UINTA BASIN ENGINE STUDY AND DATA COLLECTION IMPACT ON EMISSION FACTORS FOR OIL AND GAS EMISSIONS INVENTORY

1.0 Introduction and Background

The Utah Division of Air Quality (UDAQ) has collected a significant amount of emission data associated with pumpjack engines in the Uinta Basin (UB) over the past few years. The data collected indicates that the past emission inventories collected for these engines have significantly underestimated VOC emissions and overestimated NOx emissions. These underestimations are most pronounced for two-stroke lean burn engines (2SLB), which are used widely across the UB to support the operation of lift to pumpjacks. Data was also collected on four-stroke rich burn (4SRB) engines, however, there are fewer of these engines in the UB and their associated emissions represent a less significant source of ozone precursors. To more accurately reflect the emissions from these sources, UDAQ is proposing to establish a UB-specific emission factor to be used in the collection of the 2023 triennial national emission inventory and the Utah state oil and gas inventory collected in accordance with R307-150-8. There are three sources of data utilized by UDAQ to determine a proposed emission factor that are summarized below (data found in Appendix B).

A study was performed by the Utah State University's Bingham Research Center through funds from the Utah Division of Air Quality and the Utah Legislature to look at emissions from pumpjack engines in the Uinta Basin.[1] The study measured a comprehensive suite of pollutants emitted from 58 natural gas-fueled pumpjack engines in January and May 2021, with repeat measurements of five engines in January 2022.

As part of a regional effort to better characterize emissions from pumpjack engines, the United States Environmental Protection Agency (EPA) conducted engine performance testing at several well pads in the UB. The objective of the testing was to evaluate compliance with regulatory emission limits, verify point source pollutant levels used for air quality modeling and emission inventories, assess the effectiveness of engine emission regulatory limits, and evaluate the emissions maintenance practices of individual operations. The engine stack tests were conducted by a third-party contractor. In the aggregate over two phases of engine testing, the EPA and its contractor conducted testing at 136 engines with seven operators through September 2021 and July and August 2022. The sample population was created to reflect the universe of almost 3,400 pumping spark-ignition engines as provided in the 2017 Uinta Basin Emission Inventory.

In accordance with R307-510 many operators have conducted stack testing on engines and submitted that data to UDAQ. The UDAQ received stack test reports from 47 natural gas pumpjack engines with less than 100 hp from operators in the Uinta Basin. The reports included NOx, CO, and VOC emissions. The VOCs in these reports were defined as non-methane and non-ethane VOCs, meaning the methane and ethane concentrations were allowed to be subtracted from the total gas emissions. Even with these

[1] https://documents.deq.utah.gov/air-quality/planning/technical-analysis/DAQ-2022-010925.pdf

subtractions the VOC g-bhp/hr limits identified in Utah Administrative Rules R307-510 were not able to be met by any of the tested engines, while all the engines in this sample were able to show compliance with their NOx and CO limits. The results from this dataset show that natural gas engines under 100 hp have greater VOC emissions than initially assumed in 40 CFR 1048.101(c)(2), which is the emission limit requirement to meet 40 CFR Part 60 Subpart JJJJ for the engines tested. When the assumption in 40 CFR 1048.101(c)(2), that hydrocarbon emissions may be assumed equal to zero for natural gas driven engines less than 100 hp, is not taken into account; the empirical data show non-methane and non-ethane VOCs to be exorbitantly higher than the emission limits stated in R307-510, which reflects the federal limits (40 CFR Part 60 Subpart JJJJ/40 CFR 1048.101(c)(2)) without the assumption that hydrocarbon emissions may be assumed equal to zero.

1.1 Compilation of Data Sets

UDAQ evaluated all sets of data from the above studies performed and attempted to compile all the data into one data set in an effort to establish an emission factor by engine type. However there were differences in both how and when the data was collected and the format of the data in each of the studies. The USU study provided advanced notice and coordination prior to collecting the data. The EPA testing was performed with only notice of the specific engine to be tested the same day of the data collection in an attempt to test the engine in as-found conditions. Stack testing by operators to meet compliance with R307-510 are focused on meeting NOx and CO limits as currently compliance is based upon those pollutants and the JJJJ assumption of hydrocarbons as being zero is applied, therefore engines may have been tuned to meet the NOx standard. This type of engine tune up prior to testing could artificially inflate VOC emissions from the engine.

An important factor in comparing data sets is that the regulatory definition of VOC for inventory collection (see https://www.epa.gov/air-emissions-inventories/what-definition-voc) includes all organic compounds except methane and ethane. All of the USU samples were speciated so that methane and ethane could be separated out. The EPA data was collected as non-methane hydrocarbon (NMHC) meaning that NMHC excluded methane, but still included ethane. The UDAQ stack test data was collected with the methane and ethane excluded, so able to identify the VOCs. To be able to evaluate the three sets of data in terms of VOCs, UDAQ evaluated methodologies to convert the EPA NMHC to VOCs. As the USU study had collected emission rates for individual species in the post-combustion fuel gas, UDAQ utilized that data to create an average VOC-to-NMHC ratio. That ratio was then applied to the EPA's NMHC data to create a proxy VOC emission rate. See Appendix A for a more detailed description of how the ratio was determined.

Campaign	Average (all)	2SLB	4SRB
USU engine exhaust gas composition (n=52) (post-combustion)	0.6518	0.6244 (n=40)	0.7468 (n=12)

Table 1: Average VOC/NMHC ratios by engine type

The chart below represents the average (red diamond) and median (black line) for VOC and NOx emissions respectively in tons per year per study. EPA's VOC emissions are generated from EPA's NMHC emissions multiplied by the VOC/NMHC ratio developed from USU's speciation profiles. The red is EPA data, green UDAQ operator stack test data, and blue USU engine study data.

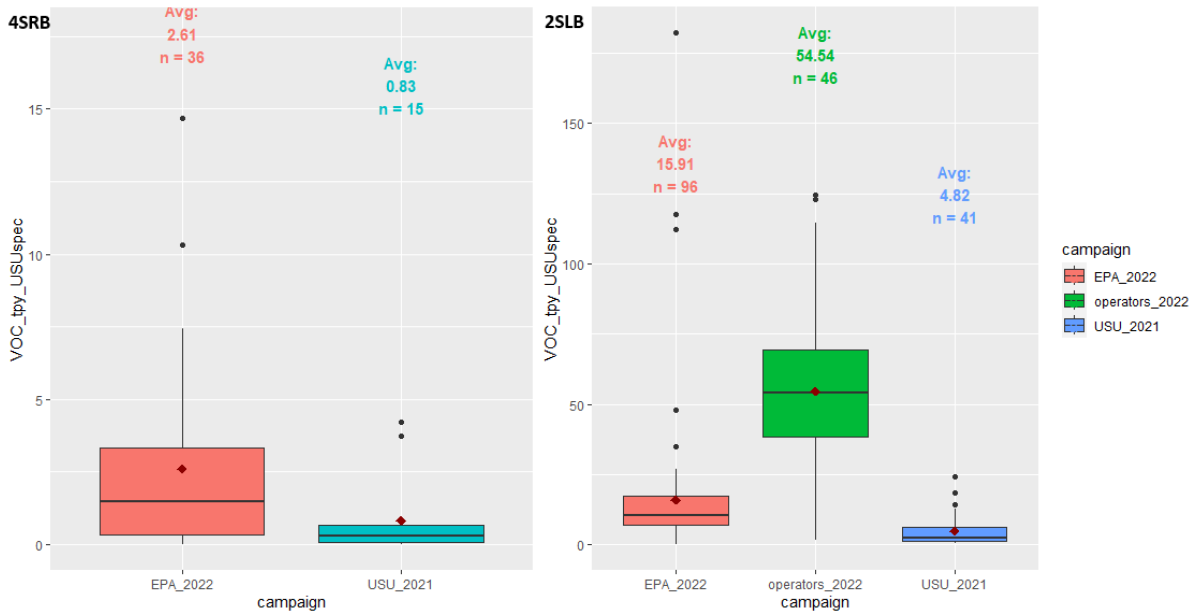


Figure 1: VOC emissions by study (EPA data calculated using USU speciation ratio)

