements, the District must follow the SIP-submittal requirements of 40 CFR Part 51, Appendix V.

Second, for the user, the Authority to Construct permit will include enforceable conditions regarding activity monitoring and credit quantification requirements (including contingencies), a no backsliding requirement, and offset timing provisions. We recognize the draft conditions as part of the framework and we will work with you to develop these conditions further.

- d. **Surplus:** The draft framework does not include the requirement that the MERCs be surplus of all Clean Air Act requirements. Although the draft framework does not include this requirement, it is not problematic for this Project because: 1) the reductions have not been relied upon in the approved San Diego attainment plan; and 2) it is our understanding that the mobile sources will be replaced or repowered with the cleaner burning engines prior to October 2002. Therefore, these reductions will be surplus of all Clean Air Act requirements.

Once the framework is final, emission reductions created through this framework will be fungible credits for use in NSR only. Any transfer of the mobile emission reduction credits must be clearly documented by the District and all requirements imposed on the existing user of the credit must be transferred to the new user.

In sum, the primary function of the draft framework is to provide the district a mechanism to generate credits (and issue credit certificates); outline examples of permit

requirements on the user; and after some portion of the final framework is SIP approved, provide the necessary federal enforcement mechanism against the credit generator to ensure credits are federally enforceable.

2. *PG&E Generating*: Provide technical guidance on quantification of MERCs for both heavy duty and medium duty engine baselines with specific duty cycles.

EPA Response: We agree with the District's calculation described in the "Alternative Program" that the MERCs will be calculated according to the following equation:

$$C_f = A_b (F_b - F_r)$$

where:

C_f = the full value credit amount, in tons per year;

A_b = the baseline activity level, in VMT, hours of operation, or gallons of fuel burned per year (final metric will likely vary depending on type of vehicle);

F_b = the baseline emission factor for the mobile source being replaced, in appropriate units; and

F_r = the emission factor for the replacement mobile source, in appropriate units.

In general, as we stated earlier, the credit will be granted for the difference between the emissions standards that would have applied had the vehicle owner installed a medium- or heavy-duty diesel engine today, and the actual emission standards (certifications) that do apply with the cleaner engine (vehicle), multiplied by the historical activity level of the vehicle.

Baselines for on-road heavy- and medium-duty diesel engines

The CARB has taken the lead on this issue. Both the heavy-heavy and medium-heavy duty federal test procedures ("FTP") baseline emission rate is 4.0 gram NOx/bhp-hr. Heavy-heavy duty on-road engines, however, are also required to meet the 6.0 gram NOx/bhp-hr according to the Euro III test procedure (high speed simulation). It is our understanding that for the heavy-heavy duty garbage trucks, the baseline is adjusted upwards to 4.4 gram NOx/bhp-hr to account for off-cycle emissions that are estimated to occur 20% of the time for typical refuse trucks. We agree with this adjustment. Under the Euro III simulation, the medium-heavy duty engines must meet an emission rate of 4.0 gram NOx/bhp-hr, and no adjustment has been made.

Baseline for marine diesel engines

Again, CARB has taken the lead on this issue. We agree that the baseline emissions for the marine vessels being considered is not to exceed 20 grams NOx/bhp-hr. We also understand that in-use testing was performed in December 1999 to evaluate the actual emissions from the existing diesel engine and the baseline will be either 20 grams NOx/bhp-hr or the average rate determined by the testing, whichever is lower. Again, we concur with this approach.

3. *PG&E Generating*: Confirm that with appropriate maintenance protocols designed to keep equipment within manufacturer specifications, credit will be given for reducing in-use degradation.

EPA Response: CARB has worked extensively with PG&E on this issue and we understand that credit of 1 gram NO_x/bhp-hr is being considered for the sanitation trucks (heavy-heavy duty) for reducing future in-use degradation. At this time, we have not fully examined this allowance; however, credit should only be granted after our approval of the maintenance protocols. We will work with all parties on this issue.

4. *PG&E Generating*: Verify whether a fuel substitution discount will be applied to dual-fuel engines, if so at what rate.

