

## Public Comments: Proposed Indicators for EPA’s Report on the Environment 07

ID Number/ Name	Indicator	Comment	Response
0002 Anonymous public comment	Percent of Population Living in Homes Where Someone Smokes Regularly Inside the Home (Withdrawn Indicator)	Secondhand tobacco smoke is the major source of toxic chemical exposure to most children and there are well documented health risks associated with exposure to this environmental toxin. For these reasons, I was surprised that the EPA was proposing not to collect data on the number of smokers in the home. Not collecting this information will substantially reduce the value of the 2006 Report on the Environment. You should collect data on both number of smokers in the home as well as cotinine levels.	EPA will include a discussion of environmental tobacco smoke (ETS) in the indicator: “Blood Cotinine”. The proposed indicator for ETS did not meet the ROE indicator definition and criteria.
003 Stephen J. Jay, M.D.	Percent of Population Living in Homes Where Someone Smokes Regularly Inside the Home (Withdrawn Indicator)	A previous version of ORD-2005-0021 contained the indicator: secondhand smoke in home as a proxy for youth exposure. The recent draft has deleted this. It is critically important that EPA restore this indicator. Interventions designed to reduce home exposure of children to SHS are effective only when informed by data regarding prevalence. Elimination of this indicator would undermine current efforts to change the norm for adults regarding smoking in home where children live. Scientific data regarding the magnitude of childhood diseases attributable to SHS in the home demonstrate the seriousness of this public health problem. Availability of biomarker data and prevalence data of households that include children and smokers is a critical component to modern day tobacco control.	
0004 D.E. Maddox, M.D.	Percent of Population Living in Homes Where Someone Smokes Regularly Inside the Home (Withdrawn Indicator)	As a specialist in pediatric and adult respiratory disease, I am writing to urge the EPA to continue to collect data on exposure of children to secondhand tobacco smoke [SHS] in the home environment. While the data thus far clearly indicate that this exposure is a likely source of disease, the systematic collection of quantitative data may serve as a valuable resource to further refine our understanding of the impact that this exposure has on several disease processes. Furthermore, there are ample data in allergic disease indicating that timing of exposure to certain inhalants plays a key role in determining the biological response. Thus, knowing whether childhood exposures to SHS are occurring in the indoor environment at home, which would span the nocturnal hours [rather than in public places during the daytime hours], may be vital data in helping us to understand the various ways in which the adverse impact of SHS smoke exposure can be mitigated, especially for our asthmatic population.	

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0005	Percent of Population Living in Homes Where Someone Smokes Regularly Inside the Home (Withdrawn Indicator)	In the past you included an indicator for children living in homes where someone smokes regularly. Now I do not see this indicator. The level of secondhand tobacco smoke in homes and cars is especially important with respect to the lifetime health of children. Health groups around the world are talking about making SHS around kids as "Child Abuse." California's Senate passed a law last summer of 2004 to ban smoking in cars with kids in them. There is no question about the significance of this data. Please put Secondhand Smoke in homes back into your health indicator list.	
0006 Anonymous public comment	Percent of Population Living in Homes Where Someone Smokes Regularly Inside the Home (Withdrawn Indicator)	The EPA should continue collecting data on smoke exposure to children at home. While collecting continine data is useful, knowing what is in the blood does not tell you where the sources outside the body are, in particular what is due to home exposure to Second Hand Smoking.	
0007 Anonymous public comment	Percent of Population Living in Homes Where Someone Smokes Regularly Inside the Home (Withdrawn Indicator)	I urge the US EPA to include "children living in homes where other person(s) are smoking regularly" as an indicator for secondhand smoke exposure. This indicator provides information about a child's environment and chemical exposure they have. Secondhand smoke is comprised of over 4,000 chemicals and it is evident from health and medical research that children exposed to secondhand smoke will have elevated blood and urine cotinine, and experience higher rates of upper respiratory infections, allergies, and occurrences of asthma. While we cannot prohibit most parents or other adults from smoking in their homes, parents can be educated about this exposure and make decisions to voluntarily make their homes smoke-free. Please include "children living in homes where other person(s) are smoking regularly" as an indicator.	

