STACKING THE DECK

How EPA's New Air Toxics Rules Gamble with the Public's Health to Benefit Industry

I. Introduction

Earlier this spring, EPA announced rules limiting the emissions of air toxics from plywood manufacturers and industrial and commercial boilers. But the rule allows facilities to escape those limits if they can demonstrate that their emissions place them in a "low risk" category. A closer look at these loopholes shows how the White House Office of Management and Budget and its political allies at EPA distorted science to minimize risk and maximize the number of plants eligible for the exemptions. Even more troubling, the government's own analysis shows that granting these exemptions will increase exposure to deadly pollutants, and cost the public health far more than it will save industry. For example:

- When compared to requiring all affected sources to comply with pollution controls, EPA expects that exemptions in both rules will increase hazardous air pollutants by a combined annual total of 13,300 tons, fine particle emissions by nearly 24,000 tons, smog-forming volatile organic compounds by 13,000 tons, and sulfur dioxide by more than 60,000 tons. Tables 1 and 2 identify the expected emission increases under the Plywood and Boiler Rules, respectively, along with the expected costs to public health.

- EPA expects that higher levels of fine particle pollution allowed by the exemptions in the Boiler Rule alone will cost $1.7 billion a year in higher health costs due to asthma attacks, lost work days, and premature mortality triggered by the increased pollution. These higher costs include more than 230 deaths a year, 720 admissions to hospitals and emergency rooms, 18,000 asthma attacks, and 20,000 respiratory symptoms among children with asthma (see Table 3). In contrast, the Boiler Rule saves industry $170 million a year in emission control costs at most, or less than 8% of what these exemptions will cost the public health. Table 4 contrasts the savings to industry with the higher public health costs of the Boiler Rule Exemptions.

- Based on OMB analysis of the health effects of fine particle pollution alone, the Plywood Rule could cost the public health more than $300 million a year, while saving the industry $66 million at most. Table 5 contrasts the savings to industry with the higher public health costs of the Plywood Rule exemptions.

- The exemptions for "low-risk" facilities in the Plywood Rule ignore human exposure studies from the National Cancer Institute and the National Institute of Occupational Safety and Health which link formaldehyde exposure to higher leukemia risks. The rule instead downplays cancer risks by using a computerized risk model developed by the Chemical Industry Institute of Toxicology (CIIT), and ignores the cancer risk estimates for formaldehyde published on EPA's

website. According to an August 8 draft memo from the Office of Research and Development, the NCI study indicates a cancer risk that is 10,000 times higher than the level assumed in the industry sponsored CIIT study.

- Absent the CIIT data, fewer plywood plants would qualify for a "low-risk" exemption from air toxics standards. EPA has said it will revisit the exemptions if warranted by new science, but that process would likely take many years.

- In addition to cancer, exposure to emissions of toxic chemicals can increase the risk of diseases such as asthma, neurological disorders, and birth defects. The law requires that EPA set risk-based emission standards with "an ample margin of safety." EPA will exempt both plywood plants and industrial boilers from air toxic standards where emissions present risks three to ten times greater than the cutoff recommended by EPA's air quality staff.

- The site-specific risk assessment tool used to carve out exemptions under both rules resolves uncertainties in favor of industry, eliminates factors that would tend to increase measured risk, and has never been peer reviewed. For example, industry will qualify for exemptions for some toxic pollutants based on data in which EPA has said it has "low confidence." The risk analysis is based only on a subset of emissions from the affected source, and does not take into account high background levels of pollution.

- In a familiar pattern, the rules are based on industry proposals, with a timely assist from OMB. For example, the exemptions for the plywood industry were based in part on proposals from Latham & Watkins, the former employer of EPA's Assistant Administrator for Air and Radiation. OMB removed references to the leukemia study from the Plywood Rule, eliminated tables detailing the public health benefits of the Boiler Rule, and eliminated the requirement to consider the risk from all sources onsite (not just a subset) when determining whether exemptions apply.

- It is not clear how much information was shared by the Office of Air and Radiation when they briefed Governor Leavitt on the plywood MACT rule on January 5, 2004. The briefing notes reflect the continuing controversy over cancer risk estimates for formaldehyde. They also point out that without the lower cancer risk estimates generated by the Chemical Industry Institute of Toxicology, fewer plywood plants would qualify for an exemption for emission controls. But the briefing notes did not include information about the higher public health costs associated with allowing exemptions from air toxics standards.

- Table 6 lists a subset of the plants likely to be exempt under the Plywood Rule. The table compares emissions that would have been required to the current "baseline emissions that EPA has calculated for each plant. Please refer to the notes following the table for further explanation.

II. Background

Section 112 of the Clean Air Act requires EPA to set emission standards for certain toxic pollutants in two stages. Under the first stage, facilities in a particular industrial category or subcategory must apply the "maximum available control technologies" (the MACT standards). In the second stage, EPA may require additional controls to eliminate the "residual risk" that persist after technology-based standards are in place.[1]

The 1990 Clean Air Act mandated technology-based limits in 1990, following EPA's long and ultimately unsuccessful attempt to set standards for toxic air pollutants based on risk. Confounded by the chronic lack of data and uncertain over how to interpret the limited information that was available, EPA managed to issue no more than eight risk-based standards for air toxics in its first twenty years of existence. EPA's plywood and Boiler Rules effectively turn the clock back by eliminating the technology-based controls required by law for individual plants that can demonstrate their emissions present a "low-risk." If pursued by other industries already complying with MACT rules, these exemptions could significantly reduce gains made in reducing air toxic pollution since 1990.