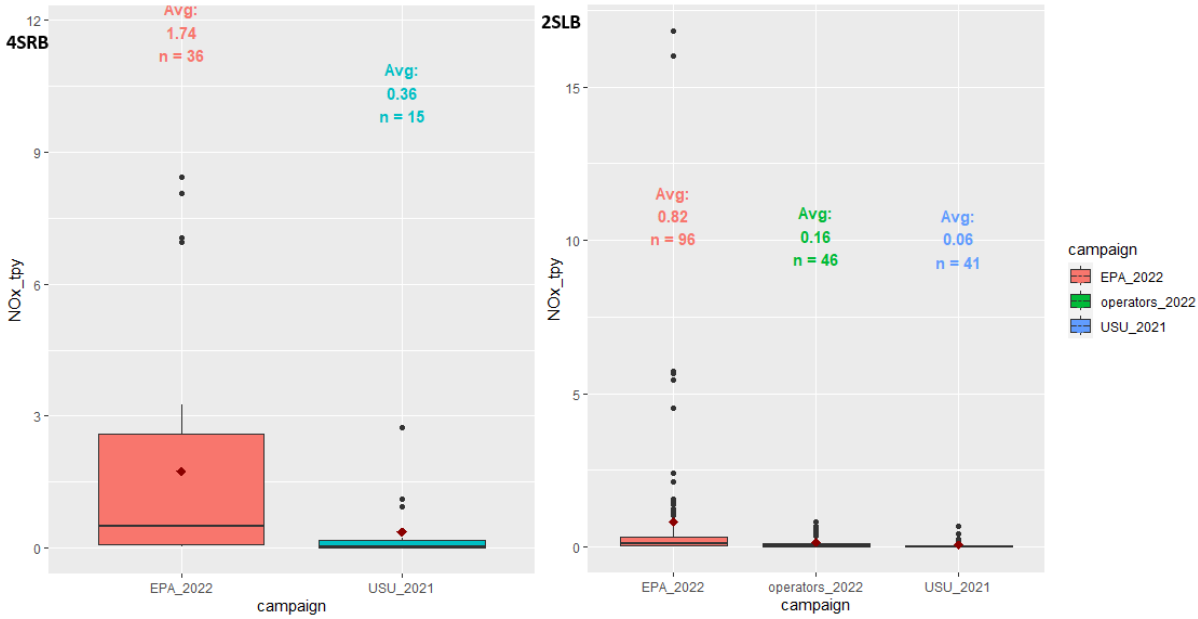


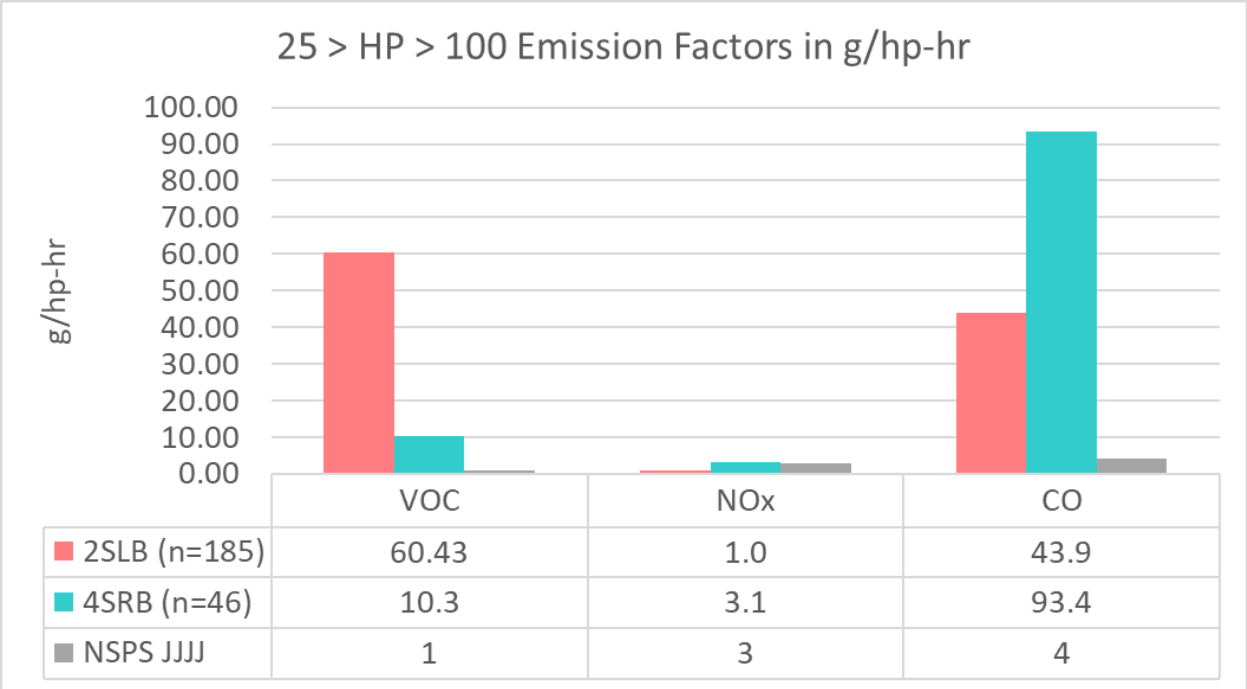
Figure 2: NOx emissions by study

The evaluation of all the engine data collected indicates that the USU study results are consistently the lowest values for both VOCs and NOx, the highest values for VOCs are associated with the UDAQ operator stack testing data and the highest values for NOx are associated with the data collected by EPA. UDAQ acknowledges that is not an 'apples to apples' comparison as the USU study collected measurements of emission rates by multiplying the concentration in the stack gas by the flow rate, which is measured with a pitot tube. The EPA and operator data are obtained by applying concentrations in stack gas to an engineering equation in accordance with EPA reference methods, discussed further in the following section 1.2.

1.2 Determination of Uinta Basin Specific Emission Factor

As seen in the above charts, the three data sets of engine emission data have fairly significant variations in the amount of VOC, NOx and CO that are emitted. The overwhelming conclusion from all three data sets however is that the two stroke lean burn engine emissions of VOCs are significantly underreported and NOx is overreported. The CO emissions are also significantly underreported currently in the emission inventory. Fewer four-stroke rich burn engines are represented in the datasets.

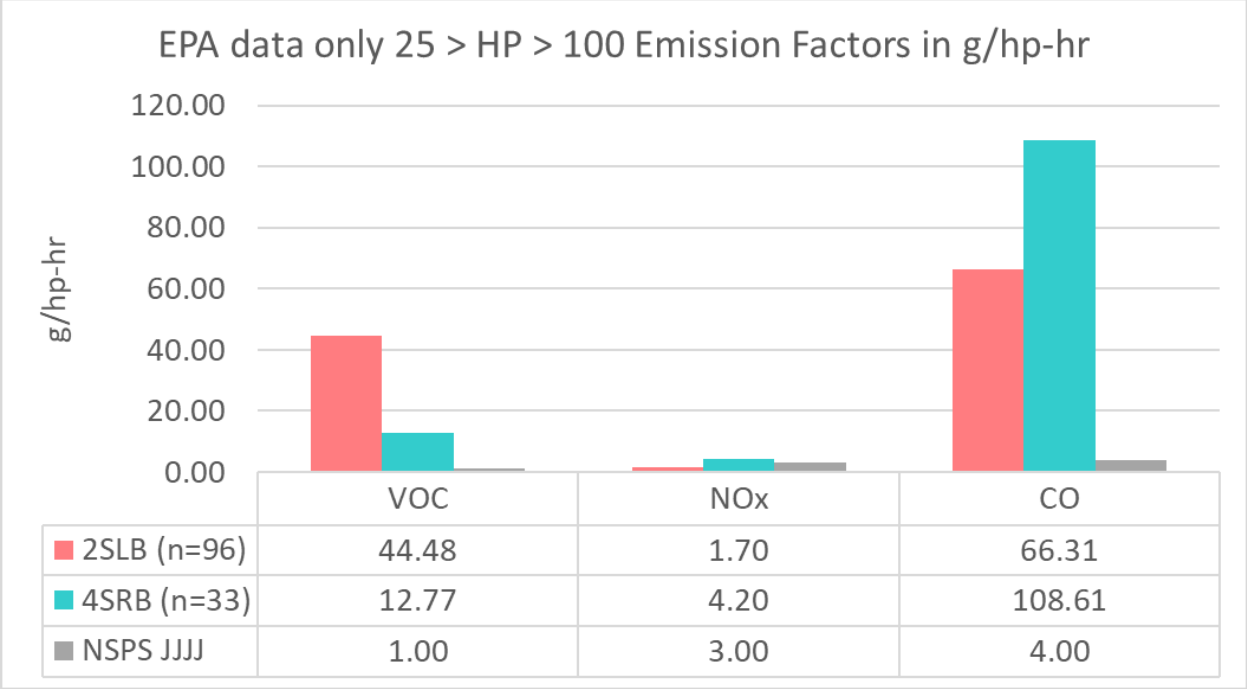
To establish an emission factor, UDAQ first combined all the data for engines between 25 and 100 horsepower, as these are the engines that currently assume hydrocarbons as zero under NSPS JJJJ. The emission factor is expressed in grams per horsepower-hour (g/hp-hr) as that is how compliance with air quality regulations is determined.



	VOC	NOx	CO
2SLB (n=185)	60.43	1.0	43.9
4SRB (n=46)	10.3	3.1	93.4
NSPS JJJJ	1	3	4

Figure 3: Combined VOC, NOx and CO data from all three data sets expressed in g/hp-hr, separated by engine type then compared to the current value utilized in the oil and gas emission inventory workbook (NSPS JJJJ for engines in the 25 to 100 HP range).