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0010	Percent of Population Living in Homes Where Someone Smokes Regularly Inside the Home (Withdrawn Indicator)	Based on my own work to help prevent death and disease from exposure to toxic secondhand smoke, I urge the EPA to choose NOT to delete the indicator for children living in homes where someone regularly smokes tobacco (and, thus, secondhand smoke is present). In order to support meaningful steps to prevent disease, it is critical that both the indicator for blood cotinine AND smoking-in-the-home be retained. Thank you.	
0012 Repace Associates Inc.	Percent of Population Living in Homes Where Someone Smokes Regularly Inside the Home (Withdrawn Indicator)	I understand and approve of using cotinine as an indicator of tobacco smoke exposure & IAQ. However, EPA published a draft set of indicators in 2003. In the draft, they had included an indicator for children living in homes where someone smokes regularly (as a measure of SHS exposure in the home), as well as an indicator of cotinine in the blood. These indicators were based on those from America's Children and the Environment ( <a href="http://www.epa.gov/envirohealth/children">www.epa.gov/envirohealth/children</a> ). As part of the new set of indicators for the Report on the Environment, the initial internal draft included both the indicator for SHS in the home and for cotinine in blood. A political decision was made to take out the indicator for children living in homes where someone smokes regularly, and leave in just the indicator for cotinine in the blood. While collecting cotinine data is useful, knowing what is in the blood does not tell you where the sources outside the body are, in particular what is due to home exposure to SHS. EPA should continue collecting data on smoke exposure to kids at home. Also the most ETS exposed persons are likely to be bartenders and casino workers. EPA should expand its focus to include the hospitality industry. IAQ in this industry is very poor as the attached paper shows.	
0013 S. Davis Shawano, WI	Percent of Population Living in Homes Where Someone Smokes Regularly Inside the Home (Withdrawn Indicator)	In the 2003 version of the indicators for environmental health, there was an indicator of second-hand smoke (SHS) for children residing in homes of smokers, and an indicator of cotinine in the blood. In the newest draft of indicators, the indicator of children's exposure to SHS has been eliminated for apparently political reasons, probably owing to the political favors the Bush Administration owes to campaign contributions from Big Tobacco. As a medical professional and citizen, I think that the indicator for SHS exposure in children needs to remain intact. It is important that this data on children's SHS exposure in the home continue to be collected	

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0014 Anonymous public comment	Percent of Population Living in Homes Where Someone Smokes Regularly Inside the Home (Withdrawn Indicator)	Please continue to collect data on smoke exposure to children in their homes	
0008 Anonymous public comment	Blood Cotinine Level	<p>The study published in the March 2, 2005 issue of the Journal of the National Cancer Institute expressly says about ETS These results also suggest that exposure to carcinogens in environmental tobacco smoke may not be the major pathogenic factor involved in the origin of lung cancers in never smokers but that an as-yet-unidentified carcinogen(s) plays an important role." (Underline, italic added.) The proposed EPA indicators of Indoor Air Quality therefore focus on an Indoor Air Quality indicator that apparently IS NOT the major factor in lung cancer among nonsmokers and utterly avoids looking for the as-yet-undetermined carcinogen(s) that IS Dietary nicotine: a source of urinary cotinine. Davis RA, Stiles MF, deBethizy JD, Reynolds JH. Biochemical/Biobehavioral R&amp;D, R. J. Reynolds Tobacco Company, Winston-Salem, NC 27102. Foods, principally from plants in the family Solanaceae, and a number of teas were examined for the presence of nicotine. Dietary nicotine would give rise to cotinine in urine and compromise estimates of exposure to tobacco smoke that depend on urinary cotinine. All foods were homogenized, extracted and analysed for nicotine and cotinine by gas chromatography with nitrogen-sensitive detection (GC) and/or GC/MS (mass spectrometry). Weak acid and aqueous extracts of the teas were analysed in a similar manner. Nicotine was not detected (less than 1 ng/ml of extract) in egg plant or green pepper. The average values for nicotine in tomato and potato were 7.3 ng/g wet weight and 15 ng/g wet weight, respectively. Black teas, including regular and decaffeinated brands, had nicotine contents ranging from non-detectable to greater than 100 ng/g wet weight. Instant teas yielded the highest nicotine contents observed (up to 285 ng/g wet weight). The possible sources of nicotine in these foods are discussed. A range of potential values for urinary cotinine concentrations (0.6 to 6.2 ng/ml) was calculated based upon estimated average and maximal concentration.</p>	EPA acknowledges the comment and will make clear the relationship of biomeasures and disease.
0009 Anonymous public comment	Blood Cotinine Level	A new study has found that mutations in either of two genes are involved in the development of lung cancer. One of them is the first known mutation to occur specifically in never smokers, according to a new study in the March 2 issue of the Journal of the National Cancer Institute. Studies have found that the epidermal growth	EPA acknowledges the comment and will make clear the relationship of biomeasures and

