

**APPENDIX 1**

**DALLAS- FORT WORTH (DFW) RFP DEMONSTRATION  
SPREADSHEET**

Dallas-Fort Worth and Houston-Galveston-Brazoria Moderate  
Areas Reasonable Further Progress State Implementation  
Plan Revision for the 2015 Eight-Hour Ozone National  
Ambient Air Quality Standard

Project Number 2022-023-SIP-NR

**Appendix 1 - Sheet 1**

Dallas Fort-Worth 2015 Eight-Hour Ozone Nonattainment Area  
 Nine Nonattainment Counties: Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Tarrant, Wise  
 Reasonable Further Progress Demonstration with MOVES3 Calculation Spreadsheet

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**Appendix 1 - Sheet 2**

2023 RFP Demonstration Analysis with MOVES3

DFW 2015 Eight-Hour Ozone Nonattainment Area

Nine Nonattainment Counties: Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Tarrant, Wise

2023 RFP Demonstration Analysis with MOVES3: To determine if the 2023 RFP requirements are met, the 2023 target level of emissions is compared to the 2023 controlled forecast inventory. The 2023 forecast inventory includes growth between the 2017 base year and the 2023 attainment year. The controlled forecast inventory has been reduced by subtracting the RFP control reductions from 2017 to 2023. If the 2023 controlled forecasted RFP EI is less than the 2023 RFP target level of emissions the 2023 RFP requirement is satisfied.

Line #	Description	NO <sub>x</sub> (tpd)	VOC (tpd)
Line 1	Uncontrolled or existing controlled Nine-county DFW 2023 emissions forecast with growth	1598.36	1284.96
Line 2	Creditable nine-county DFW RFP control reductions between 2017 and 2023	1392.77	891.33
Line 3	Controlled nine-county DFW 2023 RFP emissions forecast (Line 1 minus Line 2)	205.59	393.63
Line 4	Amount of NOX reduction substitution (see Sheet 3)	0.00	0.00
Line 5	Controlled nine-county DFW 2023 RFP forecast without reductions reserved for contingency and accounting for NOX substitution (Line 3 plus Line 4)	205.59	393.63
Line 6	Nine-county DFW 2023 RFP target level of emissions	242.77	397.15
Line 7	Excess (+) / Shortfall (-) (Line 6 minus Line 5)	37.18	3.52
<b>Line 8</b>	<b>Is controlled RFP EI less than target level of emissions?</b>	<b>Yes</b>	<b>Yes</b>

## Notes:

- 1) To calculate the RFP controlled forecast for each milestone/attainment year, the total RFP creditable control strategy reductions to date (total RFP reductions from 2017 to the current RFP milestone year) are subtracted from the total uncontrolled RFP EI.
- 2) To calculate the final excess or shortfall for each milestone/attainment year, the controlled RFP emissions forecast is subtracted from the RFP target level of emissions. The RFP target level of emissions for all milestone years is calculated on the "Calc Targets" page.
- 3) Excess emissions reductions (Line 7) may be used to provide a transportation conformity safety margin. The safety margin must be less than or equal to the excess emissions reductions.

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**Appendix 1 - Sheet 3**

2023 RFP NOX Substitution Analysis with MOVES3

DFW 2015 Eight-Hour Ozone Nonattainment Area

Nine Nonattainment Counties: Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Tarrant, Wise

The NO<sub>x</sub> substitution calculation includes six steps. First, calculate the percent target reduction for both VOC and NO<sub>x</sub> by comparing the base year and target inventories. Second, calculate the percent actual reduction by comparing the base year and the actual inventory. Third, compare the percent required reduction to the percent actual reduction. If the percent actual reduction is greater than the percent required, then there are surplus reductions. If the percent actual reduction is less than the percent target, then there is a shortfall of reductions. The difference between the percent actual and the percent target reduction (when there are surplus reductions) is the amount that is available for substitution. For the fourth step, determine the percent NO<sub>x</sub> needed for substitution. The minimum base year VOC percentage needed is equal to the percent base year shortfall in VOC plus the smallest increment possible, or 0.01. The respective NO<sub>x</sub> percent is calculated using the NO<sub>x</sub> base year inventory. The percent base year NO<sub>x</sub> transfer should not exceed the percent base year NO<sub>x</sub> surplus. The percent NO<sub>x</sub> available to transfer is based upon the base year because the base year is the basis for the required reduction calculations. Fifth, convert the percent base year NO<sub>x</sub> to a percent target NO<sub>x</sub> using the percent base year NO<sub>x</sub> from step 5 and the relative values of the base year and target NO<sub>x</sub> inventory. The percent NO<sub>x</sub> transfer is derived from milestone year target values because those are the values modified by NO<sub>x</sub> transfer. The percent NO<sub>x</sub> transfer is a percentage of the milestone year target NO<sub>x</sub> value that is added back into the NO<sub>x</sub> inventory and a percentage of the milestone year target VOC that is subtracted from the VOC inventory. For the sixth step, calculate the resulting tons per day (tpd) associated with the percent NO<sub>x</sub> transfer. For NO<sub>x</sub>, multiply the NO<sub>x</sub> percent transfer and the NO<sub>x</sub> milestone year target value. For VOC, multiply the percent NO<sub>x</sub> transfer (which is the same as the percentage of the milestone year target VOC that is subtracted from the VOC inventory) and the VOC milestone year target value. The NO<sub>x</sub> transfer amount (in tpd) is added to the NO<sub>x</sub> actual (in tpd) inventory in the RFP demonstration calculation, and the VOC transfer amount (in tpd) is subtracted from the VOC actual (in tpd) inventory.

Line #	Description	NO <sub>x</sub>	VOC
Line 1	2017 base year emissions (tpd)	263.02	428.43
Line 2	2023 controlled RFP EI (tpd)	205.59	393.63
Line 3	Total actual reductions for 2017 to 2023 (Line 1 minus Line 2) (tpd)	57.43	34.80
Line 4	Percent actual reductions for 2017 to 2023 (percent Line 3 is of Line 1) (%)	21.83	8.12
Line 5	2023 target RFP EI (tpd)	242.77	397.15
Line 6	2023 total target reductions for 2017 to 2023 (Line 1 minus Line 5) (tpd)	20.25	31.28
Line 7	Percent target reductions for 2017 to 2023 (percent Line 6 is of Line 1) (%)	7.70	7.30
Line 8	Percent surplus or shortfall (percent actual minus percent target, Line 4 minus Line 7) (%)	14.14	0.82
Line 9	Percent surplus to transfer (NO <sub>x</sub> percentage should be less than Line 8) (%)	0.00	0.00
Line 10	Convert the percent surplus to transfer to tons per day (tpd)	0.00	Only NOx Value Needed
Line 11	Calculate what percentage Line 10 is of target (this is the percentage to transfer) (%)	0.00	0.00
<b>Line 12</b>	<b>Tons equivalent to percent for transfer [Line 5 times (Line 10 divided by 100)] (tpd)</b>	<b>0.00</b>	<b>0.00</b>
Line 13	NO <sub>x</sub> substitution amount okay? (Check to assure NO <sub>x</sub> substitution does not exceed maximum available: Sheet 02, Line 9 must be greater than zero)	Okay to Substitute	Okay to Substitute