Exemptions will be available to plywood manufacturers, and to the owners or operators of industrial, commercial, or institutional boilers used to generate steam and power. Plywood manufacturers are the most significant industrial source of formaldehyde, a probable human carcinogen, as well as pollutants like acrolein, which are linked to a wide variety of respiratory ailments.[2] Boilers release large amounts of hydrogen chloride, linked to gastritis, bronchitis, and dermatitis, as well as respiratory irritants like chlorine and manganese, which can cause neurological damage at higher levels of exposure[3].

The rules provides industry with a formula that determines exposure to pollution near the plant by relying on limited data about emissions, plant characteristics such as stack heights, and the distance from the plant boundary to the nearest residents. Companies can use a "look-up" table provided by EPA to determine how much risk is posed by the exposures identified through the model. Plants that do not qualify under the look-up tables may apply for an exemption using "any scientifically accepted peer review risk assessment methodology". Individual facilities will not have to install pollution controls under the new rules if their emissions do not pose a significant risk of cancer, and if noncancer effects fall below a threshold of concern.[4] But the Agency's own analysis shows that this approach is built on shaky science, and will increase public health costs far more than it will save the regulated industry.

III. Exemptions Lead to More Pollution

A. Plywood MACT Standards

- The plywood "MACT" rule exempts plants from having to control emissions of toxic air pollutants if they can demonstrate that their emissions pose little risk of cancer, and that noncancer risks fall below a threshold of concern. EPA expects at least 147 out of 223 plants potentially subject to emission controls to fall within this exemption.[5] (This exemption comes *after* EPA had already narrowed the list of plants subject to regulation by eliminating thousands of other sawmills and lumber plants from the rule).

- EPA estimates that the exemptions will increase annual hazardous air emissions by 4,800 tons, volatile organic compounds by 13,000 tons, fine particle pollution by 5,800 tons, and carbon monoxide by 1,400 tons, compared to requiring all 223 plants to comply with air pollution control standards.[6] Actual emissions could be significantly higher if more companies are exempt than EPA currently estimates.

- EPA's "fact sheet" accompanying the rule indicates that the exemptions will save energy, but the rule's analysis shows these savings are too small to count. For example, the final rule will save 0.4 barrels of oil per day, or less than seven *one millionths of a percent* of daily consumption.[7] The preamble also suggests that requiring full emission controls would increase nitrogen oxide emissions by 2,300 tons per year, but then admits that these relatively trivial increases are based on unlikely worst-case assumptions.[8]

B. Boiler MACT Standards

- The Boiler MACT Rule exempts plants from emission controls if they can demonstrate that noncancer risks from emissions fall below a threshold of concern (EPA argues that cancer risks from such facilities are minimal). EPA expects 448 coal-fired boilers and 386 wood-fired boilers to take advantage of this exemption.[9]

- EPA expects the exemptions will increase annual hazardous air emissions by 8,900 tons, fine particle pollution by 18,000 tons, and sulfur dioxide emissions by 64,000 tons, compared to requiring all plants to comply with the standard.[10] As with the Plywood Rule, the emissions (and the resulting impact on human health) could increase beyond EPA projections, since the rule allows industry to use an alternative "site specific compliance demonstration" in applying for an exemption.[11]

IV. Rules Save Industry a Little, but Cost the Public Much More

A. Plywood MACT Rule

- EPA estimates the exemptions will save plywood manufacturers $66 million a year in compliance costs, but admits that estimate is exaggerated, because it assumes all plants will use the most expensive type of pollution controls.[12] But OMB's own data suggests the exemptions will increase health costs by more than $250 million a year, by exposing the public to more fine particle pollution.

- Last year, OMB released a report, noting that each ton of particulate matter reduced would save between $10,000 and $100,000 a year, by avoiding the costs associated with the asthma attacks, chronic bronchitis, lost work days, cardiac disease, and premature mortality that results from such pollution. Using the midpoint of this range, the additional 5,200 tons of fine particle pollution that EPA expects to result by exempting 2/3 of plywood manufacturers from emission control requirements would cost the public health more than $250 million a year.[13]

- The MACT rule targets a specific list of toxic chemical pollutants, rather than fine particle pollution or volatile organic compounds. But the rule makes clear that it is appropriate to consider the benefits of controlling these other pollutants when determining whether to grant exemptions from air toxics.[14] In other words, EPA had a choice: it could have refused to grant exemptions from pollution control requirements for toxic chemicals, on the grounds that such exemptions would substantially increase other forms of pollution.

- Even these savings significantly underestimate the benefits of controlling toxic air pollution. While OMB does "monetize" the benefits of exposure to fine particle pollution, it assigns no economic value to reducing exposure to toxic contaminants like formaldehyde and acrolein.[15]

- The "fact" sheet accompanying the Plywood Rule tries to justify the exemption by suggesting that controlling hazardous air pollution at all plants would increase nitrogen oxide pollution by 2,300 tons a year.[16] The preamble to the regulations, however, makes clear that even these trivial increases are unlikely to occur. Even if true, reducing NO_x emissions by 2,300 tons would reduce annual health costs by $5.3 million at most (using OMB's analysis), or less than 2% of the much higher health costs we face from the higher levels of fine particle pollution that result from the rule.[17]

B. Boiler MACT Rule

- EPA expects the exemptions from emission controls will save about $170 million a year in compliance costs. But because the public will be exposed to higher levels of fine particle pollution, EPA predicts the exemptions will increase the public's health costs by $1.7 billion a year, or more than ten times the amount industry saves by not having to install controls. These health cost estimates are based on detailed analyses from EPA showing that the public would save more than $80,000 in annual health costs for every ton of fine particle pollution eliminated as a result of emission reductions at industrial boilers.[18] As noted below, OMB removed detailed references to these health studies from the Boiler Rule at the last minute.