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		<p>factor receptor (EGFR) gene is mutated in many non small-cell lung cancers and that these mutations are associated with increased sensitivity to gefitinib (Iressa) or erlotinib (Tarceva), tyrosine kinase (TK) inhibitors that target EGFR. Recent studies have found that EGFR gene mutations are more common among females, patients from Japan, never smokers, and patients with adenocarcinomas, which are the same groups that have the highest response rates to TK inhibitors. However, little is known about how EGFR gene mutations affect lung cancer development. . . . In lung cancer patients, mutations in the TK domain of the EGFR gene were more common in never smokers than in smokers (51% versus 10%), adenocarcinomas versus other types of lung cancer (40% versus 3%), in patients of East Asian ancestry than in other ethnicities (30% versus 8%), and in females versus males (42% versus 14%). . . . These findings "support the hypothesis that at least two distinct molecular pathways are involved in the pathogenesis of lung adenocarcinomas, one involving EGFR TK domain mutations and the other involving KRAS gene mutations," the authors write. These results also "suggest that exposure to carcinogens in environmental tobacco smoke may not be the major pathogenic factor involved in the origin of lung cancers in never smokers but that an as-yet-unidentified carcinogen(s) plays an important role."</p>	disease.
0015 Anonymous public comment	Overall Report	<p>Currently, there is a plethora of "Reports on the Environment" produced and disseminated by a wide range of domestic, regional and international organizations. How does the EPA view its report in light of others prepared by the United Nations Environment Programme, the Commission on Environmental Cooperation and others Can or should the production of these reports be in some manner coordinated, such that there could be achieved some measure of compatability amongst them How can a more uniform group of indicators be used in the production of these reports?</p>	<p>EPA is working closely with international partners that are involved in similar indicator efforts. Progress is being made to coordinate indicators.</p>
0016 Clifford S. Snyder, Ph.D	Fertilizer Applied for Agricultural Purposes	<p>Indicator contains technical errors. Nitrogen is not found in the soil principally as nitrate, and phosphorus is not found in the soil principally as phosphate. (additional text file available at docket site)</p>	<p>EPA acknowledges the comment and revisions are being made to the indicator.</p>
0018 Anonymous public comment	Overall Report	<p>The vast majority of comments offered within this docket focus on human health concerns. Given the dual nature of the EPA's mission: to protect human health and safeguard the environment there is a clear imbalance in the nature of comments, suggesting a lack of outreach to stakeholders outside of the "human health" disciplines. How does EPA intend to assure that there is adequate and appropriate balance in public comment on the subject indicators?</p>	<p>EPA met with large numbers of public stakeholders with interest in both human health and the environment.</p>
0019 Robert E. Levy, Ph.D	Outdoor Air Indicators	<p>Industry Professionals for Clean Air (IPCA) is a group of professionals who, based on our work in or with refining or petrochemical companies in the Gulf Coast region, are concerned about the slow progress towards clean air in our region. Like many Houston-area residents, we believe that our air quality regulations are inadequately enforced and,</p>	<p>EPA is working with TCEQ through the TexAQS study to understand flare</p>

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		<p>in some instances, insufficient. IPCA has prepared and endorsed the attached report, Reducing Flare Emissions From Chemical Plants and Refineries, addressing the critical impact that inadequately monitored and inappropriately used flares have on our regional air pollution. We believe that industrial flare emissions are neither properly represented in planning and permitting documents, nor adequately controlled by regulation, particularly in Texas. Accordingly, our report includes recommendations for determining more realistic flare destruction efficiencies and minimizing the volume of waste material sent to elevated flares. We respectfully submit this report with the expectation that the Environmental Protection Agency will consider these issues and recommendations in developing your Proposed Indicators - EPA ROE 2006. As industry professionals with first-hand knowledge of air pollution issues and relevant technical expertise, we expect that our comments and recommendations will be given serious consideration. We would be pleased to provide any additional information you may require.</p>	<p>emissions. The results may be used by states to improve estimates for flare emissions in the NEI .</p>

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0020	Phthalate Exposure	Phthalates do not meet EPA's criteria for indicators. The potential health effects of phthalates have been well-studied, and recent scientific reviews have concluded that general human exposures pose little or no risk to human health. The CDC biomonitoring data indicate that general population exposures are well below health benchmarks established by EPA and other agencies. Thus, phthalate biomonitoring data are not appropriate, adequate, and useful for evaluating and establishing an overall picture of human health, because the CDC phthalate biomonitoring data indicate that phthalates do not likely contribute to adverse health effects in the general population. The vast majority of phthalate exposure is due to diet, which in turn is probably due to food contact items and personal care products. Trends in phthalate biomonitoring data over time would not represent or draw attention to underlying trends in the condition of the environment, but would be indicative primarily of the degree to which phthalates are used in consumer products. Therefore phthalate biomonitoring is not useful to the purposes of the ROE and should not be used as an indicator.	At this time, there is insufficient evidence and duration of study to confirm that health risks are few to none, and the compounds are therefore worth tracking over time until more conclusive evidence confirms their safety or potential harm.
0021 Howard J. Feldman	Multiple Indicators	Due to the shortness of the review period and the volume of material released by EPA, API and its members have not had time to review every proposed indicator in detail. Our members have focused their review in areas where they have expertise, and have generated the comments discussed in the remainder of this letter. Our attached comments address: Presentation of nitrogen oxides (NOx) emissions trends; Measurement of greenhouse gas emissions; Use of National Emissions Inventory (NEI) information for various indicators for outdoor air quality; Problems with the proposed air toxics emission indicator; Selection of the benzene indicator and its limitations; Additional context and data for the VOC emissions indicator; Omissions in discussion of the ambient ozone indicator; Flaws in the indicator for toxic chemicals in wastes; Choice of the indicators for health status and human disease and conditions, and specific problems with some of these indicators; and Indicators for biomeasures of exposure. (additional details in docket entry)	EPA acknowledges the comment and additional information and clarification has been added to the appropriate indicators.
	U.S. Greenhouse Gas Emissions	EPA should have an indicator for GHG emissions <i>intensity</i> , which is the ratio of GHG emissions to economic output expressed in units such as gross domestic product.	The proposed indicator falls outside of the ROE definition and criteria for an environmental indicator.