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Appendix 1 - Sheet 4

2024 Contingency Demonstration with MOVES3 for RFP  
 DFW 2015 Eight-Hour Ozone Nonattainment Area  
 Nine Nonattainment Counties: Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Tarrant, Wise

Summary 2024 Contingency for 2023 RFP

Contingency Element Description	NO <sub>x</sub>	VOC
Nine-County DFW 2017 Base Year (BY) EI	263.02	428.43
Percent for contingency calculation (total of 3%)	1.50	1.50
Required contingency reductions between 2023 and 2024 (BY emissions inventory multiplied by contingency percent; Line 1 multiplied by Line 2)	3.95	6.43
<b>Control reductions to meet contingency requirements</b>		
Excess reductions from 2023 RFP demonstration	37.18	3.52
Subtract 2023 RFP demonstration motor vehicle emissions budget (MVEB) safety margin from excess reductions from 2023 RFP demonstration	-7.25	-3.34
2023 to 2024 emissions reductions due to federal Motor Vehicle Control Program (FMVCP), inspection and maintenance (I/M), reformulated gasoline (RFG), East Texas Regional Low RVP, 2017 Low Sulfur Gasoline Standard and on-road TxLED. (Note: RFG is required, and modeled, only in Collin, Dallas Denton and Tarrant counties; Texas Regional Low RVP is modeled only for the non-RFG counties, Ellis, Johnson, Kaufman, Parker, and Wise.)	26.33	15.22
2023 to 2024 emissions reductions due to federal non-road mobile new vehicle certification standards, non-road RFG, and non-road TxLED. (Note: RFG is required, and modeled, only in Collin, Dallas Denton and Tarrant counties; Texas Regional Low RVP is modeled only for the non-RFG counties, Ellis, Johnson, Kaufman, Parker, and Wise.)	3.33	3.66
<b>Total RFP demonstration contingency reductions</b>	<b>59.59</b>	<b>19.06</b>
<b>Contingency Excess (+) or Shortfall (-)</b>	<b>55.64</b>	<b>12.63</b>

If changes are made to the enter reductions page, please assure the control reduction summary values above are consistent with the table below. The enter reductions page allows for the control reduction for a row to change. The table above adds particular rows from below.

Contingency Element Description	NO <sub>x</sub>	VOC
DFW 2017 Base Year EI	263.02	428.43
Percent for contingency calculation (total of 3%)	1.50	1.50
<b>2023 to 2024 RFP required contingency reductions (BY EI x (contingency percent))</b>	<b>3.95</b>	<b>6.43</b>
Calculate available reductions to meet contingency requirements: add excess 2023 control reductions; subtract MVEB safety margin adjustment; and add each 2023 to 2024 control reduction		
Excess reductions from 2023 RFP demonstration	37.18	3.52
Subtract 2023 RFP MVEB safety margin from excess reductions from 2023 RFP demonstration	-7.25	-3.34
Chapter 117 NOX controls	0.00	0.00
Chapter 115 Storage Tank Rule	0.00	0.00
Coating / printing rules	0.00	0.00
Portable fuel containers	0.00	0.00
Federal Motor Vehicle Control Program (FMVCP)	28.55	15.50
Reformulated Gasoline (RFG)/East Texas Regional Low RVP conventional gasoline (CG)/Tier 3 Sulfur Gasoline/Ultra Low Sulfur Diesel	-1.85	-0.23
Inspection and Maintenance (I/M)	-0.25	-0.05
On-road TxLED	-0.12	0.00
Tier I and II locomotive NOX standards	0.00	0.00
Small non-road spark ignition (SI) engines (Phase I)	-0.16	1.19
Heavy duty non-road engines	-0.09	0.01
Tiers 2 and 3 non-road diesel engines	-0.14	-0.04
Small non-road SI engines (Phase II)	0.11	1.03
Large non-road SI & recreational marine	2.20	0.70
Non-road TxLED	-0.03	0.00
Non-road RFG	0.00	0.01
Tier 4 non-road diesel engines	1.32	0.28
Diesel recreational marine	0.00	0.00
Small SI (Phase III)	0.12	0.48
Chapter 117 NOX area source engine controls	0.00	0.00
Drilling Rigs: Federal Engine Standards and Texas Low Emission Diesel	0.00	0.00
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<b>Total 2024 RFP contingency reductions</b>	<b>59.59</b>	<b>19.06</b>
<b>Contingency Excess (+) or Shortfall (-)</b>	<b>55.64</b>	<b>12.63</b>
<b>Are contingency reductions equal to or greater than required contingency reduction?</b>	<b>Yes</b>	<b>Yes</b>

Note 1: The nine county DFW area includes counties with federal RFG and counties with Texas Regional Low RVP. The four counties with RGF are: Collin, Dallas Denton and Tarrant. The five counties with East Texas Regional Low RVP are: Ellis, Johnson, Kaufman, Parker, and Wise.

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**Appendix 1 - Sheet 5**

2024 Contingency Demonstration with MOVES3 for 2023 Attainment  
 Nine Nonattainment Counties: Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Tarrant, Wise

**Summary 2024 Contingency for 2023 Attainment Demonstration**

Contingency Element Description	NO <sub>x</sub>	VOC
DFW 2017 base year (BY) emissions inventory (EI)	263.02	428.43
Percent for contingency calculation (total of 3%)	1.50	1.50
2023 to 2024 AD required contingency reductions (BY EI x (contingency percent))	<b>3.95</b>	<b>6.43</b>
<b>Control reductions to meet contingency requirements</b>		
Excess reductions from 2023 attainment demonstration	0.00	0.00
Subtract reductions reserved for 2023 attainment demonstration MVEB safety margin	0.00	0.00
Federal Motor Vehicle Control Program (FMVCP), inspection and maintenance (I/M), reformulated gasoline (RFG), East Texas Regional Low RVP, 2017 Low Sulfur Gasoline Standard and on-road TxLED (Note: RFG is required, and modeled, only in Collin, Dallas Denton and Tarrant counties; Texas Regional Low RVP is modeled only for the non-RFG counties, Ellis, Johnson, Kaufman, Parker, and Wise.)	26.33	15.22
Federal non-road mobile new vehicle certification standards, non-road RFG, and non-road TxLED (Note: RFG is required, and modeled, only in Collin, Dallas Denton and Tarrant counties; Texas Regional Low RVP is modeled only for the non-RFG counties, Ellis, Johnson, Kaufman, Parker, and Wise.)	3.33	3.66
<b>Total attainment demonstration contingency reductions</b>	<b>29.66</b>	<b>18.88</b>
<b>Contingency Excess (+) or Shortfall (-)</b>	<b>25.71</b>	<b>12.45</b>

If changes are made to the enter reductions page please assure the control reduction summary values above are consistent with the table below. The enter reductions page allows for the control reduction for a row to change. The table above adds particular rows from below.

