



OFFICE OF THE ADMINISTRATOR

WASHINGTON, D.C. 20460

September 4, 2024

MEMORANDUM

SUBJECT: Addressing Children's Health through Reviews Conducted Pursuant to the National Environmental Policy Act and Clean Air Act Section 309

FROM: Robert Tomiak
Director, Office of Federal Activities

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TO: National Environmental Policy Act Community
Children's Environmental Health Coordinators and Managers

Pursuant to the strategic plan, our offices, the Office of Federal Activities (OFA) and the Office of Children's Health Protection (OCHP), agreed to work together to strengthen efforts to integrate children's environmental health (CEH) into the EPA's National Environmental Policy Act and Clean Air Act Section 309 reviews (NEPA/CAA 309 reviews). Incorporating CEH into these reviews will advance the EPA's goals of protecting children's health, addressing climate change impacts, and promoting environmental justice and equity.^{1,2,3,4}

¹E.O. 14008, Section 219: Tackling the Climate Crisis at Home and Abroad; <https://www.govinfo.gov/content/pkg/FR-2021-02-01/pdf/2021-02177.pdf>

²E.O. 14096: Revitalizing Our Nation's Commitment to Environmental Justice for All; <https://www.federalregister.gov/documents/2023/04/26/2023-08955/revitalizing-our-nations-commitment-to-environmental-justice-for-all>. EO 14096 Section 3(a)(ix)(B) specifically directs agencies to, as appropriate and consistent with applicable law, consider best available science and information when carrying out environmental reviews under NEPA, including information related to age.

³EPA Strategic Plan Cross-Agency Strategy 2- Consider the Health of Children at All Life Stages and Other Vulnerable Populations; <https://www.epa.gov/system/files/documents/2022-03/fy-2022-2026-epa-strategic-plan.pdf>

⁴ EPA Equity Action Plan includes a commitment to Protect Children Equitably from Exposure to Environmental Contaminants; <https://www.epa.gov/environmentaljustice/equity-action-plan>

Recently, the EPA regional offices reorganized or are undergoing changes to consolidate CEH, NEPA, and Environmental Justice programs into a single organization. This restructuring creates an exceptional opportunity for coordination and collaboration, enabling more effective integration and improving human health outcome.

Protecting children's environmental health⁵ is a core part of EPA's mission to protect human health and the environment. As children grow and develop, they respond to toxic substances differently from adults.⁶ They also consume more food, water, and air relative to their body size and engage in behaviors like breastfeeding, crawling, and hand-to-mouth activity that increase their exposure to pollutants. Children can be exposed to environmental contaminants at homes, in schools, workplaces, and in outdoor environments, and caregivers can unintentionally bring these contaminants home. Further, children do not face environmental risks equally. Those in already overburdened communities may struggle more with additional exposure to pollutants due to diminished resilience. This issue is particularly acute for children in low-income areas and those in communities lacking adequate education, healthcare, and housing resources.⁷

The EPA's work to protect children is grounded in EPA's statutory authorities⁸ and Executive Order 13045, "Protection of Children from Environmental Health Risks and Safety Risks" (April 21, 1997)⁹. This Executive Order recognizes the unique risks to children and directs federal agencies, to the extent permitted by law and as appropriate, to prioritize identifying, assessing, and addressing environmental health and safety risks that may disproportionately affect children. The EPA's policy on children's health¹⁰ further calls for protecting children from environmental exposures by consistently and explicitly considering early life exposures and their impact on lifelong health in human health decisions. This includes addressing the increased health risks faced by children living in overburdened and underserved communities who may experience higher levels of pollution. Additionally, the Council on Environmental Quality (CEQ) NEPA Implementing Regulations require federal agencies to analyze the intensity of direct, indirect, and cumulative effects of their actions, including potential impacts on public health and safety.¹¹ This analysis must include considerations of children's health (when children could be impacted by the proposed action)¹² and incorporate the best available science and information on disparate health effects from pollution and other environmental hazards.¹³

⁵ Children's environmental health refers to the effect of environmental exposure from conception, infancy, early childhood and through adolescence until 21 years of age. Effects of early life exposure may also arise in adulthood or in later generations.