In further evaluation, as the VOC values in the three studies were significantly different, combining the three sets of data that were different in collection and analysis was not appropriate to create an emission factor. In an effort to most reasonably reflect the actual emissions from engines operating in the Uinta Basin it was determined that the data from the EPA performance testing would be the most accurate 'as is' data. The USU study was coordinated with operators and perhaps with the advanced notice, engine maintenance or tuning may have occurred. Additionally, the USU study measured the exhaust velocity directly from the exhaust opening; which is not in accordance with Reference Method 1 or Reference Methods 2/2C of 40 CFR Appendix A-1 to Part 60 in measuring exhaust velocities. The exhaust velocities method of measurement in the USU study and this should be considered when observing the different emission rates from each study. The exhaust velocities calculated in the stack testing data submitted to UDAQ and the EPA performance testing was calculated using specific fuel consumption factors and stoichiometric calculations. These calculations are referenced in the EPA approved Portable Analyzer Monitoring Protocol for the State of Colorado; which uses EPA Reference Method 19 as the basis for calculating the emissions. Similarly, the compliance stack testing data submitted to UDAQ may have had a bias as to the engines having been tuned to meet the NOx and CO standards, as hydrocarbons are assumed to be zero and do not have to meet a standard. The data collected by EPA was not pre-coordinated and stack testing was performed on the same day of notification and as such best represents the actual operation of the engine and associated emissions. UDAQ determined that this dataset is most appropriate for annual average emissions inventory applications. Additionally, the EPA dataset represents the largest number of engines. The next chart represents the values with only the EPA stack test data.



	VOC	NOx	CO
2SLB (n=96)	44.48	1.70	66.31
4SRB (n=33)	12.77	4.20	108.61
NSPS JJJJ	1.00	3.00	4.00

Figure 4: VOC, NOx and CO data from only EPA data expressed in g/hp-hr separated by engine type and compared to the current value utilized in the oil and gas emission inventory workbook (NSPS JJJJ for engines in the 25 to 100 HP range).

The UDAQ has determined to use the following emission factors for 2SLB engines in the Uinta Basin; 44.48 g/hp-hr for VOCs, 1.70 g/hp-hr for NOx and 66.31 g/hp-hr for CO. And for 4SRB engines: 12.77 g/hp-hr for VOCs, 4.20 g/hp-hr for NOx and 108.61 g/hp-hr for CO. The same emission factors are represented below in grams per hour (g/hr).

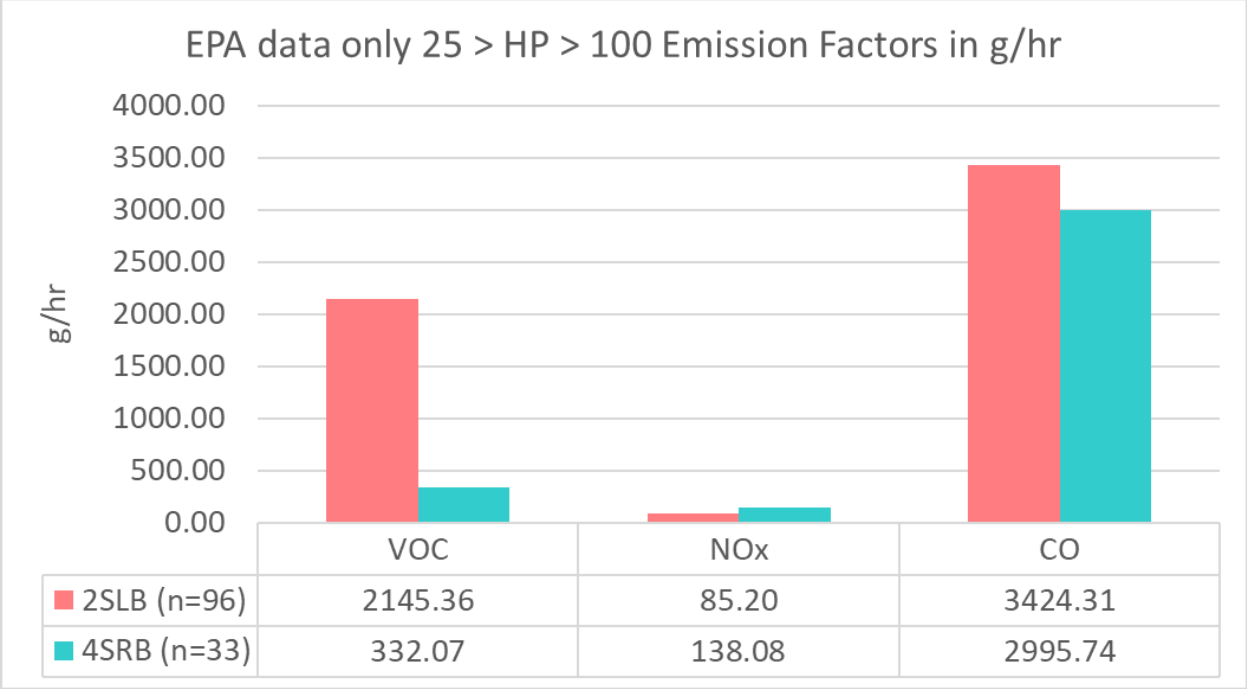
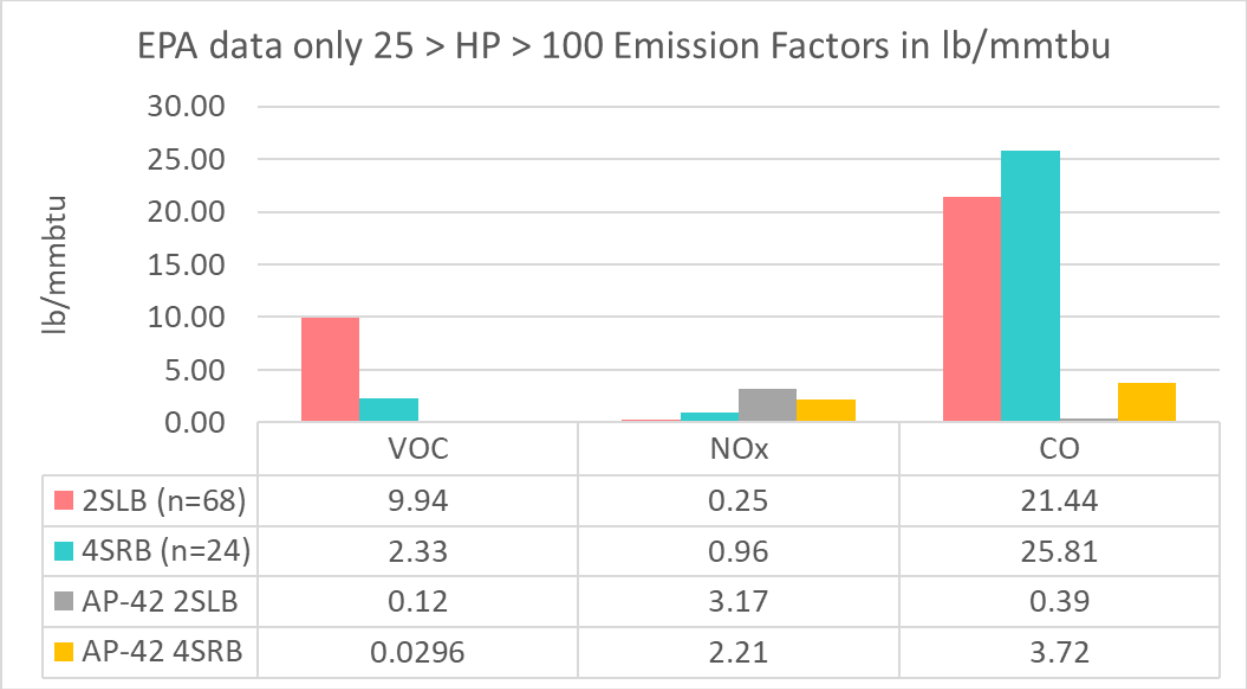


Figure 5: VOC, NOx and CO data from only EPA data expressed in **g/hr** separated by engine type.

In addition to examining NSPS JJJJ engines emission factors, UDAQ compares the engine study emission factor results to AP-42 Chapter 3.2 Natural Gas-fired Reciprocating Engines emission factors. This analysis is limited to engines tested as part of EPA's stack testing campaigns. Results from EPA's campaigns are available in units of g/hp-hr, but AP-42 emission factors are available in units lb/MMBTU. We convert EPA's emission factors for individual engines using heat throughput (MMBTU/yr) submitted by operators in the 2017 oil and gas emissions inventory (OGEI) workbook. Not all engines sampled by EPA could be matched in the 2017 OGEI, so the results below show an average emission factor for all engine emission factors that could be converted from g/hp-hr to lb/MMBTU.

$$lb/MMBTU = g/hphr * engine\ HP * lb/g * hr/yr \div engine\ heat\ throughput$$



	VOC	NOx	CO
2SLB (n=68)	9.94	0.25	21.44
4SRB (n=24)	2.33	0.96	25.81
AP-42 2SLB	0.12	3.17	0.39
AP-42 4SRB	0.0296	2.21	3.72

Figure 6: VOC, NOx and CO data from only EPA data expressed in **lb/MMBTU** separated by engine type, compared to AP-42 Chapter 3.2 emission factors in the same units.