**Nine Nonattainment Counties: Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Tarrant, Wise**

Contingency Element Description	NO <sub>x</sub>	VOC
2017 BY EI	263.02	428.43
Percent for AD contingency calculation (total of 3%)	1.50	1.50
<b>2023 to 2024 required AD contingency reductions (BY EI x (contingency percent))</b>	<b>3.95</b>	<b>6.43</b>
<b>Control reductions to meet contingency requirements</b>		
Add excess reductions from 2023 attainment demonstration	0.00	0.00
Subtract 2023 attainment demonstration MVEB safety margin	0.00	0.00
Chapter 117 NOX controls	0.00	0.00
Chapter 115 Storage Tank Rule	0.00	0.00
Coating / printing rules	0.00	0.00
Portable fuel containers	0.00	0.00
Federal Motor Vehicle Control Program (FMVCP)	28.55	15.50
Reformulated Gasoline (RFG)/East Texas Regional Low RVP conventional gasoline (	-1.85	-0.23
Inspection and Maintenance (I/M)	-0.25	-0.05
On-road TxLED	-0.12	0.00
Tier I and II locomotive NOX standards	0.00	0.00
Small non-road spark ignition (SI) engines (Phase I)	-0.16	1.19
Heavy duty non-road engines	-0.09	0.01
Tiers 2 and 3 non-road diesel engines	-0.14	-0.04
Small non-road SI engines (Phase II)	0.11	1.03
Large non-road SI & recreational marine	2.20	0.70
Non-road TxLED	-0.03	0.00
Non-road RFG	0.00	0.01
Tier 4 non-road diesel engines	1.32	0.28
Diesel recreational marine	0.00	0.00
Small SI (Phase III)	0.12	0.48
Chapter 117 NOX area source engine controls	0.00	0.00
Drilling Rigs: Federal Engine Standards and Texas Low Emission Diesel	0.00	0.00
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<b>Total attainment demonstration contingency reductions</b>	<b>29.66</b>	<b>18.88</b>
<b>Contingency Excess (+) or Shortfall (-)</b>	<b>25.71</b>	<b>12.45</b>

Note: Row 60 is for Q/A

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**Appendix 1 - Sheet 6**

Calculations: 2023 RFP MVEBs with MOVES3

DFW Nonattainment Area 2015 Eight-Hour Ozone Season VOC and NOX (tons per day)

Nine Nonattainment Counties: Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Tarrant, Wise

**Summary 2023 MVEB**

Description	NO <sub>x</sub>	VOC
2023 on-road emissions projection without post-1990 FCAA controls	1333.33	753.54
2023 on-road mobile source RFP control reductions	1263.52	715.81
2023 On-road mobile controlled inventory	69.81	37.73
Transportation conformity safety margin	7.25	3.34
Excess emissions reduction for 2023	37.18	3.52
Is excess emissions enough for safety margin?	yes	yes
<b>2023 Nine-County DFW MVEB with safety margin</b>	<b>77.06</b>	<b>41.07</b>

Note: If safety margin is > than excess emission reductions modify percent safety margin input on the "Enter % for RFP Cont & Conf SM" page.

Notes:

1) If there are excess RFP control reductions, a transportation conformity safety margin is allowed. The transportation conformity safety margin for this SIP revision is calculated based upon a percentage of excess emissions. Control of the safety margin options and calculation of the NOx and VOC values is done on the "Enter % RFP Cont & Conf SM" sheet of this spreadsheet. If changes are needed for the Safety Margin, go to the "Enter % RFP Cont & Conf SM" sheet.

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**Appendix 1 - Sheet 7**

Quantify the Reductions to Meet the Initial 15%, the 3% per Year and Contingency Requirements with MOVES3  
DFW 2015 Eight-Hour Ozone Nonattainment Area  
Nine Nonattainment Counties: Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Tarrant, Wise

The Initial 15%, the 3% per Year and Contingency Requirements: The FCAA mandates that an initial 15%, plus a 3% per year starting in year seven, VOC reduction, net of growth, occur from the baseline year 2017 through the attainment year. The reductions must be demonstrated for the six-year period from baseline 2017 through 2023. NO<sub>x</sub> may be substituted for VOC for the counties designated nonattainment under the one-hour, 1997 eight-hour standard, and 2008 eight-hour standards from the baseline 2017 through 2023. An additional 3% reduction must be demonstrated as a contingency measure for the one-year period following the attainment year, 2023. The division of the percent reductions between VOC and NO<sub>x</sub> are entered in the data entry sheet with tab name "Enter % for RFP Cont & Conf SM."

**Calculation of Required 15% VOC Reductions and 3% per Year NO<sub>x</sub> and VOC Reductions**

RFP Analysis Year	Total Percent Reduction Requirement	Percent NO <sub>x</sub>	Percent VOC	RFP BY EI NO <sub>x</sub> (tpd)	RFP BY EI VOC (tpd)	Required Reductions NO <sub>x</sub> (tpd)	Required Reductions VOC (tpd)
2017	N/A	N/A	N/A	263.02	428.43	N/A	N/A
2023	15.0	7.7	7.3	263.02	428.43	20.25	31.28
2024 Contingency	3.0	1.5	1.5	263.02	428.43	3.95	6.43

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**Appendix 1 - Sheet 8**

Target Calculations with MOVES3: 2023 RFP Target Level of NO<sub>x</sub> and VOC Emissions

DFW 2015 Eight-Hour Ozone Nonattainment Area

Nine Nonattainment Counties: Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Tarrant, Wi

Post-2017 target level of NO<sub>x</sub> emissions: The NO<sub>x</sub> target level is calculated by subtracting the redu

<b>RFP Post-2017 Target Level of NO<sub>x</sub> Emissions</b>			
<b>RFP Milestone Year</b>	<b>Previous Target</b>	<b>Post-2017 Percent Reduction Requirement NO<sub>x</sub> (tpd)</b>	<b>NO<sub>x</sub> Target (tpd)</b>
2017 Base Year	N/A	N/A	263.02
2023	263.02	20.25	242.77

Post-2017 target level of VOC emissions: The VOC target level is calculated by subtracting the red

<b>RFP Post-2017 Target Level of VOC Emissions</b>			
<b>RFP Milestone Year</b>	<b>Previous Target</b>	<b>Post-2017 Percent Reduction Requirement VOC (tpd)</b>	<b>VOC Target (tpd)</b>
2017 Base Year	N/A	N/A	428.43
2023	428.43	31.28	397.15

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**Appendix 1 - Sheet 09**

Enter RFP NO<sub>x</sub> and VOC Percentage Reductions, Contingency Percents and Safety Margin

DFW 2015 Eight-Hour Ozone Nonattainment Area

Nine Nonattainment Counties: Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Tarrant, Wise

A 15% reduction is required for DFW for the period from the baseline 2017 through 2023. Input percentage of NO<sub>x</sub> and VOC reductions to be used to demonstrate RFP for 2023. Only a NO<sub>x</sub> value needs to input. The VOC percent will be calculated automatically based upon the total required and the percent NO<sub>x</sub> to be used.

<b>RFP NO<sub>x</sub> and VOC Percent Reductions for Milestone and Attainment Years</b>			
RFP Milestone Year	NO <sub>x</sub> %	VOC %	Total Percent
2023	7.7	7.3	15

A 3% contingency is required for the RFP attainment contingency for 2023 to 2024. A 3% contingency is also required for the attainment demonstration for 2023 to 2024. The contingency reductions can be from NO<sub>x</sub> or VOC. Input only the percent of the contingency reductions that will be from NO<sub>x</sub>. The VOC value will be calculated automatically as 3 minus the NO<sub>x</sub> percent.