EPA Response: CARB has worked extensively with PG&E on this issue and has considered adjusting the FTP standard to account for the performance in the specific duty cycles being considered. Although we cannot provide a discount value at this time, any discount value allowed must be supported by replicable, accurate, and verifiable data to ensure credits are actual and quantifiable reduction.

5. *PG&E Generating*: Clarify that MERCs created from on-road engines will be deemed permanent provided that, if an engine that created MERCs is replaced, it is replaced with an engine that is at least as low emitting as the original engine in terms of NO_x. Specify the duration of this “no backsliding” requirement, and whether it must be contained in the MERC certificate, the Project permit, the agreement between PG&E Generating and the fleet operator, or some combination of the foregoing. Verify that MERCs created from marine engines are permanent.

EPA Response: EPA believes that it is possible to create an emission reduction strategy to ensure mobile emission reductions are permanent. For present purposes, we note that the useful life of the heavy- and medium-duty replacements (e.g., 7 to 12 years) is significantly longer than the expected time it will take the San Diego Air District to reach attainment. The District's draft framework includes an overall emission reduction strategy that will ensure reductions made today will be permanent. Specifically, this emission reduction strategy is embodied in the following two-part requirement. First, to generate the credit today, the existing diesel engines/vehicles must be replaced or repowered with cleaner engines/vehicles. Second, to ensure the reduction today is permanent, if an engine/vehicle is subsequently replaced or repowered, the replaced or repowered engine/vehicle will emit NO_x at a level that is as low as the engine/vehicle replaced today. Of course the emissions must be “surplus” as described in Section 1(d) above. The no backsliding requirement must exist in the SIP-approved portion of the framework and in the final permit for the user.

The no backsliding provision is required indefinitely. To enforce this condition, however, the vehicle owner must keep records that show the NO_x emission standard of any replaced or

repowered vehicle is at least as low as that which was replaced or repowered. In general, the fleet owner must keep records on all replaced or repowered vehicles and provide them to the user on an annual basis. Both the generator and user must retain these records for 5 years from the date the record was created. The recordkeeping requirement should last for 20 years, but we are open to discuss this requirement further; for example, we realize that it is highly likely that within the next 7 to 12 years (lifetime of the first generation of vehicles/engines) the NOx emission standards for new diesel engines will be at least as low, if not lower than, the level achieved today by the CNG engines.

Finally, as stated in the cover letter, EPA considers the repowering of the marine vessels for this Project a permanent emission reduction.

6. *PG&E Generating*: Clarify EPA's requirement that each fleet maintain a specified activity level over a specified period of time, including when such period commences and how long it lasts, and the method that must be used to verify the activity level. Identify the fleet types to which this activity level requirement applies. Specify whether this requirement must be contained in the MERC certificate, the Project permit, the agreement between PG&E Generating and the fleet operator, or some combination of the foregoing. Clarify any requirements for a contingency plan should required activity levels not be achieved.

EPA Response: Our requirement that the MERC generator, and ultimately MERC user, maintain activity for a limited time into the future is important to ensure that the new, cleaner engines/vehicles are, overall, used at the same or higher level of activity as the historical level upon which the credit is based. We are imposing this condition because it is generally EPA's policy to not allow credit from stationary sources where a shift in demand may occur (see ETPS at 51 FR 43843, footnote 24). EPA believes that the activity monitoring requirement is important in this case because of the uncertainty associated with the future operation (activity) of these relatively small, unpermitted mobile sources of air pollution.

Based on the specific design of this project, including the types of engines and the area in which they will be deployed, we have determined that the activity level monitoring must occur for 10 years from the date when the new engine/vehicle commences normal operation. Although we do not expect large shifts in demand to occur (which is a function of the type of vehicles considered for this project), the ten-year activity monitoring period will provide EPA, CARB, the District, and PG&E information on the extent to which fleet-wide activity levels fluctuate. We recognize minor fluctuations in activity relative to the historic averages are likely, but if activity drops below a certain level² over time, then additional credits must be obtained by the stationary source (user) who had relied on the credit. We will work with you, PG&E, and CARB to determine the minimum level of activity and to clearly establish necessary protocols for tracking activity to ensure unintended effects do not occur.

²This minimum level of activity has not yet been determined.