The same pattern appears in which AP-42 emission factors underestimate VOC and CO emissions from Uinta Basin natural gas engines, while over estimating NOx.

2.0 Update to the 2017 Emission Inventory

Though this determination of an emission factor is to be utilized in the 2023 triennial emission inventory collected in 2024, to understand the potential impact to the current emission inventories UDAQ have applied the factors to the 2017 emission inventory. To recalculate the engine emissions, UDAQ took the above emission factors in g/h and applied them to engines that met the following criteria:

- In Duchesne or Uintah County.
- Engine category was “Natural Gas 2-Stroke Lean Burn” or “Natural Gas 4-Stroke Rich Burn”.
- The Engine Type was "4SRB", "Pump" or "Pumping Unit"
- The current EF was not based on a stack test

For each engine that met the above requirements, the new emission factors were applied to calculate updated emissions. The previous methods used that were replaced were NSPS JJJJ, AP 42, and manufacturer specifications. Those that reported emissions based off of a stack test were not replaced.

- 2SLB VOC (TPY)= $\frac{(2145.36 \times annual\ operating\ hours) \times 0.00220462}{2000}$
- 2SLB NOx (TPY)= $\frac{(85.20 \times annual\ operating\ hours) \times 0.00220462}{2000}$
- 2SLB CO (TPY)= $\frac{(3{,}424.31 \times annual\ operating\ hours) \times 0.00220462}{2000}$
- 4SRB VOC (TPY)= $\frac{(332.07 \times annual\ operating\ hours) \times 0.00220462}{2000}$

- 4SRB NOx (TPY)= $\frac{(138.08 \times annual\ operating\ hours) \times 0.00220462}{2000}$
- 4SRB CO (TPY)= $\frac{(2{,}995.74 \times annual\ operating\ hours) \times 0.00220462}{2000}$

There were 2,959 facilities with engines that reported in Duchesne or Uintah county for the 2017 EI. Of the 2,959 facilities, 2,829 met the criteria to be updated, 592 were 4SRB, and 2,237 were 2SLB. The updated numbers show that VOC and CO went up more than an order of magnitude, while the NOx emissions were reduced by a third.

Uinta Basin Engine Study Results			
	VOC TPY	NOx TPY	CO TPY
2017 RICE & Engines V1.89	1,710	7,215	7,450
2017 RICE & Engines Update V1.91	50,795	5,134	99,921
% Increase/Decrease	2870%	-29%	1241%

Table 2: Comparison of current 2017 Uinta Basin oil and gas emission inventory engine emissions to an updated calculation using new emission factors. Note version V1.89 is located at https://documents.deq.utah.gov/air-quality/planning/inventory/DAQ-2020-011090.pdf. V1.90 is a version utilized internally for UDAQ modeling work that is currently in draft and will be updated with V1.91 for future work.

2017 EI V1.91 Uinta Basin Emissions			
	VOC TPY	NOx TPY	CO TPY
Total Emissions	151,813	10,203	102,873
Engine Emissions	50,795	5,134	99,921
Engine % of Total Emissions	33%	50%	97%

Table 3: Showing the calculated emissions from engines in comparison to the total emissions in the Uinta Basin oil and gas emission inventory.

3.0 Conclusion

The three Uinta Basin engine studies have provided a much more comprehensive set of data to evaluate the actual emissions from the engines that are heavily utilized in this area. The use of NSPS JJJJ or AP-42 recommended emission factors do not appear reflective of the reality of how these engines are actually operated on a day-to-day basis. As the emission inventory is the building block to understanding the air quality challenges in the Basin, it is important to reflect the actual conditions representative of average operations throughout the year. The EPA dataset represents many engines at various stages of tuning or repair in as-found conditions, making the dataset an appropriate foundation for emissions inventory emission factor development. The USU study also concluded a similar underestimation of emissions, however noted that there is potentially an overestimation of NOx in the EPA methodology and calculations, and therefore also a potential overestimation of VOCs. At this time UDAQ will utilize the

current EPA methodology to establish an emission factor but understands that this may need further evaluation for future potential rulemaking or regulatory work.

In the past, efforts to model the elevated ozone events in the UB have indicated that there has been an underestimation of VOC emissions in the inventory. These recent engine stack testing campaigns have provided evidence to support that these engines are a significant source of VOCs, including the more reactive VOCs that would support the formation of ozone. The overestimation of NOx emissions from these engines creates an interesting factor to understanding the formation of ozone as ozone production can be sensitive to NOx and VOC emissions, and it is important to accurately represent both pollutants in the emissions inventory. The ability to better reflect actual emissions in the inventory is expected to lead to improved input into the photochemical modeling of high ozone events. Improved modeling reflecting actual conditions will allow regulatory agencies to employ more targeted emission control strategies that will improve air quality in the area while also avoiding potentially costly regulations that may not result in anticipated ozone reductions.

Appendix A

USU generated two speciation profiles for engines: one for 2SLB engines and another for 4SRB engines. These profiles were obtained directly from USU, but will be submitted to EPA's SPECIATE database. See section 5.3 of USU's final report for more composition results.[2] All hydrocarbon species in the table below are considered VOCs except CH4 and Ethane, and all hydrocarbon species are considered NMHC except CH4. Species at the bottom of the table (labeled "not included in ratio") were not included in the VOC/NMHC ratio used in this analysis.

Table: Exhaust Gas Speciation Profiles

Type	**Species**	**Average (all)**	**Average 2SLB**	**Average 4SRB**
Methane	CH4	6.6E-01	6.8E-01	6.2E-01
Ethane (NMHC)	Ethane	1.0E-01	1.1E-01	6.8E-02
VOC (NMHC)	Ethylene	1.3E-02	1.1E-02	2.1E-02
VOC (NMHC)	Propane	6.8E-02	7.4E-02	4.8E-02
VOC (NMHC)	Propylene	3.1E-03	3.2E-03	2.8E-03
VOC (NMHC)	Iso-butane	1.6E-02	1.6E-02	1.6E-02
VOC (NMHC)	N-butane	2.8E-02	2.8E-02	2.5E-02
VOC (NMHC)	Acetylene	4.2E-03	2.4E-03	1.1E-02
VOC (NMHC)	Trans-2-Butene	1.8E-04	1.8E-04	1.5E-04
VOC (NMHC)	1-Butene	1.7E-03	1.3E-03	3.0E-03
VOC (NMHC)	Cis-2-butene	1.4E-04	1.5E-04	9.9E-05
VOC (NMHC)	isopentane	8.3E-03	8.0E-03	9.5E-03
VOC (NMHC)	n-pentane	8.1E-03	7.3E-03	1.1E-02
VOC (NMHC)	trans-2-pentene	1.1E-04	1.1E-04	7.4E-05

[2] https://documents.deq.utah.gov/air-quality/planning/technical-analysis/DAQ-2022-010925.pdf

VOC (NMHC)	1-pentene	2.0E-04	2.1E-04	1.7E-04
VOC (NMHC)	cis-2-pentene	5.5E-05	5.5E-05	0.0E+00
VOC (NMHC)	2,2-dimethylbutane	2.7E-04	2.9E-04	1.6E-04
VOC (NMHC)	cyclopentane/2,3-dimethylbutane	1.8E-03	1.6E-03	2.2E-03
VOC (NMHC)	2-methylpentane	2.3E-03	2.0E-03	3.3E-03
VOC (NMHC)	3-methylpentane	1.2E-03	1.1E-03	1.7E-03
VOC (NMHC)	Isoprene	1.1E-04	1.1E-04	5.0E-05
VOC (NMHC)	1-Hexene	4.4E-04	2.7E-04	1.2E-03
VOC (NMHC)	n-Hexane	3.7E-03	3.1E-03	5.5E-03
VOC (NMHC)	Methylcyclopentane/2,4-dimethylpentane	2.3E-03	2.0E-03	3.0E-03
VOC (NMHC)	Benzene	1.1E-03	1.1E-03	1.3E-03
VOC (NMHC)	Cyclohexane	1.6E-03	1.5E-03	2.1E-03
VOC (NMHC)	2-Methylhexane	1.3E-03	1.3E-03	1.2E-03
VOC (NMHC)	2,3-Dimethylpentane	4.8E-04	5.0E-04	4.5E-04
VOC (NMHC)	3-Methylhexane	1.5E-03	1.6E-03	1.3E-03
VOC (NMHC)	2,2,4-Trimethylpentane	1.3E-04	7.0E-05	3.4E-04
VOC (NMHC)	n-Heptane	3.1E-03	2.9E-03	3.6E-03
VOC (NMHC)	Methylcyclohexane	2.7E-03	2.5E-03	3.1E-03
VOC (NMHC)	2,3,4-Trimethylpentane	2.6E-04	2.8E-04	1.9E-04
VOC (NMHC)	Toluene	1.1E-03	1.1E-03	1.1E-03
VOC (NMHC)	2-Methylheptane	1.2E-03	1.3E-03	1.1E-03
VOC (NMHC)	3-Methylheptane	5.4E-04	5.8E-04	4.5E-04