<b>RFP and Attainment Demonstration NO<sub>x</sub> and VOC Percent Reductions for 2023 to 2024 Contingency</b>			
Contingency Year	NO <sub>x</sub> %	VOC %	Total Percent
RFP 2023 Milestone Contingency	1.5	1.5	3
AD 2023 to 2024	1.5	1.5	3

If there are excess RFP control reductions, a transportation conformity safety margin is allowed. The safety margin for this SIP revision is calculated based upon a percentage of excess emissions. If a safety margin will be used, enter the percentage of excess VOC and NO<sub>x</sub> emissions to be used below. The safety margin amount must be less than or equal to the excess reductions after demonstrating RFP. The percentage entered must be between 0 and 100. An error message will appear if a value over 100 is entered. Adjusting the safety margin below will automatically update the MVEB calculation to include the percent of excess emissions entered. For reference, the corresponding percent of the MVEB and tons per day are provided.

RFP Milestone Year	Pollutant	Conformity Safety Margin % of Excess RFP Reductions	Percent of On-road EI (For Reference)	Tons Per Day Change to On-road EI (For Reference)
2023	NO <sub>x</sub>	19.5	10.39	7.25
	VOC	95	8.86	3.34

Enter the percent of the NO<sub>x</sub> milestone year target that will be transferred to VOC. Only the NO<sub>x</sub> percent is entered. The VOC percent is automatically equal to the NO<sub>x</sub> percent transfer. These values are used on Sheet 03 in the NO<sub>x</sub> transfer calculations.

NO <sub>x</sub> Substitution	Percent of NO <sub>x</sub> Reductions to Transfer to Percent VOC Reductions	Percent of VOC Reductions Transferred from Percent NO <sub>x</sub> Reductions
2023	0.00	0.00

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**Appendix 1 - Sheet 10**

Enter Airport Emissions Inventory

DFW 2015 Eight-Hour Ozone Nonattainment Area

**Nine Nonattainment Counties: Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Tarrant, Wise**

<b>'RFP Analysis Year</b>	<b>Uncontrolled NO<sub>x</sub> (tpd)</b>	<b>Controlled NO<sub>x</sub> (tpd)</b>	<b>Total Reduction NO<sub>x</sub> (tpd)</b>	<b>Percent Reduction</b>	<b>Uncontrolled VOC (tpd)</b>	<b>Controlled VOC (tpd)</b>	<b>Total Reduction VOC (tpd)</b>	<b>Percent Reduction</b>
2017	16.28	15.96	0.32	1.98	4.12	4.07	0.05	1.16
2023	16.00	15.69	0.31	1.92	4.28	4.23	0.05	1.06

Notes:

- 1) The airport emissions inventory includes emissions from: aircraft; aircraft auxiliary power units (APU); and, airport ground support equipment (GSE).

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**Appendix 1 - Sheet 11**

Enter Area Source Emissions Inventory

DFW 2015 Eight-Hour Ozone Nonattainment Area

**Nine Nonattainment Counties: Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Tarrant, Wise**

'RFP Analysis Year	Existing Controlled Emissions (as of 2017) NO <sub>x</sub> (tpd)	Post-2017 Controlled NO <sub>x</sub> (tpd)	Total Reduction NO <sub>x</sub> (tpd)	Percent Reduction	Existing Controlled Emissions (as of 2017) VOC (tpd)	Post-2017 Controlled VOC (tpd)	Total Reduction VOC (tpd)	Percent Reduction
2017	42.80	42.80	0.00	0.00	306.93	306.93	0.00	0.00
2023	38.34	38.34	0.00	0.00	288.52	288.52	0.00	0.00

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**Appendix 1 - Sheet 12**

Enter Biogenic Emissions Inventory

DFW 2015 Eight-Hour Ozone Nonattainment Area

**Nine Nonattainment Counties: Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Tarrant, Wise**

'RFP Analysis Year	Uncontrolled NO <sub>x</sub> (tpd)	Controlled NO <sub>x</sub> (tpd)	Total Reduction NO <sub>x</sub> (tpd)	Percent Reduction	Uncontrolled VOC (tpd)	Controlled VOC (tpd)	Total Reduction VOC (tpd)	Percent Reduction
2017	See Note 1	N/A	N/A	N/A	See Note 1	N/A	N/A	N/A

Notes:

1) Beginning with the Air Emissions Reporting Requirements (December 2008), the emissions required to be reported no longer include emissions from biogenic sources. Therefore, as of the 2017 reporting year, the comprehensive triennial emissions inventory no longer includes emissions from biogenic sources. The RFP demonstrations are based upon the emissions from anthropogenic sources. The guidance for RFP calculations shows the first step is to subtract the emissions from biogenic sources from the total base year emissions to obtain the total anthropogenic emission inventory. As of 2017, under the AERR, the base year emissions do not include biogenic sources and already represent the total anthropogenic emissions. In this case, step one of the RFP process is not needed, and the emissions from biogenic sources is unnecessary. This RFP SIP revision: uses a base year of 2017; does not require subtraction of the biogenic emissions in Step One of the RFP calculation process; and does not include quantification of emissions from biogenic sources.

2) 6 DFW means the six nonattainment counties and indicates values are for the six counties that had an existing designation under the 1997 one-hour ozone standard, and the 2008 & 2015 eight-hour ozone standards. Includes: Brazoria, Chambers, Fort Bend, Galveston, Harris, and Montgomery counties.

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**Appendix 1 - Sheet 13**

Enter Oil and Gas Production, Drilling Rigs, Diesel Engines Emissions Inventory  
DFW 2015 Eight-Hour Ozone Nonattainment Area

**Nine Nonattainment Counties: Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Tarrant, Wise**

'RFP Analysis Year	Uncontrolled NO <sub>x</sub> (tpd)	Controlled NO <sub>x</sub> (tpd)	Total Reduction NO <sub>x</sub> (tpd)	Percent Reduction	Uncontrolled VOC (tpd)	Controlled VOC (tpd)	Total Reduction VOC (tpd)	Percent Reduction
2017	0.46	0.15	0.31	67.39	0.08	0.02	0.06	75.00
2023	1.58	0.44	1.14	72.15	0.27	0.03	0.24	88.89

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**Appendix 1 - Sheet 14**

Enter Locomotive Emissions Inventory  
DFW 2015 Eight-Hour Ozone Nonattainment Area

**Nine Nonattainment Counties: Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Tarrant, Wise**

'RFP Analysis Year	Uncontrolled NO <sub>x</sub> (tpd)	Controlled NO <sub>x</sub> (tpd)	Total Reduction NO <sub>x</sub> (tpd)	Percent Reduction	Uncontrolled VOC (tpd)	Controlled VOC (tpd)	Total Reduction VOC (tpd)	Percent Reduction
2017	12.57	11.09	1.48	11.79	0.54	0.54	0.00	0.00
2023	9.14	7.87	1.27	13.89	0.35	0.35	0.00	0.00

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**Appendix 1 - Sheet 15**

Enter NONROAD Categories Emissions Inventory  
DFW 2015 Eight-Hour Ozone Nonattainment Area

