APPENDIX 4.3-A

AIR QUALITY METHODOLOGY FOR SALT CREEK SUBSTATION PROPONENT'S ENVIRONMENTAL ASSESSMENT (PEA)

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Air Quality Methodology

This section describes the methodology and approach used to calculate emissions associated with construction for the Salt Creek Substation project, including construction of the Salt Creek Substation, 69kV Transmission Line (TL6965), 69kV Loop (TL6910), 12kV Distribution Lines, and construction at the Miguel Substation.

This analysis of air quality impacts used the emission factors from the California Air Resources Board (CARB)'s OFFROAD Model (CARB 2007) for heavy construction equipment, and the ARB's EMFAC2011 Model (CARB 2011) for on-road vehicles. Emission factors from the OFFROAD Model were based on the South Coast Air Quality Management District's (SCAQMD) composite off-road emission factors (SCAQMD 2012) and/or a mix of Tier 2 and Tier 3 equipment. The San Diego Air Pollution Control District does not provide San Diego-specific emission factors from the OFFROAD Model.

The analysis was based on the construction schedule for each project component that was provided by SDG&E. The construction schedule provided a week-by-week schedule for each construction phase and subphase, with an estimated start date, heavy equipment usage, workforce estimates, and truck trips. The construction schedule is provided in Tables A-1 through A-5. These tables provide the basis for the construction emission calculations.

Construction emissions were calculated on a week-by-week basis based on the construction schedule for each project component. The week-by-week construction emission calculations included combustion emissions from three sources: heavy construction equipment, construction truck trips, and worker commutes.

To calculate emissions from heavy construction equipment, the following equation was used:

> Emissions, lbs/day = Number of Equipment x Horsepower of Equipment x Load Factor x Emission Factor (lbs/hp-hr) x Hours/day

The horsepower rating and load factor were based on the CalEEMod Model default ratings for heavy construction equipment. The emission factors for NOx, CO, and PM_{10} were based on the assumption that the mix of heavy construction equipment would be 70% Tier 2 equipment and 30% Tier 3 equipment. Emission factors for VOCs, SOx, CO_2, and CH_4 were based on the SCAQMD's OFFROAD Model factors for the year in which construction would occur.

To calculate emissions from vehicles, the following equation was used:

> Emissions, lbs/day = Number of trips/day x Miles per trip x EMFAC 2011 Emission Factor (grams/mile) x 1 lb/453.59 grams

Tables A-7 through A-368 provide the calculations for each week for each component of the project.

To identify the maximum daily emissions for the entire construction period, weekly emissions were totaled for each of the project components. Because NOx is the main pollutant of concern for heavy construction equipment and truck traffic, the maximum construction scenario was identified based on NOx emissions. The maximum daily emissions of NOx for each week are presented in Table A-369. Emission factors are provided in Tables A-370 and A-371.

Based on the results of the NOx emission calculations, the maximum day during 2014 was identified for the week of November 24, 2014. The maximum day during 2015 was identified for the week of March 30, 2015, and the maximum day during 2016 was identified for the week of January 4, 2016.

Because greenhouse gas emissions are evaluated on an annualized basis, the emission calculations for each week were totaled over the annual time period. The annualized greenhouse gas emissions are presented in Table A-372.

In addition to combustion emissions, the Project would result in fugitive dust emissions. Fugitive dust emissions were calculated using SCAQMD methodologies for earthmoving activities, and were based on the maximum amount of earthmoving that would occur on a daily basis. To estimate the maximum daily emissions, the total earthmoving anticipated was divided by the period during which earthmoving would occur to estimate the average daily amount of earthmoving during construction. For conservative purposes, it was assumed that ten times the average amount of earthmoving could occur on a maximum daily basis. Fugitive dust emission calculations are provided in Tables A-373 and A-374.

The emissions were then totaled as shown in Table A-375. The emissions shown in Table A-375 represent the maximum daily emissions anticipated during the construction period for the Salt Creek Substation Project.