VOC (NMHC)	n-Octane	1.6E-03	1.4E-03	2.0E-03
VOC (NMHC)	Ethylbenzene	1.6E-04	1.4E-04	2.8E-04
VOC (NMHC)	m/p-Xylene	1.6E-03	1.3E-03	2.2E-03
VOC (NMHC)	Styrene	0.0E+00	0.0E+00	0.0E+00
VOC (NMHC)	o-Xylene	2.6E-04	1.8E-04	4.1E-04
VOC (NMHC)	n-Nonane	7.8E-04	6.9E-04	9.8E-04
VOC (NMHC)	Isopropylbenzene	8.7E-05	1.9E-05	2.2E-04
VOC (NMHC)	n-Propbylbenzene	1.4E-04	4.6E-05	5.3E-04
VOC (NMHC)	m-Ethyltoluene	5.0E-04	3.4E-04	7.3E-04
VOC (NMHC)	p-Ethyltoluene	5.8E-04	3.8E-04	9.9E-04
VOC (NMHC)	1,3,5-Trimethylbenzene	6.2E-04	5.2E-04	7.8E-04
VOC (NMHC)	o-Ethyltoluene	3.6E-04	2.6E-04	9.2E-04
VOC (NMHC)	1,2,4-Trimethylbenzene	2.6E-03	4.2E-04	6.5E-03
VOC (NMHC)	n-Decane	3.2E-04	3.2E-04	0.0E+00
VOC (NMHC)	1,2,3-Trimethylbenzene	7.5E-04	6.6E-04	1.1E-03
VOC (NMHC)	m-Diethylbenzene	9.5E-05	9.5E-05	0.0E+00
VOC (NMHC)	p-Diethylbenzene	8.0E-04	7.5E-04	9.6E-04
VOC (NMHC)	n-Undecane		0.0E+00	0.0E+00
VOC (NMHC)	n-Dodecane		0.0E+00	0.0E+00
(not included in ratio)	Methanol	3.2E-02	1.2E-02	9.4E-02
(not included in ratio)	Ethanol	5.5E-04	2.2E-04	2.2E-03

(not included in ratio)	Isopropanol	3.1E-04	1.4E-04	2.2E-03
(not included in ratio)	formaldehyde	1.2E-02	1.2E-02	1.1E-02
(not included in ratio)	acetaldehyde	1.0E-03	1.0E-03	1.0E-03
(not included in ratio)	acrolein	1.7E-04	2.0E-04	8.8E-05
(not included in ratio)	acetone	4.2E-04	5.2E-04	1.8E-04
(not included in ratio)	propionalehyde	1.8E-04	1.4E-04	3.2E-04
(not included in ratio)	crotonaldehyde	3.6E-05	2.7E-05	7.0E-05
(not included in ratio)	2-butanone (MEK)	5.5E-06	3.3E-06	1.3E-05
(not included in ratio)	methacrolein	1.1E-04	9.0E-05	1.6E-04
(not included in ratio)	butyraldehyde	2.2E-04	2.5E-04	1.6E-04
(not included in ratio)	benzaldehyde	4.1E-05	1.5E-05	1.1E-04
(not included in ratio)	valeraldehyde	4.9E-05	4.2E-05	7.0E-05
(not included in ratio)	tolualdehydes	2.7E-05	1.3E-05	7.0E-05
(not included in ratio)	hexaldehyde	3.8E-05	3.6E-05	4.5E-05
	total	**1**	**1**	**1**

Appendix B

site	type	campaign	operator	make_model	NOx_tpy	CO_tpy	NMHC_tpy	VOC_tpy	VOC_tpy_USUspec
A...5	4SRB	USU_2021	Company A	Vortec GM 43L	2.748494407	0.674312742	0.015535802	0.002834606	0.002834606
A...6	4SRB	USU_2021	Company A	Vortec GM 43L	0.941326188	0.298397261	0.012602046	0.002348241	0.002348241
A...7	2SLB	USU_2021	Company A	Ajax E42	0.008035657	0.364253113	11.53570719	8.755766287	8.755766287
A...8	2SLB	USU_2021	Company A	Ajax E42	0.01512253	0.323282947	11.11779247	7.586787276	7.586787276
A...9	2SLB	USU_2021	Company A	Ajax E42	0.003755676	0.122163942	4.038807933	2.745245453	2.745245453
A...10	2SLB	USU_2021	Company A	Ajax E42	0.009129059	24.00388364	6.209890609	4.850891659	4.850891659
A...11	2SLB	USU_2021	Company A	Ajax E42	0.005274843	0.541189078	6.891591592	4.98273735	4.98273735
A...12	2SLB	USU_2021	Company A	Ajax E42	0.693484379	0.991557727	27.34278652	18.42171666	18.42171666
A...13	2SLB	USU_2021	Company A	Ajax E42	0.002423599	0.247139242	2.145538465	1.306937449	1.306937449
B...14	4SRB	USU_2021	Company B	Arrow C101	0.025026294	13.6718277	0.675568365	0.452896918	0.452896918
B...15	2SLB	USU_2021	Company B	Arrow L795	0.027069847	2.320000787	1.888985947	1.244089253	1.244089253
B...16	2SLB	USU_2021	Company B	Ajax E565	0.129919409	87.90851087	6.94222571	5.190292701	5.190292701
B...17	4SRB	USU_2021	Company B	Arrow C106	0.033024733	25.59774892	0.124581827	0.101928055	0.101928055
B...18	2SLB	USU_2021	Company B	Ajax E42	0.005328295	15.84098919	7.747631503	5.483063125	5.483063125
B...19	4SRB	USU_2021	Company B	Arrow C101	0.00683173	22.70218861	1.240508768	0.873292815	0.873292815
B...20	4SRB	USU_2021	Company B	Arrow C101	0.228633839	1.157774133	0.359949851	0.251457027	0.251457027
B...21	4SRB	USU_2021	Company B	Arrow C101	0.015347909	24.34230183	0.08612153	0.066872423	0.066872423
B...22	4SRB	USU_2021	Company B	Arrow C101	0.01001728	5.405274147	0.857883192	0.608089298	0.608089298
B...23	2SLB	USU_2021	Company B	Ajax E42	0.040513575	1.927890632	38.67463061	24.22931307	24.22931307
B...24	2SLB	USU_2021	Company B	Ajax E42	0.03085098	41.60618793	2.502191055	1.812025935	1.812025935
B...25	4SRB	USU_2021	Company B	Arrow C106	0.018274192	14.17825613	5.729975305	4.227095577	4.227095577
B...26	4SRB	USU_2021	Company B	Arrow C101	0.12192142	2.530120685	NA	NA	NA
B...27	4SRB	USU_2021	Company B	Arrow C101	0.02865927	19.01154089	5.160997326	3.74576013	3.74576013
B...28	4SRB	USU_2021	Company B	Arrow C101	0.043552319	32.56118397	0.895133363	0.690848916	0.690848916
B...29	2SLB	USU_2021	Company B	Arrow L795	0.047447123	10.8562213	NA	NA	NA
B...30	2SLB	USU_2021	Company B	Ajax E42	0.057363623	92.47468226	9.54734884	6.899203931	6.899203931
B...31	4SRB	USU_2021	Company B	Arrow C106	0.00147773	12.95682961	0.486537191	0.308392999	0.308392999
B...32	4SRB	USU_2021	Company B	Arrow C106	1.120698356	8.609673326	0.396869531	0.280555817	0.280555817
B...33	4SRB	USU_2021	Company B	Arrow C101	0.099794839	0.061129504	0.005395477	0.004510304	0.004510304
B...34	2SLB	USU_2021	Company B	Ajax E42	0.254095513	17.51732602	0.853600256	0.506180684	0.506180684
C...35	2SLB	USU_2021	Unknown	Arrow L795	0.012454529	25.40421893	3.173158726	1.799338966	1.799338966
C...36	2SLB	USU_2021	Unknown	Arrow L795	0.021732294	14.32215423	2.661537554	1.362957505	1.362957505
C...37	2SLB	USU_2021	Unknown	Arrow L795	0.042612585	5.701474106	1.179762576	0.668846171	0.668846171
C...38	2SLB	USU_2021	Unknown	Ajax E565	0.017863156	0.207948697	4.229881273	2.207623182	2.207623182
C...39	2SLB	USU_2021	Unknown	Arrow L795	0.025164438	11.07076463	4.51250463	2.486926247	2.486926247
C...40	2SLB	USU_2021	Unknown	Ajax E565	0.01166921	0.141996453	0.977687304	0.550354886	0.550354886
C...41	2SLB	USU_2021	Unknown	Ajax E565	0.008586828	0.11767235	4.103539208	2.379265605	2.379265605
C...42	2SLB	USU_2021	Unknown	Ajax E565	0.002603673	0.29066836	3.871900314	2.077526121	2.077526121
C...43	2SLB	USU_2021	Unknown	Ajax E42	0.20250517	3.098787462	0.909574415	0.50996435	0.50996435
C...44	2SLB	USU_2021	Unknown	Ajax E42	0.022908145	9.25410642	11.696535	6.157551967	6.157551967