Responsibility of User: Conditions must be included in the PG&E permit (or, if the credit is transferred to another stationary source, activity level conditions must also be transferred) to ensure the total tonnage of increased emissions will be offset by actual emission reductions (including MERCs). (See CAA §173(c)(1)). For the MERC portion of the offset package, the permit must contain requirements that PG&E perform periodic calculations to demonstrate whether or not the activity of all vehicles/engines averaged over all the fleets relied upon in the offset package combined is above the minimum. As stated above, the activity level monitoring must occur for 10 years from the date when the new engine commences normal operation. Further, the permit must include contingency measures that are enforceable as a practical matter to require the user and make-up any credit shortfalls that would occur if the minimum level of activity is not maintained by the combined vehicles in this program. Contingencies must also include necessary timeframes for obtaining additional offsets.

Responsibility of Fleet Operator: The fleet operator will be required to maintain necessary records that allow the user to verify whether the minimum level is met. Tracking future activity is important to ensure there is not a shift away from CNG vehicles to higher emitting vehicles within the same fleet. The details of the activity level monitoring still need to be worked out and we would like to discuss the draft recordkeeping requirements with you, your staff, PG&E, and CARB to ensure the records provide the enforceable link to the necessary activity monitoring. Ultimately, fleet operator recordkeeping requirements will be in the SIP to ensure accurate records are maintained by the fleet operator.

To conclude, activity monitoring is necessary to ensure there is not a shift in use away from the cleaner vehicles to dirtier vehicles. Overall, the user is responsible to ensure activity is maintained and the fleet operator is required to ensure accurate and truthful records are being maintained and provided to the user for activity verification. The details of the activity level monitoring still need to be worked out with all parties.

7. *PG&E Generating:* Clarify any pre-testing requirements necessary to establish baselines for a marine engine program, including approval of the marine engine testing protocol that has been proposed.

EPA Response: We understand that the CARB has required pre-testing to establish a baseline for the marine vessels. The baseline will be the lower of the expected actual emissions of 20 grams NO_x/bhp-hr (or other metric that better represents the operation of the vessels) or the value obtained by the in-use test. We agree with this approach for establishing the baseline for the marine vessels.

8. *PG&E Generating:* Clarify EPA's minimum expectation for in-use testing beyond what would otherwise be required for such engines pursuant to applicable regulations, provided that the engines have CARB (heavy and medium duty truck engines) or EPA (marine engines) certification.

EPA Response: We defer to CARB's requirements for in-use testing of the on-road certified engines. However, it is our understanding that CARB will not require in-use testing unless it is required of these certified CNG engines in the future. We agree with this requirement.

For the marine vessels, it is our understanding that CARB will require -- and we agree -- that in-use testing of one engine in the fleet will be required every five years; this is because there is presently no EPA certification for these new engines. If EPA certification for the marine vessels is established then the every five year testing requirement is not longer needed.

9. *PG&E Generating:* Specify whether use of cleaner diesel fuels in the marine program would be eligible for credit.

EPA Response: We would consider emission reduction credits valid if these new, cleaner marine engines use cleaner diesel, instead of continuing to use existing diesel. Credit from such a program would be eligible because cleaner diesel will result in actual emission reductions provided the reduction is also surplus, enforceable, quantifiable and enforceable.

10. *PG&E Generating:* Clarify the nature of the records that must be maintained by the fleet operators regarding the operation and use of engines, and the period of time over which such records must be maintained. Specify whether recordkeeping requirements must be contained in the MERC certificate, the Project permit, the agreement between PG&E and the fleet operator, or some combination of the foregoing.

EPA Response: At this time, we generally agree with the recordkeeping requirements you have drafted for the fleet owner in the second section of the framework entitled, "Credit Certificate Terms and Conditions." We will work with all parties to ensure the recordkeeping requirements are sound and provide the necessary link to ensure the conditions for which recordkeeping is required are enforceable as a practical matter. In particular, additional work is necessary to clarify that the records for activity level monitoring are consistent with still unresolved activity requirements.