- According to EPA's analysis, when compared to requiring pollution controls for all boilers, the exemptions in the rule will contribute to more than 227 premature deaths a year, more than 17,000 asthma attacks, and nearly 20,000 cases of upper respiratory symptoms in young children with asthma. Table 10-14 of the EPA's Regulatory Impact Analysis shows that requiring all industrial boilers to install emission controls would reduce premature deaths by 2,270 annually, eliminate more than 173,490 asthma attacks a year, and 196,860 cases of upper respiratory systems in asthmatic children. Exemptions in the Boiler Rule would reduce these benefits by 10.4 percent.[19]

V. Exemptions Based on Shaky Science and Industry Studies

A. Plywood MACT Rule

1. Ignoring New Evidence of Cancer Risk

- Plywood manufacturers are exempt from MACT pollution controls if they can show (a) that their emissions do not significantly increase the risk of cancer, and (b) that noncancer risks fall below an acceptable threshold. But the methodology used to determine whether plants should be exempt is heavily weighted in favor of the regulated industry.

- Exposure to formaldehyde has long been linked to an increased risk of nose and throat cancer. When determining risk, EPA normally relies on studies that have been published, peer reviewed, evaluated by the Agency, and displayed on EPA's Integrated Risk Information System (IRIS).[20] IRIS acts as a clearinghouse for chemical risk estimates that have been given EPA's "stamp of approval." It is extremely rare for EPA to rely on data for risk analysis that has not been screened and accepted by IRIS.

- But EPA did not use the cancer risk estimates for formaldehyde currently displayed on IRIS. Instead, EPA's Plywood Rule relies on a computer simulation by the Chemical Institute for Industrial Toxicology that estimates the risk of nose and throat

cancer to humans by extrapolating from various levels of formaldehyde exposure to rats.[21] The CIIT study apparently has not met scientific standards for inclusion in IRIS which EPA typically relies upon to establish and communicate risk for chemical pollutants like formaldehyde. Had EPA relied on IRIS for assessing formaldehyde risk instead of CIIT, at least 60 fewer plants would have qualified for a risk based exclusion under the rule.[22]

- EPA's risk-based analysis ignores new research from the National Cancer Institute, published before the rule was approved by the White House and signed by EPA Administrator Leavitt, which indicates that the cancer risk from formaldehyde exposure may be 10,000 times greater than reflected in the CIIT study. The NCI study states that formaldehyde exposure may increase the risk of leukemia, concluding:

> "On the basis of our results and those previously reporting more leukemia than expected among professional workers exposed to formaldehyde, it appears that formaldehyde may cause leukemia in humans."[23]

- A similar study by the National Institute of Occupational Safety and Health (NIOSH) reinforced the link between formaldehyde and leukemia,[24] while the NCI study also suggested that increased formaldehyde exposures could lead to Hodgkin's disease.[25] Unlike the CIIT study which is based on a computer simulation and examined only the risk of nose and throat cancer, the NCI and NIOSH studies examined multiple types of cancer risk based on long-term occupational exposures of tens of thousands of workers. An August 8, 2003 draft memo by the Office of Research and Development notes that the NCI study is, "the only study with sufficient individual exposure data for exposure-response modeling." While noting uncertainties, the memo concludes that, "this is a high quality epidemiological study."[26]

- According to EPA's Office of Research and Development, the NCI study suggests that the total risk of cancer from formaldehyde exposure would be ten thousand times greater than that assumed by the CIIT research.[27]

- EPA is in the process of evaluating the NCI and NIOSH studies, and has said it will revisit the "low-risk" exemptions if warranted by the new data. But completing the scientific review could take years, and is likely to be challenged by industry in court. Even if the rules are eventually changed to eliminate the exemptions, the process for revising permits to require emission controls could take as long as eight years.[28]

2. Noncancer Risk: Exemptions Based on Weak Data.

- Exposure to toxic chemical pollution may increase the risk of diseases other than cancer, with health effects that include skin irritation, respiratory illnesses, neurological disorders, and birth defects. For the most part, the risks are assumed to arise once pollution reaches a certain threshold, although data is sparse and it is often difficult to identify these "threshold" levels of exposure with any confidence. But as

with the science of formaldehyde, the plywood rule resolves data uncertainties in favor of industry.

- For example, according to EPA, acrolein is the chemical released during plywood manufacturing that poses the most significant risk of noncancer health effects, which include respiratory congestion, eye, nose and throat irritation, and severe skin irritation.[29] Plywood plants can avoid emission controls if they show that their release of acrolein falls below an acceptable threshold of risk. But these risk thresholds are based on data in which EPA has said it has only "medium confidence."[30] In other words, the risk of disease from exposure to acrolein could be much higher (or much lower) than the threshold levels of exposure EPA is using to exempt plants from emission controls.

3. Redefining "Acceptable Risk"

- Exemptions in the plywood MACT rule are based on a higher level of risk than formerly considered acceptable by EPA. Where emissions pose no significant risk of cancer, the law allows EPA to exempt specific industries from air toxics control standards if other health risks fall below a certain threshold. When evaluating the risk of noncancer effects, a Hazard Index (HI) of 1.0 is normally used to represent the threshold above which risks are thought to occur. But in the past, EPA has exempted industrial categories from air toxic regulation only when their emissions result in exposures below a Hazard Index of 0.1 to 0.3.[31] This more conservative approach recognizes that individuals are not just exposed to emissions from one specific industrial source, but typically breathe in much higher levels of pollution from multiple sources.

