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Response to Jones Day's Report: *"Taking the Clean Air Task Force to Task for Junk Science: Diesel Exhaust and Health Effects"*

The industry law firm, Jones Day (http://www.jonesday.com/), in its 2005 critique, "Taking the Clean Air Task Force to Task", accuses Clean Air Task Force (CATF) of "junk science" for its report *Diesel in America—The Lingering Threat* (see: http://www.catf.us/publications/view/83).[1] In the piece, Jones Day ignores facts about the standardized methodology used by CATF and criticizes epidemiological research widely accepted as the state of the science in the medical research community. Moreover, Jones Day failed to seek out CATF for comment or clarification of our methods or results, nor did it consult the white paper on CATF's website describing the methodology (http://www.catf.us/projects/diesel/dieselhealth/learn.php?site=0 including data tables. Data tables included in the Jones Day critique are not CATF's and do not in any way represent CATF's analyses.

In fact, CATF's methodology is based on data from the U.S. Environmental Protection Agency (EPA) and analytical methodologies approved by EPA's Science Advisory Board, the National Research Council of the National Academy of Science, the International Agency for Research on Cancer (IARC), and the California Air Resources Board (CARB). If CATF is guilty of "Junk Science" it appears to be in good company.

The Clean Air Task Force/ Abt Associates Analysis: The Facts

- CATF used standard EPA methodologies reviewed and approved by EPA's Scientific Advisory Board to estimate the health impacts from diesel nationally in 2010[2];
- This methodology has been reviewed and approved by the National Research Council[3].
- The probable carcinogenicity of diesel particulate matter has been established by EPA[4], The State of California[5] and the International Agency on Cancer Research[6].

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[1] For Jones Day Report see: http://www.jonesday.com/files/Publication/1ba46a5f-240b-4896-b11b-5ec6ff462988/Presentation/PublicationAttachment/51239778-111e-4e3e-9cc0-eeef236c446e/Diesel%20Exhaust%205_05%20v2.pdf

[2] EPA Final Regulatory Impact Analysis, Control of Emissions from Nonroad Diesel Engines. EPA420-R-04-007. Section 4.1.6, page 4-101, May 2004. http://www.epa.gov/nonroad-diesel/2004fr/420r04007.pdf

[3] National Research Council (2002). Estimating the Public Health Benefits of Proposed Air Pollution Regulations. National Academy Press, Washington, DC. 170 p. Available at http://www.nap.edu .

[4] EPA, Health Assessment Document for Diesel Exhaust, Office of Research and Development, EPA/600/8-90/057F (May 2002). See:: http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=29060

CATF employed California Air Resources Board's (CARB) diesel cancer risk factor to calculate the cancer risk posed by diesel throughout the United States.

- The national health impacts data in our report is not outdated. In fact, it is an estimate of future impacts. The national diesel health impacts analysis (e.g. CATF's result: 21,000 premature deaths in 2010) is based on 2010 emissions projections developed by EPA for the Bush Administration's "Clear Skies" legislation.
- CATF used the same methodological protocols that EPA employed in the Regulatory Impact Analyses (RIA) for its new non-road diesel engine rules.[7] The estimates follow EPA's own Scientific Advisory Board-approved methodology and were performed by EPA's own contractor, Abt Associates. The 2010 total mortality estimate for the U.S. is based on EPA's "Clear Skies" modeling platform[8] using EPA's future emissions inventory for 2010, modeled PM2.5 concentrations from REMSAD with diesel emissions turned off, and health damages from EPA's own BenMAP model.[9] REMSAD modeling used for the national 21,000 mortality estimate is adjusted based on ambient monitoring results.
- As reported by Abt Associates,[10] CATF local community risk analysis was based on EPA's own modeled diesel particulate matter concentrations. Local $PM_{2.5}$ concentrations were modeled using EPA 1999 inventory data (the most recent) using the Assessment System for Population Exposure Nationwide (ASPEN) air quality model. This $PM_{2.5}$ modeling data was formally released as part of EPA's National Air Toxics Assessment (NATA) in February 2006.
- Although the county-level 1999 DPM concentrations reported on the CATF website represent is an estimate for the National Emissions Inventory (NEI) inventory representing 6 years prior to the CATF report, they constitute EPA's most recent modeling analysis of diesel particulate concentrations in the U.S. based on its most recent inventory numbers. For the 1999 inventory see: http://www.epa.gov/ttn/chief/net/1999inventory.html
- Abt Associates chose the (Pope 2002) concentration–response function for mortality for county-level diesel particulate matter concentrations specifically because the function was used for the same purpose in EPA's final Nonroad Diesel Rule regulatory impact assessment.

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[5] California Air Resources Board (1998): Resolution 98-35. Identification of diesel exhaust as a toxic air contaminant. See: http://www.arb.ca.gov/regact/diesltac/diesltac.htm.