**Nine Nonattainment Counties: Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Tarrant, Wise**

'RFP Analysis Year	Uncontrolled NO <sub>x</sub> (tpd)	Controlled NO <sub>x</sub> (tpd)	Total Reduction NO <sub>x</sub> (tpd)	Percent Reduction	Uncontrolled VOC (tpd)	Controlled VOC (tpd)	Total Reduction VOC (tpd)	Percent Reduction
2017	131.61	39.17	92.45	70.24	188.84	39.89	148.94	78.87
2023	161.11	34.26	126.84	78.73	216.42	41.14	175.28	80.99

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**Appendix 1 - Sheet 16**

Enter On-road Mobile Emissions Inventory  
DFW Eight-Hour Ozone Nonattainment Area

**Nine Nonattainment Counties: Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Tarrant, Wise**

'RFP Analysis Year	Uncontrolled or Existing Control NO <sub>x</sub> (tpd)	Controlled NO <sub>x</sub> (tpd)	Total Reduction NO <sub>x</sub> (tpd)	Percent Reduction	Uncontrolled or Existing Control VOC (tpd)	Controlled VOC (tpd)	Total Reduction VOC (tpd)	Percent Reduction
2017	123.95	123.95	0.00	0.00	55.94	55.94	0.00	0.00
2023	1,333.33	69.82	1,263.51	94.76	753.54	37.73	715.81	94.99

Notes:

Note 1: The DFW 2015 ozone nonattainment area uncontrolled on-road EI values for 2017 reflect controls in place up to 2017, no post-2017 controls included (existing 2017 controls).

Note 2: The DFW 2015 ozone nonattainment area uncontrolled on-road EI values for 2023 reflect pre-1990 controls, no post-1990 controls included (uncontrolled).

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**Appendix 1 - Sheet 17**

Enter Point Source Emissions Inventory

DFW 2015 Eight-Hour Ozone Nonattainment Area

**Nine Nonattainment Counties: Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Tarrant, Wise**

'RFP Analysis Year	Existing Controlled Emissions (as of 2017) NOX (tpd)	Post-2017 Controlled NOX (tpd)	Total Reduction NO <sub>x</sub> (tpd)	Percent Reduction	Existing Controlled Emissions (as of 2017) VOC (tpd)	Post-2017 Controlled VOC (tpd)	Total Reduction VOC (tpd)	Percent Reduction
2017	29.90	29.90	0.00	0.00	21.04	21.04	0.00	0.00
2023	38.86	38.86	0.00	0.00	21.58	21.58	0.00	0.00

Notes:

- 1) The difference between existing post-2017 Controlled emissions (as of 2017) and Post-2017 Controlled VOC emissions represents noncreditable as well as creditable reductions.

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**Appendix 1 - Sheet 20**

Calculate 2017 RFP Base Year Emissions Inventory

DFW 2015 Eight-Hour Ozone Nonattainment Area

Nine Nonattainment Counties: Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Tarrant, Wise

Data Entry Sheet Data Entry Sheet

<b>The 2017 Base Year Inventory</b>	<b>NO<sub>x</sub> (tons/day)</b>	<b>VOC (tons/day)</b>
Point Source 2017 EI	29.90	21.04
Area Source 2017 EI	42.80	306.93
On-road mobile 2017 EI	123.95	55.94
Non-road mobile 2017 EI	66.37	44.52
Biogenic 2017 EI (see Note 1)	See Note 1	See Note 1
<b>Total 2017 Base Year Inventory</b>	<b>263.02</b>	<b>428.43</b>

## Notes:

1) Beginning with the Air Emissions Reporting Requirements (December 2008), the emissions required to be reported no longer include emissions from biogenic sources. Therefore, as of the 2017 reporting year, the comprehensive triennial emissions inventory no longer includes emissions from biogenic sources. The RFP demonstrations are based upon the emissions from anthropogenic sources. The guidance for RFP calculations shows the first step is to subtract the emissions from biogenic sources from the total base year emissions to obtain the total anthropogenic emission inventory. As of 2017, under the AERR, the base year emissions do not include biogenic sources and already represent the total anthropogenic emissions. In this case, step one of the RFP process is not needed, and the emissions from biogenic sources is unnecessary. This RFP SIP revision: uses a base year of 2017; does not require subtraction of the biogenic emissions in Step One of the RFP calculation process; and does not include quantification of emissions from biogenic sources.

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**Appendix 1 - Sheet 21**

2023 Forecasted Uncontrolled or Existing Control Emissions Inventory with pre-2017 Controls

DFW 2015 Nonattainment Area Eight-Hour Ozone Season VOC and NOX

Nine Nonattainment Counties: Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Tarrant, Wise

Uncontrolled or Existing Control EI with pre-2017 controls: These calculations add up to the total Uncontrolled or

<b>Forecasted 2023 Uncontrolled or Existing Control Emissions Inventory with pre-2017 Controls</b>		
Emissions Description	NO <sub>x</sub> (tpd)	VOC (tpd)
Point Source	38.86	21.58
Area Source	38.34	288.52
On-Road Mobile Source	1333.33	753.54
Non-Road Mobile Source	187.83	221.32
Total	1598.36	1284.96

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**Appendix 1 - Sheet 22**

Calculations: 2017 to 2023 Control Measures Reductions  
 DFW Nonattainment Area Eight-Hour Ozone Season VOC and NOX  
 Nine Nonattainment Counties: Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Tarrant, Wise

Explanation: The control strategy name, control reduction amount, status of inclusion of the control in the RFP calculations, and whether or not the control is for on-road mobile sources were all input into the Enter Reductions 2023 sheet. The reduction is the reduction that is creditable from each control between 2017 and 2023. If the control has been turned off by inputting a "No" in the "Use this control for 2023 RFP demonstration?" column, the spreadsheet will put a zero in for the reduction for that control on this sheet, even if a positive value for the control was input into the Enter Reductions 2023 sheet. If it was intended to have a positive reduction for the control but there is a zero, go back to the Enter Reductions 2020 Sheet and change the No to a Yes indicating that the control will be used for RFP demonstration.