- Without discussion, EPA's plywood MACT rule assumes that toxic air pollutants like acrolein won't trigger noncancer health effects unless they exceed a Hazard Index of 1.0, or more than three to ten times higher than the thresholds used in the past. The decision to increase the noncancer threshold to an HI of 1.0 from the more protective standard used in the past (e.g., a 0.2 HI) allowed 45 plywood manufacturers to escape regulation under the plywood MACT standard.[32]

- The Plywood Rule ignores recommendations from Dave Guinnup, who heads the Risk and Exposure Group for EPA's Office of Air Quality, Planning and Standards, to adopt a more stringent emissions limit for chemicals like acrolein. In a July, 2003 briefing for Jeff Holmstead, Assistant Administrator for Air and Radiation, Mr. Guinnup emphasized that a Hazard Index of 1.0 represented the upper bound of acceptable exposure from <u>all</u> sources of a pollutant; and should <u>not</u> be used to set emissions limits from individual sources. Mr. Giunnup's presentation points out that:

> "Since MACT sources are not generally the only factor contributing to total exposures, the HI Policy Limit on the contribution from an individual source in a MACT category should be <u>generally</u> less than 1.0 to account for exposure from:

- other nearby sources in the same MACT category
- other nearby sources in other MACT categories
- mobile sources
- global and regional background[33]"

4. Undercounting Emissions and Excluding Factors that Increase Risk

- Exemptions under the Plywood Rule are driven in part by the assumption that lower emissions will mean less risk. In theory, the rule requires that risk assessment assume the highest level of emissions derived from operating the affected units at maximum capacity. But because the affected units may represent only a subset of sources of formaldehyde, acrolein, and other pollutants, EPA's methodology significantly undercounts pollutants at many plants.

- For example, the risk model considers emissions only from specific production units onsite that are subject to each MACT standard. Emissions of formaldehyde and other toxic pollutants from unregulated units at the same facility are excluded in the calculation of risk.[34]

- Some facilities that manufacture plywood are also subject to the Boiler Rule, because they burn waste wood products for fuel. Boilers and plywood processing units both release formaldehyde, but the rules do not require facilities to total emissions from both types of operations when estimating risk, making it more likely they will qualify for an exemption from the standards.

- Sometimes, the emissions from two different processes that are both subject to the Plywood Rule are treated as though they came from two different facilities, located in different neighborhoods. For example, emissions (and therefore risk) from two Allegheny operations on the same site in Mt. Jewett, Pennsylvania were evaluated as though they came from two smaller facilities, instead of one large plant.

- The risk analysis will not count emissions of toxic air pollutants that occur during malfunctions or maintenance activities, even though a memorandum from the American Forest Products Association noted that such events were routine at plywood plants.[35]

- High background levels of toxic air pollution are also excluded from the risk determinations. EPA's National Air Toxics Survey has determined that all parts of the United States are exposed to levels of acrolein that are above threshold levels of concern, due to emissions from many different sources.[36] Formaldehyde manufacturers that meet the "low risk" criteria will be allowed to continue to release acrolein, using a formula that assumes there are no other sources of exposure to this toxic pollutant.

- Agency staff warned EPA Deputy Administrator Steve Johnson that the methodology used to exempt plywood plants from air toxics standards did not consider risks from

other sources on the same site or in the same neighborhood.[37] These warnings were apparently ignored, and in fact, OMB altered the rule at the last minute to eliminate consideration of emissions from co-located sources.[38]

5. Absence of Peer Review or Public Comment

- EPA's methodology for conducting the site-specific risk assessments under the rule was not subject to peer review.[39] Determining the risk associated with exposure to chemical releases from manufacturing is inherently complex, and must consider a wide range of variables. For example, topography and weather patterns can trap pollution and prolong exposure to its deadly effects. But these and other factors are not reflected in the mechanical process establish to exempt plants from emission controls.[40]

- The public never got a chance to comment on the model EPA and industry will use to carve out exemptions from the rule, since it was not made available for comment when the rule was proposed. Nor will the public be allowed to comment on the results of any site specific risk assessment that a plywood plant puts forward to justify its exemption.

B. Boiler MACT Rules

- The Boiler MACT rule eliminates requirements to control toxic air emissions for those industrial and commercial boilers that can demonstrate their emissions pose a low risk. As with the Plywood Rule, the science used to justify these exemptions is heavily weighted in favor of the regulated industry.

- EPA believes that hydrogen chloride emissions represent a large share of the noncancer risk from boiler emissions. Boiler operators will not have to control air toxic air pollutants if hydrogen chloride exposures resulting from their emissions fall below threshold levels. But EPA has said it has "low confidence" in the data from which threshold levels of concern are developed. In other words, boiler emissions may be exempt from pollution controls based on threshold levels of exposure that are actually much riskier than the rule now assumes.[41]

- As with the plywood MACT rule, the exemptions are based on a Hazard Index of 1.0, reflecting a higher tolerance of risk than the 0.1 to 0.3 Hazard Index that EPA has used to justify past exemptions. The risk from unregulated sources of the same pollutants onsite are excluded from the analysis, as are high background levels of the same contaminants. Emissions from maintenance or operating malfunctions are not included in determining risk.[42] The site specific risk assessment methodology EPA that will be used to determine exemptions has not been peer reviewed.[43]

- The preamble Boiler Rule even suggests that a Hazard Index of up to 3.0 – or three times the level of exposure that EPA considers safe – would be sufficient to protect people from acute effects of toxic pollution. While exemptions in the Boiler Rule are

not available where the HI exceeds 1.0, the discussion in the preamble suggests that EPA is significantly loosening its definition of acceptable risk.[44]

VI. Rules Reflect Industry Influence and OMB's Heavy Hand

- According to EPA sources, the risk-based exemptions in the Plywood Rule were developed in large part by attorneys for Latham & Watkins, the law firm that formerly employed Jeff Holmstead, now the Assistant Administrator for Air and Radiation.[45]

- OMB eliminated a requirement in EPA's final draft rules that facilities consider the emissions from all sources on the plant site when evaluating risk, thereby making it easier to qualify for an exemption.