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	Outdoor Air Indicators	NEI-based indicators are Level 3 indicators at best (estimates, based on conservative emissions factors) and do not even meet basic definition of indicator. Reconsider their use in ROE.	Estimates for power plants (EGU sector) compose a significant portion of NEI emissions and are largely based upon CEM data. The non-EGU sector reports a mix of estimates based upon emission factors, source test data and in some cases, CEM data. The mobile source sector estimates are based upon emission factors developed by models and estimates of vehicle miles traveled.
	Air Toxics Emissions	Does not meet EPA's definition of an indicator, because of limitations of the NEI (estimates, not measurements), and is an aggregate number that represents various locations and 188 chemicals with widely varying toxicities and exposures.	Limitations for this indicator have been included
	Ambient Concentrations of a Selected Air Toxic: Benzene	Question whether this indicator is AA&U: available data represent only 35 urban sites, likely not representative. Also suggest EPA provide more information on benzene sources.	Emissions data for benzene sources are now included.
	VOC Emissions	Would be more AA&U if accompanied by additional data: comparative data and analysis of VOC emissions vs. trends in activities that generate VOCs. Also, include all relevant sources (man-made and natural).	Additional information has been added to the indicator in response to the comment
	Ambient Ozone Concentrations	Provide maps for most recent decade; discuss whether changes for subregions and/or metropolitan statistical areas are statistically significant. Need greater accuracy in estimates of people exposed to levels above standards. Discuss the limitations of ambient ozone monitoring techniques.	Maps such as recommended here are planned to be included in future reports. Discussion of limitations have been included



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	Reported Toxic Chemicals in Wastes Released, Treated, Recycled, or Recovered for Energy Use	Aggregation of all TRI data into an overall “toxic chemicals” type indicator is not appropriate or useful. Indicator does not provide adequate distinction between chemicals released directly to the environment and chemicals transferred to highly controlled facilities. After separating out activities for this indicator, consider excluding onsite recycling and onsite energy recovery. Finally, like NEI data, TRI information does not meet basic definition of an indicator.	Additional clarifying information has been added to the indicator in response to this comment.
	Health Status and Human Disease and Condition Indicators	Indicators chosen do not give a balanced overall picture of health; EPA appears to have focused on indicators it believes may have environmental causes or stressors.	Selection of indicators that focus on health conditions that may be related to environmental causes or stressors was intentional.
	Asthma Mortality and Prevalence	Include or discuss incidence of childhood asthma resolving with age. Develop indicators for all the general mortality categories, with explanation of why certain indicators may have been excluded.	Additional information has been added to the indicator text in response to this comment
	Birth Defect Mortality and Incidence	Replace Figure 090-2 with bar graph associating mortality with types of malformations. Discuss incidence as well as mortality. Table 097 is not user friendly and does not address eventual survival of infants.	This comment will be considered for future reports

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	Biomeasures of Exposure	Suggest the term “biomarker” as more widely accepted and appropriate term. Take great care in being clear that presence of a compound in blood or urine does not equate with disease. Include indicators or discuss health metrics on association of health effects with heavy metals and POPs. Oversimplification of discussion of the six biomeasure indicators implies that presence is surrogate for adverse effect and renders sections too general to be meaningful.	The term “biomeasure” is used consistently throughout the ROE. The indicators will be clear about the relationship of biomeasures and disease. Discussion of possible health effects of metals and POPs are included in the text of those biomeasure indicators.
0022 NOAA	Atmospheric Deposition of Mercury	No trend information is provided for atmospheric deposition of mercury. Instead, only information for 2003 is presented. Also, the name of the indicator should be changed to "wet atmospheric deposition of mercury." The limitations section notes that dry deposition is also believed to be significant but is not currently measured.	This indicator is being withdrawn from the report based on the recommendation of peer reviewers.
	Ozone Levels over North America	The section on ozone over North America contains an inconsistency. The answer to question T1Q1 states "Data mapped for this indicator are derived chiefly from the Total Ozone Mapping Spectrometer (TOMS), flown on NASA’s Nimbus-7 satellite." However, the other responses indicate that data from that instrument ceased in 1993 and other satellites have also been used to extend the record to recent years. The answer to question T1Q1 and other questions (e.g., T3Q1) should indicate that multiple satellites have been used and provide similar information as to what has been provided for Nimbus-7.	The information has been included in the revised version.