C...45	2SLB	USU_2021	Unknown	Ajax DP60	0.013724188	0.590984677	14.88753125	8.671601738	8.671601738
C...46	2SLB	USU_2021	Unknown	Arrow L795	0.079345832	1.224994034	3.547722448	2.108210454	2.108210454
C...47	2SLB	USU_2021	Unknown	Ajax DP60	0.024943853	0.522372521	28.65894534	14.11995119	14.11995119
C...48	2SLB	USU_2021	Unknown	Ajax E565	0.008156663	0.132579423	2.912614626	1.605892122	1.605892122
C...49	2SLB	USU_2021	Unknown	Ajax E565	0.007338483	0.162466977	3.168059283	1.788979035	1.788979035
C...50	2SLB	USU_2021	Unknown	Ajax E42	0.032928132	90.1166814	7.710599623	4.395196912	4.395196912
C...51	2SLB	USU_2021	Unknown	Ajax DP60	0.424433276	0.29139365	16.24548488	8.405125499	8.405125499
C...52	2SLB	USU_2021	Unknown	Ajax DP80	0.006725449	1.292807767	19.80297959	10.85993414	10.85993414
C...53	2SLB	USU_2021	Unknown	Ajax E42	0.013349889	12.7362026	2.313484726	1.236914514	1.236914514
C...54	2SLB	USU_2021	Unknown	Ajax DP60	0.009746557	0.234351172	4.255868988	2.362839283	2.362839283
C...55	2SLB	USU_2021	Unknown	Ajax E42	0.045427498	38.19720246	1.087442468	0.720913713	0.720913713
C...56	2SLB	USU_2021	Unknown	Ajax DP60	0.004572781	1.621744672	24.47433726	12.72269255	12.72269255
C...57	2SLB	USU_2021	Unknown	Ajax DP60	0.001802307	0.28149074	7.889980478	4.133346053	4.133346053
C...58	2SLB	USU_2021	Unknown	Ajax E42	0.056429649	83.93871274	6.987869423	3.877899232	3.877899232
C...59	2SLB	USU_2021	Unknown	Ajax E42	0.011115994	19.96392557	1.255829966	0.704648892	0.704648892
C...60	2SLB	USU_2021	Unknown	Ajax E42	0.109261808	0.601456264	1.495575719	0.804168479	0.804168479
Site 1	2SLB	EPA_2022	Company C	Ajax E565	0.034379148	1.467873726	31.40477209	NA	15.05544774
Site 2	2SLB	EPA_2022	Company C	Ajax E565	0.011588477	3.283401756	39.74847537	NA	19.05541909
Site 3	4SRB	EPA_2022	Company B	Arrow C101	0.07097942	57.68260891	4.022167151	NA	2.358598817
Site 4	4SRB	EPA_2022	Company B	Arrow C101	2.791857199	10.1263973	0.132494918	NA	0.07769502
Site 5	4SRB	EPA_2022	Company B	Arrow C101	0.496855942	36.27048378	0.094639227	NA	0.055496443
Site 6	4SRB	EPA_2022	Company B	Arrow C101	6.955983191	6.293508601	0.73345401	NA	0.430097431
Site 7	4SRB	EPA_2022	Company B	Arrow C101	1.892784542	7.855055848	0.591495169	NA	0.346852767
Site 8	4SRB	EPA_2022	Company B	Arrow C101	0.496855942	36.41244262	0.425876522	NA	0.249733992
Site 9	4SRB	EPA_2022	Company B	Arrow C101	0.127762957	49.66193441	1.632526667	NA	0.957313638
Site 10	2SLB	EPA_2022	Company B	Ajax E42	0.100433465	60.83950312	20.20257786	NA	9.685115827
Site 11	4SRB	EPA_2022	Company B	Arrow C101	0.044953633	56.99647451	4.731961354	NA	2.774822138
Site 12	4SRB	EPA_2022	Company B	Arrow C101	0.080443343	54.53585461	10.8361915	NA	6.354342696
Site 13	2SLB	EPA_2022	Company C	Ajax E565	0.081119337	1.158847679	16.68740657	NA	7.99994271
Site 14	2SLB	EPA_2022	Company C	Ajax E565	0.020859258	1.970041054	28.8553072	NA	13.83323427
Site 15	2SLB	EPA_2022	Company C	Ajax E565	0.031288887	1.583758494	38.3192299	NA	18.37023882
Site 16	2SLB	EPA_2022	Company C	Ajax E565	0.057942384	1.931412798	26.73075312	NA	12.81472305
Site 17	2SLB	EPA_2022	Company C	Ajax E42	0.042491082	67.25179361	9.34803794	NA	4.481449389
Site 18	2SLB	EPA_2022	Company C	Arrow L795	0.301300396	35.40279658	22.34644607	NA	10.71288625
Site 19	2SLB	EPA_2022	Company C	Ajax E565	0.446156356	0.608395031	17.68401557	NA	8.477717067
Site 20	2SLB	EPA_2022	Company C	Ajax E565	5.718913294	0.405596687	21.94278079	NA	10.51936911
Site 21	2SLB	EPA_2022	Company D	Ajax E42	0.133846907	36.90929856	9.247604475	NA	4.433301585
Site 22	2SLB	EPA_2022	Company D	Ajax E42	0.081119337	0.811193375	31.8296829	NA	15.25914998
Site 23	2SLB	EPA_2022	Company E	Arrow L795	0.483336053	38.2274878	18.5174202	NA	8.877251242
Site 24	2SLB	EPA_2022	Company E	Arrow L795	0.081602191	104.4508041	45.44614313	NA	21.78688102
Site 25	2SLB	EPA_2022	Company F	Ajax E565	0.013133607	1.738271518	16.41700878	NA	7.870314009

Site 26	2SLB	EPA_2022	Company F	Arrow L795	1.506501982	22.03259149	21.96982057	NA	10.53233198
Site 27	2SLB	EPA_2022	Company F	Arrow L795	0.483336053	46.19939412	3.201316712	NA	1.534711232
Site 28	2SLB	EPA_2022	Company C	Ajax E42	0.024335801	89.39350992	12.3301393	NA	5.91106878
Site 29	2SLB	EPA_2022	Company C	Ajax E42	0.081119337	58.04088598	7.706337062	NA	3.694417988
Site 30	2SLB	EPA_2022	Company F	Arrow L795	0.200866931	68.67138202	21.71873691	NA	10.41196247
Site 31	2SLB	EPA_2022	Company F	Arrow L795	1.38096015	2.887462132	16.25766722	NA	7.793925667
Site 32	2SLB	EPA_2022	Company C	Ajax E42	0.360981052	1.703506087	3.447571844	NA	1.652765942
Site 33	2SLB	EPA_2022	Company C	Ajax E42	0.073007404	60.96118213	18.77912663	NA	9.002713307
Site 34	2SLB	EPA_2022	Company F	Arrow L795	0.690480075	45.50891404	25.2339082	NA	12.09713559
Site 35	2SLB	EPA_2022	Company F	Ajax E565	0.050216733	1.661015006	27.54194649	NA	13.20360915
Site 36	4SRB	EPA_2022	Company D	NA	0.023186611	38.49450562	8.896087346	NA	5.21666562
Site 37	4SRB	EPA_2022	Company D	Waukesha 135GZU	0.336065827	38.35785816	0.927078143	NA	0.543638623
Site 38	4SRB	EPA_2022	Company D	NA	0.030757749	43.79430233	5.560054591	NA	3.260416012
Site 39	2SLB	EPA_2022	Company E	Ajax E42	0.117623039	36.82817922	9.612641494	NA	4.608300332
Site 40	2SLB	EPA_2022	Company E	Ajax E42	0.052727569	64.97658934	11.55950559	NA	5.541626982
Site 41	2SLB	EPA_2022	Company E	Ajax E42	0.158182708	12.65461665	1.825185094	NA	0.874993734
Site 42	2SLB	EPA_2022	Company E	Arrow L795	0.075325099	121.5244932	40.29892802	NA	19.31930609
Site 43	2SLB	EPA_2022	Company E	Ajax E42	0.109511106	28.67568581	8.395851431	NA	4.024971176
Site 44	2SLB	EPA_2022	Company E	Ajax E42	0.097343205	22.02390013	6.043390644	NA	2.897201475
Site 45	2SLB	EPA_2022	Company E	Ajax E42	0.073007404	93.65227514	18.8196863	NA	9.022157612
Site 46	2SLB	EPA_2022	Company E	Ajax E42	0.105455139	79.09135406	14.52036141	NA	6.961061261
Site 47	2SLB	EPA_2022	Company E	Ajax DP60	0.050969984	1.792351076	28.06149654	NA	13.45268144
Site 48	4SRB	EPA_2022	Company F	Arrow A90	2.903879141	52.0824775	2.060817455	NA	1.208463356
Site 49	4SRB	EPA_2022	Company F	Arrow A90	8.055922779	36.15797898	2.341838017	NA	1.373253813
Site 50	2SLB	EPA_2022	Company E	Ajax E42	0.040559669	98.55999506	12.979094	NA	6.222177664
Site 51	2SLB	EPA_2022	Company E	Ajax DP80	0.023795006	2.75129753	43.20280716	NA	20.71142575
Site 52	2SLB	EPA_2022	Company E	Ajax E42	0.119747593	56.51313846	6.914457815	NA	3.314791077
Site 53	2SLB	EPA_2022	Company E	Ajax DP60	0.045928996	2.184427874	41.33609669	NA	19.81652476
Site 54	4SRB	EPA_2022	Company G	Arrow C106	1.544164532	34.46123284	6.063670478	NA	3.555736368
Site 55	2SLB	EPA_2022	Company H	Arrow L795	0.087879282	114.7452343	27.55643209	NA	13.21055354
Site 56	2SLB	EPA_2022	Company H	Arrow L795	0.150650198	100.1823818	27.05426476	NA	12.96981453
Site 57	2SLB	EPA_2022	Company H	Arrow L795	1.255418318	18.58019111	16.44597997	NA	7.884202798
Site 58	2SLB	EPA_2022	Company H	Arrow L795	0.188312748	90.32734801	30.82051972	NA	14.77535715
Site 59	4SRB	EPA_2022	Company G	Arrow C106	1.318189234	1.920790027	0.86623864	NA	0.507962338
Site 60	4SRB	EPA_2022	Company G	NA	1.064691305	17.8394943	1.632526667	NA	0.957313638
Site 61	4SRB	EPA_2022	Company G	Arrow C96	0.14495253	27.22905762	0.201832637	NA	0.118354659
Site 62	4SRB	EPA_2022	Company B	NA	0.044953633	26.64094242	4.235105412	NA	2.483465814
Site 63	4SRB	EPA_2022	Company B	NA	0.177448551	24.67717846	3.80922889	NA	2.233731821
Site 64	4SRB	EPA_2022	Company B	NA	1.561547247	9.558561935	0.231866106	NA	0.135966285
Site 65	4SRB	EPA_2022	Company B	NA	0.054417556	43.06084832	25.03207556	NA	14.67880911
Site 66	2SLB	EPA_2022	Company B	Arrow L795	0.094156374	69.73848759	11.61261945	NA	5.567089762