- OMB eliminated a specific reference in the Plywood Rule to the National Cancer Institute and NIOSH studies, and inserted language promoting the Chemical Industry Institute for Toxicology research as the best available science (although it has not been formally peer reviewed, and contradicts data available through EPA's Integrated Risk Information System). OMB also eliminated language in the Plywood Rule in which EPA made clear that some facilities would not qualify for an exemption were EPA to rely on IRIS data instead of the CIIT study.

- OMB eliminated detailed tables prepared by EPA showing the public health benefits of regulating toxic air pollution from boilers. This data would have made clearer the public health costs that would result from exempting boilers from emission controls.

VII. Conclusion

It is reasonable to expect that the science behind cancer risk estimates will be the subject of vigorous debate. But, setting aside the legal objections to EPA's plywood and Boiler Rules, the analytical framework used to justify the exemptions is heavily weighted in favor of industry and against the public health. At best, this deliberate tipping of the scales is the handiwork of ideologues at OMB and EPA's Office of Air and Radiation, who believe that the ends always justify the means. At worst, it offers yet more evidence of the takeover of the Environmental Protection Agency by the very industries it is supposed to regulate.

TABLE 1
Plywood Rule Exemptions
Emission Increases and the Cost to Public Health

	Emission Reductions w/o Exemptions (tons/year)	Emission Reductions w/ Exemptions (tons/year)	Net Increase from Exemptions (tons/year)	Annual Additional Cost to Public Health
Hazardous Air Pollutants	11,000	6,600	5,400	N/A
Volatile Organic Compounds	27,000	14,000	13,000	$7.8-$35.1 Million
PM_{10}	12,000	5,900	6,100	$61-$610 Million
Additional Cost to Public Health: $68.8 to $645 Million				

Notes

- EPA estimates emission reductions with and without the exemptions on pages 65-66 of the Plywood Rule, available online at http://www.EPA.gov/airlinks/plywoodfinalrule.pdf.
- Estimate of EPA health costs for reductions in VOC and fine particle pollution derived from page 34 of "Informing Regulatory Decisions: 2004 Draft Report to Congress on the Costs and Benefits of Federal Regulations and Unfunded Mandates on State, Local and Tribal Entities", (Draft OMB Report) available online at http://www.whitehouse.gov/omb/inforeg/draft_2004_cbreport.pdf.
- Rule assigns no economic value to reduction of hazardous air pollution.
- EPA estimated a small increase in NO_X (2,300 tons) but admits such increases are unlikely. Page 67, Plywood Rule. OMB values NO_X reductions from stationary sources at $400 to $2,500 per ton.

TABLE 2
Boiler Rule Exemption
Emission Increases and the Cost to Public Health

	Emission Reduction w/o Exemptions (tons/year)	Emission Reduction w/ Exemptions (tons/year)	Net Increase From Exemptions (tons/year)
Hazardous Air Pollutants	50,600	36,400	14,200
PM_{10}	565,000	547,000	18,000
Sulfur Dioxide	113,000	49,000	64,000
Additional Cost to Public Health: $1.7 Billion			

Notes

- Emissions increases due to exemptions appear on P. 146-147 of Boiler Rule, available online at http://www.EPA.gov/airlinks/boilersfinalrule.pdf
- EPA notes that SO_2 and PM emissions may be reduced by other requirements, but the scope of these requirements is uncertain.
- Public health costs, explained on page 177 of the Boiler Rule, are based upon exposure to fine particle pollution. Fine particle pollution is caused by the direct emissions of particulate matter from industrial and other sources, and from sulfur dioxide and other "precursors" that convert to fine particles in the atmosphere after their release.

TABLE 3
Boiler Rule Exemption
Specific Public Impacts

Avoided Cases	Rule w/o Exemption	Rule w/ Exemption	Net Increase in Death or Disease from Exemptions
Premature Mortality	2,270	2,034	236
Chronic Bronchitis (Adults)	5,100	4,570	530
Hospital/Emergency Room Visits	6,930	6,210	720
Asthma Attacks (All Ages)	173,490	155,448	18,042
Acute Bronchitis	4,700	4,212	488
Lower Respiratory Symptoms	51,240	5,911	5,329
Upper Respiratory Symptoms (Asthmatic Children)	196,860	176,387	20,473

Notes

- Derived from table 10-14, "Total Annual Benefits of the Industrial Boilers/Process Heaters NESHAP, MACT Regulatory Floor Option," available online at http://cascade.epa.gov/RightSite/getcontent/Tempfile.pdf?DMW_OBJECTID=090007d48024ee5f&DMW_FORMAT=pdf EPA has estimated that the exemptions will reduce the public health value of the Boiler Rule by 10.4 percent.

TABLE 4
Boiler Rule Exemptions
Comparing Costs and Benefits

Additional Annual Public Health Costs	-$1.7 Million
Net Annual Industry Savings	+$170 Million
Net Annual Cost to Society	-$1.53 Billion

Notes

- EPA expects the exemptions to reduce annual compliance costs from $890 Million to $690 Million a year, (page 150, Boiler Rule) and notes that these cost estimates are overstated.

TABLE 5
Plywood Rule Exemptions
Comparing Costs and Benefits

Additional Annual Public Health Costs	-$69 to -$645 Million
Net Annual Industry Savings	$+66 Million
Net Annual Cost to Society	-$3 Million to -$579 Million

Notes

- EPA estimates exemptions will reduce industry-wide compliance costs from $140 Million to $74 Million a year, on page of the 70 Plywood Rule, and notes that its cost estimates are overstated.