⁶ A Framework For Assessing Health Risk of Environmental Exposures To Children (2006). <https://cfpub.epa.gov/ncea/risk/recorddisplay.cfm?deid=158363>; Mechanisms underlying children's susceptibility to environmental toxicants. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1637781/>

⁷ <https://www.epa.gov/children/childrens-health-publications#Children's%20Health%20Disparities>

⁸ Toxic Substances Control Act; Safe Drinking Water Act; Comprehensive Environmental Response, Compensation, and Liability Act; Federal Insecticide, Fungicide, and Rodenticide Act; and Food Quality Protection Act.

⁹ <https://www.govinfo.gov/content/pkg/FR-1997-04-23/pdf/97-10695.pdf>

¹⁰ <https://www.epa.gov/system/files/documents/2021-10/2021-policy-on-childrens-health.pdf>

¹¹ <https://www.ecfr.gov/current/title-40/chapter-V/subchapter-A/part-1501/section-1501.3>

¹² See NEPA Phase II regulation preamble, which indicates that children's health is a "vital component[]" of the human environment." 89 FR 35442, 35545.

¹³ See EO 14096 Sec. 3.a.ix.B.

The EPA employs various strategies to protect children from environmental health hazards, including regulations, community programs, grants, partnerships, research, and outreach. Under CAA Section 309, the EPA has the unique authority to review and comment publicly on environmental impact statements (EISs) prepared by federal agencies. Pursuant to this authority, if the Administrator determines that a project is unsatisfactory from the standpoint of public health, welfare or environmental quality, the Administrator shall publish a determination and the matter shall be referred to CEQ. NEPA/CAA 309 Reviewers may also provide comments and recommendations on environmental assessments (EAs) and technical reports relevant to federal actions, as resources allow.¹⁴ Thus, the NEPA/CAA 309 review program plays a critical role in advancing the Agency's mission to protect children's health.

We encourage NEPA/CAA 309 Reviewers and Regional CEH Coordinators to collaborate to thoroughly assess potential impacts on children's health during NEPA reviews. The Regional CEH Coordinators possess specialized expertise in identifying children's health issues, and we recommend that the NEPA/CAA 309 Reviewers involve them in reviews when appropriate. (A list of NEPA/CAA 309 Reviewers and Regional CEH Coordinators and their managers can be found [here](#)).¹⁵

We have identified the following opportunities to enhance your current efforts to ensure that children's health authorities are effectively implemented in the EPA's reviews of federal agencies' EISs and other NEPA documents, consistent with CEQ NEPA Implementing Regulations:

1. Take Advantage of Training and Resources

OCHP and OFA have updated training materials and compiled key resources to enhance your understanding of CEH and the NEPA process. We invite all Regional CEH Coordinators and NEPA/CAA 309 Reviewers and their managers to leverage these resources to become more familiar with our partner programs and related issues (see [Attachment 1](#)).

2. Establish an Approach to Collaboration and Integration

- NEPA/CAA 309 Reviewers should consider involving Regional CEH Coordinators as Associate Reviewers for NEPA/CAA 309 reviews, as appropriate.
- The Regional CEH Coordinators and NEPA/CAA 309 Reviewers should jointly determine which projects or impacts require collaborative review by the Regional CEH Coordinator (i.e., when the guidance needed exceeds what the NEPA/CAA 309 Reviewer alone can provide).

¹⁴ Policy and Procedures for the Review of Major Federal Actions with Environmental Impacts
<https://www.epa.gov/system/files/documents/2023-09/309-nepa-policy-and-procedures-manual-9-26-23.pdf>

¹⁵ <https://www.pehsu.net/index.html>

- Examples when or how coordination could occur include:
 - Urban highway projects near schools within 2,000 feet
 - Projects where EJScreen indicates children under five are in the 80th percentile or higher within the project’s vicinity¹⁶, or
 - Establishing a target number of reviews per year for coordinated efforts, regardless of project type.