[6] International Agency on Cancer Research has classified diesel engine exhaust as a group 2A 'probable carcinogen'. See: http://monographs.iarc.fr/monoeval/crthall.html

[7] EPA Final Regulatory Impact Analysis, Control of Emissions from Nonroad Diesel Engines. EPA420-R-04-007. Section 4.1.6, page 4-101, May 2004. http://www.epa.gov/nonroad-diesel/2004fr/420r04007.pdf Also see Abt Associates Report at: http://www.catf.us/projects/diesel/dieselhealth/20041216-REMSAD_No_Diesel_Report.pdf

[8] See: Methodologies for the Benefits Analyses of the 2003 Clear Skies Act at: http://www.epa.gov/air/clearskies/tech_addendum.pdf

[9] BenMAP model at: http://www.epa.gov/ttn/ecas/benmapdownload.html

[10] See: http://www.catf.us/projects/diesel/dieselhealth/20050203-ASPEN_Diesel_Report.pdf

- The methodologies used are detailed in CATF's white paper, available at http://www.catf.us/publications/view/84.
- Tables provided in Jones Day's report were simply a guess by the author and are entirely incorrect. In fact, the correct table (below) was available on the CATF web at the time of their report but they did not seek it out. Therefore, Jones Day's tables should be disregarded. See below, or go to CATF white paper for correct table http://www.catf.us/publications/view/84.
- The CATF benefits estimates are conservative: approximately 100,000 (91,000) avoidable deaths estimated between 2005 and 2030, requiring a modest 3,000-4,000 avoided deaths per year. For comparison, the Nonroad Diesel and Highway Rules alone will avoid 20,000 per year in 2030 according to EPA estimates.
- The figure of 13.5 million diesel engines in the U.S. is from EPA's own engine census data;
- The median 30-year lifespan of a diesel truck is based on the most recently available DOE information, from a 1990 census. Jones Day has criticized the use of this statistic as outdated, but DOE does not provide more recent data, nor has industry substantiated the 13-15 years that they claim as more accurate. The diesel industry does not dispute the durability of its products – the longevity of diesel engines is a major selling point. Regardless of the accuracy of the 1990 estimate, today's uncontrolled diesels will be on the road for many years and public health would benefit from their retrofit.

Particulate Matter and Health: The Facts

- As provided by EPA's Criteria Document for the current PM2.5 NAAQS review, the relationship between PM2.5 and premature death is supported by the weight of evidence, in hundreds of studies that are widely accepted by the independent medical research community. In fact, there are very few contradictory studies—many of which were funded by industry. For EPA's recent review of PM2.5 National Ambient Air Quality Standards (NAAQS): (http://www.epa.gov/ttn/naaqs/standards/pm/s_pm_cr_cd.html).
- EPA in its NAAQS review states: "*Based on the available evidence and the evaluation of that evidence in the EPA Criteria Document for particulate matter, summarized briefly above, staff concludes that the body of evidence supports an inference of causality for associations between PM2.5 and a broad range of health effects.* "[11]
- The relationship of long term exposure to particulate matter and premature mortality was documented in two landmark studies, the Harvard Six Cities study, American Cancer Society Study. Both studies were called into question by industry during the PM2.5 NAAQS standard setting process but were independently reanalyzed and validated by the non-profit and joint automotive industry and EPA funded Health Effects Institute (Krewski, et al 2000)[12]. The

[11] See: EPA OAQPS PM2.5 Staff Paper, December 2005, section 3.7, page 3-57. Available at: http://www.epa.gov/ttn/naaqs/standards/pm/s_pm_cr_sp.html

[12] HEI reanalysis available at: http://www.healtheffects.org/Pubs/Rean-ExecSumm.pdf

sole contrarian study cited by Jones Day, which is known as the "Veterans Cohort" or "VA" study, was industry-funded (the principal investigator, Lipfert, has served as a consultant to the automobile manufacturing industry.)

- The relationship of particulate matter and daily mortality was examined in the National Morbidity and Mortality Air Pollution Study (NMMAPS), and subsequently revised in 2003.[13] The study concluded that there is no safe level of PM2.5: "*For total and cardiovascular-respiratory mortality, we found strong evidence in favor of a linear concentration– response relation suggesting the absence of a threshold"*

Data table showing CATF's estimate of benefits from a national diesel retrofit program.

Year	EPA control/BAU	EPA Baseline	CATF Goal	Delta Below BAU	Avoidable Deaths
2005	306,985	306,985	306,985	0	0
2006	298,170	298,170	272,732	25,438	1,235
2007	274,762	290,324	238,480	36,282	1,776
2008	252,524	283,718	204,227	48,297	2,384
2009	238,571	277,801	169,974	68,597	3,414
2010	223,252	271,444	135,722	87,530	4,391
2011	212,973	271,077	121,855	91,118	4,608
2012	200,740	271,095	107,988	92,752	4,729
2013	188,031	271,614	94,121	93,910	4,827
2014	174,961	272,357	80,254	94,707	4,907
2015	161,759	265,546	66,386	95,373	4,982
2016	152,478	267,084	62,319	90,159	4,747
2017	143,583	268,766	58,251	85,332	4,529
2018	135,536	270,883	54,183	81,353	4,352
2019	127,762	272,865	50,115	77,647	4,187
2020	120,538	275,060	46,048	74,490	4,048
2021	115,721	278,139	43,000	72,721	3,983
2022	111,362	281,318	43,000	68,362	3,773
2023	107,719	284,917	43,000	64,719	3,600
2024	103,955	288,180	43,000	60,955	3,417
2025	100,446	291,539	43,000	57,446	3,245
2026	97,179	294,910	43,000	54,179	3,084
2027	94,546	298,621	43,000	51,546	2,957
2028	91,921	302,005	43,000	48,921	2,827
2029	89,449	305,400	43,000	46,449	2,705
2030	87,490	309,194	43,000	44,490	2,610
	SUM --AVOIDED DEATHS (2005-2030)				**91,315**

--L. B. Hill Senior Scientist, Clean Air Task Force, March 2006

[13] The Revised NMMAPS study is available at: http://www.healtheffects.org/Pubs/TimeSeries.pdf