Table 6										
PLANT #	OWNER	CITY	STATE	PROCESS LINE	Formaldehyde: MACT Emission Limit	Formaldehyde: Allowable Emissions w/ Evemption	Hazardous Air Pollutants: MACT Emission Limit	Hazardous Air Pollutants: Allowable Emissions w/ Evemption	Volatile Organic Compounds: MACT Emission Limit	Volatile Organic Compounds: Allowable Emissions w/ Evemption
1	Temple-Inland	SHIPPENVILLE	PA	MDF	4.90	16.10	14.00	40.00	14.00	40.00
2	Emerald Forest	EUGENE	OR	SPW	0.88	1.82	39.00	44.00	102.00	203.00
15	Roseburg Forest	WEED	CA	SV	0.26	1.99	9.00	19.00	16.00	202.00
18	Roseburg Forest		OR	SPW	0.94	3.30	39.00	53.00	96.00	349.00
19	Roseburg Forest	RIDDLE	OR	PLY	0.03	0.51	54.00	70.00	134.00	437.00
21	Smurfit Newsp	PHILOMATH	OR	PB	2.00	5.00	10.00	23.00	42.00	72.00
22	Smurfit Newsp	SWEET HOME	OR	PB	4.00	5.00	12.00	20.00	32.00	52.00
24	Timber Produc	WHITE CITY	OR	SPW	0.33	2.43	9.00	16.00	25.00	95.00
25	Coastal Lumb	HAVANA	FL	SPW	0.62	1.91	26.00	34.00	66.00	204.00
33	K Ply, Incorpo	PORT ANGELES	WA	PLY	0.31	1.72	12.00	20.00	25.00	177.00
37	Rodman Indus	MARINETTE	WI	PB	1.00	5.00	10.00	22.00	21.00	57.00
38	Scotch Plywoo	FULTON	AL	SPW	1.11	5.82	37.00	55.00	97.00	184.00
39	Southern Vene	FITZGERALD	GA	SPW	0.42	3.97	9.00	20.00	26.00	143.00
41	Webb Furnitur	GALAX	VA	PB	1.00	3.00	7.00	12.00	19.00	24.00
45	Allegheny MD	MT. JEWETT	PA	MDF	3.20	32.90	10.00	111.00	18.00	239.00
47	Bassett Fiberb	BASSETT	VA	MDF	1.30	4.90	7.00	27.00	2.00	16.00
48	Bessemer Plywood	BESSEMER	MI	PLY	0.33	1.74	13.00	21.00	28.00	179.00
64	Champion Inte	CAMDEN	TX	SPW	1.53	4.30	68.00	84.00	239.00	535.00
65	Champion Inte	CORRIGAN	TX	SPW	1.47	3.68	64.00	77.00	164.00	401.00
78	Georgia-Pacific	VIENNA	GA	PB	8.00	32.00	58.00	137.00	113.00	311.00
81	Georgia-Pacific	WARM SPRING	GA	PLY	1.63	1.89	48.00	50.00	185.00	215.00
86	Georgia-Pacific	DULUTH	MN	HB	0.40	2.30	30.00	68.00	67.00	122.00
93	Georgia-Pacific	TAYLORSVILLE	MS	PB	12.00	28.00	79.00	136.00	232.00	285.00
95	Georgia-Pacific	CONWAY	NC	HB	4.00	79.10	15.00	260.00	68.00	313.00
97	Georgia-Pacific	WHITEVILLE	NC	SPW	1.14	3.26	50.00	62.00	162.00	382.00
99	Georgia-Pacific	LEBANON	OR	HB	0.80	15.50	4.00	60.00	28.00	88.00
100	Georgia-Pacific	CATAWBA	SC	HB	1.40	25.30	8.00	110.00	87.00	202.00
101	Georgia-Pacific	HOLLY HILL	SC	MDF	6.10	75.80	15.00	181.00	26.00	365.00