Site 67	4SRB	EPA_2022	Company B	NA	0.020584032	27.04315914	12.68165643	NA	7.43652333
Site 68	4SRB	EPA_2022	Company B	NA	2.484279711	18.78588658	0	NA	0
Site 69	4SRB	EPA_2022	Company B	NA	0.21057228	22.45315663	0.307577488	NA	0.180363439
Site 70	4SRB	EPA_2022	Company B	NA	3.099434687	8.138973529	0.022950013	NA	0.013457887
Site 71	4SRB	EPA_2022	Company B	NA	0.03548971	24.34594117	8.209952949	NA	4.81431641
Site 72	4SRB	EPA_2022	Company B	NA	0.07097942	43.36842581	17.60289624	NA	10.32233835
Site 73	4SRB	EPA_2022	Company B	NA	0.075711382	34.82723557	6.719385123	NA	3.940247436
Site 74	4SRB	EPA_2022	Company B	NA	2.649898358	6.033250726	3.407012175	NA	1.997871939
Site 75	4SRB	EPA_2022	Company B	Arrow C106	2.578725797	0.78482959	0.01158558	NA	0.006793784
Site 76	4SRB	EPA_2022	Company B	Arrow C106	2.429234446	32.96284279	5.007960243	NA	2.936667886
Site 77	4SRB	EPA_2022	Company B	NA	0.130128937	25.83650899	2.673558165	NA	1.567774508
Site 78	2SLB	EPA_2022	Company C	Ajax E565	0.579423839	0.733936863	37.43078002	NA	17.94431594
Site 79	2SLB	EPA_2022	Company C	Ajax E565	0.463539071	0.618052095	38.47374293	NA	18.44431236
Site 80	2SLB	EPA_2022	Company C	Ajax E565	16.8419196	23.6791209	245.2121688	NA	117.5547137
Site 81	2SLB	EPA_2022	Company C	Ajax E565	0	5.446584089	0	NA	0
Site 82	2SLB	EPA_2022	Company C	Ajax E565	0	0	0	NA	0
Site 83	2SLB	EPA_2022	Company C	Ajax E565	16.03072622	4.519505946	380.5269494	NA	182.4246195
Site 84	2SLB	EPA_2022	Company C	Ajax E565	0.166101501	0.733936863	18.03939553	NA	8.648086217
Site 85	2SLB	EPA_2022	Company E	Arrow L795	2.410403171	25.73607553	30.56943605	NA	14.65498764
Site 86	2SLB	EPA_2022	Company E	Arrow L795	0.062770916	86.12169664	47.51758335	NA	22.77992946
Site 87	2SLB	EPA_2022	Company E	Ajax DP80	0.01506502	2.576118389	72.61339554	NA	34.81086182
Site 88	2SLB	EPA_2022	Company E	Ajax E565	0.017768998	1.42924547	47.01058749	NA	22.53687564
Site 89	2SLB	EPA_2022	Company E	Ajax E565	0.036310561	0.961843573	42.29794027	NA	20.27763256
Site 90	2SLB	EPA_2022	Company E	Arrow L795	0.075325099	79.15412498	54.17130044	NA	25.96972143
Site 91	2SLB	EPA_2022	Company E	Arrow L795	0.332685854	48.14529251	40.73832443	NA	19.52995273
Site 92	2SLB	EPA_2022	Company E	Ajax DP80	0.016359066	2.75129753	51.0105434	NA	24.4544545
Site 93	2SLB	EPA_2022	Company E	Arrow L795	0.128545179	54.74512318	19.58423606	NA	9.388682765
Site 94	2SLB	EPA_2022	Company E	Ajax E42	0.028391768	0.028391768	9.977678512	NA	4.783299079
Site 95	2SLB	EPA_2022	Company E	Arrow L795	1.493947799	21.59319508	20.902715	NA	10.02076157
Site 96	2SLB	EPA_2022	Company E	Arrow L795	0.182035656	48.58468892	17.63862737	NA	8.455957963
Site 97	2SLB	EPA_2022	Company E	Arrow L795	0.175758565	59.31851555	18.1407947	NA	8.69669698
Site 98	2SLB	EPA_2022	Company E	Arrow L795	0.39545677	57.76807392	30.00449781	NA	14.38415625
Site 99	2SLB	EPA_2022	Company E	Arrow L795	0.087879282	69.48740393	22.59752973	NA	10.83325575
Site 100	2SLB	EPA_2022	Company E	Arrow L795	0.189037028	20.86968784	10.9641476	NA	5.256212359
Site 101	2SLB	EPA_2022	Company E	Ajax DP60	0.020279834	1.755654233	31.3468297	NA	15.02767016
Site 102	2SLB	EPA_2022	Company E	Arrow L795	0.301300396	42.55868099	24.35511538	NA	11.67584231
Site 103	2SLB	EPA_2022	Company E	Ajax E565	0.036696843	0.981157701	32.75676105	NA	15.70359125
Site 104	2SLB	EPA_2022	Company E	Ajax E42	0.029608558	25.10643496	22.67285483	NA	10.86936661
Site 105	2SLB	EPA_2022	Company E	Ajax DP60	0.063736622	2.010600722	19.70041054	NA	9.444376811
Site 106	2SLB	EPA_2022	Company E	Arrow L795	0.13610666	44.99081256	24.57481358	NA	11.78116563
Site 107	2SLB	EPA_2022	Company E	Arrow L795	0.144373107	33.77075277	20.77717317	NA	9.960576818

