
MEMORANDUM

TO: Toxics Group
FROM: Ryan Cocchi
SUBJECT: Finalized DICE Stack Parameters
DATE: November 2, 2016

Background

AERSCREEN is currently used by toxics engineers at our District to perform screenings for emergency/standby diesel internal combustion engines (E/S DICE). However, the District is now developing a DICE screening tool using an Excel spreadsheet. The tool requires an average set of stack parameters for each of several engine size bins. This memo summarizes the process by which the average stack parameters were determined.

Summary

DICE stack parameters were taken from our PDE inventory, as well as an older DICE screening project that was conducted in 2009. Stack parameters were determined from the permit applications. The 2009 DICE screening project was also used as a reference for older permitted engines. Engines were grouped into six different size bins based on brake horsepower (bhp): <100, 101-250, 251-500, 501-750, 751-1000 and >1000. Using an Excel spreadsheet, all of the data was compiled and then averaged for those size bins. The maximum and minimum values for each of the stack parameters were also calculated so that the outliers could be removed from the data set.

Attached is a table containing the finalized average stack parameters for each bin size. A total of 174 engines were included in the average set. Each of the bins contained 7-49 different engines as a sample size. The spreadsheets containing the raw data and calculations can be found here: <\\sbcapcd.org\toxics\Project Management\Toxics Tasks\DICE Screening Project>

Notes mentioning “Old DICE Data” in the raw data spreadsheet refer to the old DICE screening project spreadsheet. This spreadsheet can be found here: <\\sbcapcd.org\toxics\AB-2588\DICE\DICE Data Dump>

Average DICE Stack Parameters by Bin Sizes

Engine Size (bhp)	Stack Temp (F)	ID-Stack (in)	Majority Capped or Open	Release Height (ft)	Exhaust Flow Rate (scfm)
<100	992	4.6	Equal	7.1	468
100-251	899	4.1	Capped	7.4	779
251-500	931	5.3	Capped	8.2	1829
501-750	799	8.0	Capped	7.6	2930
751-1000	886	7.3	Capped	10.1	3559
>1000	880	11.5	Capped	11.0	9894