PLANT #	OWNER	CITY	STATE	PROCESS LINE	Formaldehyde: MACT Emission Limit	Formaldehyde: Allowable Emissions w/ Evemption	Hazardous Air Pollutants: MACT Emission Limit	Hazardous Air Pollutants: Allowable Emissions w/ Evemption	Volatile Organic Compounds: MACT Emission Limit	Volatile Organic Compounds: Allowable Emissions w/ Evemption
106					1.80	8.90	22.00	122.00	56.00	78.00
107	Georgia-Pacific	EMPORIA	VA	SPW	1.05	3.20	45.00	57.00	112.00	342.00
109	Georgia-Pacific	PHILLIPS	WI	HB	0.40	8.20	2.00	29.00	2.00	50.00
110	Georgia-Pacific	SUPERIOR	WI	HB	0.20	0.90	5.00	23.00	41.00	62.00
111	Georgia-Pacific	MT. HOPE	WV	OSB	2.10	25.10	26.00	144.00	25.00	48.00
112	Hood Industrie	BEAUMONT	MS	SPW	0.53	1.63	22.00	29.00	56.00	174.00
113	Hood Industries	Wiggins	MS	SPW	0.68	2.10	29.00	37.00	72.00	225.00
115	Inca Presswoo	DOVER	OH	PBM	2.00	2.00	10.00	12.00	10.00	24.00
118	Springhill Woo	SPRINGHILL	LA	SPW	0.82	2.24	36.00	44.00	106.00	258.00
133	J.M. Huber Co	SPRING CITY	TN	OSB	1.60	5.20	15.00	34.00	50.00	56.00
138	Louisiana-Pacific	ARCATA	CA	PB	9.00	34.00	64.00	148.00	125.00	343.00
141	Louisiana-Pacific	LOGANSPORT	LA	SPW	0.69	1.63	30.00	36.00	78.00	179.00
144	Louisiana-Pacific	NEWBERRY	MI	OSB	0.80	6.30	10.00	39.00	15.00	24.00
146	Louisiana-Pacific	TWO HARBOR	MN	OSB	0.80	6.10	10.00	38.00	15.00	24.00
156	Norbord MS	GUNTOWN	MS	OSB	1.90	13.90	19.00	81.00	39.00	49.00
157	Norbord Indus	DEPOSIT	NY	MDF	5.00	60.20	12.00	131.00	17.00	227.00
159	Plum Creek	KALISPELL	MT	SPW	0.77	1.95	34.00	41.00	145.00	272.00
160	Potlatch Corpo	POST FALLS	ID	PB	7.00	15.00	45.00	73.00	135.00	161.00
162	Potlatch Corpo	ST. MARIES	ID	SPW	0.46	1.56				
164	Potlatch Corpo	COOK	MN	OSB	1.00	5.40	15.00	77.00	21.00	35.00
165	Potlatch Corpo	GRAND RAPIDS	MN	OSB	2.00	22.10	23.00	125.00	31.00	51.00
166	Medite Divisio	MEDFORD	OR	MDF	8.80	82.00	17.00	196.00	88.00	393.00
173	Stimson Lumb	GASTON	OR	HB	0.30	1.20	20.00	42.00	104.00	141.00
180	Temple-Inland	PINELAND	TX	SPW	2.05	3.86	47.00	58.00	170.00	363.00
183	Union Camp C	CHAPMAN	AL	PLY	0.69	1.47	31.00	35.00	113.00	197.00
184	Union Camp F	FRANKLIN	VA	PB	12.00	28.00	91.00	149.00	340.00	420.00
188	Weyerhaeuse	ADEL	GA	PB	10.00	29.00	73.00	133.00	162.00	403.00
189	Weyerhaeuse	GRAYLING	MI	OSB	4.60	22.00	21.00	63.00	45.00	53.00
190	Weyerhaeuse	MONCURE	NC	PB	7.00	17.00	53.00	86.00	105.00	137.00
194	Weyerhaeuse	MARSHFIELD	WI	PB	3.00	17.00	26.00	71.00	46.00	134.00

PLANT #	OWNER	CITY	STATE	PROCESS LINE	Formaldehyde: MACT Emission Limit	Formaldehyde: Allowable Emissions w/ Evemption	Hazardous Air Pollutants: MACT Emission Limit	Hazardous Air Pollutants: Allowable Emissions w/ Evemption	Volatile Organic Compounds: MACT Emission Limit	Volatile Organic Compounds: Allowable Emissions w/ Evemption
209	Willamette Ind.	SWEET HOME	OR	SPW	1.05	7.53	12.00	16.00	29.00	106.00
220	Evanite Fiber	CORVALLIS	OR	HB	0.20	1.00	11.00	29.00	14.00	39.00
222	Freres Lumbe	MILL CITY	OR	SPW	0.01	0.17	30.00	50.00	85.00	297.00
224	Hambro Fores	CRESCENT	CA	PB	2.00	13.00	18.00	52.00	35.00	145.00
230	Murphy Plywo	SUTHERLIN	OR	SPW	0.63	1.96	27.00	35.00	67.00	210.00
235	Ponderosa Pro	ALBUQUERQUE	NM	PB	4.00	9.00	24.00	43.00	70.00	87.00
237	Simpson Timb	SHELTON	WA	PLY	0.52	1.42	40.00	51.00	155.00	357.00
238	Superior Lumb	GLENDALE	OR	SPW						
431	Trus Joist Mac	EUGENE	OR	EWP						
152B	Louisiana-Pac	SILSBEE	TX	PB	8.00	22.00	42.00	96.00	83.00	226.00
23B	Timber Produc	MEDFORD	OR	PB	5.00	26.00	40.00	112.00	69.00	206.00
58A	Broyhill Furnit	LENIOR	NC	PB	2.00	5.00	15.00	26.00	46.00	55.00

Endnotes

[1] Clean Air Act, Section 112(d) (2), 40USC7412 (d) (2), Section 112(f), 42USC7412 (f).

[2] Pages 16, 17, National Emission Standards for Hazardous Air Pollutants: Plywood and Composite Wood Products; Effluent Limitations Guidelines and Standards for the Timber Products Point Source Category; List of Hazardous Air Pollutants, Lesser Quantity Designations, Source Category List, 40 CFR Parts 63 and 429, ("Plywood Rule") available online at http://www.EPA.gov/airlinks/plywoodfinalrule.pdf

[3] Page 19, National Emissions Standards for Industrial, Commercial and Institutional Boilers and Process Heaters, 40 CFR Part 63, ("Boiler Rule") available online at http://www.EPA.gov/airlinks/boilersfinalrule.pdf

[4] Pages 53-66, Plywood Rule; Pages 49-51, Boiler Rule

[5] Page 64, Plywood Rule: See also EPA Fact Sheet on the Plywood Rule, available online at http://www.EPA.gov/airlinks/pdfs/plywoodfactfinal.pdf (Plywood Fact Sheet).

[6] Pages 65-66 of the Plywood Rule compare emission reductions with and without the "low-risk" exemption.

[7] Page 359 of the Plywood Rule which also illustrates the similarly minute savings in coal consumption and electricity production that result from the rule.

[8] Page 67 of the Plywood Rule, which notes that other requirements of law are likely to limit increases in nitrogen oxide and sulfur dioxide that would otherwise result from the additional power needed to operate emission controls at plywood plants.

[9] Page 148, Boiler Rule.

