2018 El Mirage Field, Adelanto Airport Expansion
General Atomics Aeronautical Systems Inc. (GA-ASI)

CalEEmod Air Emission Model
Summary for the land development of the Airport Expansion Project

Introduction

During the initial San Bernardino Environmental Study dated September 2017, mitigation and non-mitigation values were determined and estimated but not including the emissions accounts for the land clearing, scraping and grading of the 160 acres dedicated to the eastern airport area that will add 1,382ft and 1,988ft extensions to the runway, a new road approximately 1.2 miles long and assorted building and parking areas that will be scraped, graded and asphalt applied on approximately sixteen (16) acres of the 160 acres that will also be prepared.

We not only applied the CalEEmod emissions model in regards to the operation task that should take less than two months and encompass twenty-five (25) working days, but also include the more conservative values for emissions in the Mojave Desert AQMD MINE program.

The equipment

There are two scraper/graders (one 937 Caterpillar with 1-450hp and 1-250hp DICEs weighing in loaded at 93.54 tons, empty at 56.03 tons for a mean value at 74.8, and one 623 Caterpillar with a 359hp weighing in at 68.82 tons loaded and 41.27 tons empty with a mean of 55.0 tons – averaged speed for both is 11.4mph.

There is one 623 water tender with an 8,000 watertank that will use a proper ratio of surfactants to treat unpaved areas to control the generation of dust, powered by one 300hp DICE, weighing in at 70.3 tons loaded, 39.5 tons empty with a mean value of 54.9 tons. This unit is estimated to carry and distribute ten loads per day of treated water on non-paved areas that are being worked for this project; averaged speed for the tender is also 11.4mph.

There is one Caterpillar 140 blade that is also included. It is powered by one 185hp DICE, weighs in at 46.87 tons loaded, 23.44 tons unloaded with a mean value of 35.2 tons and averaged speed for the blade is also 11.4mph.

The equipment (continued)

There are two bulldozers, one D6 powered by a 139.5 hp DICE weighing in at 10.18 tons, and a D8 powered by a 305hp DICE weighing in at 36.93 tons and averaged speed for the both bulldozers is 5 mph.

All of this equipment listed above will be operating both during the site preparation phase and the grading phase of the project.

It is safe to assume averaged values for all of the scraping and grading of all equipment between trips and mileage, we averaged the mileage travel for all vehicles at 1.64 miles.

There are six units that are used for the paving phase portion of the project. In the CalEEmod model we used the defaulted weights and speed values and averaged for these six units of paving equipment.

Emissions breakdowns

Even though the model emission amounts cover an annual basis, this project will all be covered within one quarter but listed annually. We can break down our mitigated and Un-mitigated emissions accounts in the CalEEmod into six different sections and estimated days required for each section listed below.

1) Demolition (not necessary)
2) Site Preparation – ten days
3) Architectural Coatings (not necessary)
4) Grading – twenty-two days
5) Paving – fourteen days
6) Building construction – fourteen days

SITE PREPARATION

For the Off-Site Construction activities (only listing the sections with emissions)

Mitigated and Unmitigated Emissions for the MDAQMD 100 tpy limit of CO is 0.0294 tons, the 25tpy limit will include ROG at 5.9300e-003 tons, NOx at 0.2479 tons and SO2 at 4.3000e-004, the 15tpy limit for PM10 at 0.0299ton, and the 12tpy limit for PM2.5 is 7.5600e-003ton, all well under the limits for the year even though these rates are for the quarter.

For the On-Site Construction activities (only listing the sections with emissions)

Mitigated and Unmitigated Emissions for the MDAQMD 100 tpy limit of CO is 0.2060tpy, the 25tpy limit will include ROG at 0.0452 tons, NOx at 0.4560 tons and SO2 at 5.1000e-004, the 15tpy limit for PM10 at 0.1874ton, and the 12tpy limit for PM2.5 is 0.0772ton, all well under the limits for the year even though these rates are for the quarter.