3. Consider Children’s Health in Scoping Comments:

- NEPA/CAA 309 Reviewers should routinely include project-specific comments regarding children’s health considerations and recommendations in response to lead agency scoping requests, where warranted, using information provided in [Attachment 2](#) and other applicable resources.
- NEPA/CAA 309 Reviewers should engage the Regional CEH Coordinator or the EPA’s OCHP according to the collaboration and integration strategy in #2 above, as resources allow.

4. Consider Children’s Health when Preparing Comments on Draft or Final NEPA Documents (EIS/EA):

- Where the lead agency meaningfully incorporated comments and recommendations from the scoping or draft stages *and* no new potential impacts to children’s health are identified, NEPA/CAA 309 Reviewers may acknowledge the resolution of previous comments. Reviewers might still consult with Regional CEH Coordinators based on the scope of impact to children’s health.
- Where the lead agency has not addressed comments and recommendations, NEPA/CAA 309 Reviewers may reiterate the comments and emphasize their importance, including the potential benefits of mitigation. NEPA/CAA 309 Reviewers may also provide additional comments as needed.

We look forward to collaborating with you to ensure that children’s health considerations are an integral part of the EPA’s NEPA/CAA 309 reviews. For any questions, please contact Nancy Abrams at (202)-564-8753 or abrams.nancy@epa.gov, or Holly Green at (202) 566-0651 or green.holly@epa.gov.

Attachments:

1. Training and Other Resources
2. Considerations for NEPA Reviews for Children’s Health

cc: Regional Environmental Justice, Community Engagement/Health, and Environmental Review Division Directors

¹⁶EJScreen includes a socioeconomic indicator on percent of people in a block group under the age of 5. See EJScreen Technical Documentation for Version 2.3 (epa.gov) for additional information on this indicator.

ATTACHMENT 1: Training and Other Resources

Children's Environmental Health

- [Training on Children's Environmental Health in Risk Assessment](#). Training materials are available on the EPA's FedTalent website. These resources help EPA staff understand the unique physiological and behavioral aspects of children that increase their vulnerability to adverse health impacts from environmental exposures.
- [Guidance, Tools and Glossary of Key Terms](#). This website offers comprehensive information on risk assessment, toxicity, and exposure assessment, providing a clearer understanding of potential environmental impacts on children's health.
- [Guide to Considering Children's Health When Developing EPA Actions](#). This resource contains step-by-step instructions for considering and addressing children's health implications in EPA actions, serving as a valuable resource for NEPA/CAA 309 Reviewers.
- [School Siting Guidelines](#). Developed by EPA in partnership with the Departments of Education and Health and Human Services, these guidelines help address special vulnerabilities of children to hazardous substances or pollution when siting school facilities.
- [Children's Health Website](#). Additional information can be found on the EPA's children's health website.
- [Pediatric Environmental Health Specialty Units \(PEHSUs\)](#). PEHSUs are a national network of pediatricians and health care providers who prevent, diagnose, manage, and treat health issues that arise from environmental exposures from preconception through adolescence. PEHSUs are a resource that may be accessed through the Regional CEH Coordinators.

National Environmental Policy Act

- [NEPA Overview Training](#). Available on FedTalent, this high-level overview course is designed to introduce NEPA and the EPA's role in implementing it.
- Intro to NEPA for CAA 309 Reviewers. Offered annually by OFA, this multi-day training is available to Associate Reviewers from other program offices, if space allows. It covers Executive Orders related to NEPA, including those on environmental justice. Contact Nancy Abrams at (202)-564-8753 or abrams.nancy@epa.gov, OFA, for details on upcoming sessions.
- [CEQ Website](#). This resource provides tools and guidance on integrating environmental justice and NEPA.
- OFA Training, Tools, and Guidance. OFA is developing training, tools, and guidance for the NEPA/CAA 309 Community of Practice, including an Environmental Justice and Climate Change Toolkit and best practices. Contact Nancy Abrams at (202)-564-8753 or abrams.nancy@epa.gov, OFA, for the latest available tools.
- [NEPA website](#). Additional information on NEPA can be found on the NEPA website.