Site 108	2SLB	EPA_2022	Company E	Ajax L795	0.244806572	0.244806572	7.783593574	NA		3.73145476
Site 109	2SLB	EPA_2022	Company E	Ajax E42	0.039748475	0.039748475	9.40984315	NA		4.511078806
Site 110	2SLB	EPA_2022	Company E	Ajax E42	0.017440658	0.017440658	41.85757815	NA		20.06652296
Site 111	2SLB	EPA_2022	Company E	Ajax E42	0	546.9065734	233.86705	NA		112.1158638
Site 112	2SLB	EPA_2022	Company E	Ajax E565	0.011356707	1.642666584	99.9390238	NA		47.91076801
Site 113	2SLB	EPA_2022	Company E	Ajax E565	0.25958188	1.245181831	44.29115827	NA		21.23318128
Site 114	2SLB	EPA_2022	Company E	Ajax E565	0.016223867	2.242949682	46.44082072	NA		22.26372945
Site 115	4SRB	EPA_2022	Company F	Arrow A90	7.05255383	NA	11.99986771	NA		7.036722426
Site 116	2SLB	EPA_2022	Company E	Ajax E565	0.010139917	2.287565317	21.21270676	NA		10.16937162
Site 117	2SLB	EPA_2022	Company E	Ajax E565	0.029202961	1.508819677	21.29382609	NA		10.20826023
Site 118	2SLB	EPA_2022	Company E	Ajax E565	0.018657448	1.516931611	18.0855563	NA		8.670215688
Site 119	2SLB	EPA_2022	Company F	Arrow L795	0.470781869	0	12.9935796	NA		6.229122058
Site 120	4SRB	EPA_2022	Company F	Arrow A90	8.420959798	21.78923348	1.157881972	NA		0.678981988
Site 121`	2SLB	EPA_2022	Company F	Arrow L795	2.134211141	0	18.70573294	NA		8.967528374
Site 122	2SLB	EPA_2022	Company F	Arrow L795	1.569272898	0	13.87237242	NA		6.650415338
Site 123	2SLB	EPA_2022	Company F	Arrow L795	5.671110827	0	21.32337671	NA		10.22242679
Site 124	2SLB	EPA_2022	Company F	Arrow L795	0.100433465	0	30.63220697	NA		14.68508002
Site 125	4SRB	EPA_2022	Company F	Arrow A90	3.263121922	28.21021532	5.368361871	NA		3.148007401
Site 126	2SLB	EPA_2022	Company F	Arrow L795	0.320131671	1.38096015	9.917804716	NA		4.754595581
Site 127	2SLB	EPA_2022	Company F	Ajax E565	1.042962911	1.197475935	20.47297565	NA		9.814744529
Site 128	2SLB	EPA_2022	Company F	Arrow L795	0.112987649	0.238529481	35.84219299	NA		17.18274732
Site 129	2SLB	EPA_2022	Company F	Arrow L795	4.519505946	0.564938243	29.12570499	NA		13.96286297
Site 130	2SLB	EPA_2022	Company F	Ajax E565	0	1.42924547	42.29794027	NA		20.27763256
Site 131	2SLB	EPA_2022	Company F	Arrow L795	1.134222165	74.93427773	56.40864903	NA		27.04230634
Site 132	2SLB	EPA_2022	Company F	Arrow L795	5.461069685	1.129876487	7.971906322	NA		3.821731891
Site 133	2SLB	operators_2022	Company C	Ajax E565	0.015742006	1.160154261	109.1279257	104.4211689		104.4211689
Site 134	2SLB	operators_2022	Company C	Ajax E565	0.001591162	0.6012626	60.55300305	55.27308739		55.27308739
Site 135	2SLB	operators_2022	Company C	Ajax E565	0.011937132	0.907090812	61.58975778	54.85859008		54.85859008
Site 136	2SLB	operators_2022	Company C	Ajax E565	0.007750398	0.861288518	6.976983353	5.974980407		5.974980407
Site 137	2SLB	operators_2022	Company C	Ajax E565	0.017560293	0.663992509	128.2052708	124.6424564		124.6424564
Site 138	2SLB	operators_2022	Company C	Ajax E565	0.001130855	0.818134753	92.44337874	89.42446072		89.42446072
Site 139	2SLB	operators_2022	Company C	Ajax E565	0.812080495	0.965038749	71.61605256	65.26326469		65.26326469
Site 140	2SLB	operators_2022	Company C	Ajax E565	0.689049404	0.720658086	82.23754519	80.23469973		80.23469973
Site 141	2SLB	operators_2022	Company C	Arrow L795	0.351159941	1.101605554	38.49454631	33.67656202		33.67656202
Site 142	2SLB	operators_2022	Company C	Ajax E565	0.000410034	0.903479977	43.40486943	39.60225266		39.60225266
Site 143	2SLB	operators_2022	Company C	NA	0.034967663	0.499300867	12.5979619	10.0403514		10.0403514
Site 144	2SLB	operators_2022	Company C	Arrow L795	0.106000071	1.490722413	57.32855285	48.5652757		48.5652757
Site 145	2SLB	operators_2022	Company C	Ajax E565	0.000695598	1.170453319	63.22104806	54.35721533		54.35721533
Site 146	2SLB	operators_2022	Company C	Ajax E565	0.000919092	1.312721846	78.37067222	66.24921159		66.24921159
Site 147	2SLB	operators_2022	Company C	Ajax E565	0.554123779	1.491617232	46.43534945	43.39436266		43.39436266
Site 148	2SLB	operators_2022	Company C	Ajax E565	0.023675666	1.083494912	67.09725113	46.51167952		46.51167952

Site 149	2SLB	operators_2022	Company C	Ajax E565	0.030099019	0.948697708	56.61423	49.15093971	49.15093971
Site 150	2SLB	operators_2022	Company C	Ajax E565	0.058530138	0.719878052	132.4765474	123.0350918	123.0350918
Site 151	2SLB	operators_2022	Company C	Ajax E565	0.095203031	0.729630327	44.65548485	38.89632171	38.89632171
Site 152	2SLB	operators_2022	Company C	Ajax E565	0.028549903	1.280007306	73.79600313	55.08405775	55.08405775
Site 153	2SLB	operators_2022	Company C	Ajax E565	0.015659444	1.155643343	108.7618546	104.0864461	104.0864461
Site 154	2SLB	operators_2022	Company C	Ajax E565	0.044257742	0.754045627	83.25947369	79.05124531	79.05124531
Site 155	2SLB	operators_2022	Company C	Ajax E565	0.018477244	0.862042058	84.89092955	74.689115	74.689115
Site 156	2SLB	operators_2022	Company C	Ajax E565	0.001701038	0.469009479	35.77214401	23.64331629	23.64331629
Site 157	2SLB	operators_2022	Company C	Ajax E565	0.488574005	1.165590702	58.04471078	47.48618533	47.48618533
Site 158	2SLB	operators_2022	Company C	Ajax E565	0.815273101	1.301665481	57.24247873	54.06322223	54.06322223
Site 159	2SLB	operators_2022	Company C	Ajax E565	0.476368188	0.83486179	36.65431715	31.10249983	31.10249983
Site 160	2SLB	operators_2022	Company C	Ajax E565	0.000659711	0.924015106	64.24398944	56.99305624	56.99305624
Site 161	2SLB	operators_2022	Company C	Ajax E565	0.093464754	0.849635218	82.944371	74.16172874	74.16172874
Site 162	2SLB	operators_2022	Company C	Ajax E565	0.003273355	1.023791489	15.95418466	12.81565021	12.81565021
Site 163	2SLB	operators_2022	Company C	Ajax E565	0.424314961	0.966460301	75.6366766	70.13076374	70.13076374
Site 164	2SLB	operators_2022	Company C	Ajax E565	0.686650935	0.532660537	59.03395898	54.02906207	54.02906207
Site 165	2SLB	operators_2022	Company C	Ajax E565	0.134302052	0.766258819	43.31328187	37.58297643	37.58297643
Site 166	2SLB	operators_2022	Company C	Ajax E565	0.694131586	0.891843504	46.28529593	40.34843207	40.34843207
Site 167	2SLB	operators_2022	Company C	Ajax E565	0.001657647	1.263769096	47.88311577	42.65367433	42.65367433
Site 168	2SLB	operators_2022	Company C	Ajax E565	0.001409252	0.855839927	128.3874513	114.3916585	114.3916585
Site 169	2SLB	operators_2022	Company C	Ajax E565	0.000256825	0.695017253	60.64954341	54.09396912	54.09396912
Site 170	2SLB	operators_2022	Company C	Ajax E565	0.001098908	0.752782912	25.97678573	22.16454134	22.16454134
Site 171	2SLB	operators_2022	Company C	Ajax E565	0.001331472	1.217071321	79.54076885	70.46712067	70.46712067
Site 172	2SLB	operators_2022	Company C	Ajax E565	0.000197749	0.7517499	57.47153146	54.09463115	54.09463115
Site 173	2SLB	operators_2022	Company F	Arrow L795	0.055161787	0.973354454	41.58843078	33.02740965	33.02740965
Site 174	2SLB	operators_2022	Company F	Arrow L795	0.444930273	0.69248511	21.09253487	17.72659308	17.72659308
Site 175	2SLB	operators_2022	Company F	Arrow L795	0.037118644	1.002244299	48.04924912	37.95739443	37.95739443
Site 176	2SLB	operators_2022	Company F	Ajax E565	0.002204501	0.087176462	2.6467292	1.750048378	1.750048378
Site 177	2SLB	operators_2022	Company F	Ajax E565	0.012228157	0.884304032	76.08628342	66.05864899	66.05864899
Site 178	2SLB	operators_2022	Company C	Ajax E565	0.068730221	0.999014281	56.44040409	45.5531911	45.5531911