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	Mercury Emissions	Mercury contamination (via mercury emissions and deposition) is not an air quality concern and is wrongly placed as an indicator in the Air Chapter. In both cases, the primary ROE question [What are the trends in outdoor air quality and effects on human health and ecological systems?] is not addressed. While the text provided for both mercury indicators references the real issue (fish contamination and human exposure), they do not address the question. The text and graphic provided for mercury deposition does not describe trends (Total Mercury Concentration, 2003) but 2003 status.	The deposition indicator is being withdrawn from the report based on the recommendation of peer reviewers.
	Acid Deposition	Acid deposition is not an air quality concern and is wrongly placed as an indicator in the Air Chapter. An acid deposition indicator should support the issue of acidified waters, acidified soils, and effects to natural vegetation and materials. There is no text or graphic showing the linkages/relationship between changing sulfate and nitrate deposition to changing sulphur and nitrogen oxide emissions. The National Atmospheric Deposition Program (NADP) should not be referenced solely as “EPA’s” program as it is made up of a number of federal government agencies.	The indicator “Lake and Stream Acidity” will be moved from the Water chapter to the Air Chapter.
	Lake Fish Tissue Contamination	Given that there are numerous fish consumption advisories across the U.S., it is a surprise that there are no indicators. In the 2003 report there was apparently an indicator called Contaminants in Fresh Water Fish which is replaced by Lake Fish Tissue Contamination: Mercury, PCBs, Dioxins. Yet, on the EPA web site there is no indicator by this name to review.	The indicator “Contaminants in Lake Fish Tissue” has now been included in the report
	Chesapeake Bay Blue Crabs: Mature Females-Spawning Stock Abundance SAV in Chesapeake Bay	SAV in Chesapeake Bay and Chesapeake Bay Blue Crabs indicators should be updated with the 2004 data. For Blue Crabs, this can be found in the 2005 <i>Chesapeake Bay Blue Crab Advisory Report</i> 2004 SAV data have been posted on the Chesapeake Bay Program web site.	This indicator is being withdrawn from the 2007 ROE based on the recommendation of peer reviewers.

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0022 (continued)	Climate Related Indicators	NOAA suggests a <b>Climate Extremes Index for the US</b> be developed. The index, which is a reflection of changes & variations of climate extremes, is fully described in articles and on NCDC's web site <a href="http://www.ncdc.noaa.gov/oa/climate/research/cei/cei.html">http://www.ncdc.noaa.gov/oa/climate/research/cei/cei.html</a> . This would be a useful addition to US temp and precip indicators.	Two additional climate indicators: Sea Level, and Sea Surface Temperature. Have been reviewed and are now proposed to be included.
		There is no indicator for ammonium deposition, which plays a critical role in acidification of waters and soils. An indicator could be provided using the same reference sources (NADP & CASTNet). Additionally, atmospheric deposition of nitrogen (nitrate, ammonia/um) plays a significant role in nitrogen loadings to coastal water bodies. Yet, there is no mention in this report.	Ammonium deposition is included and discussed in the Air chapter indicator "Acid Deposition."
		Unusual Marine Mortalities: This indicator is proposed to be dropped by EPA based on the belief that the data was not consistent and was from a volunteer source. We believe this is an important indicator of ecosystem health by itself and we are in agreement with the Heinz Report that this indicator should be reported on, plus be expanded to include unusual mortalities of seabirds, shellfish, turtles and fish. Therefore, this indicator should be retained in the ROE in 2006.	The proposed indicator does not meet the ROE definition or criteria.
		This indicator is being proposed by EPA to be withdrawn because of lack of consistency among states as to the standards used to close beaches. NOAA has included this indicator in its suite of common ecosystem indicators and therefore would like to see beach closures kept because it is an important human use or socioeconomic indicator that monitors the ability of humans to use the coasts. This measure should continue to report on the number of days beaches were closed, but should include improved information on the causes for the closures as part of the beach closure indicator. We would be happy to work with EPA on potential improvements to this indicator.	The proposed indicator does not meet the ROEs definition and criteria. .

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		<p>Population density in coastal areas: There is no rationale listed for the EPA proposed withdrawal of this indicator. NOAA believes that increasing population density in coastal regions is a significant stressor to regional water quality and ecosystem health. As such, it is on the NOAA proposed list of common Ecosystem indicators and in our opinion should be retained in the ROE for 2006. Additionally, since the data is extrapolated from the U.S. Census, the indicator has consistent and extensive spatial and temporal coverage.</p>	<p>Information on population density in coastal regions will be included in the Water chapter. Information on population density is also included in the Land chapter indicator “Urbanization and Population Change.”</p>
		<p>NOAA also has some potential concerns with the consolidation of various coastal water quality indicators suggests that the individual components of the Coastal Water Quality Index (chlorophyll a, dissolved oxygen, nutrient levels and water clarity) be included in the 2006 Report. NOAA is in agreement with the WQI, but wants to make sure that the independent data sets are still available/reported on in the ROE so we can determine what root causes for changes in the WQI.</p>	<p>The Coastal Water Quality Index is being modified to present the constituent measurements</p>