ATTACHMENT 2: Considerations for NEPA Reviews for Children’s Health

NOTE FOR NEPA REVIEWERS: *This attachment offers considerations to develop comments for NEPA/CAA 309 Reviews where children’s environmental health may be impacted. Include, tailor, and update the provided information as needed. Determine the placement of children’s health comments within a NEPA comment letter based on the context and content of other issues. Children’s health comments may be provided as a stand-alone section or included as a sub-section under another category, i.e., Public Health and Safety, Community Impacts. Integrate comments related to environmental justice, as appropriate.*

Children’s Environmental Health and Safety

Executive Order 13045 "Protection of Children from Environmental Health Risks and Safety Risks" directs federal agencies, to the extent permitted by law and appropriate, to prioritize identifying and assessing environmental health and safety risks disproportionately affecting children and ensuring policies, programs, activities, and standards address these risks. Children may be more susceptible to environmental hazards due to their physiological and behavioral traits. Executive Order 14096, in Section 3(a)(ix)(B), also directs federal agencies to, as appropriate and consistent with applicable law, consider best available science and information when carrying out environmental reviews under NEPA, including information related to age.¹⁷

Childhood is a sequence of lifestyles. Children’s environmental health refers to the effect of environmental exposures from conception, infancy, early childhood, adolescence, and until 21 years of age. Children’s potential for greater exposure to contaminants arises from their increased intake of food, water, and air relative to body size and behaviors such as frequent hand-to-mouth activities. Their developmental stage also makes them more vulnerable to environmental impacts. Thus, exposures at various life stages and to pregnant or nursing individuals should be considered in NEPA reviews.

Effects of early life exposures may also arise in adulthood or future generations. Even low levels of exposure can have long-term health effects in children, who are more susceptible to adverse outcomes. For instance, exposure to lead, mercury and other metals can result in lifelong neurological deficits and cardiovascular disease in adults, while exposure to particulate matter and other asthma triggers can exacerbate respiratory issues and cause intellectual disabilities.

It is well documented that children are particularly susceptible to environmental factors typically assessed in NEPA reviews, such as air pollution from mobile source, particulate matter from construction or diesel emissions, and heavy metals from construction and demolition debris or mining waste. When assessing proposed actions, NEPA documents shall include an analysis of the intensity of direct, indirect, and cumulative impacts of those actions to children’s health. The analysis should cover potential exposures and susceptibilities to chemical and non-

¹⁷EO 14096 and the NEPA regulations include a definition of environmental justice which includes "equitable access to a healthy, sustainable, and resilient environment in which to live, play, work, learn, grow, worship, and engage in cultural and subsistence practices." See 40 C.F.R. § 1508.1(m); EO 14096 Section 2(b)((ii).

chemical stressors. If the project will be located near areas where children are likely to be present -- such as residential neighborhoods, schools, childcare facilities, parks, or recreation areas -- consider their potential exposure to contaminants in the soil, air, water, or structural surfaces. Additionally, non-chemical stressors like noise, housing age, and social determinants of health (e.g., health care access, health care quality, education access, education quality, economic stability) should be evaluated.

NEPA reviewers should assess whether the health impact analyses include these considerations for children and that the lead agency's proposed mitigation measures address any identified disproportionate effects, in accordance with applicable laws:

- **Baseline health conditions and susceptibilities:** Reviewers should assess the NEPA document to confirm it describes the demographics of affected neighborhoods, populations, and communities. Lead agencies should obtain and discuss relevant, publicly available health data for these areas, such as lead screening rates, number of children with elevated blood lead levels, housing age, or asthma emergency room visits and hospitalizations rates. Data sources may include community or census tract data. NEPA documents should consider both environmental and socioeconomic indicators, pollution sources, health disparities, critical service gaps, and climate change. The assessment may include social determinants of health, which affect a wide range of health risks and outcomes in the places where children live, learn, work, and play.
- **Exposure Assessment:** Reviewers should assess if the NEPA documents consider whether children are likely to be present at schools, recreation areas, childcare centers, parks, and residential areas near the proposed project and evaluate whether the project's pollutants and stressors such as lead, heavy metals, air pollution from near roadways, or construction noise, pose specific hazards to children's health. Reviewers should also assess whether the NEPA documents consider any relevant non-chemical stressors. Include consideration of childhood exposures at each lifestage and for pregnant or nursing individuals.
- **Data Sources:** Reviewers should assess that lead agencies utilize various resources to identify baseline health conditions and conduct exposure assessment. National resources include [NEPAssist](#) and [EJScreen](#), [Expo Kids](#), as well as [Exposure Assessment Tools](#). The Centers for Disease Control and Prevention provide asthma statistics and state databases may offer additional data.¹⁸ The EPA's [America's Children and the Environment](#) offers national trend information on criteria air pollutants, hazardous air pollutants, drinking water contaminants, contaminants in indoor environments, and others.