We require activity to be monitored for 10 years to demonstrate that a shift in demand has not occurred. Records generated for purposes of demonstrating activity level must be maintained for five years. Recordkeeping requirements for the "no backsliding" provision should occur for 20 years. As stated earlier, we are open to discuss this requirement further; for example, we realize that it is highly likely that within the next 7 to 12 years (lifetime of the first generation of vehicles/engines) the NOx emission standards for new diesel engines will be at least as low, if not lower than, the level achieved today by the CNG engines. Recordkeeping requirements on the fleet operator must exist in the portion of the framework that is submitted to us for SIP approval; recordkeeping requirements on the user must exist in the user's permit.

11. *PG&E Generating:* Clarify that timing requirements related to offset generation and

acquisition will be satisfied provided PG&E has contracts with the fleet operators prior to issuance of the determination of compliance, and the replacement engines have been deployed prior to commencement of commercial operation of the Project.

EPA Response: There are three places in Section 173 of the Clean Air Act where Congress addresses the timing requirements for offsets. First, Section 173(a)(1)(A) of the Clean Air Act specifies that the permitting authority may issue a permit to construct and operate to a new source if it determines that by the time the source is to commence operation “offsetting emission reductions have been obtained.” Second, at the end of section 173(a)(1), Congress explicitly requires as a precondition of permit issuance under (a)(1) that offsets, “shall be federally enforceable before such permit may be issued.” Finally, in section 173(c)(1), Congress specifies that the offsetting emission reductions “shall be, by the time a new or modified source commences operation, in effect and enforceable.”

With that, to ensure the reductions are enforceable prior to the source obtaining the PDOC (Preliminary Determination of Compliance, aka Proposed Authority to Construct), and ultimately the final permit, the PDOC must include conditions on how and when the credits will be acquired. Conditions should include, but are not limited to: identifying the vehicle/engine fleets that will be replaced or repowered; the number of vehicles in each fleet; and the amount of credit that will be issued to each vehicle within the fleet. The emission reductions must occur by the time the stationary source commences operation.

Furthermore, for this Project, the District Board must promulgate and submit to EPA the portion of the draft framework they intend to include in the SIP by the time the CEC license is issued. EPA must approve the SIP submitted rule by the time PG&E commences operation. Also, EPA does not recognize contracts as a means by which sources can satisfy the CAA requirements that offsets be federally enforceable.

12. *PG&E Generating:* Address PG&E Generating's ability to sell or use refunded surplus offsets in the event that the company elects to accept a lower enforceable NOx emission rate based on the performance of control technology during an initial demonstration period.

EPA Response: EPA encourages PG&E to push for lower emission rates in the future. To that end, if the permit explicitly outlines how and when the emission reductions will be achieved, then EPA agrees that the unneeded portion of the initial offset package, including the 20% offset ratio, can be sold or used by PG&E for another project if still surplus. If PG&E never builds the plant but had obtained the necessary emission reductions, we would allow the entire amount of offsets, including the 1.2 offset ratio to be sold to other sources for NSR offsets or used by PG&E for another project, if they are still surplus reductions. In either case, if the MERCs are sold, the transfer of the credit must also include the transfer of the specific MERC permit conditions in PG&E's permit to the new owner.

13. *PG&E Generating*: Verify that existing engine blocks need not be destroyed provided that they are transferred outside the County of San Diego or to an engine re-manufacturer.

EPA Response: We agree that the engine blocks do not need to be destroyed provided there is proof they are being sent (sold) to a remanufacturing facility or transferred outside of the District. If engines or vehicles are transferred to the South Coast Air Basin or to any upwind non-attainment area, PG&E must demonstrate that such transfer will not lead to a net increase in NO_x emissions in the upwind area.

14. *PG&E Generating*: Clarify the acceptability of a 2:1 ratio for interpollutant offsets of VOC to NO_x.

EPA Response: Although EPA found in our recent proposed NSR rulemaking that the District's rule 20.3 is deficient because it allows stationary sources to use an interpollutant ratio of 2:1 (two tons of VOC reductions are required for every ton of NO_x emission increase), PG&E and the District can use this ratio at this time because it is legal and acceptable. Even if our final NSR rulemaking (proposed as a limited approval, limited disapproval) finds that this is still a deficiency, it will be SIP approved, and we will work with you to correct the deficiency within 18 months from our final action. Any permit action that relied on the interpollutant ratios contained in the rule during the time it was SIP-approved remain intact.