Creditable Reductions Control Strategy	Source Category	Total 2017 to 2023 NOX Emissions Reductions (tpd)	Total 2017 to 2023 VOC Emissions Reductions (tpd)	Use this control for RFP demonstration? (Yes or No)	Is this an on-road mobile control that will change the MVEB? (Yes or No)
Chapter 117 NOX controls	Point	0.00	0.00	Yes	No
Chapter 115 Storage Tank Rule	Point	0.00	0.00	Yes	No
Coating / printing rules	Point	0.00	0.00	Yes	No
Portable fuel containers	Area	0.00	0.00	Yes	No
Federal Motor Vehicle Control Program (FMVCP)	OR	1236.88	702.90	Yes	Yes
Reformulated Gasoline (RFG)/East Texas Regional Low RVP conventional gas	OR	22.06	8.40	Yes	Yes
Inspection and Maintenance (I/M)	OR	2.09	4.51	Yes	Yes
On-road TxLED	OR	2.49	0.00	Yes	Yes
Tier I and II locomotive NOX standards	NR	1.27	0.00	Yes	No
Small non-road spark ignition (SI) engines (Phase I)	NR	-7.74	60.26	Yes	No
Heavy duty non-road engines	NR	0.85	3.29	Yes	No
Tiers 2 and 3 non-road diesel engines	NR	3.25	0.65	Yes	No
Small non-road SI engines (Phase II)	NR	5.55	56.66	Yes	No
Large non-road SI & recreational marine	NR	50.58	17.15	Yes	No
Non-road TxLED	NR	1.12	0.00	Yes	No
Non-road RFG	NR	-0.01	0.38	Yes	No
Tier 4 non-road diesel engines	NR	67.95	15.02	Yes	No
Diesel recreational marine	NR	0.01	0.00	Yes	No
Small SI (Phase III)	NR	5.28	21.87	Yes	No
Chapter 117 NOX area source engine controls	Area	0.00	0.00	Yes	No
Drilling Rigs: Federal Engine Standards and Texas Low Emission Diesel	NR	1.14	0.24	Yes	No
This row not used for current RFP	N/A	0.00	0.00	No	No
This row not used for current RFP	N/A	0.00	0.00	No	No
This row not used for current RFP	N/A	0.00	0.00	No	No
This row not used for current RFP	N/A	0.00	0.00	No	No
This row not used for current RFP	N/A	0.00	0.00	No	No
This row not used for current RFP	N/A	0.00	0.00	No	No
This row not used for current RFP	N/A	0.00	0.00	No	No
This row not used for current RFP	N/A	0.00	0.00	No	No
This row not used for current RFP	N/A	0.00	0.00	No	No
This row not used for current RFP	N/A	0.00	0.00	No	No
This row not used for current RFP	N/A	0.00	0.00	No	No
This row not used for current RFP	N/A	0.00	0.00	No	No
This row not used for current RFP	N/A	0.00	0.00	No	No
This row not used for current RFP	N/A	0.00	0.00	No	No
This row not used for current RFP	N/A	0.00	0.00	No	No
This row not used for current RFP	N/A	0.00	0.00	No	No
Total 2020 RFP Control Reductions		1392.77	891.33		

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**Appendix 1 - Sheet 24**

Calculations: 2017 to 2023 On-road Control Measures Reductions

DFW 2015 Nonattainment Area Eight-Hour Ozone Season VOC and NOX

**Nine Nonattainment Counties: Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Tarrant, Wise**

Creditable Reductions Control Strategy	Control Used for RFP Demonstration?	On-road Mobile Source Control?	Total 2017 - 2023 'On-road Mobile NO <sub>x</sub> Emissions Reductions (tpd)	Total 2017 - 2023 'On-road Mobile VOC Emissions Reductions (tpd)
Chapter 117 NOX controls	Yes	No	0.00	0.00
Chapter 115 Storage Tank Rule	Yes	No	0.00	0.00
Coating / printing rules	Yes	No	0.00	0.00
Portable fuel containers	Yes	No	0.00	0.00
Federal Motor Vehicle Control Program (FMVCP)	Yes	Yes	1236.88	702.90
Reformulated Gasoline (RFG)/East Texas Regional Low RVP conventional	Yes	Yes	22.06	8.40
Inspection and Maintenance (I/M)	Yes	Yes	2.09	4.51
On-road TxLED	Yes	Yes	2.49	0.00
Tier I and II locomotive NOX standards	Yes	No	0.00	0.00
Small non-road spark ignition (SI) engines (Phase I)	Yes	No	0.00	0.00
Heavy duty non-road engines	Yes	No	0.00	0.00
Tiers 2 and 3 non-road diesel engines	Yes	No	0.00	0.00
Small non-road SI engines (Phase II)	Yes	No	0.00	0.00
Large non-road SI & recreational marine	Yes	No	0.00	0.00
Non-road TxLED	Yes	No	0.00	0.00
Non-road RFG	Yes	No	0.00	0.00
Tier 4 non-road diesel engines	Yes	No	0.00	0.00
Diesel recreational marine	Yes	No	0.00	0.00
Small SI (Phase III)	Yes	No	0.00	0.00
Chapter 117 NOX area source engine controls	Yes	No	0.00	0.00
Drilling Rigs: Federal Engine Standards and Texas Low Emission Diesel	Yes	No	0.00	0.00
This row not used for current RFP	No	No	0.00	0.00
This row not used for current RFP	No	No	0.00	0.00
This row not used for current RFP	No	No	0.00	0.00
This row not used for current RFP	No	No	0.00	0.00
This row not used for current RFP	No	No	0.00	0.00
This row not used for current RFP	No	No	0.00	0.00
This row not used for current RFP	No	No	0.00	0.00
This row not used for current RFP	No	No	0.00	0.00
This row not used for current RFP	No	No	0.00	0.00
This row not used for current RFP	No	No	0.00	0.00
This row not used for current RFP	No	No	0.00	0.00
This row not used for current RFP	No	No	0.00	0.00
This row not used for current RFP	No	No	0.00	0.00
This row not used for current RFP	No	No	0.00	0.00
This row not used for current RFP	No	No	0.00	0.00
This row not used for current RFP	No	No	0.00	0.00
This row not used for current RFP	No	No	0.00	0.00
This row not used for current RFP	No	No	0.00	0.00
<b>Total On-road Mobile Source RFP Control Reductions</b>			<b>1263.52</b>	<b>715.81</b>

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**Appendix 1 - Sheet 25**

Summary Sheet: Uncontrolled or Existing Control NOX Emissions Inventory

DFW 2015 Eight-Hour Ozone Nonattainment Area

Nine Nonattainment Counties: Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Tarrant, Wise

**2017 Uncontrolled or Existing Control NOX (tons per day)**

<b>RFP Analysis Year</b>	<b>DFW</b>
<b>Area Sources</b>	42.80
<b>Non-Road Mobile Sources</b>	160.92
<b>On-Road Mobile Sources</b>	123.95
<b>Point Sources</b>	29.90
<b>Total</b>	357.57

**2023 Uncontrolled or Existing Control NOX (tons per day)**

<b>RFP Analysis Year</b>	<b>DFW</b>
<b>Area Sources</b>	38.34
<b>Non-Road Mobile Sources</b>	187.83
<b>On-Road Mobile Sources</b>	1,333.33
<b>Point Sources</b>	38.86
<b>Total</b>	1,598.36

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**Appendix 1 - Sheet 26**

Summary Sheet: Controlled or Post-2017 Controlled NOX Emissions Inventory

DFW 2015 Eight-Hour Ozone Nonattainment Area

Nine Nonattainment Counties: Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Tarrant, Wise

**Controlled or Post-2017 Controlled NOX for 2017 (tons per day)**

<b>RFP Analysis Year</b>	<b>DFW</b>
<b>Area Sources</b>	42.80
<b>Non-Road Mobile Sources</b>	66.37
<b>On-Road Mobile Sources</b>	123.95
<b>Point Sources</b>	29.90
<b>Total</b>	263.02

**Controlled or Post-2017 Controlled NOX for 2023 (tons per day)**

<b>RFP Analysis Year</b>	<b>DFW</b>
<b>Area Sources</b>	38.34
<b>Non-Road Mobile Sources</b>	58.26
<b>On-Road Mobile Sources</b>	69.82
<b>Point Sources</b>	38.86
<b>Total</b>	205.28

Note: The controlled inventory shown here includes all controls. The controlled RFP inventory may not include all controls and may therefore be a higher value than shown here.