¹⁸ https://www.cdc.gov/asthma/most_recent_national_asthma_data.htm.

NOTE FOR NEPA REVIEWERS: Assess whether the lead agency considered impacts to the following areas and/or incorporated the following topics that are relevant to the proposed project. When appropriate to the project, consider recommending that the lead agency conduct a more robust analysis and/or consult with local, state, or appropriate federal agencies on areas outside of EPA’s authority.

- **Impacts from Mobile and Non-Mobile Air Pollutant Emissions:** Children are especially vulnerable to air emissions due to higher relative doses of air pollution, smaller diameter airways, and more active time spent outdoors and closer to ground-level vehicle exhaust sources. Assess that the NEPA documents identify the proximity of children to emission sources, such as transportation corridors,¹⁹ hubs, ports, and construction sites. Determine that the lead agency clearly outlines how project alternatives avoid impacts to children and consider combined effects with other local sources of pollution, such as power generation,^{20, 21} or energy extraction facilities, mining operations, industrial facilities, and dry cleaners.²² Reviewers should assess that the lead agency specifies measures to reduce exposures and if necessary, recommend additional mitigation.
- **Respiratory Impacts/Asthma:** Assess that the NEPA documents evaluate existing asthma rates and severity among children and the community near the project site.²³ Consider the impacts of prescribed burns, wildfire smoke, or other biomass burning.²⁴ To the extent feasible, determine if the NEPA documents identify potential for increased health risks related to asthma and discuss associated impacts. Where impacts are identified, reviewers should determine if project design changes and mitigation measures, such as air filters for schools, have been incorporated.
- **Lead:** Assess that the NEPA documents identify potential lead exposure from projects near areas frequented by children, such as residential neighborhoods, schools, or childcare facilities. Projects to consider include those that could expose children to lead-contaminated soils, involve demolition of lead-based paint structures, or introduce new lead sources such as a small aircraft airport. Additional information and mitigation measures are available on the [EPA’s Lead](#) and [Children’s Health](#) websites.^{25, 26}

¹⁹ Prenatal and Childhood Traffic-Related Pollution Exposure and Childhood Cognition in the Project Viva Cohort (Massachusetts, USA). National Institutes of Health. 04/03/2015. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4590752/>

²⁰ Impact of Coal-fired Power Plant Emissions on Children’s Health: A Systematic Review of the Epidemiological Literature. National Center for Biotechnology Information. 06/05/2019. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6604200/>

²¹ Proximity to coal-fired power plants and neurobehavioral symptoms in children. National Center for Biotechnology Information. 07/13/2021. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8275639/>

²² Early-Life Exposure to Air Pollution and Childhood Asthma Cumulative Incidence in the ECHO CREW Consortium. Journal of the American Medical Association. 02/28/2024. <https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2815586>

²³ Ambient Air Pollution: Health Hazards to Children. American Academy of Pediatrics. 06/01/2021. <https://publications.aap.org/pediatrics/article/147/6/e2021051484/180283/Ambient-Air-Pollution-Health-Hazards-to-Children?autologincheck=redirected>

²⁴ EPA website. Which Populations Experience Greater Risks of Adverse Health Effects Resulting from Wildfire Smoke Exposure? <https://www.epa.gov/wildfire-smoke-course/which-populations-experience-greater-risks-adverse-health-effects-resulting>. February 8, 2024.