Emissions breakdowns

GRADING

For the On-Site Construction activities (only listing the sections with emissions)

Unmitigated and Mitigated Emissions combined for the MDAQMD 100 tpy limit of CO is 0.5594 tons, the 25tpy limit will include ROG at 0.0899 tons, NOx at 1.0477 tons and SO2 at 1.1900e-003, the 15tpy limit for PM10 at 0.1190ton, and the 12tpy limit for PM2.5 is 0.0781ton, all well under the limits for the year even though these rates are for the quarter.

For the Off-Site Construction activities (only listing the sections with emissions)

Unmitigated and Mitigated Emissions combined for the MDAQMD 100 tpy limit of CO is 0.1052tpy, the 25tpy limit will include ROG at 0.0212 tons, NOx at 0.8945 tons and SO2 at 1.5600e-003, the 15tpy limit for PM10 at 0.1080ton, and the 12tpy limit for PM2.5 is 0.0273ton, all well under the limits for the year even though these rates are for the quarter.

PAVING

For the On-Site Construction activities (only listing the sections with emissions)

Unmitigated and Mitigated combined Emissions for the MDAQMD 100 tpy limit of CO is 0.1036 tons, the 25tpy limit will include ROG at 0.0325 tons, NOx at 0.1227 tons and SO2 at 1.6000e-004, the 15tpy limit for PM10 at 6.6900e-003ton, and the 12tpy limit for PM2.5 is 6.1600e-003ton, all well under the limits for the year even though these rates are for the quarter.

For the Off-Site Construction activities (only listing the sections with emissions)

Unmitigated and Mitigated combined Emissions for the MDAQMD 100 tpy limit of CO is 2.5500e-003tpy, the 25tpy limit will include ROG at 5.1000e-004 tons, NOx at 0.1050 tons and SO2 at 3.000e-005, the 15tpy limit for PM10 at 1.6000e-004ton, and the 12tpy limit for PM2.5 is 5.0000e-005ton, all well under the limits for the year even though these rates are for the quarter.

Emissions breakdowns

BUILDING CONSTRUCTION

For the On-Site Construction activities (only listing the sections with emissions)

Unmitigated and Mitigated combined Emissions for the MDAQMD 100 tpy limit of CO is 0.0736 tons, the 25tpy limit will include ROG at 0.0119 tons, NOx at 0.0902 tons and SO2 at 1.1000e-004, the 15tpy limit for PM10 at 5.9900e-003ton, and the 12tpy limit for PM2.5 is 5.6200e-003ton, all well under the limits for the year even though these rates are for the quarter.

EQUIPMENT OPERATIONAL COMBINED

For the On-Site Construction activities (only listing the sections with emissions)

Unmitigated and Mitigated combined Emissions for the MDAQMD 100 tpy limit of CO is 0.2328 tons, the 25tpy limit will include ROG at 0.0543 tons, NOx at 0.5041 tons and SO2 at 8.1000e-004, the 15tpy limit for PM10 at 0.0183ton, and the 12tpy limit for PM2.5 is 0.0175 ton, all well under the limits for the year even though these rates are for the quarter.

OVERALL TOTALS (in tons per year)

ROG	NOx	CO	SO2	PM10	PM2.5
0.517044	6.7559	2.62265	0.000959	0.934084	0.421539

As we can observe thru these findings, all of these emissions are well below the MDAQMD emissions limits (100ton CO, 25 ton for ROG/NOx/SOx, 15 ton for PM and 12 ton for PM2.5.

These emissions accounts listed in this summary, the CalEEMod emissions model, the equipment descriptions and the MDAQMD MINE DOC are true and to the best of my knowledge and expertise. If there are any questions or issues, please call the number below.

Sincerely and the Best of regards,

Chris M. Johnson / AEIC
2075 West Center Street
Chino Valley, AZ 86323
aircmj@aol.com
(661) 917-5565