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**Appendix 1 - Sheet 27**

Summary Sheet: Uncontrolled or Existing Control VOC Emissions Inventory

DFW 2015 Eight-Hour Ozone Nonattainment Area

Nine Nonattainment Counties: Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Tarrant, Wise

**2017 Uncontrolled or Existing Control VOC (tons per day)**

<b>RFP Analysis Year</b>	<b>DFW</b>
<b>Area Sources</b>	306.93
<b>Non-Road Mobile Sources</b>	193.58
<b>On-Road Mobile Sources</b>	55.94
<b>Point Sources</b>	21.04
<b>Total</b>	577.49

**2023 Uncontrolled or Existing Control VOC (tons per day)**

<b>RFP Analysis Year</b>	<b>DFW</b>
<b>Area Sources</b>	288.52
<b>Non-Road Mobile Sources</b>	221.32
<b>On-Road Mobile Sources</b>	753.54
<b>Point Sources</b>	21.58
<b>Total</b>	1,284.96

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**Appendix 1 - Sheet 28**

Summary Sheet: Controlled or Post-2017 Controlled VOC Emissions Inventory

DFW 2015 Eight-Hour Ozone Nonattainment Area

Nine Nonattainment Counties: Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Tarrant, Wise

**Controlled or Post-2017 Controlled VOC for 2017 (tons per day)**

RFP Analysis Year	DFW
Area Sources	306.93
Non-Road Mobile Sources	44.52
On-Road Mobile Sources	55.94
Point Sources	21.04
<b>Total</b>	<b>428.43</b>

**Controlled or Post-2017 Controlled VOC for 2023 (tons per day)**

RFP Analysis Year	DFW
Area Sources	288.52
Non-Road Mobile Sources	45.75
On-Road Mobile Sources	37.73
Point Sources	21.58
<b>Total</b>	<b>393.58</b>

Note: The controlled inventory shown here includes all controls. The controlled RFP inventory may not include all controls and may therefore be a higher value than shown here.

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**Appendix 1 - Sheet 29**

Summary Sheet: 2017 Emissions Inventory By Category

DFW 2015 Eight-Hour Ozone Nonattainment Area

Nine Nonattainment Counties: Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Tarrant, Wise

**2017 (tons per day)**

Emissions Inventory Source	Uncontrolled or Existing Control NO <sub>x</sub>	Controlled or Post-2017 Controlled NO <sub>x</sub>	Uncontrolled or Existing Control VOC	Controlled or Post-2017 Controlled VOC
<b>Area Sources</b>	42.80	42.80	306.93	306.93
<b>Non-Road Mobile Sources</b>	160.92	66.37	193.58	44.52
<b>On-Road Mobile Sources</b>	123.95	123.95	55.94	55.94
<b>Point Sources</b>	29.90	29.90	21.04	21.04
<b>Total</b>	357.57	263.02	577.49	428.43

Note: The controlled inventory shown here includes all controls. The controlled RFP inventory may not include all controls and may therefore be a higher value than shown here.

**DFW RFP Summary of the 2017 Base Year Average Summer Weekday NO<sub>x</sub> and VOC Emissions (tons per day)**

Emissions Inventory Source	Uncontrolled NO <sub>x</sub>	Controlled NO <sub>x</sub>	Uncontrolled VOC	Controlled VOC
Non-Road Mobile Sources	160.92	66.37	193.58	44.52
On-Road Mobile Sources	123.95	123.95	55.94	55.94
Emissions Inventory Source	Existing Controlled NO <sub>x</sub>	Post-2017 Controlled NO <sub>x</sub>	Uncontrolled VOC	Post-2017 Controlled VOC
Area Sources	42.80	42.80	306.93	306.93
Point Sources	29.90	29.90	21.04	21.04
Total of All Sources	357.57	263.02	577.49	428.43
<b>QA</b>	357.57	263.02	577.49	428.43

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**Appendix 1 - Sheet 30**

Summary Sheet: 2023 Emissions Inventory By Category

DFW 2015 Eight-Hour Ozone Nonattainment Area

Nine Nonattainment Counties: Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Tarrant, Wise

**2023 (tons per day)**

Emissions Inventory Source	Uncontrolled or Existing Control NO <sub>x</sub>	Controlled or Post-2017 Controlled NO <sub>x</sub>	Uncontrolled or Existing Control VOC	Controlled or Post-2017 Controlled VOC
<b>Area Sources</b>	38.34	38.34	288.52	288.52
<b>Non-Road Mobile Sources</b>	187.83	58.26	221.32	45.75
<b>On-Road Mobile Sources</b>	1333.33	69.82	753.54	37.73
<b>Point Sources</b>	38.86	38.86	21.58	21.58
<b>Total</b>	1598.36	205.28	1284.96	393.58

Note: The controlled inventory shown here includes all controls. The controlled RFP inventory may not include all controls and

**DFW RFP Summary of the 2023 Attainment Year Average Summer Weekday NO<sub>x</sub> and VOC Emissions (tons per day)**

Emissions Inventory Source	Uncontrolled NO <sub>x</sub>	Controlled NO <sub>x</sub>	Uncontrolled VOC	Controlled VOC
Non-Road Mobile Sources	187.83	58.26	221.32	45.75
On-Road Mobile Sources	1333.33	69.82	753.54	37.73
Emissions Inventory Source	Existing Controlled NO <sub>x</sub>	Post-2017 Controlled NO <sub>x</sub>	Uncontrolled VOC	Post-2017 Controlled VOC
Area Sources	38.34	38.34	288.52	288.52
Point Sources	38.86	38.86	21.58	21.58
Total of All Sources	1598.36	205.28	1284.96	393.58
<b>QA</b>	1598.36	205.28	1284.96	393.58

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**Appendix 1 - Sheet 31**

Summary Total Non-Road Emissions Inventory  
DFW 2015 Eight-Hour Ozone Nonattainment Area

**Nine Nonattainment Counties: Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Tarrant, Wise**

<b>'RFP Analysis Year</b>	<b>Uncontrolled NO<sub>x</sub> (tpd)</b>	<b>Controlled NO<sub>x</sub> (tpd)</b>	<b>Total Reduction NO<sub>x</sub> (tpd)</b>	<b>Percent Reduction</b>	<b>Uncontrolled VOC (tpd)</b>	<b>Controlled VOC (tpd)</b>	<b>Total Reduction VOC (tpd)</b>	<b>Percent Reduction</b>
2017	160.92	66.37	94.55	58.76	193.58	44.52	149.06	77.00
2023	187.83	58.26	129.57	68.98	221.32	45.75	175.57	79.33

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## Appendix 1 - Sheet 32

Summary Sheet: 2017 Non-Road Summary by Category

DFW 2015 Eight-Hour Ozone Nonattainment Area

Nine Nonattainment Counties: Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Tarrant, Wise

### 2017 (tons per day)

Emissions Inventory Source	Uncontrolled NOx	Controlled NOx	Uncontrolled VOC	Controlled VOC
<b>Airport</b>	16.28	15.96	4.12	4.07
<b>Locomotive</b>	12.57	11.09	0.54	0.54
<b>NONROAD Model</b>	131.61	39.17	188.84	39.89
<b>Drilling Rigs</b>	0.46	0.15	0.08	0.02
<b>Total AL</b>	28.85	27.05	4.66	4.61
<b>AL Plus Drilling Rigs (Off-road)</b>	29.31	27.20	4.74	4.63
<b>Total All</b>	160.92	66.37	193.58	44.52

Note: The controlled inventory shown here includes all controls. The controlled RFP inventory may not include all controls and may therefore be a higher value than shown here.