[10] Page 146-147 of the Boiler Rule compares the emission reduction expected to be achieved with and without the "low risk" exemption.

[11] Page 50, Boiler Rule

[12] "The cost impacts estimates for today's final rule represent a higher-end estimate of costs." Page 70, Plywood Rule.

[13] Page 34, "Informing Regulatory Decisions: 2004 Draft Report to Congress on the Costs and Benefits of Federal Regulations and Unfunded Mandates on State, Local and Tribal Entities", (Draft OMB Report) available online at http://www.whitehouse.gov/omb/inforeg/draft_2004_cbreport.pdf.

[14] Page 256, Plywood Rule. While the discussion indicates that EPA is not required to consider the benefits of controlling fine particles and other pollutants when delivering emission controls for air toxics, it adds that, "nothing in the CAA prevents EPA from taking account of such impacts" in setting standards.

[15] Table 3, page 75 of the Plywood Rule provides a long list of the unquantified benefits of reducing hazardous air pollutants and other emissions from plywood plants.

[16] EPA Plywood Fact Sheet.

[17] Page 36, Draft OMB Report, notes that the estimated benefits for NO_x emission reductions (excluding mobile sources) range from $400 to $2500 per ton.

[18] Page 177, Boiler Rule, which explain that exemptions will mean $1.7 billion less in annual health benefit: "health based compliance alternative is $14.5 billion, which is $1.7 billion lower than the estimate for the final rule." Estimates of the economic value of reducing emissions from industrial boilers can be found in table 10-10 at 10-38 of the "Regulatory Impact Analysis for the Industrial Boilers and Process Heaters NESHAP," available online at

http://cascade.epa.gov/RightSite/getcontent/Tempfile.pdf?DMW_OBJECTID=090007d48024ee5f&DMW_FORMAT=pdf (Reg. Impact Analysis).

[19] Table 10-14 at 10-45, Reg. Impact Analysis, Boiler Rule.

[20] http://www.EPA.gov/iris

[21] Pages 268-269, Plywood Rule.

[22] Slide 22, Briefing for Administrator Leavitt, January 5, 2004, Re: "Plywood and Composite Wood Products MACT and Turbines MACT: Using Risks to De-List Certain Subcategories."

[23] Page 162, "Mortality from Lymphohematopoietic Malignancies Among Workers in Formaldehyde Industries," Hauptman et. al., Journal of the National Cancer Institute, Vol. 95, No. 21, November 5, 2003 (NCI Study).

[24] Page 19, "Mortality among a Cohort of Government Workers Exposed to Formaldehyde: An Update" Pinkerton et. al., National Institute of Occupational Safety and Health, May 30, 2003.

[25] NCI Study, at 1619: "We found evidence of a link between Hodgkin's disease (21 deaths) and exposure to formaldehyde."

[26] "Form Risk Estimation: NCEA (National Center for Environmental Assessment: Working Draft, EPA Office of Research and Development, August 8, 2003 (ORD Memo).

[27] Page 3, ORD Memo.

[28] See Section 112 (i)6 of the Clean Air Act, which suggests that once a facility has locked in its exemption with a permit, it could have as long as 8 years to comply with a more stringent standard adopted later.

[29] Page 15, Plywood Rule

[30] See I.B.5 of the IRIS Summary for Acrolein (CASRN 107-2-8) available online at http://www.EPA.gov/IRIS/subst/0364.htm#coninhal

[31] Briefing for EPA Deputy Administrator Steve Johnson, January, 2004, Re: "Setting HI Limits," (EPA Johnson Briefing).

[32] "Cost, Environmental and Energy Impacts Associated with Facilities Potentially Eligible for the De-Listed Low-Risk Subcategory of Plywood and Composite Wood Products," Memorandum from Katie Hanks, RTI International, to Mary Tom Kissell, USEPA (RTI 2/25 Memo). Attachment 1 identifies 45 plants that exceed a Hazard Index of 0.2 for respiratory effects.

[33] "Addressing Noncancer Impacts in the Residential Risk Program," Dave Guinnup, Briefing for Jeff Holmstead, July, 2003.

[34] Page 87, Plywood Rule explains that the rule's requirements are limited to plywood manufacturing and do not include pollution generated from other manufacturing at the same plant site. Appendix B to the Plywood Rule makes clear that only emissions from plywood manufacturing are considered when estimating risk, even though other large manufacturers may be on-site.

[35] Cite AFPA.

[36]

[37] EPA Johnson Briefing.

[38]

[39] Page 3 Memorandum from Jeff Holmstead, EPA Assistant Administrator for Air and Radiation, to The Administrator, Re: "National Emission Standards for Hazardous Air Pollutants: Plywood and Composite Wood Products" Action Memorandum, February 26, 2004. The memo notes that the lack of peer review "runs contrary to agency policy as described in the Peer Review Handbook," but adds that "time was not available to conduct such a review."

[40] Plywood Rule.

[41] See I.B.5 of the IRIS Summary for Hydrogen Chloride (CASRN 7647-01-0) available online at http://www.EPA.gov/IRIS/subst/0396.htm

[42] Boiler Rule, Section 63.2240(c)(2).

[43] Page 3, Memorandum from Jeff Holmstead, EPA Assistant Administrator for Air and Radiation: to the Administrator, U.S Environmental Protection Agency Re: "National Emissions Standards for Hazardous Air Pollutants for Industrial, Commercial and Institutional Boiler and Process Heaters, February 26, 2004.

[44] Boiler Rule, pages 14 and 15

[45] See LA Times article "EPA Relied on Industry for Plywood Plant Pollution Rule," May 21, 2004, available online at http://www.latimes.com/news/nationworld/nation/la-na-plywood21may21,1,739632.story?coll=la-home-headlines