²⁵ EPA’s Lead website. <https://www.epa.gov/lead>.

²⁶ EPA Children’s Environmental Health website. <https://www.epa.gov/children>.

- **Climate Change:** Assess that the NEPA documents recognize that children are more vulnerable to climate change impacts, such as increase air pollutants, extreme heat, dust from droughts, wildfire smoke, and ground-level ozone. Climate change exacerbates existing vulnerabilities, including lengthening and intensifying extreme heat events, rain and flooding events, and coastal storms. Such conditions are expected to impact clean water safety and the availability of disease-carrying organisms. Consult the [5th National Climate Assessment, Chapter 15, Human Health](#), for additional information and mitigation strategies.²⁷
- **Other Chemical or Physical Exposures:** Assess that the NEPA documents consider potential impacts from other site activities to children, such as pesticide application²⁸ and demolition. Identify feasible commitments to reduce chemical or physical exposure.
- **Other Diet/Ingestion Factors:** Assess that the NEPA documents consider potential impacts on children’s food and water resources, including cultural traditions. For example, if the lead agency considered protection of traditional collecting properties and subsistence farming, fishing, and foraging practices.
- **Noise Impacts:**²⁹ Based on state, local, and applicable federal agency (i.e., Federal Aviation Administration and Department of Transportation) noise standards, reviewers should assess whether the lead agency considers the impacts of noise on health and learning, particularly near homes, schools, and daycare centers. Acknowledge that children are more affected by noise. For example, young children are more susceptible than adults to the effects of background noise on spoken communication. Short-term noise exposure can hinder classroom learning, while long-term noise exposure correlates with decreased reading comprehension and motivation.^{30, 31} Reviewers should assess that the lead agency worked with state and/or local authorities, and applicable federal agencies, to identify potential mitigation, such as retrofitting schools with insulation, soundproofing windows, adding a second windowpane, sealing gaps, installing sound barriers, adding vegetative barriers, and improving exterior roofing, consistent with radon safety.

²⁷ 5th National Climate Assessment. <https://nca2023.globalchange.gov/chapter/15/>.

²⁸ Pesticide Exposure and Child Neurodevelopment. National Center for Biotechnology Information. 05/2012. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4247335/#:~:text=Recent%20research%20suggests%20that%20even%20low%20levels%20of,psychomotor%20and%20mental%20development%2C%20and%20attention-deficit%20hyperactivity%20disorder>

²⁹ While the primary responsibility of addressing noise issues was transferred from EPA to State and local governments, EPA retains authority to investigate and study noise and its effect and disseminate information to the public regarding noise pollution and its adverse health effects (see <https://www.epa.gov/clean-air-act-overview/clean-air-act-title-iv-noise-pollution> for more information and EPA’s role).

³⁰ Assessment of Noise Exposure to Children: Considerations for the National Children’s Study. National Center for Biotechnology Information. 10/01/2015. <https://pubmed.ncbi.nlm.nih.gov/25866843/#:~:text=A%20literature%20review%20identified%20that%2C%20in%20addition%20to,of%20helplessness%2C%20and%20increased%20blood%20pressure%20in%20children>.

³¹ Assessing Aircraft Noise Conditions Affecting Student Learning, Volume 1: Final Report (2014). National Academies of Sciences, Engineering, and Medicine. 2014. The National Academies Press. <https://nap.nationalacademies.org/read/22433/chapter/1>

- **Impacts on Obesity Factors:** Reviewers should assess that the lead agency evaluate potential impacts³² of factors influencing childhood obesity, such as opportunities for outdoor exercise, access to parks and green spaces, biking trails, and recreational areas. Incorporate Active Transportation commitments into project design, where feasible, and identify opportunities for creating or enhancing greenspace.

³² The Association between Childhood Exposure to Ambient Air Pollution and Obesity: A Systematic Review and Meta-Analysis. National Center for Biotechnology Information. 04/19/2022. [The Association between Childhood Exposure to Ambient Air Pollution and Obesity: A Systematic Review and Meta-Analysis - PMC \(nih.gov\)](#)