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**Appendix 1 - Sheet 33**

Summary Sheet: 2023 Non-Road Summary by Category

DFW 2015 Eight-Hour Ozone Nonattainment Area

Nine Nonattainment Counties: Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Tarrant, Wise

**2023 (tons per day)**

<b>Emissions Inventory Source</b>	<b>Uncontrolled NOx</b>	<b>Controlled NOx</b>	<b>Uncontrolled VOC</b>	<b>Controlled VOC</b>
<b>Airport</b>	16.00	15.69	4.28	4.23
<b>Locomotive</b>	9.14	7.87	0.35	0.35
<b>NONROAD Model</b>	161.11	34.26	216.42	41.14
<b>Drilling Rigs</b>	1.58	0.44	0.27	0.03
<b>Total AL</b>	25.14	23.56	4.63	4.58
<b>AL Plus Drilling Rigs (Off-road)</b>	26.72	24.00	4.90	4.61
<b>Total All</b>	187.83	58.26	221.32	45.75

Note: The controlled inventory shown here includes all controls. The controlled RFP inventory may not include all controls and may therefore be a higher value than shown here.

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**Appendix 1 - Sheet 34**

Summary Sheet: 2017 and 2023 On-Road Summaries

DFW Eight-Hour Ozone Nonattainment Area

Nine Nonattainment Counties: Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Tarrant, Wise

**DFW Nine County RFP Ozone Season Weekday On-Road Mobile Source NOX Emissions**

RFP Analysis Year Inventory	Uncontrolled or Existing Control NOX (tons per day)	Controlled NOX (tons per day)
2017 Base Year	123.95	123.95
2023 Attainment Year	1,333.33	69.82

**DFW Nine County RFP Ozone Season Weekday On-Road Mobile Source VOC Emissions**

RFP Analysis Year Inventory	Uncontrolled or Existing Control VOC (tons per day)	Controlled VOC (tons per day)
2017 Base Year	55.94	55.94
2023 Attainment Year	753.54	37.73

**2023 DFW Nine County RFP Ozone Season Weekday On-Road Mobile Source NOX and VOC Emissions and Control Strategy Reductions**

RFP Analysis Year and Inventory of On-Road Mobile Emissions Inventory Strategies	NOX (tons per day)	VOC (tons per day)
2023 Uncontrolled Inventory	1,333.33	753.54
Federal Motor Vehicle Control Program (FMVCP)	1236.88	702.90
Reformulated Gasoline (RFG)/East Texas Regional Low RVP/Low Sulfur	22.06	8.40
Inspection and Maintenance (I/M)	2.09	4.51
On-road TxLED	2.49	0.00
2023 Controlled Inventory	69.82	37.73
QA Check	69.8099999999999	37.7300000000000

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**Appendix 1 - Sheet 35**

Summary Sheet: Calculation Process for 2023 Target Levels of Emissions

DFW 2015 Eight-Hour Ozone Nonattainment Area

Nine Nonattainment Counties: Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Tarrant, Wise

**Summary of the Calculation Process for 2023 DFW RFP Target Levels**

Line	Description	NO <sub>x</sub>	VOC
Line 1	Step 1: 2017 base year emissions inventory (see Table 2-13)	263.02	428.43
Line 2	Percent of NO <sub>x</sub> (PN) and VOC (PV) to meet 15% reduction requirement (PN plus PV = 15)	7.70%	7.30%
Line 3	Step 2: Calculate the total NO <sub>x</sub> and VOC reduction requirement between 2017 and 2023 <b>(Line 1 Multiplied by Line 2)</b>	20.25	31.28
Line 4	Step 3: Calculate the 2023 target level of emissions <b>(Line 1 minus Line 3)</b>	242.77	397.15

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**Appendix 1 - Sheet 36**

Summary Sheet: Total RFP Emissions Reductions  
 DFW 2015 Eight-Hour Ozone Nonattainment Area  
 Nine Nonattainment Counties: Collin, Dallas, Denton, Ellis, Johnson,

Control Strategy Description	NO <sub>x</sub> Reductions	VOC Reductions
Chapter 117 NOX controls	0.00	0.00
Chapter 115 Storage Tank Rule	0.00	0.00
Coating / printing rules	0.00	0.00
Portable fuel containers	0.00	0.00
Federal Motor Vehicle Control Program (FMVCP)	1236.88	702.90
Reformulated Gasoline (RFG)/East Texas Regional Low RVP conventional gas	22.06	8.40
Inspection and Maintenance (I/M)	2.09	4.51
On-road TxLED	2.49	0.00
Tier I and II locomotive NOX standards	1.27	0.00
Small non-road spark ignition (SI) engines (Phase I)	-7.74	60.26
Heavy duty non-road engines	0.85	3.29
Tiers 2 and 3 non-road diesel engines	3.25	0.65
Small non-road SI engines (Phase II)	5.55	56.66
Large non-road SI & recreational marine	50.58	17.15
Non-road TxLED	1.12	0.00
Non-road RFG	-0.01	0.38
Tier 4 non-road diesel engines	67.95	15.02
Diesel recreational marine	0.01	0.00
Small SI (Phase III)	5.28	21.87
Chapter 117 NOX area source engine controls	0.00	0.00
Drilling Rigs: Federal Engine Standards and Texas Low Emission Diesel	1.14	0.24
This row not used for current RFP	0.00	0.00
<b>Total:</b>	<b>1392.77</b>	<b>891.33</b>

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**Appendix 1 - Sheet 37**

Summary Sheet: Point Source RFP Emissions Reductions

DFW 2015 Eight-Hour Ozone Nonattainment Area

Nine Nonattainment Counties: Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Tarrant, Wise

Emissions	NO <sub>x</sub>	VOC
Existing Controlled Emissions (as of 2017)	38.86	21.58
RFP Point Source Reductions	0.00	0.00
RFP Post-2017 Controlled Emissions	38.86	21.58

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**Appendix 1 - Sheet 38**

Summary Sheet: Area Source RFP Emissions Reductions

DFW 2015 Eight-Hour Ozone Nonattainment Area

Nine Nonattainment Counties: Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Tarrant, Wise

Emissions	NO <sub>x</sub>	VOC
Existing Controlled Emissions (as of 2017)	38.34	288.52
RFP Area Source Reductions	0.00	0.00
RFP Post-2017 Controlled Emissions	38.34	288.52

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**Appendix 1 - Sheet 39**

Summary Sheet: Non-Road Source RFP Emissions Reductions

DFW 2015 Eight-Hour Ozone Nonattainment Area

Nine Nonattainment Counties: Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Tarrant, Wise

Emissions	NO <sub>x</sub>	VOC
Uncontrolled	187.82	221.32
RFP Non-Road Source Reductions	129.25	175.52
RFP Post-2017 Controlled Emissions	58.57	45.80

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**Appendix 1 - Sheet 40**

Summary Sheet: On-Road Source RFP Emissions Reductions  
DFW 2015 Eight-Hour Ozone Nonattainment Area  
Nine Nonattainment Counties: Collin,

Emissions	NO <sub>x</sub>	VOC
Uncontrolled	1333.33	753.54
RFP On-Road Source Reductions	1263.52	715.81
RFP Post-2017 Controlled Emissions	69.81	37.73

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