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Battery Council International (comment presented at peer review meeting)	Ambient Lead Conc	<p>The Battery Council International (BCI) is a trade association representing 99% of U.S. lead battery manufacturers and 98% of U.S. lead battery recyclers (secondary smelters). BCI requests that two statements concerning ambient lead concentrations be removed from the indicator text, as the statements are inaccurate and potentially misleading. The statements are as follows:</p> <p>Indicator: Lead Emissions  “The highest air concentrations of lead are usually found in the vicinity of smelters and battery manufacturers.”</p> <p>Indicator: Ambient Lead Concentrations  “Today, the highest levels of airborne lead are usually found near industrial operations that process materials containing lead, such as smelters and battery manufacturers (EPA, 2003).”</p> <p>These statements are both correctly attributed to EPA reports. However, neither of the original EPA reports provides data or citations to support these assertions. BCI also believes the statements themselves are inaccurate—or at the very least, taken out of context. Based on EPA’s 2003 TRI inventory, battery manufacturers and secondary smelters together are responsible for only 5 percent of fugitive air emissions of lead (out of the total emitted by the top 100 sources), and 9 percent of point source emissions (also out of the total from the top 100 sources).</p> <p>Further, EPA no longer lists battery manufacturing as a “major source” category for lead. A different EPA report states that major sources of lead emissions include iron and steel production, lead smelters, and combustion of solid waste, coals, and oils (<a href="http://www.epa.gov/ttn/atw/nata/pollinf2.html">http://www.epa.gov/ttn/atw/nata/pollinf2.html</a>).</p>	Revisions to the text have been made based on the comments.

<p>Marolyn J. Parson, Ph.D.,</p>	<p>Wadeable Stream Indicators – General</p>	<p>National environmental quality indicators are necessary and important for targeting and correcting environmental stressors, however, the goal of developing indicators that can accurately reflect the state of the nation’s environment is difficult at best. The underlying data used to develop the indicators must be based on scientifically proven methodologies, provide information that is not bound by the time or place where it was collected, and answer the fundamental questions posed in the ROE. To that end, NAHB would like to discourage EPA from publishing Streambed Stability in Wadeable Streams, Nitrogen and Phosphorous in Wadeable Streams, and Benthic Macroinvertebrates in Wadeable Streams as indicators in the 2007 ROE because the underlying data do not at this point in time adequately meet the criteria necessary to establish useful and meaningful indicators. As more data are collected and results of the WSA are published, these indicators may be re-evaluated for their usefulness, at which time the public will be provided with a much clearer understanding of how the indicators were developed, what the data generated by the indicators show, and how the indicators stand up over seasons and time. Only when this information is available should EPA consider their adoption and use.</p> <p>Streambed Stability in Wadeable Streams, Nitrogen and Phosphorous in Wadeable Streams, and Benthic Macroinvertebrates in Wadeable Streams were all added as new indicators after the initial review. These indicators are based on information from an ecological assessment study of wadeable streams (Wadeable Streams Assessment (WSA)) conducted by EPA, but the report documenting the study results is still in draft form. NAHB believes that including these indicators in the 2007 ROE is premature because EPA has not yet published the data from this study, and the public has not had the opportunity to review the results and conclusions.</p> <p>Likewise, the public does not have the capacity at this point in time to substantiate whether EPA has validly used conceptual models to transform the data into indicators. EPA specifically asks for input on whether these indicators are supported by data that are technically sound, and although the field</p>	<p>In response to the comment on the Wadeable Stream Indicators overall and the specific indicators (Streambed Stability, Nitrogen and Phosphorous and Benthic Macroinvertebrates), further detail about how the indicators have been developed and limitations have been included. The Wadeable Stream Indicators were recommended for inclusion as an indicator by an external peer review panel</p>
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		<p>assurance procedures.”</p> <p>Though the indicators fit into this classification, EPA does not, in its 2003 ROE issue adequate warning about using indicators with such classification. If EPA decides to continue to publish these indicators in the 2007 ROE, it is urged, at a minimum, to provide further information about the appropriateness of using or interpreting information gathered from indicators listed as Category 2. For example, the Category 2 description should explicitly state that the indicator has not been fully evaluated, and use of this indicator to evaluate environmental quality in all regions of the country is neither appropriate nor recommended at this point in time.</p> <p>In addition to the general concerns of using WSA data as the technical basis for developing these three indicators, there are specific concerns associated with each of these indicators that merit comment.</p>	
	Streambed Stability in Wadeable Streams	<p>EPA’s charge, with respect to the 2007 ROE, is to select indicators that can provide data that are truly representative of the entire nation. At this point in time, it is unclear whether this indicator is appropriate for this purpose. EPA cites several limitations to the use of this indicator, which can be attributed to lack of currently available and adequate information. The first limitation is that samples were only collected once during the sampling period, and that concentrations may be different during other seasons and years. The second limitation is that reference levels vary from region to region, and because EPA is still conducting and drafting the WSA, the reference levels that would provide for a classification of stream health nationally with regards to streambed stability, are not yet available. The third limitation is that because this is the first survey conducted on this broad of a scale, the data can only serve as a baseline for future surveys, and the sampling design of the current WSA does not allow for the calculation of trends over the sampling period. NAHB shares these concerns but believes that each of these limitations may be resolved if EPA takes the time to finish this phase of the study and collect more data over time and in different seasons to evaluate the potential usefulness of</p>	Additional detail and explanation has been added to the indicator in response to the comment

