



John Lovenburg
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March 30, 2023

California Air Resources Board
Transportation and Toxics Division 1001
I Street, 6th Floor
Sacramento, CA 95814
Attention: Ajay Mangat, Freight Transport Branch

Dear Mr. Mangat:

Enclosed, please find BNSF Railway's Fleet Average report of 2022 as required by the 1998 Memorandum of Mutual Understanding and Agreements (1998 MOU) between the California Air Resources Board, BNSF Railway and Union Pacific Railroad. BNSF Railway's final fleet average for 2022 was 5.3 grams per brake horsepower-hour (g/bhp-hr).

I certify that the enclosed report is submitted on behalf of BNSF and that the information is, to the best of BNSF's knowledge and belief, true, accurate, and complete, and is consistent with the requirements of the 1998 MOU.

An electronic copy in Microsoft Excel format is also being emailed to you. If you or your office has any questions or comments related to the enclosed report, please feel free to contact me or my representatives within the BNSF Environmental Department.

Sincerely,

A handwritten signature in blue ink that reads "John Lovenburg". The signature is written in a cursive, flowing style.

John Lovenburg
Vice President
Environment & Sustainability
BNSF Railway Company

South Coast Locomotive Fleet Average Emission Program

ANNUAL COMPLIANCE REPORT
FOR
CALENDAR YEAR
2022

Submitted by a Participating Railroad
to the
California Air Resources Board
in Accordance with the
Memorandum of Mutual Understanding and Agreements
Dated
2-Jul-98

Version: March 31, 2022
Participating Railroad: BNSF
Date Submitted: March 31, 2023

Form F-A-2

Calculation of Final FA in accordance with Subsection III.D of Memorandum

A. Enter the value shown on Line D of Part III of Form F-A-1	5.3
B. Enter the total of all adjustments made to FA in accordance with paragraph III.D.1 of the Memorandum. If any adjustment is made to FA, complete Part II of Form F-A-3.	0.0
C. Calculate adjusted FA (Line A - Line B)	5.3
D. If Line C is less than or equal to Fleet Average Target, or if this report is for a year prior to 2010, enter zero. Otherwise, enter any correction made to account for atmospheric conditions in accordance with paragraph III.D.2 of the Memorandum. Do not enter more than the difference between Line C and Fleet Average Target. If a correction is made to account for atmospheric conditions, complete Part III of Form F-A-3. 3	0.0
E. Calculate Adjusted/Corrected FA (Line C - Line D); Round to nearest 0.1 g/bhphr (see Appendix C of Memorandum)	5.3
F. FAC from ULELs in g/bhphr (the smaller of Line B or Line E; round to the nearest 0.1 g/bhphr)	0.0
G. Calculate Final FA in g/bhphr (Line E - Line F)	5.3

	8.0388
Fleet Average Target ((1-y) x 15.4 g/bhp-hr)	5.5

Form F-A-3

Form F-A-3 is related to adjustment of the locomotive CL, FA and correction to FA - Not Applicable

Form F-A-4

Factors to Convert between Gallons of Fuel and MWhr

Locomotive Type:	See Whitepaper for details on how conversions were made for each model including conversion factors utilized.
A. Indicate whether original data for the locomotive were collected in gallons of fuel or MWhr.	Both
B. What conversion factor was used?	See conversion factors for locomotives in Whitepaper Appendix A.
C. Has the methodology used to develop the conversion factor been accepted previously by California Air Resources Board (ARB) in accordance with the terms of Appendix D of the Memorandum?	
D. If Line C Is Yes, enter date.	
E. Show below, in detail, how the conversion factor was calculated. Attach all supporting data and evidence. This information will be used by ARB to determine whether to accept the conversion factor. If Line C is No, it will also be used to determine whether to accept the methodology. See paragraphs IV.C.4, IV.C.5 and Appendix B of the Memorandum.	See Whitepaper

Form F-A-5

Estimation of Missing Locomotives - Not applicable

Form F-A-6

Summary of FAC Transactions (in g/bhphr)

I.	(1)	(2)	(3)
	Created Pre-2010	Created Post-2009	Total
A. Ending FAC balance -- last annual report	2.2	3.11	5.3
B. FAC acquired for Other Participating Railroad since last annual report, if any	0.0	0.00	0.00
C. FAC created from ULELs during the year, if any (Line F of Form F-D-2)	0.0	0.90	0.90
D. FAC transferred to Other Participating Railroad or others since last annual report, if any	0.0	0.00	0.00
E. Total FAC available for use in this annual report -- subject to restrictions on pre-2010 FAC noted in subparagraph III.D.3.a of Memorandum (Line A + Line B + Line C - Line D)	2.2	4.01	6.21
F. FAC used in this annual report, if any (included in total emissions reductions shown on Line F of Form F-A-2)	0.0	0.13	0.13
G. FAC created during the year other than Line C, if any (Fleet Average Target # - Final FA shown on Line G of Form F-A-2, provided Fleet Average Target # exceeds Final FA)	0.24	0.00	0.24
H. Ending FAC balance -- this annual report (Line E-LineF+LineG)	2.44	3.11	5.55

II. Emissions Reductions Other than FAC

List the amount of emissions reductions other than FAC, if any, shown on Line F of Form F-A-2 (in g/bhphr). In accordance with subparagraph III.D.3.a of the Memorandum, this amount cannot exceed 0.3 g/bhphr. In addition, the sum of (1) the amount shown here, and (2) the pre-2010 FAC included on Line F of Form F-A-2 (and shown on Line F, column 1 of Part I of this Form F-A-6 cannot exceed 1.3 g/bhphr.	0
Attach documentation for the above emissions reductions other than FAC, including a description of the reductions, how acquired, date acquired, and amount acquired. Note that subparagraph III.D.3.a and Appendix E of the Memorandum stipulate a fixed conversion rate from tons to g/bhphr.	None

III. Reconciliation of Line F of Form F-A-2

A. Show amount from Line F, column 3 of Part I of this Form F-A-6.	0.1
B. Show amount from Part II of this Form F-A-6.	0.0
C. Line A + Line B (should equal line F from Form F-A-2)	0.1