		<p>the indicator.</p> <p>If the indicator is published based on the available information as presented in this draft, EPA will not be able draw any meaningful conclusions with regards to what the data show, because 1) there is nothing with which to compare the data in order to classify stream health (i.e., no reference levels have been established yet) and 2) the data cannot accurately represent trends over time (a key question that this indicator is supposed to answer in the ROE).</p> <p>There are two other concerns over this indicator. First is the method used for determining substrate size and stream embeddedness, as described in EPA's <i>Wadeable Streams Assessment Field Operations Manual</i>. EPA explains that it determines substrate size and stream embeddedness by using a combination of methods described by Wolman (1954)<sup>3</sup>, Bain et al. (1985)<sup>4</sup>, Platts et al. (1983)<sup>5</sup>, and Plafkin et al. (1989)<sup>6</sup>. Though it is adapted from other publicly accepted and scientifically sound methodologies, EPA's approach is in and of itself a new method; therefore, it essentially lacks credibility. This method was developed specifically for the purposes of this WSA, and therefore has only been applied to one cycle of data that has not been tested temporally. In addition, EPA took this brand new data set and used it to create a water quality indicator for wadeable streams. It is premature to establish streambed stability as an indicator until there has been enough data over time to substantiate its usefulness as an indicator.</p> <p>EPA is encouraged to withdraw this indicator from the 2007 ROE and collect more information with regards to how it may actually serves as an indicator. If data over time show its usefulness, then it should be re-evaluated as an indicator at that point in time.</p> <p>Second is the selection of reference streams. The discussion on the selection of reference streams in the proposed indicator is unclear, as far as understanding if reference points or threshold values established for the indicator will unambiguously reflect the state of the environment. EPA chose to select approximately 20 reference sites per ecoregion, along with several other reference sites suggested by U.S.G.S. and other organizations. References were selected to represent ecoregions, but EPA does not define what constitutes an ecoregion. One could assume that reference sites</p>	
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		<p>were selected to represent an ecoregion level II, as utilized in the sampling design protocol for the WSA, but NAHB questions whether that scale is sensitive enough to establish threshold criteria that streambed stability must meet or exceed in order to be classified as healthy or unhealthy. As an example, EPA has published its <i>Nutrient Criteria Technical Guidance Manual: Rivers and Streams</i>, in which it is suggested that criteria be developed at least at an ecoregion level III (more narrowly defined than ecoregion level II), and states are encouraged to further subdivide the regions in order to provide references that accurately reflect characteristics affecting nutrient levels. No similar guidance is provided as to how to appropriately select reference sites and develop the threshold values for streambed stability.</p> <p>In fact, it appears that the same set of reference sites were utilized for all aspects of the WSA, ranging from water chemistry, to physical habitat, to benthic macroinvertebrates. There is not enough information currently available to determine if each of these very different ecological indicators be accurately compared to the same set of reference sites. EPA is urged to provide regional reference site selection guidance for this indicator if it is available, or to develop guidance and give the public an opportunity to review it prior to publishing streambed stability as a water quality indicator. The guidance document should address regional reference site selection, scale of representativeness, and the appropriateness of using the same set of reference sites for a variety of ecological indicators.</p>	
	<p>Nitrogen and Phosphorous in Wadeable Streams</p>	<p>NAHB's concerns about using streambed stability as an indicator for extrapolating information about the state of the nation's waters also apply to the nitrogen and phosphorous indicator, and EPA has expressed the same limitations for this indicator. As a result, it is unclear how this indicator can be utilized at this time to fulfill the information needs of the ROE. EPA is encouraged to withdraw this indicator from inclusion in the 2007 ROE. In addition, EPA poses QA/QC questions and responses for each of the proposed indicators in order to provide more information than would be found in the text of the 2007 ROE. Though the information is generally helpful and provides more insight into the underlying study rationale, there is one question for this indicator in particular for which the</p>	<p>Additional detail and explanation has been added to the indicator in response to the comment.</p>

		<p>responses are simply inadequate. Question T1Q3 asks, “Is the conceptual model used to transform these measurements into an indicator widely accepted as a scientifically sound representation of phenomenon it indicates?” The response provided is only a citation for an article printed in “U.S. Water Air and Soil Pollution” that quantifies the relationship between stream chemistry and watershed land use data. Without paying for a subscription to “U.S. Water Air and Soil Pollution”, the information that EPA claims to answer this important question cannot be accessed and assessed for its validity. This lack of a response is unhelpful in providing information that is vital to determine public support for the use of nitrogen and phosphorous data collected in the WSA as an indicator or national water quality.</p> <p>EPA is encouraged to expound upon how the data was used to develop the indicator, and the explanation should be clearly supported by meaningful information extracted from this article. NAHB is also concerned about the selection of reference sites for nutrients. EPA has selected reference sites on an ecoregion basis and suggests that thresholds for nutrients be taken from <i>Nutrient Criteria Technical Guidance Manual: Rivers and Streams</i><sup>7</sup>. EPA does not however, define the level of ecoregions the reference sites are intended to represent. One could assume that the ecoregions are level II because the WSA randomly generated sampling locations that represent level II ecoregions; however, according to EPA’s “Nutrient Water Quality Criteria Frequent Questions”<sup>9</sup> webpage, nutrient ecoregions are aggregations of level III ecoregions where the characteristics affecting nutrient levels are expected to be similar and as such, can form the basis for initial development of nutrient criteria.</p> <p>In addition, EPA encourages states to further subdivide the ecoregions when deriving their own criteria. From the information provided, it is unclear if the selection of reference sites will be refined enough to truly represent nutrient thresholds in various regions. This is an extremely important aspect of the indicator, as the data comparison to the thresholds in each ecoregion will be extrapolated to provide information at the national level. EPA is encouraged to provide the public more information about the selection of these reference sites, which at a minimum should</p>	
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		reflect their own guidance for developing nutrient criteria.	
	Benthic Macroinvertebrates in Wadeable Streams	<p>The process for assessing benthic macroinvertebrates and equating the results to stream health is well known and has been used for several years by states as a part of their monitoring programs. EPA's goal is to utilize benthic macroinvertebrate data collected from the WSA to create a reliable indicator that can accurately reflect the state of the nation's waters. While NAHB supports this goal, EPA has not yet published the results of the WSA, thus its use at this time is inappropriate. In addition, EPA again cites the same three limitations for using this indicator; 1) samples were collected only once during the sampling period and the values may differ during other seasons or years due to variations in hydrology, 2) reference levels for the Multi-Metric Index (MMI) vary by region and reference levels from the WSA that would provide for a national classification of stream health based on benthic macroinvertebrates are not yet available, and 3) this is the first time that a survey was conducted on this broad of a scale so data can only serve as a baseline and trends cannot be calculated over the sampling period. Sampling protocol and data collection for the WSA were designed to accommodate the goal of the program, which is to extrapolate the measured conditions to the conditions of all streams nationwide. As a result, the information needed to support the use of the benthic macroinvertebrate data collected in this study as an indicator of national water quality is simply not available at this point in time. EPA is encouraged to withdraw this indicator from inclusion in the 2007 ROE.</p> <p>NAHB is also concerned that the draft language for the 2007 ROE is very unclear regarding how this indicator was actually developed, and what scientific protocols the indicator is based upon. Although EPA does describe the MMI approach as the basis for transforming data into an indicator, and the MMI approach is the most commonly used benthic macroinvertebrate data analysis method, EPA does not explicitly state that WSA data was collected and analyzed according to protocols in the <i>Rapid Bioassessments Protocols for Use in Streams and Wadeable Rivers: Periphyton, Benthic Macroinvertebrates, and Fish, Second Edition (RBP)</i>. Furthermore, the information referencing the RBP can only be found by searching through EPA's <i>Wadeable Streams Assessment</i></p>	Additional detail has been added to the indicator in response to this comment

		<p><i>Field Operations Manual</i><sup>2</sup>, which makes its use here additionally suspect. It is important for the public to understand where the MMI approach originates and that the methods for the collection and analysis of the WSA benthic macroinvertebrate data are based on proven and accepted scientific protocol. It is also unclear from the draft text that EPA used another data analysis approach in developing the indicator. While NAHB assumes that the data on the indicator at the reference sites were analyzed with the MMI and used to create the Observed/Effectuated (O/E) model (compares the observed number of taxa with the expected number of taxa for each site) to establish the reference condition against which the randomized test sites were analyzed, we can only make this assumption based on information presented in EPA's QA/QC question and answers. This is a crucial piece of information that should be provided in the body of the information to be included in the ROE. EPA is encouraged to expand the explanation for how the indicator was developed so that it is clear that the data are based on scientifically proven and accepted protocols.</p> <p>Finally, there has been a plethora of research stating the usefulness of reference sites within ecoregions for establishing the basis for comparing and categorizing aquatic health, particularly for its use in bioassessments. While this benthic macroinvertebrate indicator utilizes ecoregional references, it is unclear what ecoregional level the reference sites represent. The WSA provides information from an ecoregion level II, but as mentioned under the streambed stability and nitrogen and phosphorous indicators, that ecoregion level may not be sensitive or refined enough to create threshold values that accurately reflect waters of that broad ecoregion area with respect to biotic assemblages. EPA is urged to define the ecoregional level and make fully available any information justifying why the chosen ecoregional level is suitable for evaluating benthic macroinvertebrate assessment threshold values.</p>	
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